

# The Treasurer's Global Guide to Investing Cash



From HSBC Global Asset Management  
in association with The Association of Corporate Treasurers

Authored by

**WWCP**

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# 2019 The Treasurer's Global Guide to Investing Cash

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# Foreword

Welcome to the sixth edition of **The Treasurer's Global Guide to Investing Cash**.

This Guide provides a comprehensive overview of the professional investment of corporate cash. It is intended to be used to help navigate the complexities of developing and implementing an investment policy. It discusses the factors that impact investment decision making, and explains the different investment instruments available in various countries around the world. It is also a valuable tool for validating the policies of those who already have an investment strategy in place.

The basic principle when investing corporate cash remains true: treasurers need to set an appropriate balance between security, liquidity and yield. This Guide focuses on how to achieve this balance when establishing an investment policy.

The Guide reviews the principle stages in developing an effective short-term investment policy:

- 1 Forecasting cash flows accurately.
- 2 Managing cash flows effectively.
- 3 Segmenting cash flows intelligently.
- 4 Establishing an appropriate investment policy.
- 5 Implementing effective investment management.

This edition has been updated to take account of the current global economic situation. In addition, it considers how developments in technology, including the rise of the FinTechs and the growing global trends towards open banking, APIs and instant payments, will affect how cash and investments are managed.

This edition contains 49 country profiles with detailed information on the products available and tax and settlement considerations when making investment decisions.

HSBC Global Asset Management and the Association of Corporate Treasurers (ACT) are delighted to have collaborated in this new edition of the Guide and hope that it will prove a useful and practical reference both for those new to investing short-term liquidity and for those who are already familiar with the subject through their work and ACT qualifications.

**Naresh Aggarwal**

Associate Director, Policy and Technical, The Association of Corporate Treasurers

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On behalf of WWCP, I would like to extend my thanks to all of the above.

**Guy Voizey**

Editor, November 2019

# Introduction

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## Introduction

When the fifth edition of this guide was published in 2017, there were signs that, after almost a decade of historic low interest rates, interest rates would start to rise. Nearly three years on, it is impossible to imagine that the trend towards low interest rates will change. And, while, in many ways the world has moved on – geopolitical questions regarding international trade policies and climate change dominate the headlines – the effects of the global financial crisis are still keenly felt. The regulatory changes discussed in the last edition have been implemented. The Basel III reforms are fully embedded now, although further amendments will come with the passage of CRD V/CRR II in the EU, and EU money market reforms went live in January 2019, introducing the concept of low volatility net asset value for non-government funds and the potential for redemption gates and liquidity fees.

Whatever the prevailing market conditions, the fundamental challenge for the investing treasurer remains the same: to reduce the risks associated with investing cash both in terms of the preservation of principal and the maintenance of liquidity. Although the core text of this book has been written with the corporate treasurer in mind, the principles of managing cash apply to treasurers in any business.

This book is based on the five principles of effective cash management, with each one forming the basis of a chapter of the book. Although there are chapters on every stage in the process, the focus is clearly upon the development of an investment policy and the implementation of any investment decision as follows:

### 1 Forecasting cash flows accurately

Understanding future cash flows allows a company to use internal funds more efficiently, reducing the reliance on external borrowing in many organisations. This also helps from an investment perspective. It reduces the need for precautionary balances to be held, in case of need, allowing the treasurer to plan the investment of funds until they are needed by the business to meet its matching obligations. It can also improve investment returns. Tools to support more accurate forecasting have become more widely available in recent years.

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## 2 Managing cash flows effectively

Once a system for forecasting cash flow has been established, the next step is to put in place an effective liquidity management structure, which will allow cash to be collected, pooled (if appropriate) and disbursed to cash-poor entities within the group. Such a structure is likely to improve the visibility of cash within an organisation, increasing the funds available to invest.

## 3 Segmenting cash flows intelligently

With a clear understanding of cash flows and an efficient liquidity management structure in place, the treasurer will be able to identify the levels of peak cash surplus and, more importantly, the expected timing and amount of lowest cash surplus. This information provides treasury with the volume of cash available for investment at specific points in the future, together with the times when funds will be needed by the business. With increased uncertainty in the financial and money markets, it is prudent for treasurers to segment cash into two categories: operating cash, including working capital and other cash needed within a specified period (typically up to a year), and strategic cash, which is not likely to be needed by the business during that time.

## 4 Establishing an appropriate investment policy

With a clear view of how cash flows through the business, and a forecast of future cash balances, the treasurer needs to establish a clear investment policy appropriate to the company or group. This should establish clear overall objectives for short-term investment and detail how the treasury will seek to manage the risks arising. This policy should be pre-approved to indicate board-level support for the risk appetite the policy implies.

## 5 Implementing effective investment management

With an investment policy in place, the treasury needs to establish a set of operating procedures to follow when taking an individual investment decision. These procedures should set out, in detail, the precise steps to be taken, from identifying the funds available to invest, through the process of selecting the appropriate instrument and counterparty (taking account of any tax and accounting considerations), to dealing and final settlement, before outlining how to monitor the investment from settlement through to maturity.

The book concludes with four appendices. The first provides an explanation of the core money market instruments, including an analysis of their main characteristics and uses. The second is a guide to the most commonly used investment calculations. The third is a series of country profiles, being particularly useful as a reference source outlining the main instruments available in 49 different countries. The last is a glossary of investment terms.

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This book will be invaluable to any treasurer who is new to the task of investing cash. At the same time, it will act as a validation tool for the treasurer who wants to review their organisation's investment policy and procedures. We hope you enjoy reading the guide and regard it as a useful addition to the treasury library.

---

## **Change is the new normal when investing cash**

### **Naresh Aggarwal**

Associate Director – Policy and Technical  
The Association of Corporate Treasurers

Since the publication of the fifth edition of this guide in 2017, businesses have had to deal with an increased level of global uncertainty. Trade disputes between the USA and China and continuing economic challenges across the EU, for example, have created an unsettled commercial and financial environment for companies.

Organisations are having to adapt their business models to operate successfully and profitably under these new normal economic conditions. Treasurers are having to adapt, too. Yes, they need to ensure that they are able to continue supporting their companies. Yes, they need to ensure sufficient cash and funding is available. Yes, they need to identify and mitigate against financial risks. But, given the growing prevalence of negative interest rates, treasurers increasingly need to recognise that security and safety have a financial cost.

The regulatory framework continues to evolve. Basel III and CRD IV have become embedded in most financial institutions and regulators are now looking at Basel IV and CRD V.

In December 2017, the Basel Committee for Banking Supervision published its final documents on the Reform of Basel III (commonly referred to as 'Basel IV'). These comprise – among other issues – reforms of the standardised approach for credit risk, the IRB-approach, the quantification of CVA risk, operational risk approaches and the final calibration and design of the output capital floor. Basel IV changes the approaches used for the calculation of Risk Weighted Assets, regardless of the risk type, and irrespective of whether the standard or internal model is used.

The revised Capital Requirements Directive and Regulation (published in 2019), commonly referred to as CRD V and CRR II,

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refine and continue to implement Basel III in the EU by making important amendments in a number of areas including large exposures, leverage ratio, liquidity, market risk, counterparty credit risk, as well as reporting and disclosure requirements.

Banking reform continues, with ring fencing implemented in the UK; the UK's largest banks have now separated out their retail and investment banking operations. As they can now use products from both sides of the same bank, corporates also have to manage the different credit risk profiles and ratings of the two parts of the bank.

Money market reform has now been implemented, providing greater consistency and transparency over how funds operate, the type and duration of assets they can hold and the ability to limit withdrawals. This provides treasurers with more clarity over the risks they take when investing in these instruments and greater understanding of what differences there are between funds.

Taken together, these regulations have strengthened the banking system. Banks are continuing to adjust their business models and one effect is that some banks are withdrawing from certain traditional activities and markets. For treasurers, this is a useful reminder of just how important it is to ensure regularly the strategy of one's main banks is aligned with the needs of the business.

Technology continues to drive change in the finance space with few activities unaffected in many ways, including:

- ◆ The Payments Services Directive II and Open Banking in the UK are transforming payments and cash management.
- ◆ Challenger banks and the rise of the FinTechs have created new opportunities for businesses.
- ◆ SWIFT has launched a number of initiatives, including gpi, which allows treasurers to track and trace their payments and receipts.
- ◆ The New Payments Architecture in the UK will deliver new services, including Confirmation of Payee and Request to Pay.
- ◆ In combination with Big Data, treasurers will be able to access a greater range of information about their payments, receipts and cash balances.
- ◆ The move to real-time payments will also improve the visibility of intra-day cash and is likely to lead to banks offering new services and products.

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These changes, and the resultant levels of uncertainty they bring to liquidity management, mean that ensuring the organisation has a clear and practical approach to working capital, cash management and investment of surplus funds is more important than ever. In the remainder of this article, we consider how each of the key phases in developing a cash management strategy has changed since this guide was last published.

### **Forecasting**

The ability to access accurate, timely information about forecast cash flow activity continues to be a significant challenge for most treasurers. The lesson learned from 2008 Great Financial Crisis (GFC), was that forecasts must be stress tested and scenarios developed to ensure liquidity in times of crisis and uncertainty. Uncertainty remains: for example, the USA is revising its approach to international relations and domestic manufacturing, while the UK has decided to leave the EU.

In response, there has been increasing implementation of corporate Enterprise Resource Planning (ERP) systems and bespoke FinTech solutions which offer the opportunity to micro manage cash flow forecasts using data held in budgets, business plans, and accounts receivable and payable systems.

### **Managing**

Having identified forecast cash flows, the treasurer must ensure that they can manage those flows effectively to guarantee the organisation gets the best use of its resources. The treasurer must also consider the security of any deposit.

Pre-2008, under 'too big to fail', it was assumed that a bank deposit was as safe as the government which stood behind the bank. Since then, banks have increased their capital buffers, and regulators have undertaken more stringent annual stress tests of the firms they authorise. In the UK, the ring-fencing has further reduced the risks to the clearing system.

Treasurers have chosen to maintain greater levels of liquidity than would have been considered efficient pre-2008. The Treasury Strategies Quarterly Corporate Cash Briefing webinar in which the ACT participates ([www.TreasuryStrategies.com](http://www.TreasuryStrategies.com)) presented statistics at Q4/2018 which showed that corporate cash holdings across the eurozone, UK, USA, and Japan continued to rise strongly post-2008 although the cost of carry of cash increased dramatically, even for more highly rated businesses. Clearly ensuring liquidity outweighed any concern over the cost of carry of cash.



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Some businesses have continued the pre-2008 trend to concentrate group-wide cash flows into centralised processing entities where they have better control over outflows and can net off currency cash flows within the group (e.g. in house banks). There has been greater use of pooling and netting solutions to concentrate cash for more efficient use, although regulatory developments (e.g. the Basel III liquidity coverage ratio (LCR) rules) are causing banks to reconsider offering some pooling solutions.

The trend in the cash holding statistics shows that corporates prefer to hold cash than rely on multibank committed facilities for their immediate liquidity given that the undrawn amounts of a facility with a bailed-in bank could be cancelled.

Security of cash is more important than yield. Corporates have developed a preference for holding cash short term, rather than reducing debt.

### **Segmenting**

This chapter explores how funds may be classified into various buckets depending on how much risk the organisation is prepared to take and how long the cash can be invested for: i.e. segmenting the funds. Given market and economic conditions, flexibility remains key when investing cash. Treasurers tend to prefer to keep duration short and diversify across a range of investment products to the extent practical for the scale of the organisation and its treasury.

Treasurers have three main choices when investing cash: bank deposits; money market funds (MMF); and repos. The first two products have been directly affected by recent regulatory changes designed to try and avoid a liquidity crisis among financial institutions. These changes adversely affect the usefulness of these forms of investment for corporates.

Bank deposits are discussed in detail in the following chapters, but it is worth noting that the implementation of the Basel III LCR requires banks to use part of the proceeds of a deposit to purchase high-quality liquid assets (HQLA) and depresses the return on the deposit. The percentage of the deposit which must be held as HQLA reduces once the deposit is made for more than 91 days and, as a result, deposits with longer maturities are more attractive to banks. However, this may be beyond a company's requirement of liquidity.

The introduction of redemption fees and gates to avoid runs on the MMFs makes them less flexible than historically because there is a risk these tools come into effect at the worst time for a corporate: i.e. when a liquidity crisis is occurring.

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Repos are being used by large treasuries to increase the probability of redemption and do provide maturity flexibility, and often better yield, but require additional, relatively sophisticated systems and additional documentation.

Which instruments a treasurer chooses to use and how they are used will depend on their investment policy.

### **Investment policy**

Treasury is essentially ensuring the right money is in the right place at the right time and so the underlying concern for treasurers will be access to cash and the ability to move it to where it is needed. There will be crises which are so profound that markets cease trading, but any damage is usually felt first by weaker credits either as a result of their business profile, their domicile, or their size. Therefore, a corporate's investment policy needs to reflect the appetite for counterparty risk.

One lesson from the GFC was that even the most thorough credit analysis may fail to reveal unexpected events (Black Swans). Therefore, treasurers need to look beyond simplistic measures such as a credit rating, the traditional measure of probability of repayment when considering counterparty risk. Additional measures include monitoring Credit Default Swaps, share price volatility and size of bank.

The group and branch structures of many financial entities also need to be understood to identify which country regulator will take charge in the event of a crisis: either of the entity; or of the markets on which that bank relies. Also, consideration should be paid to which part of an institution the organisation is doing business with. The onshore entity providing credit to you may be a better credit risk than its offshore subsidiary which wants to borrow your cash.

Some other considerations when putting together an investment policy might include:

- ◆ MMFs – these continue to be a popular solution to achieve counterparty diversification but treasurers need to monitor the counterparties in which they are invested. Despite recent regulation, there will remain a tendency to place cash with those who want and need it. As an example, some European MMFs became heavily biased towards eurozone banks post-2008 because it was those banks which needed to borrow short-term cash: the level of the lenders' counterparty risk effectively depended on the willingness of the ECB to support its bank markets.

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- ◆ Repos – these are reliant on a liquid market in the securities which are used to collateralise the cash lent. Although losses have not been recorded, there are examples of failed settlement where a borrower has not been able to deliver the required securities, which may be attributable to inefficient liquidity in those securities' markets.
- ◆ Absolute Value At Risk – the simplest question to ask when forming an investment policy is “How much cash could we afford to lose, or have tied up for much longer than expected before we are in trouble?” This sets the maximum amount one could put at risk in any one segment, or in any one market participant.

### **Implementation**

One lesson from the last ten years is that treasurers must now expect the unexpected – flexibility is key.

Today receiving a substantial amount of cash, for example from a sudden asset sale, raises problems which are just as difficult to solve as finding out the Board has unexpectedly committed to funding a business transformation or a purchase of assets.

Given the likelihood that any carefully crafted plans will need to change and change quickly, an organisation needs to have:

- ◆ the technical systems in place which are sufficiently flexible to manage step changes in business;
- ◆ established routes to the Board to change investment policy; and
- ◆ a sufficiently broad range of relationships across the financial services sector to respond to cash management requirements.

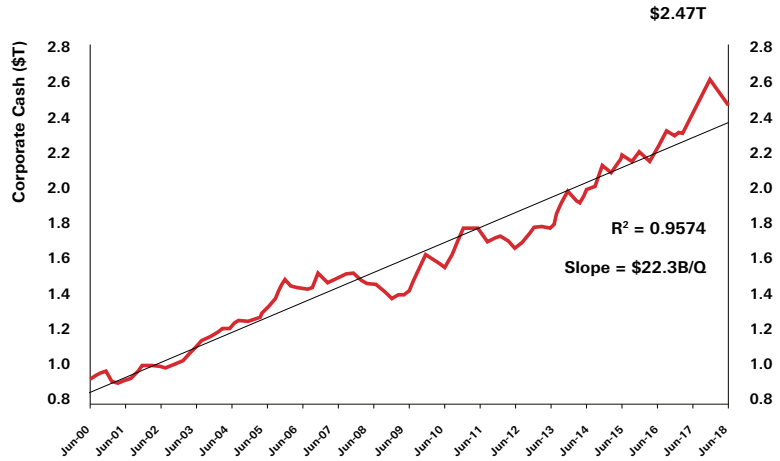
This final point is particularly important, as establishing and maintaining such relationships can be onerous. Banks can no longer trade and then document business and, in the EU, MiFID II is exacerbating the need for 'look forward' documentation. Add to this increasingly complex KYC requirements, and the implementation of an investment policy becomes as much a documentary exercise as a systems or relationship one.

As the ACT often explains to financial regulators, a corporate's financial services relationships are not necessarily with the cheapest supplier but with those who understand the company's businesses and react to its changing needs.

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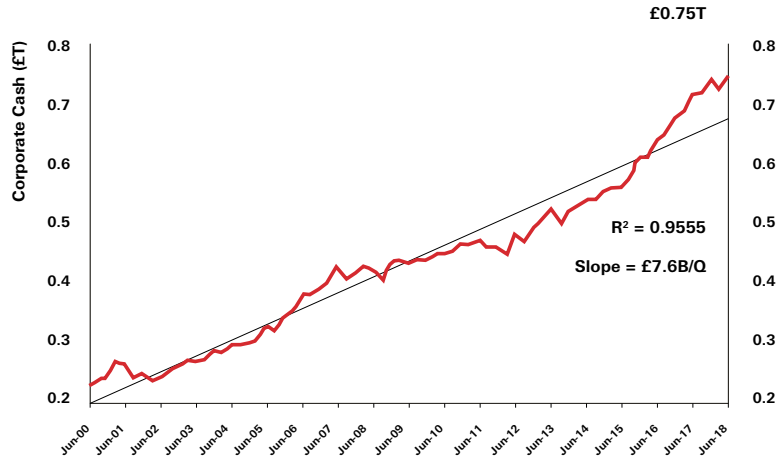
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### USA Corporate Cash



Source: Federal Reserve, Treasury Strategies

### UK Corporate Cash



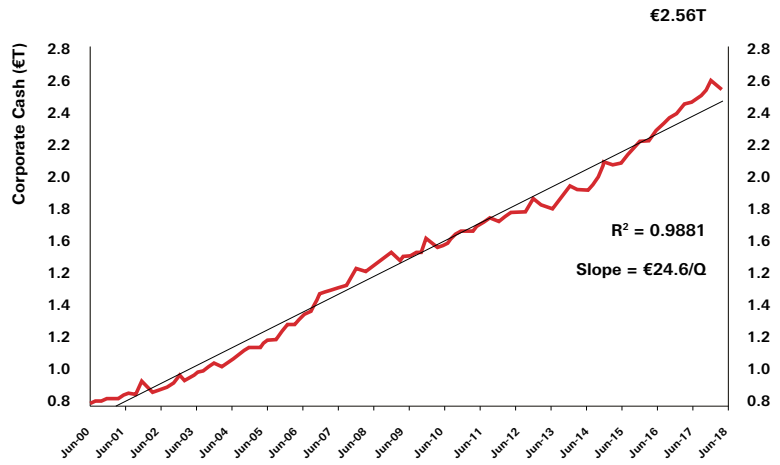
Source: UK Office for National Statistics, Treasury Strategies

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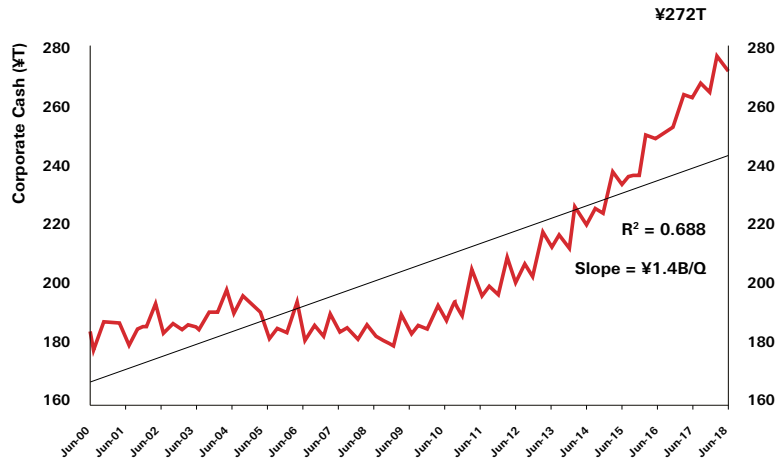
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### Eurozone Corporate Cash



Source: European Central Bank, Treasury Strategies

### Japan Corporate Cash



Source: Bank of Japan, Treasury Strategies

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# Forecast Manage Segment

# Forecasting cash flows accurately

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## Introduction

The rapid development of technology continues to provide treasurers with access to a greater depth of information about cash flows and cash positions. Notably, treasurers can increasingly see real-time transaction information for bank accounts located around the world. Moreover, treasurers can use an expanding range of technology solutions to aggregate information from different sources and consolidate the data to a single position shown on a single platform.

Improved accuracy of current positions brings a number of benefits. It enables a treasurer to focus on improving the quality of the company's cash flow forecasting processes. Having an understanding of likely future cash flows, and therefore of expected future bank account balances, allows a treasurer to plan a company's borrowing and investment needs efficiently. For example, a treasurer may be able to redeploy internal funds (cash surpluses generated in one part of the business) to finance developments in cash-poor parts of the business, thereby reducing the level of more expensive external borrowing.

Enhanced forecasting may afford treasurers managing surplus cash to include longer-dated instruments (which normally have higher yields) when selecting appropriate alternative investments, and it can be used by management to understand how the business is performing as the reasons behind any variance between forecast figures and actual results can be identified and addressed.

This chapter provides a brief outline of the benefits of cash flow forecasting, identifies the different forecasting techniques and sets out the key processes in developing a forecast.

## The benefits of forecasting

A treasury's ability to identify and manage cash depends on the quality of information available. Although a certain amount of information supports a centralised liquidity management system, this is, at best, real-time information about actual cash flows. To plan an investment strategy, for example, a treasury will need advance information of future cash flows and balances from a cash flow forecasting system.

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Whether a company has net cash or is a net borrower, a comprehensive cash flow forecasting system is a key tool for ensuring that any available surplus cash is used within the business before the company borrows from the external markets. An effective cash flow forecasting system also means companies will need fewer standby facilities to meet unexpected borrowing peaks. These standby facilities represent an additional cost.

By highlighting variances between forecast figures and actual results, cash flow forecasts and bank balance reports act as a general form of management reporting providing a powerful indicator and control mechanism. (This applies for both short-term and longer-term forecasts.) For those companies that must operate within the terms of financial covenants (for example, a ratio of net debt to EBITDA, or a ratio of free operating cash flow to total debt), cash flow forecasts are an essential instrument for compliance. Some companies, especially those financed by private equity, have very high debt ratios. As a result, they typically have to operate under very tight financial covenants, with cash flow being one of their most important indicators.

Although the focus of cash flow forecasting is usually to avoid unnecessary external borrowing, improving the process may allow treasury to take a longer-term view of investment decisions and reduce intra-month balance volatility. For example, if treasury knew net cash might be positive for a period of a week or more, it would be able to invest in some longer-dated instruments, rather than reinvesting all surplus cash on an overnight basis every day. This would widen the range of instruments and potential counterparties a company would have to choose from, reduce operational risk, as less cash would need to be reinvested on a daily basis, and offer the potential for higher yields.

In contrast, a company without an effective cash flow forecast would need to keep some funds accessible to meet any unexpected cash demands. From an investing perspective, treasury may have to invest more funds than is required overnight rather than for a time period.

### **Different types of cash flow forecasts**

The most basic cash flow forecast will allow the treasurer to determine likely balances at the end of the current and next business days. However, in order to be useful to the treasurer, a cash flow forecast should be able to predict balances over a series of time horizons.

Most companies will prepare cash forecasts on three levels: short-term (from the end of the current day up to a month or three months, depending on the nature of the cash flows in the business); medium-term (up to a year); and long-term (over a year).



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**Short-term forecast**

A short-term forecast will generate end-of-day balance forecasts on a rolling basis from the current business day up to 30 days (depending on the nature of the business). For the remaining period up to the end of three months, the forecast may be generated on a weekly basis.

For a company operating with a number of bank accounts, these short-term forecasts may be prepared for every (or most) bank accounts, with a focus on those accounts with the most significant cash flows. An aggregated forecast balance may be appropriate if the company maintains a notional or zero-balancing pooling structure across its key bank accounts.

**Medium-term forecast**

A medium-term forecast will usually take the form of a series of rolling monthly cash forecasts, from one month up to one year. From an investment perspective, a medium-term forecast will enable the treasurer to identify the peaks and troughs of cash availability throughout the year. This will be useful when the treasurer is considering making investments for periods longer than a month. A medium-term forecast will also help borrowers anticipate when they need to fund the business.

**Long-term forecast**

A long-term forecast will mainly be used by the treasurer and finance director to plan corporate finance activity, such as arranging long-term bank facilities and bond issuance programmes, or setting a target for the company’s long-term debt/equity balance. From an investment perspective, a long-term forecast allows the treasurer to plan for any M&A activity, capital expenditure plans or to identify what dividend is affordable. By its very nature, a long-term forecast cannot be as accurate as a short-dated forecast.

Some listed companies may be required to include a working capital statement (essentially confirmation that the business has sufficient cash reserves and borrowing facilities to cover net outgoings, including debt repayments) in their annual report and accounts. A long-term forecast will support the preparation of this statement.

**Techniques**

There are a number of techniques which can be used to forecast cash. Their suitability depends on the company’s ability to access information, the nature of the company’s business and the cash flows which arise, as well as the time period over which the forecasts are being made.

Broadly speaking, there are basic techniques for generating cash flow forecasts: for short-term forecasts, companies tend to use a receipts and

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payments method; for the longer term, once a receipts and payments approach becomes too inaccurate to be useful, forecasts can be generated using forecast balance sheets and income statements. Whichever method is adopted, the forecasts will be more useful if there is some assessment of their expected accuracy. To an extent, this can be built up from experience in comparing forecasts to actual. Alternatively, a best-and-worst case forecast could be created by flexing the source data used to build the forecast. For example, forecasts can be varied using different exchange and interest rates. This will have the added benefit of helping the treasurer understand the company's exposure to different financial risks.

### **Receipts and payments method**

The receipts and payment method technique uses a combination of information drawn from bank accounts (usually cleared funds with the value date, which importantly distinguishes between the posting date and the date of access to funds), from accounts receivable (receipts for goods and services provided, interest receipts generated by investments), and from accounts payable (payroll, payments for goods and services received, interest payments due on bank and non-bank borrowings) systems and records. Using this information, treasury can build up a pattern of expected cash inflows and outflows under its control and, together with the starting cleared funds balance, generate a series of expected balances over the time frame of the forecast.

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The real challenge when building the forecast using this method is to recognise the difference between the known and estimated data that is entered. Many forecasts rely on estimates for both the timing (the treasurer will not usually be certain when customer payments will be received) and the value (the sales team may over-estimate the value of project sales). Where estimates are made, these will need to be updated with firm values when the information becomes known. As the estimates can sometimes be based on previous trading performance, the treasurer should be aware of the effects of the estimated data on the forecast, especially in poor trading conditions.

### **Balance sheet and income statement method**

For longer-term forecasts (perhaps for beyond three months, depending on the company's business), too little of the data used in generating a short-term forecast will be sufficiently accurate to provide a meaningful forecast. In these circumstances, treasurers tend to use data extrapolated from the balance sheet and income statement to generate a forecast cash flow. This forecast will not be particularly accurate; it will be based on expected sales and other projected accounting data and include assumptions on the cash conversion cycle. However, if prepared carefully, the treasurer will be able to estimate the levels of any external and internal funding requirements, as well as the location and currency of any pools of surplus cash for investment.

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## Building a forecasting system

Where there is no automated cash flow forecasting system, the treasurer will need to identify how best to build one. This needs a careful cost-benefit analysis. The benefits are likely to be greatest where more accurate information can be used to reduce external borrowing (perhaps by using cash surpluses generated by group subsidiaries more effectively) or to allow the treasurer to invest more funds for longer time periods (reducing the cash which needs to be reinvested every night). These potential benefits must be evaluated against the costs of both building and operating a new cash flow system.

Crucially, the need for accurate and complete cash forecasts will depend on how they are being used. If cash investments are being kept very short-term for credit risk reasons, then highly accurate short-term forecasts are not needed – the amounts being placed on deposit each day can be used to compensate for any errors in the forecast. If several of the group's units are very small, their cash balances may be immaterial. Under these circumstances, those units need not be required to report their forecasts into the group forecast or, if they are, they may be asked to update their forecasts less frequently than the larger units.

However, creating accurate forecasts, even when not completely necessary from a cash management perspective, can provide significant managerial benefits. Variance analysis between forecast and actual figures can identify errors in assumptions underlying the forecast, and should lead to an assessment of why forecasts were not met. Treasury will then be able to identify trends which will allow the company to improve the accuracy of the forecasts over time. For example, variance analysis can help to identify when a customer is paying more slowly (which may be an indicator of that customer's cash flow problems) or the existence of an internal fraud (where some expected cash receipts are diverted elsewhere). It can also identify underlying weaknesses in the business as a whole and help the company make better business decisions in the future.

Where a company uses a variety of incompatible operating systems, the treasurer may decide to build a forecasting system using spreadsheets. These have the advantage of being cheap to build and easier to rollout across an organisation. For smaller companies and groups without complex cash movements, a forecast using spreadsheets may be sufficient. However, spreadsheets are less useful for forecasting cash flows in more complex organisations, as they become more difficult to consolidate and run variance analyses.

Depending on how the treasurer intends to use the cash flow forecast, there will be a point at which the implementation of more advanced technology will become cost-effective. Most enterprise resource

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planning (ERP) and treasury management (TMS) systems have cash flow forecasting modules which can interface with other systems throughout the business, such as the general ledger, bank reporting modules, and accounts payable and receivable (AP/AR) systems. In addition, there are a number of specialist cash forecasting solutions that are independent of ERP/TMS systems but which can be implemented alongside them.

When such systems work as intended, data only needs to be entered into one module of the interlinked system, allowing the forecast to be updated automatically and without risk of error. The forecast will include a degree of sensitivity analysis, allowing the company to model the effects of changes in a range of factors on its cash flow. It would also let the treasurer model other changes, such as the timing of outgoing payments (a decision to move from a weekly to a fortnightly payment run, for example), to identify the impact on cash flows. Most sensitivity analyses would model the effects of changes in market interest and exchange rates and inflation on cash flows.

### **Collection of information**

To operate the cash flow forecasting system (and to achieve greater visibility over cash), a treasurer needs to collect and collate information from a range of sources, as accurately and as quickly as possible. However well the forecasting system is designed, its accuracy and effectiveness is wholly dependent on the quality of data it computes. For most treasurers, there are two core sources of underlying data for the cash forecast: partner banks and other group entities, including central teams (such as a shared services centre); and operating companies and other subsidiaries.

### **Bank account information**

Today, bank account information is typically available in real time, as banks continue to improve their functionality both through regulatory pressure and in response to competition from other banks and third-party providers, including account information service providers (AISPs). Central treasurers are also able to gain visibility over company bank accounts, which are not under their direct control. Access to information of this kind, helps treasurers to build a more accurate picture of the group's individual and aggregate cash positions.

Central to this improved functionality is the dramatic change in the way treasurers communicate with bank partners. Instead of the necessity of having a multitude of communication lines with each bank, it is now possible for treasury to communicate with its core cash management banks from the same system, typically, but not necessarily, a TMS or ERP system. Aggregating software, supported by application programming interfaces (APIs), can capture data feeds from different banks and translate it into a single position. Similarly, software can translate a treasurer's instructions into each partner bank's required format, enabling the treasurer to communicate with all banks from the same platform.

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At the same time, the work on standardising payment formats, especially via XML ISO 20022, has improved the flow of data between organisations. In a similar vein, banks have had to respond to the ongoing challenge of disintermediation posed by FinTech companies. SWIFT's gpi (global payments innovation) initiative, which is focused on improving the experience of cross-border payments, is one example of the traditional banking sector's response. Payments innovation will continue, offering treasurers access to better information over time.

### Company information

Data sourced from a company's operating companies and subsidiaries will provide the backbone of any cash forecast and identifying the potential sources of data will be the first, and fundamental, task for a treasurer. These will include scheduled outgoing payments (such as payroll, taxes, interest payments and supplier payments) and expected incoming payments (such as payments for goods and services already supplied and contracted to be supplied). The analysis should also include the cash flow impacts of longer-term borrowings, such as the repayment of the principal of a bank loan, derivatives, draw-downs from commercial paper programmes and bond issues, and other strategic activity, such as planned acquisitions or divestments.

For most forecasts, especially those with a longer-time horizon, the treasurer may have to rely on predicted incoming payments (for example, from sales forecasts) and outgoing payments (for example, loan repayments based on forecast interest rates). This may require building data from a variety of sources, all of which are prepared differently. Equally, data can be captured from an ERP system as well as from the company's sales or customer relationship management (CRM) system. Both systems will hold data spanning a number of years, allowing trends to be identified.

The challenge in forecasting cash is the collection and collation of data from the group subsidiaries, which is necessary if the treasurer wants to be able to forecast the various bank account positions. In an ideal world, all group subsidiaries would use a common ERP system to record and process the same type of data in the same way. This data could then be fed into the cash flow forecast automatically, creating reliable and accurate forward-looking results.

In reality, it is not as straightforward. Where companies do employ ERP systems, it is not unusual for them to be using different versions of the same system or different systems completely. Some entities within a group may not use an ERP system, even if the majority of a group of companies does. This can make it more difficult to develop a consolidated cash flow forecast.

One solution is to use a web-based tool for collecting data from subsidiaries. Entities can enter their data via a web interface to the

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cash flow forecasting system from wherever they are in the world, and irrespective of the operating system they use. Although this may require some rekeying of data (unless an interface can be built to extract relevant local data automatically), it can be a scalable solution allowing group treasuries to integrate acquisitions into the cash flow forecast very quickly.

It is important the treasurer understands the reliability and completeness of the underlying data (some data will always be unknown or estimated) when planning future borrowing and investment. In particular, the treasurer needs to be aware of how changes in certain forecasts or market instruments (especially interest rates and key exchange rates) may affect the cash flow forecast.

### **Opportunities for better investment**

However, knowing how cash flows in and out of the business is only the first step. Armed with accurate information about future cash flows, treasurers will want to manage these cash flows as effectively as possible. In particular, they will try to establish liquidity management processes that allow surpluses generated in one part of the business to be used to fund group entities with cash requirements, thereby reducing the reliance on external borrowing. Any remaining surpluses can then be invested more efficiently, as the cash flow forecasts will give treasurers a clearer understanding of when those surpluses will next be needed by their businesses. Managing cash flows effectively is the subject of the next chapter.

# Managing cash flows effectively

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One of the treasurer's most important roles is identifying how cash flows within a business. This visibility enables the treasurer to use the cash as effectively as possible both to reduce the company's exposures to third parties and to help the company generate a better return on capital, without assuming any additional risk. There are three key ways the treasurer can improve the use of group cash: use intercompany loans, manage collections and disbursements more efficiently, and establish a liquidity management structure, such as a cash pool. This chapter looks briefly at these three techniques that companies can employ to maximise the use of cash.

## The role of treasury in managing cash

The prime responsibility of any treasury department is to ensure that the company has sufficient cash to meet its obligations as they fall due. In addition, treasury should manage cash in such a way that it is able to support any corporate strategy agreed by the board. This can range from investing in R&D or making new acquisitions, to being able to demonstrate strong internal financial management when seeking external funding from banks or when engaging with credit rating agencies.

To fulfil this role successfully, treasury needs to understand how cash is generated and used by the business. The core tools here are cash flow forecasts, outlined in the chapter one, and bank account balance statements and other reports that show actual results. These will give treasurers visibility of group cash by indicating where cash is generated, collected and held. They will also identify when cash is needed to meet payment obligations, such as interest, supplier, tax and salary payments.

Once the treasurer understands how cash is generated and used by the business, the next step is to use the information to create a liquidity management structure. The liquidity management structure will enable cash to be moved within the company and used as efficiently as possible. This typically means using any available cash surplus balances to finance outgoing payments, before resorting to external borrowing to meet these obligations.

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The liquidity management structure will direct cash to particular locations within the business, such as a centralised bank account held in the name of the group headquarters, or a regional treasury centre. The use of zero- or threshold-balancing will determine how much cash remains with local subsidiaries and, therefore, the extent to which local entities are responsible for investing surplus cash.

The treasurer will also have to identify the local subsidiaries which will remain outside the liquidity management structure, whether for strategic reasons (the entity is about to be divested from the group) or regulatory reasons (local exchange controls make participation too difficult to achieve), fiscal reasons (imposition of withholding or similar taxes may reduce the amounts repatriated) or from a need to ring-fence (a project or joint venture subsidiary may have contractual obligations to maintain its separation from the group, or this might be imposed by a regulator, as is the case for some utilities companies). Treasurers will also need to determine how to fund and defund subsidiaries outside the liquidity management structure.

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### Centralised versus decentralised companies

The focus of this book is on large multinational companies which have centralised their cash management to a greater or lesser degree. Centralised treasuries assume responsibility for managing pools of cash which have been concentrated into a small number of locations. Depending on the organisational structure, these pools of cash may be managed by regional treasury centres, under the direction of central treasury.

The challenges of investing short-term surplus cash are just as important in smaller or decentralised companies. In these cases, responsibility for investing short-term cash is devolved to the operating companies. Security of the invested cash is just as important in these companies.

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### Using intercompany loans

One of the benefits of a liquidity management structure is that it allows a company to use surplus cash in one part of the business to finance activity in another part of the business. Without such a structure, the cash-rich part of the business would be investing surplus cash, while the cash-poor entities would be borrowing from external lenders. In other words, the company would be simultaneously borrowing and investing.

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There are a number of reasons for trying to avoid being a simultaneous external borrower and depositor, the most obvious being the differential between the cost of borrowing and the interest rate offered by depositors. Banks and other lenders will always add a margin to the base reference rate. There will always be a difference between the bid and offer rates (the rates at which an instrument is bought or sold) in the money market.

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Consider an A-rated company which has a bank facility that allows it to borrow at Sterling Overnight Index Average (SONIA) + 100 basis points. Its deposits earn SONIA – 40 basis points. SONIA is 45 basis points. The company has GBP 5 million of borrowings and GBP 6 million on deposit. Its annual cost of borrowing is GBP 72,500 and it earns GBP 3,000 in interest, a net cost of GBP 69,500. If the company netted its positions, it would have GBP 1 million on deposit, earning annual interest of GBP 500.

This applies to negative interest rates, too. If SONIA is 0.25%, then placing deposits costs 15 basis points. In these circumstances, the company's annual cost of borrowing is GBP 62,500, but it is also charged GBP 9,000 for the deposits, a net cost of GBP 71,500. If the company netted its positions, it would have GBP 1 million on deposit, so its net cost would fall to GBP 1,500. As with the first illustration, this is a net benefit of GBP 70,000.

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To avoid simultaneous borrowing and investing, surplus cash can be used to provide more formal intercompany loans to group entities with a borrowing requirement. Such loans must be provided, and documented, using arm's-length pricing and be in line with other tax considerations such as thin capitalisation. Internal borrowers will benefit from a reduced cost of funds (although priced at arm's length, the internal lender will not charge the same level of compensation for credit risk that a bank would apply). The borrower is also not exposed to the risk that the lender will not renew the borrowing facility or the market may prevent a borrowing programme (such as commercial paper) being rolled over.

Even if the group is a net borrower, central treasury will usually be able to arrange more preferential borrowing terms than the individual operating companies. Without access to intercompany loans, group companies will have to arrange their own back-up funding, perhaps in the form of overdrafts or more formalised unused facilities, to cover unexpected cash shortfalls. These will be expensive to arrange, especially when calculated as a group expense, particularly if no group guarantees are available to the lenders.

Introduction	Besides cost efficiencies, there are other benefits to intercompany loans. If a group can avoid grossing up both its borrowings and investments, it will minimise its counterparty credit exposure on the investments. In presentational terms, the group's balance sheet will be stronger if the netting is effective for accounting rules.
Forecasting	
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Segmenting	However, although theoretically less efficient, there are a number of reasons a company may choose to be a simultaneous borrower and depositor. First, given the potential for a short-term loss of liquidity in the money markets, many companies will not pay down all available debt to ensure they can draw down on borrowing facilities in any future period of market liquidity loss. Second, companies with surplus cash in countries with tight exchange controls may decide that any savings arising from repatriating that cash may not justify the cost of doing so. For example, US corporate tax rules used to incentivise US multinationals to invest foreign earnings outside the USA, rather than pay corporation tax on the repatriated proceeds. However, changes to the US corporate tax code introduced by the 2017 Tax Cuts and Jobs Act has reduced this incentive as US multinationals can no longer delay paying corporation tax on those earnings. Third, a company may take a strategic decision to secure longer-term funding via, say, a bond issue, while continuing to generate short-term surplus cash. In all such circumstances, the treasurer will then need to manage the additional funds.
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### **Case Study A US mining corporation with Latin American subsidiaries**

A US mining corporation manages the development of new copper mines in Chile and Peru via a local subsidiary. The funds necessary to finance the exploration and development process were advanced from the corporate headquarters to the subsidiary at the beginning of the project. The subsidiary had two major issues to manage. First, because the development of mines can take three or four years, the subsidiary had to manage significant volumes of cash over this period. Second, because most exploration expenses are denominated in USD, the subsidiary decided to hold the funds in that currency. However, because of the size of the local market, the subsidiary could not place USD on deposit with local banks without exposing itself to significant counterparty risk.

The solution was to place the funds in three separate USD-denominated money market funds. The use of money market funds gives the subsidiary the diversification it requires, which is enhanced via the use of different asset managers. The company is then able

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to draw down the funds when they are needed without having to manage an unnecessary foreign exchange risk at the same time.

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### **Managing the supply chain**

As well as adopting intercompany loans, cash management can also be improved through a more focused approach to working capital: adopting more streamlined cash collection and disbursement policies may allow the company to gain greater control of its cash, and a reduction in float.

Companies have greatest control over the timing of disbursements. Although all outgoing payments must be made by particular dates, significant efficiency can be achieved by controlling the timing of external payments. Companies can decide to implement a weekly, fortnightly or monthly payment cycle, such that non-urgent payments, including salary and supplier payments, are only paid as part of a regular cycle. Companies may also be able to negotiate improved payment terms with suppliers; for example, discounts for early payment (although the treasury should assess whether it is in the company's interests to take advantage of such discounts).

Managing these outgoing payments more closely will allow the treasurer to forecast these transactions much more accurately. This will reduce the level of precautionary balances the company needs to hold in current accounts. With most electronic banking systems, treasury will be able to prepare a single payment file for submission every cycle. This will benefit the company, as it will be able to negotiate reduced fees for payment processing.

Controlling the collection process is more challenging. However, treasury, working with the company's sales team, may be able to improve the efficiency of the process, ensuring it gets control of the receivables as soon as possible. Techniques will vary according to the nature of a company's business, but may include measures to ensure invoices provide customers with the correct information to ensure a speedy approval for payment. One of the most efficient techniques is the use of electronic bill presentment and payment, which streamlines the collection process from the creation of the invoice to the reconciliation of the received payment. Where available, direct debits allow the payee to initiate the collection of cash from their customer's bank account, giving the beneficiary certainty over the timing of receipts. New developments, such as Request to Pay in the UK, will also help to improve the information flow between payer and payee, giving accounts receivable departments a greater ability to forecast incoming collections.

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## Selecting an appropriate liquidity management structure

As well as using intercompany loans and improving the efficiency of cash collection and disbursement, treasurers can adopt various liquidity management structures. A liquidity management structure is used to move cash within a business, so it can be used more efficiently.

There are a number of factors to evaluate when considering the cost/benefit of implementing a liquidity management structure. As with any treasury project, treasurers will need to consider whether their existing technology (such as a TMS) supports the operation of any proposed structures and, if not, whether relevant technology can be implemented. Treasurers will also need to identify the level of resources required to implement and then operate the structures under consideration.

Other factors should be evaluated, range from the countries in which the company operates, to the culture and future plans of the company itself. From an investment perspective this will determine:

- ◆ whether cash is concentrated, and if so, where it is concentrated to;
- ◆ whether cash is concentrated physically or notionally (or via a hybrid structure);
- ◆ how frequently cash is concentrated;
- ◆ how frequently cash is disbursed from the centre;
- ◆ whether cash remains with group entities; and
- ◆ the denomination of the concentrated funds.

If treasury decides to implement a group-wide liquidity management structure, it is important that this reflects the nature of the company's cash flows. Treasury should concentrate on managing the bulk of the cash to reduce the associated risk. Almost by definition, cash balances can be transitory. There is little reward for treasury chasing small amounts of cash to ensure they are being efficiently used, given the general low levels of interest rates globally.

The liquidity management structure will need to reflect three key factors:

### ◆ **The destination of any concentrated cash**

Cash may be concentrated to particular locations. Depending on the company, cash may be pooled on a divisional, national, regional or global basis. The company may also concentrate one or more currencies.

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◆ **The frequency of the liquidity management cycle**

Treasury will want to determine how frequently (typically daily or weekly) cash is concentrated to each location, and when regular disbursements are made. The cycle may work more frequently for some locations than for others.

◆ **The locations which remain outside the liquidity management structure**

Treasury must be aware of any bank accounts which are not included in a centralised liquidity management structure. The reasons for non-participation can vary. Local regulations often make pooling of non-resident funds difficult, and foreign exchange transactions will add further complications. Company culture may also be a factor. Treasury must also determine how best to control those locations outside the structure. Can they manage funds centrally? Do they set guidelines for local management to follow? Or is the local entity able to manage the funds themselves? Even if an entity cannot fully participate in the group-wide structure, there will still be advantages to implementing a more efficient liquidity management structure in that country.

**Liquidity management techniques**

Every company has a process for managing its internal liquidity. Some companies decide, for cultural or regulatory reasons, to allow local subsidiaries to manage their own liquidity, with perhaps a quarterly or annual repatriation of cash to group headquarters. Other companies adopt a more centralised liquidity management structure controlled by group headquarters or a treasury centre.

There is no ideal structure. Large companies, with entities worldwide, could select a number of different liquidity management structures, all of which could improve efficiency. In these circumstances, the key consideration of any structure will be its flexibility. The company will not want to redesign its structure every time it makes an acquisition or expands its activities into a new territory.

There are two main techniques companies use to manage their liquidity centrally: physical cash pooling and notional cash pooling. It is quite common for a mixture of central and local techniques to be used within the same group, as the efficiency of the structure depends on external factors such as bank regulations, exchange controls and tax just as much as group cash flows.

**Physical cash pooling structures**

In a physical cash pooling structure, accounts held by the participating entities are linked to a central group bank account (usually, but not always, held in the name of a different group entity), known as the pool header or master account. On a periodic basis (perhaps daily or weekly), debit or

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credit balances are transferred to the header account. (Some companies transfer all surplus balances, returning the local account balance to zero; others transfer any balance above a threshold, which may be the local entity's monthly outgoing payments.)

The header account will either receive interest income or be charged interest expense by the cash pooling bank. The treasury department (or the department overseeing the liquidity management structure) records the cash transfer as a movement on intercompany loan accounts and then pays interest to the entities which transferred credit balances, and charges interest expenses to the entities which transferred debit balances. These interest figures should be charged at an arm's-length rate, to avoid concerns of transfer pricing on the underlying intercompany loan created by the cash flows.

One way to do this is to establish a borrowing rate and a lending rate which both apply consistently across the pool, assuming all the entities have broadly similar financial strength. If any company is particularly weak, then its borrowing rate from the lead company should be correspondingly higher, to reflect the credit risk. This policy should be clearly documented and consistently applied, as tax authorities will often want to review this. This structure benefits companies by providing visibility and control through cash centralisation, while also reducing debit interest costs. However, these benefits need to be set against the costs of operating a physical cash pool, including managing multiple intercompany cash flows and posting corresponding journal entries.

### **Notional cash pooling structures**

In a notional cash pooling structure, cash is retained in accounts owned by the entities participating in the structure. However, the balances are notionally pooled by the bank for the purposes of calculating the overall interest expense or income to be charged to a header account, while also enabling the offset of balances.

This is a commonly used liquidity management solution, and many permutations of the notional structure are available. In most cases, banks will require cross-guarantees from all participating entities before a notional cash pooling structure can be implemented. (Companies will need to ensure any cross-guarantees meet the jurisdiction's thin capitalisation and transfer pricing requirements, and do not cause any breach of undertakings given in loan agreements.)

Because cash is not physically transferred to the structure's header account, banks will want some right to offset credit and debit balances. (This means they can effectively reduce the interest spread on balances of participating entities.) In some jurisdictions, where banks are not permitted to offset credit and debit balances for regulatory reasons, these structures

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may be difficult to implement. The implications of Basel III need also to be considered. Banks face higher capital charges than in the past via Basel III which means a bank's offering may become more restrictive or only be made available to specific clients.

Treasurers also need to be cognizant that in the case of cross-border notional pools, funds will physically remain in the country in which participating bank accounts are held. As such they will need to consider whether holding balances in particular locations represents too much of a country risk. Physical cash pooling reduces the potential impact of country risk as funds can be physically transferred out of a country deemed to be at greater risk to a header account located elsewhere.

Multi-currency notional pooling is also sometimes available. This is where banks notionally translate aggregate currency positions into a single base currency. This allows debit and credit balances to be effectively covered and preferential interest rates applied, without the need for any physical foreign exchange transactions. It reduces the need for frequent foreign exchange swaps for interest purposes.

### Hybrid structures

Notional pooling can be set up in conjunction with physical cash pooling to form a hybrid structure. Funds are physically transferred from multiple jurisdictions to a central location where the concentrated position is netted for interest purposes. Each entity can open a 'mirror' account in the central location (resident or non-resident, as applicable), or else the notional pool can be formed in the name of a central treasury entity. Intercompany loan positions are not created under a mirror account structure since the funds remain under the ownership of each underlying entity. (Note that if a single entity structure is created, intercompany lending considerations will apply.)

Regulatory requirements are a factor and some countries which permit domestic notional cash pooling do not allow certain non-resident entities to participate in multi-entity notional cash pools. Moreover, tax authorities, especially in relatively high tax jurisdictions, may be concerned that companies use the structures to avoid withholding and other taxes. Double tax treaties can often be used to reduce or eliminate a tax liability. However, care should always be taken to ensure the tax residence status of participating entities allows the efficient operation of the appropriate tax treaties.

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**Notional versus physical cash pooling**

Notional Pros	Physical Pros
<ul style="list-style-type: none"> <li>◆ Autonomy of subsidiaries, as funds remain under the ownership of each underlying entity.</li> <li>◆ Ability to draw down one header account to invest (or repay debt) via a single transaction on both a single and cross-currency net position.</li> <li>◆ Preferential pool pricing due to cross-guarantees and bank’s ability to ‘offset’ CR/DR balances for central bank regulatory net reporting for both single and cross-currency structures.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Gross CR and DR cross-entity positions are netted for statutory reporting, as funds are physically transferred between entities.</li> <li>◆ There is no need to provide a cross-guarantee.</li> <li>◆ Physical transfers mean that balances are removed from the risk of exchange or capital controls.</li> </ul>

Note that these pros are not applicable if implementing a hybrid structure in which funds are physically transferred into a notional pool where funds remain in the ownership of each underlying subsidiary.

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Notional Cons	Physical Cons
<ul style="list-style-type: none"> <li>◆ Cross-guarantee required covering all subsidiaries up to the extent of funds held within the pool.</li> <li>◆ External guidance required to analyse any impact of gross positions on group’s statutory financial reporting.</li> <li>◆ Bank appetite to implement a notional structure due to potential inflation of their own balance sheets.</li> <li>◆ Local tax implications need to be considered for each subsidiary’s country of incorporation.</li> <li>◆ Potential for increased charges to clients, as banks face greater capital costs.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Intercompany loans are created and require group tracking with potential withholding tax implications.</li> <li>◆ Operational risk due to physical funds transfer.</li> <li>◆ Not generally available on a cross-currency basis, requiring multiple currency spot and forward transactions for the group to invest surplus positions.</li> </ul>

Note that intercompany loans are not created if implementing a hybrid structure where, for example, funds are physically transferred cross-border from the subsidiary’s local account to a non-resident account in the subsidiary’s name in a central notional pool location.



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Where 'cross-border' notional cash pooling is difficult, some entities choose to implement domestic notional cash pools, before physically pooling cash on a cross-border basis.

Whilst pooling arrangements are generally set up in order to manage liquidity more efficiently, in many cases some longer-term balances are included in such arrangements. Care needs to be taken where there is a core debit or credit balance that does not fluctuate over the longer term, as this could justify using differential pricing according to the nature and characteristics of the loan and the respective counterparties. Moreover, if a long-term debit balance is characterised as a loan, it cannot be included in a pooling structure. To avoid this situation, treasurers should periodically settle their pooling structure. This also helps to simplify statutory reporting obligations and provides the opportunity to report balances net for their own statutory accounts. To comply with IAS 32, treasurers need to be able to settle the gross debit positions in the pool on a periodic basis.

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### Accounting issues

Although TMS (and other systems used in the treasury department) may be able to generate accounting entities, ensuring the liquidity management structure is accounted for appropriately remains a significant challenge, particularly when the liquidity management structure employs intercompany loans denominated in foreign currencies.

Under IAS 21, foreign exchange differences arising on intercompany loans are reported in the profit and loss statement within the individual financial statements of the entity which has a functional currency different from the currency of the intercompany balance.

In the case of the consolidation of a monetary payable or receivable between two group companies, this is an internal balance which will be eliminated in the group balance sheet and therefore has no impact on group net assets (i.e. shareholder funds). However, unless there is a basis for taking any foreign exchange revaluation arising in the individual income (profit and loss) statement to group equity on consolidation, the result is a position where one side of the foreign exchange revaluation appears in the group income statement and the other (arising from the retranslation of the entity's net assets) arises in group equity.

IAS 21.32 includes an exception which applies to intercompany loans that form part of the entity's net investment in a foreign operation,

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defined to mean that settlement of the intercompany balance is not planned or likely in the foreseeable future (IAS 21.15). In this case, the foreign exchange difference on such loans must, on consolidation, be taken to equity. Long-term loans (including long-term central funding through the liquidity management structure to cash-poor group entities, or upstream deposits which are not forecast to be repaid) may be considered part of the net investment in the entity's operations. This means that the foreign exchange arising on consolidation of that entity's net assets into the group's reporting currency, and the foreign exchange difference recorded in the individual income statements being consolidated, are both taken to group equity.

Therefore, intercompany loans that form part of the entity's net investment in a foreign operation and which net out in the balance sheet (and therefore do not affect consolidated net worth) do not create any effect on the consolidated income statement, which is clearly logical.

However, any liquidity management structure where the intercompany loans are fluctuating, and where evidence suggests that settlement is planned or likely to occur in the foreseeable future, will not benefit from the ability to take foreign exchange differences to equity. In these circumstances, the group would have to record a foreign exchange difference in the consolidated income statement, even though the currency exposures are purely internal and net out in arriving at net assets at the consolidated group level.

Specialist accounting advice should always be sought before a liquidity management structure is implemented.

Physical cash pools can be arranged on a cross-border basis, subject to exchange controls. Again, tax authorities, especially in high tax jurisdictions, will want to ensure a structure is not being used simply to avoid tax.

Determining the location for the pool header will often depend on commercial business reasons: for example, the location of the treasury management team, or geographical proximity to the group's core business. The company's chosen liquidity management solution may also depend on business objectives, social factors, legal and regulatory requirements and taxation consequences.

However the cash pool is structured and wherever it is located, it is critical that its operation, especially how interest is applied, is documented clearly

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and carefully and that these processes are consistently applied. Pooling structures are under increased scrutiny by tax authorities around the world as a source of potential tax avoidance, especially under the OECD’s Base Erosion and Profit Shifting (BEPS) initiative.

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**Tax issues**

However a company decides to manage its liquidity, tax advisors should be consulted before a new liquidity management structure is implemented. Generally, two of the most important tax considerations will be ensuring that a deduction is available for any interest paid, and that any withholding taxes or other transaction taxes (VAT, stamp duty and capital taxes) are minimised.

From a tax perspective, the ideal location for the pool leader will often depend on the funds flows. Whether the pool leader is likely to be receiving or paying funds to the pool participants will impact the withholding tax position, for example. When companies choose to locate a cross-border cash pool away from the group treasury headquarters, they will often choose a country which either does not impose withholding tax on interest flows, or which benefits from a good double taxation treaty network to minimise the impact of withholding tax. Wherever the pool header is located, tax issues may arise if there are not personnel available in that location with the appropriate knowledge and skills to manage those activities.

Groups are increasingly layering on additional services to their basic cash pooling structures, for example a ‘Payments on Behalf Of’ arrangement (made more economic by initiatives such as the Single European Payments Area (SEPA)). Further tax issues, such as the VAT analysis of the pool leader providing such services to pool participants, should be considered in respect of these types of arrangements.

Depending on the country, there could be a number of anti-avoidance tax provisions which would deny an interest deduction being taken for tax purposes. The most common of these concerns are thin capitalisation and transfer pricing. Thin capitalisation rules, as with transfer pricing rules, are used by many tax jurisdictions to counter tax avoidance through the payment of excessive interest to reduce taxable profits. Companies will need to make sure they comply with any thin capitalisation (including the 30% tax/EBITDA interest limitation introduced by both the Anti-Tax Avoidance Directive (ATAD) in the EU and the Tax Cuts and Jobs Act in the USA)

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and transfer pricing rules in the relevant jurisdictions, as well as any other rules which could limit the tax deduction for interest. These rules could be subject to change, and treasury will need to keep them under review and regularly monitor their position.

### Other liquidity management structures

A range of treasury management structures can be employed in combination with cash pools to support improved management of internal liquidity, including the following:

- ◆ **Shared services centres, including payment and/or collection factories**

One way to improve the use of internal liquidity is to centralise payment activity to a shared services centre. If deployed correctly, centralised payments activities allow companies to plan their outgoing disbursements, typically on regular (for example, weekly) cycles, giving treasurers more certainty on the timing and value of outgoing payments. Concentrating collection administration to a shared services centre will, ideally, improve the efficiency of collections processes, reducing the time taken to collect and apply customer payments.

- ◆ **Payment and/or collection 'on behalf of' (POBO/COBO) services**

Some companies use POBO/COBO services to make and collect payments on behalf of group entities. The availability of these services is determined by local regulation (for example, some countries still require tax payments to be made from a local bank account). Where these services are possible, they allow cash held in the name of group entities to be managed by central treasury, giving more certainty to available cash balances and minimising the level of cash retained at group entity level.

- ◆ **Intercompany netting structures**

Many groups operate intercompany netting programmes to help manage intragroup liquidity, whether on a bilateral or multilateral basis. In a bilateral netting programme, payments between two parties are netted off, so that only a single settlement payment, representing the net balance between the two parties, is exchanged. A multilateral netting programme is run by a central entity (group treasury, a shared service centre or an in-house bank), with all transactions between all participating entities netted off at the centre, so each participant only makes (or receives) one payment over the netting period. Netting structures minimise intragroup cash flows, ensuring group cash is used more efficiently.

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### ◆ **In-house banks**

A few multinational organisations operate a full in-house bank. In this structure, group entities hold virtual bank accounts with group treasury, rather than with external banks. All permitted transactions are routed through the group treasury, meaning most group cash is concentrated at the centre. (In reality, few companies can ensure no entities hold external bank accounts. Exchange controls, and other regulations, can also make participation in an in-house bank impossible.) In-house banks ensure the efficient use of group cash, maximising the volume of cash available for investment in cash-rich organisations.

### **Next steps**

Assuming the implemented liquidity management structure is effective, the treasurer of a cash-poor company will have to fund the participating entities from an external source. For the cash-rich company, the treasurer will need to invest any surplus cash. In these circumstances, the challenge for the treasurer is to classify the cash available for investment and to identify the most suitable instruments to be used. Classifying cash is discussed in Chapter Three.

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## Introduction

Employing a full series of parent and subsidiary cash flow forecasts and an understanding of the mechanics of the business's liquidity management system, the treasurer will be able to identify peak cash surpluses and, more importantly, the expected timings and size of low cash surpluses or deficits. Treasury can then project both the amount of cash that will be available for investment at various points into the future, and when funds will be needed by the business.

Short-term cash surpluses generated by the business and managed via a liquidity management system will typically be required by group entities to finance ongoing activities. Such surpluses cannot usually be invested for more than a few days. On the other hand, there may be surplus funds available for investment over longer periods. A company may have sold a business unit, for example, or it may simply be in a cash generative stage.

By assessing the importance of the cash to the company's daily business, treasury can determine how much risk and duration the company can assume within its investment portfolio. This will govern the type of instruments appropriate for investment in each situation. One way to achieve this is to classify the cash to be invested.

Cash can be classified in three ways:

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### ◆ Working capital

This is cash which will be needed by the business in the short term, such as overnight or within the next three months. This cash may not easily be replaced in the external markets, so security is important. By definition, liquidity is vitally important.

### ◆ Short-term predictable cash

This is cash which the company holds as it is already required by the business in the short term (within, for example, the next three to 12 months). It may be needed, for example, to meet interest payments for the following month (should sales revenues not be as strong as expected), to fund dividend payments at a known point in the future, or to fund other known outbound cash flows within a 12-month period.

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Security is important. Immediate liquidity is less important, although the company will want to be able to access the cash if it is needed.

◆ **Medium to long-term core cash**

This is cash which is available to the business for the foreseeable future. It is not needed to fund existing projects. Ultimately, the board will need to decide whether to invest this core cash into a new project or to return it to shareholders. Treasury will need to manage this cash, and liquidity may not be as high a priority.

**Figure 3.1. Diagrammatic divisions of cash into working capital and short- and long-term cash.**

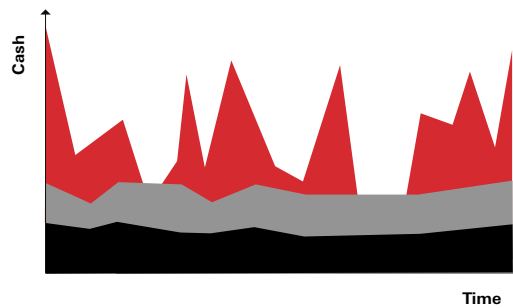


Figure 3.1 shows how a company will have varying amounts of cash to invest over a period of time. Working capital is shown in red, short-term predictable cash is grey, and medium/long-term cash is black.

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**Evaluating the nature of cash**

Whether or not treasury decides to classify cash in this manner, before an investment decision can be made, four factors do need to be known:

- ◆ the location of the cash;
- ◆ the currency in which it is denominated;
- ◆ the amount of cash to be invested; and
- ◆ the dates when the cash will be available and will again be required by the business.

**Location**

Central treasury should be aware of all significant bank accounts in all locations, whether cash is subsequently centralised or not. In particular, treasury should be aware of all header accounts within the business’s liquidity management structure. This appraisal will include all central or regional group accounts, as well as in-country pooling/cash concentration arrangements.

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Even if the company has a centralised or semi-centralised liquidity management structure, some funds may remain in local accounts. This may be the result of regulatory, tax or other factors, such as exchange controls, which may prohibit or reduce the value of any movement of funds.

### Currency

Treasury should know the currency in which the significant bank accounts are denominated. For example, international companies often establish cross-border liquidity structures for their major operating currencies (typically USD and EUR). At the same time, they will maintain local currency liquidity arrangements in countries where it is sensible to do so.

Treasury will have to decide whether it is possible and realistic physically to convert cash into another currency for investment purposes. In practice, cash would have to be available for investment for a number of days to make this worthwhile.

Some banks offer cross-currency cash pooling on a notional basis. This allows the company to pool different currencies together for liquidity management and investment purposes, with no requirement to swap out of the underlying currencies, and with any surpluses being made available in the chosen base currencies.

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### Amount

For every significant bank account, treasury will generally have a forecast daily balance. Cash flow forecasts usually become more detailed as the forecast date comes closer. For example, a cash flow forecast for tomorrow will be much more detailed and accurate than one for three months' time.

Each day, treasury may need to update and confirm the cash flow forecast before making any investment decisions. The characteristics of an individual instrument will also determine which investment instrument is selected. For example, sweeps into interest-bearing accounts require the funds to be available at the time of the sweep, whereas a bond purchase will only require funds on settlement date.

### Available investment period

A forecast of future balances over the next days and weeks will highlight when the cash will be required again by the business. This forecast should be subject to stress testing over, for example, a 30-day period to protect against the impact of both inaccurate forecast data and a tightening of liquidity (such as that caused by delayed customer receipts). A stress test should simulate a range of potential scenarios to understand their effect on forecast cash levels. The potential scenarios could include a range of historical, hypothetical and probable situations at both macroeconomic



Introduction	(e.g. a financial recession in one or more key markets) and specific (e.g. the failure of a key customer or supplier) levels.
Forecasting	
Managing	
<b>Segmenting</b>	It is increasingly possible to deploy artificial intelligence (AI) to help with the processes of forecasting and quantifying surplus cash. AI and big data can also help to review operating parameters by, for example, refining economic risk models to improve sales forecasts and, consequently, anticipated collection receipts. They can also be used to amend target balances within cash pools, as clearer cash flow patterns are identified.
Establishing	
Implementing	The stress-tested forecast balances will provide treasury with the opportunity to invest in longer-dated instruments. They will also remove the need for treasury to reinvest all surplus cash on a daily basis. This absence of any requirement to reinvest funds will reduce the effort and operational risks associated with investing, such as misrouted funds or accounting mistakes. However, treasurers will recognise that any decision to invest for a longer period will reduce liquidity and increase exposure to other market risks (such as counterparty risk).
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The treasurer will only want to invest working capital in instruments which are accessible overnight (or perhaps within a week) but may feel comfortable investing short-term predictable cash for a longer period (for example, three months) to reduce reinvestment risk and, potentially, to achieve a higher return. That said, treasurers are aware of the potential for market liquidity to tighten without notice, as happened in 2008. Because the role of treasury is conservative, many companies are electing to hold short-term predictable cash in short-term investment instruments to provide liquidity in the event that cash is urgently required by the business. In many organisations, this decision to hold most short-term cash in such instruments is further supported by the result of stricter internal liquidity stress tests.

Medium/long-term cash can be invested in longer-dated instruments. Furthermore, because this cash is not needed by the company for daily business purposes, the treasurer may be permitted to assume a greater risk when investing the funds (in the form of increased duration and a loss of liquidity rather than security) in order to achieve a higher return on the investment. On the other hand, where a company forecasts stable levels of surplus medium/long-term cash, it may be appropriate to try to reduce cash levels to lessen investment risk, because of the impact of such cash on the company's overall return on capital.

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Classifying cash according to a company's requirements is complex. Reassessment of short-term predictable cash decisions with a view to staying liquid is just one illustration of this. As a result, it is now more appropriate for treasurers to classify surplus cash for investment in one of two categories: operating cash or strategic cash.

### Operating cash

In most cases, operating cash is defined as cash that is likely to be required within a year (although this could vary from company to company). This will include working capital, as previously defined, short-term predictable cash, and any additional cash which is expected to be needed within the next 12 months. As such, treasurers will want to prioritise the same objectives (security and liquidity) when investing both working capital and short-term predictable cash.

There are two significant reasons for this. First, many companies will want to have a larger proportion of any invested cash available on a precautionary basis, in order to reduce the immediate impact of any adverse changes in trading conditions. Although companies now perform more stringent credit checks and liquidity stress tests, wherever possible treasurers will want to ensure they are not reliant on income from short-term receivables to meet payment obligations. This may require an increase in both the level and proportion of cash surpluses which can be accessed both on an overnight and monthly basis. This might also include the maintenance of a higher level of liquid cash reserves than in the past, to provide an extra degree of comfort to comply with any bank covenants which may refer to cash ratios (or in case a bank gets nervous and changes its conditions). This has the effect of increasing the proportion of cash held as 'working capital'.

Second, treasurers need to consider the impact of International Financial Reporting Standards (IFRS 9) on the valuation and disclosure of investments. International Financial Reporting Standards take a qualitative view of whether an investment should be disclosed as 'cash' and how that investment should be valued. For example, the extent that investments exhibit widening spreads, or any uncertainty of recovering principal, means that they are less likely to be disclosed as cash and valued at par.

### Strategic cash

Liquidity, and to some extent security, is less important for strategic or medium/long-term cash. This 'non-essential' cash is cash which the company does not envisage using within (perhaps) the next year – the exact timeframe will be determined by individual company criteria, including both business activities and the level of funds held in a precautionary capacity. It is a decision for the board whether to hold the cash, use it to expand the business (whether through acquisition or research and development) or to return the cash to shareholders. If the

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decision is made to invest the funds, there will be a greater pressure to prioritise yield when making the investment.

**Figure 3.2. Division of investments into strategic and operating cash.**

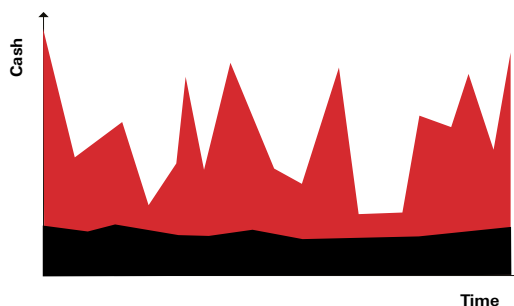


Figure 3.2 shows how the same cash surpluses can now be segmented into two, rather than three, categories. The treasurer would now view the cash in red as operating cash and the cash in black as strategic cash.

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### Case Study European multinational chemical company

With significant cash surpluses in a low interest rate environment, the company has been under shareholder pressure to reinvest cash back into the real economy.

This company has an effective visibility over cash which allows it to segment its cash into working capital and longer-term strategic cash. It continues to keep its working capital cash in very short-term, highly liquid instruments, including AAA rated money market funds. However, it is prepared to sacrifice some liquidity when investing a portion of its longer-term strategic cash, especially because it has become more confident with the economic outlook.

For longer-term strategic cash, the company has outsourced its investment management under a mandate. The mandate requires the asset manager to replicate the counterparty risk profile used in a triple AAA money market fund. The asset manager selects counterparties on the company's behalf and creates a model portfolio using the same approach to counterparty risk as it uses in its money market funds. This means, for example, that the

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company’s counterparties must all have an A1/P1 credit rating in order to preserve principal.

The company’s confidence in its visibility over cash means it is prepared to commit its strategic cash for longer than overnight. As a result, the mandate allows the asset manager to select longer-dated instruments, giving the company an investment portfolio with a much longer duration than is permitted under either the SEC 2a-7 or European Commission rules for money market funds. Even so, most cash is invested in instruments with a maturity below one year.

This solution allows the company to invest its strategic cash for a slightly improved yield without compromising the security of principal. Outsourcing also gives the company an improved return without the cost of managing its own team of credit analysts.

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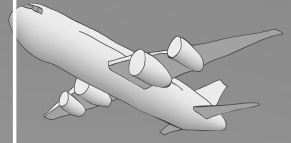
**Bank classification will also be important**

When classifying cash, treasurers also need to bear in mind how banks view corporate deposits. Under Basel III, corporate short-term deposits are considered to be less ‘sticky’ (i.e. more likely to be withdrawn) than longer-term deposits when assessing a bank’s liquidity coverage ratio. As such, short-term cash deposits (defined as less than 91 days) are treated differently to longer term deposits. As a consequence, banks offer greater incentives to treasurers to deposit strategic cash for longer than 90 days. Treasurers may also have to document their categorisation of funds between operating and strategic cash in order to be able to place short-term operating cash in bank deposits.

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# Establish

# Establishing an appropriate investment policy

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## Introduction

With a clear view of how cash flows through the business and a forecast of future cash balances, the treasurer needs to establish an investment policy. This should establish overall objectives for short-term investment, and detail how the treasury will seek to manage risks which may arise.

This chapter examines how an investment policy fits with other company policies, including the treasury policy and then considers the different investment objectives which a company can pursue, and highlights the key sources of risk to those objectives. The chapter identifies the core components of all investment policies, establishes how tax and regulations can affect decision-making, and details how investments should be reported.

The chapter concludes with a sample investment policy to illustrate how these points can be put into practice.

## The purpose and scope of an investment policy

Although the precise structure and content of an investment policy will vary from company to company, any such policy should play a central role in allowing the board to exercise control over the company's activities in this area. At the same time, the policy will provide the treasury department with clear parameters within which it is permitted to operate, as well as a mechanism by which to change these parameters in the future.

In some companies, the investment policy will be part of a wider treasury policy document. In others, it will be a standalone policy, albeit with links to the treasury policy document. This may be appropriate if, for example, the policy is designed to cover longer-term investment decisions, such as the management of the company pension fund. However it is structured, the investment policy (especially a standalone document) must be consistent with other relevant documents. In particular, it must

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be consistent with any counterparty risk policies applicable to financial instruments, such as swaps and foreign exchange transactions.

Similarly, the level of detail contained in the investment policy must be comparable with other documents. Some companies have very detailed investment policies which cover the full range of activities, from setting investment objectives to dealing, while others have a shorter, less comprehensive investment policy but which is supported by a more comprehensive guide to operating procedures drafted by the treasurer and agreed by the finance director.

**Board level direction**

In order to be effective, the investment policy must be agreed on by the board both when it is initially drafted and again when any further changes are made. This requires the treasurer or finance director to make a board presentation prior to the decision to adopt the policy.

This presentation should explain not only the main features of the investment policy but a series of alternative scenarios representing different levels of risk, both more and less risk-averse than the recommended level, to highlight the potential risks and returns which the company could choose. By doing so, board members will have an opportunity to understand the potential implications of specific decisions. For example, the treasurer could suggest a number of alternatives with different permitted instruments and limits, alongside the potential security and liquidity implications of each decision. The treasurer should also include a statement of the key benefits and disadvantages of each alternative.

In some cases, the decision to approve the investment policy may be taken by a board-approved treasury committee. In these instances, the treasury committee will have been granted the authority to do so by the main board. This is most common when the main board has already approved the core treasury policy.

**Demonstrate control and understanding of risk**

The board has a responsibility to manage company assets in a way that enhances shareholder value. By approving an investment policy, the board demonstrates to shareholders that it has met that responsibility. By focusing on the efficient management of company assets, a formal investment policy will also impose discipline on the board.

All investment activities entail risk. All companies differ in their approach to, and appetite for, risk. The board must demonstrate to shareholders (and other interested parties) that they understand the nature of the risks being assumed and the expected investment returns. The key point is for the directors to agree an investment policy which reflects the overall risk appetite of the company.



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For example, shareholders in a capital-intensive mining business may expect their directors to take less risk when investing cash than shareholders in a cash-rich software company might expect from their directors. This is because the risk appetite for the mining company is closely linked to the company's future plans: it will typically look to reinvest any earnings back into the company, so a loss of principal will affect the company's growth prospects. On the other hand, while the software company will also reinvest earnings in development, its overall development costs are usually much lower than those of the mining company.

In effect, a company's risk appetite is linked to the impact of a potential loss of principal. All other things being equal, a loss of principal would affect the future plans of the mining business more than those of the software company.

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The board should consider whether it is appropriate for the company to assume greater risks when investing cash for longer periods of time. In particular, it must decide whether treasury is permitted to put principal at risk in order to try to enhance the return on investment. Ultimately, a cash-rich company has to decide whether to reinvest cash in a future project, to retain cash because of the financial flexibility it confers, or to return the funds to shareholders.

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### **Case Study Money Market Funds Provide Flexibility**

When an organisation receives a major inflow of cash, such as after a successful divestment, the treasury department will be tasked with managing that cash until the board determines how the proceeds should be used. For many treasurers, this can create difficulties if they lack the resources to manage significant cash flows within the parameters set by the treasury investment policy.

One UK-based organisation faced such a challenge, after it received nearly GBP 1 billion following the sale of some of its investments. While the board determined its strategy (whether to distribute the cash back to shareholders or to identify and take advantage of potential investment opportunities), the treasurer had to manage the cash with two clear objectives: retaining access to the cash in case an investment opportunity was identified while preserving the principal on behalf of shareholders. Ideally, the investment would earn a return as well.

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Bank term deposits were considered and rejected. The company lacked the resources to adequately assess the associated counterparty risk and did not want to compromise on liquidity for strategic reasons. Instead the company chose to use money market funds, which had already been identified in the board-approved treasury strategy as an appropriate destination for cash.

Although some of the new cash inflow was placed in USD-denominated funds, the majority was invested in GBP-denominated money market funds to help minimise foreign exchange risk. The money market funds were accessed via an investment portal, which also provided a degree of reporting.

With the cash now invested in the money market funds, the company continues to review its strategy on how to use it in order to achieve the best value for shareholders. For the treasurer, the use of money market funds is convenient and flexible, and they pay a satisfactory return.

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### Support for treasury

A board-approved investment policy gives the treasury department the authority to act within agreed parameters. The policy may include operating procedures which govern the day-to-day process of taking and implementing investment decisions, although they are typically set out in a separate procedures document, also agreed at board level. Together, the investment policy and operating procedures will detail the limits of the treasury department's authority and establish how decisions are to be taken. They do not, and should not, determine what the individual decisions will be (although they may require that exceptional investment decisions (for example, the investment of any funds in breach of limits detailed in the policy or procedures are taken by the board).

The act of approving the investment policy clearly demonstrates the board's view of its importance throughout the company. As such, the treasury department may also be able to use the company-wide acceptance of the policy's value when seeking to exert control over operating companies throughout the group. Once approved at board level, operating companies can be required to adopt the group investment policy as part of their own operating policies.

The board will continue to be responsible for overseeing the implementation of the policy. Maintaining effective internal and external audit programmes is an important part of that process.

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## Review

The investment policy should be reviewed by the treasury department at least once a year, as well as after any major corporate event (such as a merger), to ensure that it remains fit for purpose and reflects any changes in the company's risk appetite. Crucially, the policy must keep abreast of market developments and industry practice. Even if regulation does not apply directly to a corporate investor, any changes can have a significant effect on investment opportunities. As examples, both Basel III and European Union (EU) and US money market fund reform resulted in changes to the characteristics of a number of short-term investment instruments, including bank deposits and money market funds. Market volatility and uncertainty have also resulted in many companies reducing their appetite for risk generally. Any proposed changes should be submitted to the board for consideration and approval.

## Objectives of investment

The agreed policy should reflect the company's overall investment objectives, whilst recognising that the specific objectives of each investment decision will vary according to the circumstances in which they are taken. For example, if a company chooses to segment its cash (see Chapter 3), its investment objectives may vary according to the type of cash being invested.

### The core objectives

All investment decisions require a compromise to be made between the three core objectives of investment: security, liquidity and yield. For instance, achieving an enhanced yield requires an investor to accept a higher risk, in the form of either lower security or less liquidity. For this reason, treasurers looking to invest cash will usually focus on two core objectives: security and liquidity.

The investment policy should indicate whether any compromise on security and liquidity is acceptable and, if so, outline the circumstances.

### Security

In most cases, the preservation of the principal sum is the core investment objective. Working capital cash is central to a company's operational activity and will be required to meet obligations arising on a daily basis. Any realised loss of principal will be a drain on profits, and will mean that funds will need to be raised from an alternative source, which, at short notice, could be expensive or even impossible. This is less the case when investing longer-term cash, as the treasurer will have more time to arrange alternative funding, should there be a loss of principal (although a degree of security will always be important). (If the loss of principal is derived from market prices rather than a credit default, then holding to maturity is a solution with longer-term cash.)

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For long-term cash, such as funds set aside for future strategic acquisitions, daily access may not be required, and the company may therefore be prepared to sacrifice liquidity (i.e. instant access without any material impact on principal) for higher yield.

By identifying the importance of security, treasury will be able to select an instrument which matches their objective. Some instruments, such as bonds, may see the value of the invested principal fall or rise if sold before maturity, while the principal for bank deposits, for example, is secure, as long as the counterparty itself does not fail.

The investment policy should indicate the circumstances when a compromise on the preservation of principal may be acceptable. Companies will differ in their view of this risk. Some will decide that the risk assumed when investing principal should be the same, whether investing overnight or for six months. Others will be prepared to assume additional risk when investing longer-term cash, but only if the risk/reward ratio is appropriate.

### **Liquidity**

Invested cash must be accessible. If it is not, the company may be forced to borrow from an external source, while simultaneously having surplus cash invested in an illiquid instrument.

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Again, treasury needs to identify how important liquidity is before making an investment. The categorisation of cash into operating cash and strategic cash is useful. When investing operating cash, treasury will want to choose from the more liquid instruments. These allow investors access to funds without giving notice or, in the case of a non-bank deposit, without having to sell the instrument. Even when investing strategic cash, treasury must be mindful of the need to realise their cash investments should there be a sudden change in the market environment.

Depending on the amounts of cash held and the likely operating cash needs, it may be possible to create adequate liquidity whilst investing in non-liquid instruments. By including a range of maturities, it is possible to ensure that suitable amounts mature at timely intervals.

The investment policy should indicate how liquidity is to be achieved, by setting a maturity profile or specifying the proportion of cash which must be invested in liquid instruments. This profile or proportion will vary according to a number of factors, including the accuracy of the cash flow forecasting system, the size of the maximum daily cash outflows that might need to be met unexpectedly, and the amount of funds available for investment. Information is important; the more uncertain treasury is about future cash requirements, the greater will be the importance of selecting liquid investments.

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Again, liquidity is less important when investing longer-term strategic cash, although the treasurer will not want all such cash invested for maturity at the same time. This is to avoid having to manage the reinvestment of significant funds at once. Instead, the company will usually want to retain a rolling programme of maturing investments over a specified time period (perhaps over six to 12 months), giving treasury the opportunity to manage the duration of the portfolio over time. In particular, this allows the treasurer to reduce the duration of the portfolio gradually: for example, if the board expects trading conditions to become more difficult, or if the company requires more cash for operational (rather than strategic) purposes. There are, of course, exceptions, such as in the event of the cash being held for a specific acquisition, or to meet a particular debt payment requirement at a set time in the future.

### **Yield**

When investing corporate cash, earning an enhanced return from the funds invested is almost always subordinate to the first two objectives: security and liquidity. In principle, there is a trade-off between risk and return: the higher the risk, the higher the possible return. To earn a higher return, treasury would need to compromise on the requirements to ensure the preservation of principal and that sufficient liquidity is available.

The categorisation of cash is useful here, too. Treasury may be permitted to invest longer-term cash in riskier investments or in investments which restrict liquidity, in order to try to generate a higher overall return. The investment policy should indicate the circumstances in which this is acceptable. As an alternative, treasury (and the board) may consider other means of reducing the amount of long-term cash available to invest. These include paying down debt and returning cash to shareholders.

By implementing improvements to the cash flow forecasting or liquidity management systems, treasury may be able to improve the company's working capital and cash position without compromising the requirements of either liquidity or security.

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### **Case Study A UK multinational with Chinese subsidiaries**

The Chinese subsidiaries of a UK-headquartered MNC used to place their short-term cash surpluses in term and structured deposits offered by local cash management banks. The inclusion of these subsidiaries in a new in-country cash pool in China resulted in a greater cash balance being concentrated. However, because this balance was larger than the individual counterparty limit set by the group's investment guidelines, the China head office could not place

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the entire balance with a single counterparty. The treasurer had to find new locations for that cash.

The treasurer identified a local, RMB-denominated money market fund with an investment policy which would deliver the company's objectives, namely the preservation of security and liquidity. The fund offered full transparency, providing detailed information on its investments on a regular and timely basis. The treasurer placed RMB 100 million with the money market fund to help the company diversify its counterparty risk.

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### **Benchmarking yield**

Any treasurer required to measure yield should do so against an appropriate benchmark. Many companies use LIBOR (and other interbank rates) to benchmark their short-term investment yield. However, LIBOR's replacement means these organisations will have to identify another benchmark rate. Overnight Index Swap (OIS) rates are an alternative to LIBOR and are based on central bank interest rates (such as the Bank of England's Bank Rate for GBP-denominated borrowings, or the Federal Reserve's Fed Funds Rate for USD-denominated borrowings). Treasurers may also decide to use the LIBOR replacement rates (including SOFR, SONIA and ESTER) as benchmarks. For terms longer than one year, the ICE SWAP rate (formerly ISDAfix) is a common benchmark rate.

### **Using Overnight Index Swaps**

The two parties to the OIS agree to exchange the difference between the interest accrued at an agreed fixed interest rate for a fixed period (for example, three months) on an agreed notional amount, and the interest accrued on the same amount, by compounding the reference index daily over the term of the swap.

Settlement is made net, at an agreed date after maturity (in the sterling market settlement is on the maturity date), so the principal never changes hands.

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The following example illustrates how a company selected an investment instrument to match its risk appetite and meet its objectives.

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### Case Study A Mexican subsidiary of an MNC

To finance business expansion, the Mexican subsidiary of a US multinational company issued a bond to raise USD 700 million. Having raised the funds, the subsidiary needed to invest the cash until it was needed by the business. Prudent counterparty risk management meant that the subsidiary was not permitted to deposit the cash with a local cash management bank. Instead the subsidiary chose to place the bond issuance proceeds in a USD-denominated, Dublin-based money market fund. This solution allowed the subsidiary to meet two objectives. First, it maintained security of principal via the counterparty diversification offered by the fund. Second, it ensured no loss of liquidity, so that the subsidiary would be able to draw down funds when required.

#### Nature of risk

All financial decisions involve some risk. The board determines the company's appetite for risk, and this will be reflected in the investment policy. The challenge for treasury when investing corporate cash is to understand how risk arises, so that it can be managed effectively to ensure the investment objectives are met. For example, treasury may be permitted to assume more risk when investing longer-term, strategic cash than operational cash.

For every investment decision, treasury's task is to match risk to expected return. This applies equally whatever the investment objective. For example, if treasury's objective is to maintain principal, treasury must understand counterparty risk and take action to manage it. If, on the other hand, the objective is an enhanced return, treasury should assess the risk of a loss of principal and decide whether the prospect of that potential return is justified.

#### Where does risk arise?

##### Credit risk

This is the risk that arises from the failure of a counterparty resulting in the loss of some or all of the invested principal. This applies whether the counterparty is a bank or, for example, a non-bank issuer of commercial paper.

In addition, where a treasury holds investments subject to credit rating limits (see below), there is an additional risk of a downgrade in the rating of an investment below the minimum investment criteria. In these circumstances, the downgrade may trigger a requirement to sell the

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investment (assuming this is possible), which may result in loss of principal as a result of the forced sale.

### **How credit ratings can help to manage credit risk**

Credit ratings can help to manage credit risk, as they provide a measure of the likelihood of default on financial obligations.

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### **The Bond Market Association (now the Securities Industry and Financial Markets Association) definition of credit ratings**

‘...Ratings are intended to measure the probability of the timely repayment of principal and interest on municipal securities. Ratings are periodically reviewed and may be amended to reflect changes in the issue or issuer’s credit position. The ratings may be affected by the creditworthiness of the issuer itself or from a credit enhancement feature of the security such as guarantor, letter of credit provider, and bond insurer. Some rating agencies provide both long-term and short-term ratings on variable rate demand obligations.’

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Ratings are an opinion on the relative ability of a financial obligor to meet its financial commitments, such as interest, repayment of principal, insurance claims or counterparty obligations. Ratings are intended to be easily understood measures which differentiate between debt instruments on the basis of their underlying credit quality. They are, therefore, focused on communicating the relative ranking of the default loss probability for a given fixed income investment, in comparison with other rated instruments or financial obligors.

While recovery analysis (an assessment of the chances of recovering principal and accrued interest on defaulted debt) plays an important role throughout the ratings scale, it becomes a more critical consideration for below investment-grade securities and obligations, particularly at the lower end of the non-investment-grade ratings scale. Rating agencies may publish a separate ‘loss given default’ rating for these credits.

Rating agencies gather and analyse information on instruments, issuers, obligors and various financial intermediaries. The agencies’ specialised focus on credit analysis and related research enables them to produce independent assessments of the creditworthiness of various investment options. Their methodologies are broadly similar and thus their ratings are generally comparable.



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In the case of banks, rating agencies may also publish a separate assessment of the willingness and ability of a government to support the banks within its jurisdiction. For example, Standard and Poor's Banking Industry Country Risk Assessments allocate countries to groups, numbered one (highest) to ten (lowest). Fitch publishes bank systemic risk indicators in its Macro-Prudential Risk Monitor reports, and Moody's publishes a separate banking system outlook for each country considered when it generates an overall rating of a bank. (The latest methodologies are available on the agencies' websites.)

When considering a combined limit for a country's banks, the home country's sovereign rating can be a guide. For sovereigns, 'own currency' and 'foreign currency' ratings are usually available. The foreign currency rating will tend to be the more prudent, since governments may be able to satisfy obligations in their own currency (if need be by printing it) more easily than they might satisfy obligations in another currency (of which they are not the issuer).

The table below summarises the international long-term credit rating scales of the three global rating agencies: Fitch Ratings, Moody's, and Standard and Poor's.

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<b>International long-term credit ratings</b>			
<b>Investment grade</b>	<b>Fitch Ratings</b>	<b>Moody's</b>	<b>S&amp;P</b>
Highest quality/Highest quality/ Extremely strong	<b>AAA</b>	<b>Aaa</b>	<b>AAA</b>
Very high quality/High quality/ Very strong	<b>AA</b>	<b>Aa</b>	<b>AA</b>
High quality /Upper medium grade/ Strong	<b>A</b>	<b>A</b>	<b>A</b>
Good quality/Medium grade/ Adequate	<b>BBB</b>	<b>Baa</b>	<b>BBB</b>
<b>Non-investment grade</b>			
Speculative/Speculative elements/ Less vulnerable	<b>BB</b>	<b>Ba</b>	<b>BB</b>
Highly speculative/Speculative/More vulnerable	<b>B</b>	<b>B</b>	<b>B</b>
Substantial credit risk/Poor quality/ Currently vulnerable	<b>CCC</b>	<b>Caa</b>	<b>CCC</b>
Very high credit risk/Highly speculative/Currently highly vulnerable	<b>CC</b>	<b>Ca</b>	<b>CC</b>
Exceptionally high risk/Extremely poor/Imminent default	<b>C</b>	<b>C</b>	<b>C</b>
In default	<b>D</b>	<b>C</b>	<b>D</b>

Note: Fitch Ratings and Standard and Poor's may append their ratings with '+' or '-' to denote relative status within major rating categories. Moody's may append its ratings with '1', '2', or '3' to denote relative status.

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Rating agencies also assign short-term credit ratings to debt obligations that have original maturities of one year or less, such as commercial paper. The table below summarises the international short-term credit rating scales of the three agencies.

<b>International short-term credit ratings</b>			
	<b>Fitch Ratings</b>	<b>Moody's</b>	<b>S&amp;P</b>
Highest/Superior/Strong	<b>F1+, F1</b>	<b>P1</b>	<b>A1+, A1</b>
Good/Strong/Satisfactory	<b>F2</b>	<b>P2</b>	<b>A2</b>
Fair/Acceptable/Adequate	<b>F3</b>	<b>P3</b>	<b>A3</b>
Speculative/Not prime/Speculative	<b>B</b>	<b>Not prime</b>	<b>B</b>
High default risk/-----/Vulnerable	<b>C</b>	-----	<b>C</b>
Default/-----/Default	<b>D</b>	-----	<b>D</b>

### **How rating agencies operate**

As mentioned, all the rating agencies use similar methods to analyse creditworthiness. (All the agencies publish their methodologies on their websites.) In order to make the best use of credit ratings, it is important to understand how the agencies operate – to understand what the agencies consider when developing a credit rating and, just as importantly, what the ratings do not measure.

Usually, credit ratings are developed by one or more of the agencies following a request from an issuer (or sometimes a guarantor which has been asked to underwrite the issue). The purpose of the rating is to provide potential investors in the issue (typically commercial paper or a bond) with an assessment of the creditworthiness of the instrument. In most cases, issuers need ratings to meet the expectation of the particular market, although ratings can sometimes be a regulatory requirement, too.

The analysis process is directed by specialist analysts employed by the agency (this may be country or industry-sector specific). The credit analysts will meet senior executives in the company which is preparing to issue the instrument. Analysts will review business plans and market projections and consult other sources, before making a recommendation to the agency's rating committee. Once it is satisfied, the committee will approve the rating for publication. The agency will publish the rating (using a point on the respective scale outlined above), as well as a fuller rating report outlining the analysts' conclusions. These conclusions are based on information in the public domain and the analysts' knowledge of the

Introduction	market (including the issuers' competitors), as well as information provided on a confidential basis by the company's senior management.
Forecasting	
Managing	Once issued, ratings continue to be monitored on an ongoing basis.
Segmenting	The surveillance method will vary according to the nature of the issue being rated: most issues are formally reviewed once a year. During this process, the analysts will look at a range of market data, as well as assess other company-specific data, such as cash flow forecasts or financial performance, industry or sector performance and competitor position.
<b>Establishing</b>	Furthermore, they will meet with management to review the company strategy. After a review, the agency will either affirm the rating (showing that the rating has been formally reviewed), upgrade or downgrade the rating (if the circumstances warrant the change) or place the issue on credit watch (if the agency wants to perform additional analysis or monitor developments). If an issue is placed on credit watch, the agency may also indicate whether the likely next rating will be an upgrade or a downgrade.
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The major credit rating agencies also generate ratings for money market funds. (Standard and Poor's uses the term 'principal stability fund' to refer to money market funds.) When rating these instruments, analysts will assess the quality of the underlying assets in the fund's portfolio. The analysts use a variety of tools to try to model the probability of default of all the instruments held by the fund, to weight each one according to its value in the fund, and then to create an overall rating for the fund based on the weighted average of all the securities held by the fund. The analysts will also consider the quality of the fund's own credit analysis as well as operational factors, before issuing the final fund rating. Because the composition of money market funds' portfolios of short-term investments is crucial, funds will be monitored more frequently, even on a weekly basis. Note that the agencies develop money market fund ratings using specific methodologies. These methodologies differ from those used to develop counterparty credit ratings so that an AAA money market fund rating is not equivalent to a long-term credit rating of AAA. Although the three agencies focus on the same issues, there are differences between their approaches to rating money market funds.

As with published ratings of other instruments, understanding the methodology used by the agencies is only one component of the credit risk assessment of a money market fund. Potential investors should also read the accompanying reports, rather than simply rely on published ratings.

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**Users and uses of credit ratings**

The more prominent users of credit ratings include:

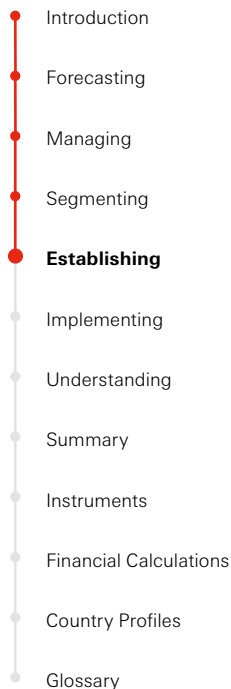
- ◆ lenders that extend credit facilities to borrowers;
- ◆ ‘sell-side’ participants (e.g. investment banks);
- ◆ ‘buy-side’ participants (e.g. institutional and corporate investors);
- ◆ companies as counterparties to banking and general clearing and collection activities;
- ◆ trade and commodity financiers that assess risk inherent in individual transactions; and
- ◆ regulators (e.g. financial institution regulatory bodies determining the extent of credit risk associated with institutions’ assets and liabilities).

The more notable uses of credit ratings include:

- ◆ defining investment eligibility;
- ◆ benchmarking default/acceleration triggers in various credit agreements;
- ◆ use in pricing grids by financial service providers;
- ◆ measuring performance on a risk-adjusted basis; and
- ◆ to help assess the relative creditworthiness of different instruments.

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From an investment perspective, credit ratings help treasury to assess counterparty risk. The investment policy will set absolute and relative limits to the amount which can be invested with any one counterparty. These limits may differ according to the nature of the counterparty. For example, higher limits may apply to the more strongly rated counterparties. It is vital that all counterparty limits are strictly adhered to. For a bank with several subsidiaries active in the market, the investor will want to set an appropriate limit for each subsidiary individually, plus an overriding cumulative total for that bank group. It is important that the investor fully understands its exposure to a banking group. The aggregated maximum group exposure should also incorporate any indirect exposures, which may include, for example, support for asset-backed commercial paper (ABCP) conduits.



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### Group-wide exposure in a decentralised environment

One difficulty for group treasury is managing group-wide exposure to a particular counterparty. As cash management becomes ever more centralised and large international banks merge, local operating entities are increasingly required to appoint a cash management bank from a smaller list of banks.

This can be a danger if significant cash remains invested locally, perhaps for liquidity management or regulatory reasons. These local pools of cash may be invested with different parts of the same banking group, giving rise to a significant exposure.

The concentration risk can be best addressed when appointing the cash management bank, as the largest exposure is likely to arise from the local use of bank deposits. Treasury will also need to consider applying counterparty limits to those entities which invest more than a minimum amount. At the very least, treasury may require local entities to provide details of their short-term investment, so that exposure across the group can be aggregated.

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Treasury may also want to link individual counterparty limits to country limits. For example, if a group is already exposed to the Italian economy because of its business interests, it may prefer to avoid increasing this exposure by investing in instruments issued by Italian banks, regardless of the fact that they may have acceptable ratings. When setting country limits, care should be taken to understand the quality of any bank deposit guarantee schemes or any indication of implicit government support for the local banking sector. Put simply, in the event of a counterparty bank failing, will the local bank guarantee scheme or government support be robust enough to be able to protect all investors' capital? This question also applies to any counterparty to a derivative transaction which might be in place to hedge an underlying position.

It is vital that treasury uses the rating issued for the exact entity it is dealing with. For example, a number of different ratings can be assigned to one corporation; its longer-term security issues and its short-term obligations can be at different rating levels, since different obligations (or classes of structured transactions) may generate different levels of default probability and related losses, given a default. Focusing on the entity may reveal whether it is covered by a group cross-guarantee or whether it has been deliberately left outside the 'ring fence'. In the case of some instruments (usually issued by banks), the investor should also establish whether the instrument is held on or off the sponsor's balance sheet. Whilst a bank

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may, from time to time, support off-balance sheet products, that support is not usually guaranteed or legally enforceable, and should not therefore be assumed or relied upon when making an investment.

The agencies provide a structured approach to evaluating credit risk. Credit ratings for non-complex investments accurately assess credit risk in the overwhelming majority of cases and have proven to be a reliable indicator for assessing the likelihood of default. This, coupled with their ease of use and widespread availability, makes credit ratings an essential tool for managing credit risk. For more complex structured instruments, credit ratings are less reliable, primarily because of the difficulty in understanding their true exposures. The investor will need to consider carefully the limits on the ability of rating analysts to assess these instruments. Generally, it is appropriate to invest in an understandable instrument and then use credit ratings (and other sources) to help to assess the creditworthiness of each potential individual issuer. However, it is not appropriate to rely on credit rating analyst assessments when selecting an asset class. Investors should only select instruments they understand.

### **The limits to the use of credit ratings**

The role of credit rating agencies has been under scrutiny for a number of years. Concern has focused primarily on a potential conflict of interest, i.e. the issuer pays for the rating generated by the agency. Although such criticisms are fair, they do not necessarily invalidate the use of ratings. Rather, they require investors using ratings to understand fully the information.

Ratings, like other assessments, are only as good as the information on which they are based and the skill of the analysts developing them. In this respect, they are no different from complex computer programs which model market performance (as the models are reliant on good quality data and human skill – in this instance that of the modeller and programmers). Also, because of the way they work, the agencies will not always be in a position to predict company failures. In some cases, such as Enron, analysts are simply deceived by company executives. In other cases, including the collapse of Lehman, circumstances change too quickly for the agencies to respond.

Many companies that rely on credit ratings simply refer to the ratings scales – these are made freely available from the rating agencies' websites. However, using the ratings scales without looking at the detailed commentaries the agencies provide is to overlook a great deal of the information on which to make a reasoned judgement of the risks. Access to the full detail is normally only available through paid subscription to the rating service. To benefit from it will require a commitment of time and effort by the company's in-house analyst.

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While ratings have been shown to provide a reliable frame of reference for credit quality, they do not reflect minor differences (in relative value) between instruments with the same ratings, as ratings use an ordinal rather than a continuous scale. Hence credit ratings should not be treated as the final point of assessment, but rather as a starting point. Investors should supplement public ratings and research with other analysis wherever possible.

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A major problem can be that of identifying the nature of the effective counterparties in more complex investments, such as those where derivatives are used. Banks may well use a special-purpose subsidiary as the counterparty to a swap, often to enhance credit standing, but this will need to be clarified.

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**Extending credit risk analysis beyond credit ratings**

Credit ratings provide the investor with a convenient and straightforward method of reducing the wide range of potential counterparties to a manageable size before more detailed credit risk analysis takes place. Once a shorter list of potential counterparties has been established, the treasurer can use other readily available measures to manage exposure to these counterparties.

There are a variety of measurements which can be used. For example, the treasurer could track the movement of relevant credit default swap (CDS) spreads or, more generally, the counterparty’s share price. While not solely driven by credit risk, both of these provide a quicker reflection of market and other events than credit rating agency actions. Both these indicators can be very volatile, so investors will attach the most significance to any large movements that are out of line with overall market moves. When considering a number of money market funds, for example, the treasurer should assess the weighted average life of each fund. This provides a measurement of each fund’s sensitivity to changes in credit spreads and its ability to cope with an untoward level of redemptions. (This is also useful for treasurers who manage their own investment portfolios.)

The three main credit rating agencies have developed market implied ratings. These are models which use market inputs, such as share prices and bond yields, to try to create more dynamic credit ratings than those outlined above. By using these market inputs, the implied ratings are constantly updated. Unlike the core ratings, this data is not freely available, and may be too expensive for all but the largest corporate treasuries to access.

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As a proxy for these services, some companies now use CDS spreads or stock or bond market movements to measure market views of the perceived credit risk associated with a particular reference entity, providing them with warning signals to consider cutting limits or even removing a counterparty from their list. A CDS is effectively a form of insurance, in which the seller pays out should a credit event affect the reference entity. The buyer pays a series of payments, known as the spread, over the life of the CDS contract. The payments will increase as the perceived credit risk of the reference entity increases. Although CDS contracts are arranged over the counter, there are a number of information providers which capture and publish pricing. Although this information may reflect changes in creditworthiness more quickly than credit ratings, it is also only as accurate as the models used to derive the pricing. CDS spreads can also be affected by specific CDS trading activity in what is normally a very thin market, or by general market volatility. As with other tools, CDS spreads should not be used in isolation to model counterparty risk.

As part of more detailed credit analysis, the underlying instruments should also be examined. When investing in repos, for instance, the transaction is only as secure as the underlying collateral instrument. Money market fund investors will want to understand the nature of the instruments that are bought by the fund. As discussed above, treasurers should evaluate the quality of any guarantees that are relied on to protect the security of the investment. If the relevant issuers of the underlying collateral or guarantors are existing counterparties, a treasurer should ensure these exposures are included in any calculation of exposure to the relevant counterparty.

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Although there are clear advantages to be gained from performing additional credit analysis, it is important to remember that these cannot fully protect a company against the risk of loss. This is why the adoption of strict counterparty limits remains critical.

Larger investors should also set additional prudent limits, based on the size of funds they deposit with each counterparty. For example, a company may not want to deposit more than 5% of the total assets contained in a money market fund, or 5% of the tier one capital held by a bank. In a similar fashion, a minimum degree of diversification can be imposed by requiring that, at any time, no more than 10% of the group's investments be with any one name. However, this sort of 'rule' becomes impractical for small amounts where diversification might reduce the deal size to below practical market sizes.

#### **Resourcing credit analysis**

Whilst all these additional checks will help to reduce counterparty risk, the difficulty for many treasurers is finding the resources to perform them. In effect, the treasurer has two choices: to build a team in-house, or to buy services from a third-party provider.

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Few organisations other than the largest companies can justify the cost of building a team in-house. Even where an in-house team is available, it may only have the time to analyse the largest potential counterparties. Local investment decisions may still be taken on the basis of relationship, supported by credit ratings, and subject to overall counterparty limits.

The other alternative is to purchase this additional credit analysis. One solution is to outsource either by investing in money market funds or to use specialist fund managers when investing short-term cash. In both instances, the fee paid by the company to the fund manager will include a charge for the credit risk analysis it performs. Evaluating the quality of a fund manager's credit analysis team is an important part of the selection process when deciding to outsource.

A further alternative is to buy credit analysis from specialist consultants. This is a riskier strategy as, compared with fund managers, the consultants are not as accountable for their advice. It is incumbent on investors to understand the nature and scope of any advice given, which requires the investor to know how the consultants reach their conclusions.

### **Liquidity risk**

Liquidity risk is the risk that funds will not be available when they are needed. In particular, treasury will want to avoid having to borrow in the external market while surplus cash is inaccessible in an investment with a notice period.

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A good example of liquidity risk is the failure of UK bank Northern Rock, caused by its over reliance on funding from short-term wholesale markets which it was unable to access in 2007.

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The nature of the risk varies according to the instrument. Funds deposited in bank time deposits are inaccessible until the stated maturity date. On the other hand, cash invested in commercial paper can usually be realised before it matures, by selling it in the secondary market. An investor's ability to do so depends on the quality of the paper and the state of the market.

For some investments, there is also a liquidity risk on the liability side. This is the risk that the counterparty cannot meet its redemption obligations. For example, in September 2008, the US Reserve Primary Fund was unable to meet its redemption obligations in full, because of its overexposure to Lehman Brothers debt. Note that if a money market fund's liquidity falls below specified thresholds (e.g. weekly liquidity falling below

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30% of portfolio assets in the EU), then the fund may impose a redemption gate or apply a liquidity fee, effectively be restricting an investor's access to cash. How money market funds manage liquidity is discussed further in Chapter Six (Consequences of European Money Market Reform).

Money market funds may also be susceptible to such a liquidity risk if the investor profile is unbalanced. Investors will want to assess whether a fund is overdependent on a particular investor or type of investor, or a particular market. Different types of investors have different seasonal cash requirements or liquidity needs. The liability liquidity risk will be lower in a fund with a spread of investors that is broad, in terms of both their market sector and their geographical spread.

In general, investments made by pension funds or retail investors tend to be 'stickier' than corporate cash investments. This is mainly because the funds have a longer-term perspective than companies investing their working capital. Interpretations of accounting rules also lead to more volatile company investment activity, as corporate treasurers seek to redeem money market fund investments at quarter or month ends to ensure those investments are considered as cash by their auditors. The key task for the investor is to understand the liability profile of any fund or other counterparty before making an investment.

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Another example of liquidity risk arose when institutional investors, including companies and local governments, with deposits in three Icelandic banks (Glitnir, Kaupthing and Landsbanki) lost access to their funds when the banks were placed in receivership in October 2008. Many retail investors were covered by deposit insurance schemes, and did not lose their invested principal (up to the limits of the schemes). However, they did lose the opportunity to earn interest while the banks were in receivership, and reinvest their savings whilst the insurers administered the schemes.

Similarly, institutional investors lost access to the invested principal during the five-year period the banks were in receivership, and, although the overwhelming majority of their invested principal was returned, they did lose significant reinvestment opportunities.

Institutional investors, whose principal may be insured or covered by a guarantee, must recognise that there is a residual liquidity risk, even if credit risk can be reduced or eliminated. It is also important to remember that, in the case of insurance or guarantees, this credit protection is only

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as valuable as the strength of the insurer or guarantor. In the case of bank deposits, this can include the financial strength of a government, as has been seen with recent problems in the eurozone.

To help manage liquidity risk, the investment policy will set constraints on the maximum maturity/duration of investment, or may even establish a 'liquidity ladder' (i.e. the proportion of funds that should be accessible overnight, with one week, etc.). For example, it may state that a certain proportion of cash must be invested in overnight deposits. Alternatively, it may state that a specific proportion of cash must be invested in instruments accessible within two days. If the policy permits investment in longer-term instruments, treasury should ensure that a certain minimum amount matures regularly (daily, weekly or monthly), in order to provide sufficient liquidity to meet unexpected cash outflows. This figure should be determined by the effectiveness of the cash flow forecasting system.

### **Margin risk**

Some companies may face a margin risk (the risk of having to pay a margin) under European Markets and Infrastructure Regulation (EMIR: EU Directive 648/2912) requirements. EMIR applies to all market participants in the European Economic Area (EEA) and to participants from outside the EEA trading with an EEA counterparty both when trading with financial counterparties and their own group counterparties. EMIR was introduced to reduce the risk to the financial system from derivatives transactions. After reviewing the effect of EMIR, the European Commission proposed a series of amendments which came into force as EMIR 2.1 (or EMIR Refit) in June 2019.

Under EMIR Refit, financial counterparties are responsible for reporting for both parties when entering into a contract with a non-financial corporation. A non-financial corporation may also be required to meet central clearing or risk mitigation requirements for any asset class for which the company breaches a threshold (it had previously been for all asset classes once a threshold had been breached for one class). Thresholds exist for five different classes of derivatives: EUR 1 billion for credit or equity derivatives and EUR 3 billion for interest rate, foreign exchange or commodities and other derivatives and are calculated according to the nominal value of derivatives the company enters into as a rolling average over the period of a year (it had been a 30-day period under the original directive). Cash products, spot foreign exchange and derivative transactions used for hedging activities (as defined under Article 4 of EMIR) are exempt from this calculation.

This margin risk compounds the liquidity risk outlined above. In addition, it is of concern for treasurers in companies whose use of derivatives are below, but close to, the EMIR clearing thresholds. Treasurers in these circumstances must consider whether it is appropriate to clear derivatives

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voluntarily via a central counterparty (with the associated increase in costs) or to accept the cost of paying margin or credit value assessment charges.

Treasurers also need to be aware of breaching thresholds during any due diligence process as part of an acquisition. For example, any acquisition involving exposure to commodities can take the company over the clearing thresholds, adding cost to implementing the company's wider risk management policy.

US regulators introduced measures similar to EMIR via the Dodd-Frank Act. This similarly requires companies to clear and report derivative transactions unless they qualify for an exemption.

### **Market risk**

Market risk is the potential for adverse movements in the market to affect the value of the investment or the expected returns on future cash surpluses. There are three main forms of market risk: interest rate risk, foreign exchange risk and credit valuation risk.

### **Interest rate risk**

When investing, treasury will usually have to choose between instruments offering fixed and floating rate returns. In general terms, when interest rates are falling, fixed rates are attractive. When interest rates are rising, floating rates allow the investor to benefit from these increases.

The difficulty for treasury is that the risk of making the wrong decision increases as the investment term increases. When investing operational cash, any changes in the interest rate during the few days of the investment will have a minimal effect, but interest rate risk becomes a significant issue when investing longer-term, strategic cash.

Some policies define the proportion of investments which should be held in fixed-rate instruments. Others consider investment together with any company borrowing, so that a certain proportion of net debt must be carried at a fixed rate. The concept of weighted average maturity (WAM) helps a treasury to understand an investment portfolio's sensitivity to interest rate movements. To reduce sensitivity to interest rates, an investment policy could state a maximum WAM. This is an important feature of money market funds: to qualify as an EU short-term money market fund, a fund must operate with a maximum WAM of 60 days. (Note that when calculating WAM, it is the maturity of the instrument's current rate fixing period that counts. A floating rate note (FRN) might have two years to its final repayment date but be 45 days from its next rate refixing date. It is the 45 days that goes into the WAM calculation. The final maturity of two years goes into other measures – the weighted average life (WAL) or weighted average final maturity (WAFM).)

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With longer-term cash, treasury also has to consider the investment term. For example, if treasury knows that some cash will not be required by the business for three months, it could invest the cash in instruments which mature in three months' time. Alternatively, treasury could choose to invest in a shorter-dated instrument and reinvest on maturity. Treasury will be influenced both by the shape of the yield curve and forward starting rates (those implied in forward rate agreements – FRAs). Treasury may also form a view of future interest rate movements.

In most cases, the three-month interest rate will offer a higher return than the one-month rate. In this case, the yield curve (where yields are plotted against time – see Appendix 1 and Figure A.1) is said to be normal. An upward-sloping yield curve can arise because investors require a slightly higher rate for longer deposits, to compensate them for the loss of liquidity and for the higher credit risk. These effects are normally outweighed by the market's expectations as to whether rates are expected to rise (with an upward slope) or to fall, in which case the slope will be negative.

Theoretically, if the market's inbuilt expectations exactly match actual outcomes, then an investor will be indifferent between investing in a three-month deposit or in a series of three successive one-month deposits. Treasury will have to assess whether the three-month rate represents a sufficient return for the loss of liquidity and, more significantly, whether their expectations for the trend in rates are different from those implied by the forward starting rates shown on the yield curve.

Consider a company which has USD 25 million surplus cash. Treasury knows it needs the cash to meet a payment in six months' time. Assume the three-month LIBOR rate is 1.15% and the six-month LIBOR rate is 1.42 %; the 3×6 forward rate is then 1.69% (see Appendix 2 to calculate the 3×6 forward rate). The treasurer could invest the funds for six months and earn 1.42%. However, if the treasurer thinks the market has underestimated the level of future interest rates, the treasurer could invest the funds for three months and look to reinvest at maturity. The 3×6 forward rate suggests the treasurer would need to earn a return greater than 1.68% on the second three months, to benefit from this strategy. In other words, if the treasurer thinks the three-month LIBOR rate will be above 1.68% in three months' time, it could be beneficial to invest the funds for three months initially.

It is possible to calculate forward rates for different terms, depending on the circumstances. There are risks associated with this strategy, notably that interest rates may not move as the treasurer expects.

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Bear in mind, too, that such an approach may be considered speculation within the terms of the particular treasury policy, something the treasurer may want to address.

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### **Riding the yield curve**

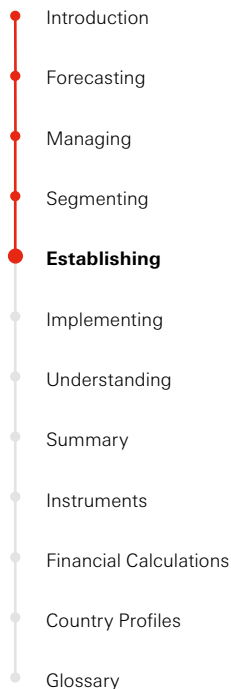
For longer-term cash, and depending on the investment policy, treasury may have more flexibility when developing a strategy. When faced with a normal (or upward-sloping) yield curve, treasury may decide to 'ride the yield curve'. This technique involves the investor purchasing longer-dated instruments, such as bonds, and then selling them in the secondary market before they mature. In theory, the investor would benefit by buying the instrument at a low price and then being able to sell the instrument at a higher price.

The risk is that interest rates may not behave as expected, and the investor may experience a loss or not be able to sell the instrument in the secondary market. If secondary markets are experiencing volatility, this strategy represents an additional liquidity risk. The investment policy should indicate whether such strategies are permitted.

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Interest rate derivatives can be used to hedge against adverse movements in the rate. However, these need to be used with care, as they may impose an additional cost (in the form of a premium). They also require the company to assume additional risk in terms of a counterparty risk on the derivative instrument and a transaction risk as a result of the derivative's potential impact on the profit and loss account. The investment policy should indicate when the use of interest rate derivatives is approved. It may also state that speculation with derivatives is prohibited.

Hedging an investment position is generally less important for investments over short periods and in stable interest rate and inflation environments. However, the longer the investment period, the more volatile the interest rate or the higher the rate of inflation, the more important it will be for the treasurer to consider hedging an investment position to ensure a particular return. To avoid the need to hedge, the investor can decide to invest for shorter periods (and then reinvest more frequently). This strategy will increase the operational risk associated with reinvestment.



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## Managing cash in a negative yield environment

The historically low interest rates experienced over the last few years have caused problems for all market participants. For example, they have weakened yield as an indicator of relative creditworthiness of different investment instruments. For certain currencies, notably the euro, interest rates have fallen to a level where negative returns are offered on deposits. Managing cash in such an environment becomes more difficult as, by definition, any deposit of cash implies a loss of principal.

Having an effective policy for managing cash in a negative yield environment and ensuring compliance with such a policy is important. As with more conventional environments, a treasurer's objective should be to preserve principal and to retain liquidity. Importantly, the policy should not be altered to seek to avoid or reduce the cost of negative yields by accepting greater risk or loss of liquidity.

In a sense, the negative yield is simply a fee for holding cash which is normally hidden in a conventional positive yield environment. Low interest rates simply mean banks and other providers have to levy an explicit charge for this service.

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## Foreign exchange risk

Investments may also be subject to foreign exchange risk. For example, if a company makes an investment in a foreign currency, it will experience an effective loss of principal if the foreign currency depreciates against the group's operating currency. However, if the company has a defined expected need to make a currency payment, then keeping cash in that currency is a form of hedging.

The investment policy will state in which currency or currencies investments can be made. If treasury has flexibility, it will need to consider the risks associated with particular currencies.

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Consider a French-based multinational group with an operating company outside the eurozone which is holding surplus cash for six months. Treasury could decide to invest locally, in instruments denominated in the domestic currency. This may increase counterparty risk and also, if the local market is small, liquidity risk



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(especially if the company is relying on selling the instrument in the secondary market).

As an alternative, treasury may decide to invest the cash in EUR-denominated instruments, to take advantage of the wider range of available counterparties. In addition to the two sets of foreign exchange transaction costs, the local operating company is exposed to any depreciation of the EUR over the next six months.

As with interest rate risk, the investment policy should state whether a foreign exchange exposure can be hedged using derivatives. Under this strategy, the company could concentrate, and exchange into one currency, any surplus balances for investment purposes. However, the treasurer would need to ensure the redeemed principal would be sufficient to meet local currency outgoings in the future by entering into an appropriate hedge transaction. This could fix the rate using a forward exchange agreement or protect against an adverse movement in the exchange rate by entering into an option contract. (Note there will be a counterparty risk associated with this transaction.)

Even if hedging using derivatives in these circumstances is not permitted, companies can use other strategies to protect against the impact of exchange rate movements. One such strategy would be to try to match assets and liabilities in different currencies, instead of converting all surplus cash into one or two currencies for investment purposes (which would leave the company exposed to exchange rate movements when converting the redeemed principal back to make, for example, local salary and tax payments). In this scenario, the company would choose to invest operating cash locally in local currency and only concentrate strategic cash to the centre for investment in the group currency. This has the advantage of reducing the exposure to foreign exchange movements, although it may increase counterparty and liquidity risks, depending on the state of the local money markets.

#### **Credit valuation risk**

In addition to the risk of default on an investment (credit risk), there is also a risk that the market value of an investment instrument will change during its life. A change in the perception of a counterparty's risk of failure is likely to affect an instrument's market value. If the market perceives the risk of failure to have increased, the value of the instrument will fall (the credit spread for the instrument's issuer will increase).

For short-term instruments, any changes in credit valuation are unlikely to be material. However, the impact can be more noticeable for longer-term investments. The credit valuation risk can be minimised within a money

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market fund (or across an investment portfolio) by ensuring that the weighted average life (WAL or WAFM) of the portfolio is not too long. EU short-term money market funds must maintain portfolios with a maximum WAL of 120 days.

As long as a particular instrument does not fail, any credit valuation changes during its life will reverse by the final maturity when it is repaid at par. However, if cash needs trigger a disposal of an investment prior to its final maturity, a credit valuation market risk will exist. For instance, if a company chooses to invest in a high-quality bond fund, it might be reasonably confident there will be no defaults on the underlying bond holdings. Over an extended time period, there should be minimal credit valuation losses. Over shorter periods, though, price changes in the bond fund from credit effects could be significant. For example, during 2010, funds of good quality government funds suffered short-term losses in value (which subsequently reversed) as various crises in sovereign credit risk spread through the markets.

**Settlement risk**

Settlement risk is the risk that the counterparty does not fulfil its part of the contract. For example, an investor may want to realise an investment in a bond by selling it in the secondary market. The counterparty may take delivery of the bond, but not transfer funds to the investor.

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Settlement risk can be managed by the adoption of effective custody arrangements and maintaining accurate and timely records. The dematerialisation of many investment instruments has also reduced the associated settlement risk.

**Operational risk**

Operational risks, especially in the form of personnel and systems risks, will also need to be managed when investing.

To protect against the risk of fraud and the risk of error, treasury should adopt an appropriate segregation of duties, including clear authorisation procedures. These duties should be assigned to appropriately trained individuals. This will typically be part of the group’s treasury policy.

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Examples of operational risk include the losses sustained by Société Générale (EUR 4.9 billion in 2008), UBS (USD 2.3 billion in 2011) and JPMorgan Chase (USD 6.2 billion in 2012). All of these cases involved unauthorised trades that were concealed because of poor operational controls.

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With a clearer view of the likely future peaks and troughs of available surplus cash, the treasurer is able to invest more funds for longer periods, rather than seeking to redeem and then reinvest funds on a daily basis, reducing the associated operational risk. Where the forecast is less certain, the treasurer can elect to deposit funds with a money market fund until the cash need arises.

As treasury departments adopt increasingly complex and automated systems, the associated risks have increased. Processes, such as payments, should be subject to regular reviews and back-up procedures tested regularly. An automated dealing system should contain the same authorisation levels as a manual process.

**Understanding risk**

Being responsible for preserving cash, treasurers usually want to take a conservative approach when investing, although there are circumstances where greater risks might be taken. Understanding risk does not mean the company becomes immune from loss; rather it allows the treasurer to structure an investment policy that matches the likely return to the risk taken. With a clear view of where risk arises, the treasurer can design an investment policy which allows the company to manage its exposure to loss.

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**Case Study A Global Commodities Trading Corporation with a Captive Insurance Company in Bermuda**

A global commodities trading company set up a captive insurance company in Bermuda for economic as well as risk management purposes. Compared to going to the market and paying premiums for conventional coverage, by setting up a captive, the company was able to reduce insurance costs. In addition, by setting up a captive, special risks, which might be too costly in commercial markets or unavailable, can be underwritten by the parent company. As to the profits generated by the underwriting and premiums being paid, these ultimately belong to the parent and fall under the corporate’s overall investment guidelines.

Understanding the objectives at each stage of a captive’s life is key to determining the optimal investment strategy. The asset mix for a captive’s investment portfolio is driven by analysis of its liability profile and life stage. Liquidity funds, low-duration and short-duration strategies are typically included in the portfolios asset mix and can

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be used as letter of credit collateral. Riskier strategies, including allocations to equities and alternatives, may also be appropriate at certain stages of the captive's life cycle.

HSBC works closely with the company to determine an appropriate strategy and asset mix to meet their specific requirements. Over the last few years, this strategy has meant a combination of a money market prime fund for short-term liquidity requirements, and a strategic investment into a short duration fund to unlock additional yield while protecting the investment in a then rising interest rate market environment.

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## Content of policy

An investment policy would typically deal with the following issues:

### Instruments

The policy should indicate which investment instruments are acceptable. There is a full examination of the advantages and disadvantages of short-term investment instruments in Appendix 1.

### List permitted instruments

The investment policy should list the permitted instruments. The full implications of any new investment instrument must be formally analysed and approved by the board before any investment can be made. This consideration also allows treasury and the board to set limits to the tenor and weighting of each instrument when adding it to the list (see Maturity of instruments and the portfolio, below).

Adopting a list of permitted instruments provides certainty and clarity to the treasury department: it may only invest in permitted instruments. However, it is worth noting that the inclusion of an instrument on an approved list does not necessarily mean it is less risky than an unlisted one.

### Currencies

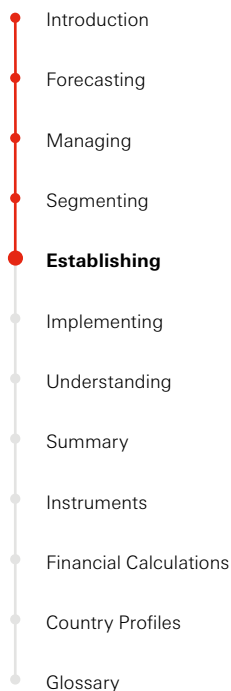
The policy should indicate whether there are any restrictions on the currency of the investment instrument.

This section could also include a statement on the circumstances, if any, in which foreign exchange derivatives can be used.

### Maturity of instruments and the portfolio

The policy should state any limits on the maximum maturity of individual instruments or of the portfolio as a whole. It may also set limits for the

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proportion of cash to be invested in different categories of assets. A certain proportion may be required to be held in immediately available cash, for instance.

Companies will be wary of investing in long-dated instruments, even where there is a relatively liquid secondary market. More precisely, treasury will need to ensure that it has sufficient liquidity to meet expected cash demands, plus a margin. When some surplus cash is expected to remain available for a longer period, treasury may feel able to invest in longer-dated instruments. If longer-dated instruments are used, the policy should require that a proportion of any investments must mature regularly. This will help to manage liquidity and reinvestment risk.

Where possible, the preferred maturity should be related to the information generated by the cash flow forecast.

### **Interest rate management**

Companies differ in their sensitivity to changes in interest rates. The investment policy should reflect the group's approach to managing interest rate risk. This should ensure an investment decision is taken in the context of the policy to maintain a particular ratio between fixed and floating rates.

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For example, the underlying business of a building company will be sensitive to interest rates. As rates rise, the demand for new houses will drop. Such a company would not want to hold any surplus cash in fixed rate deposits for long periods; if interest rates rise, it will start to lose business as well as the opportunity to earn an increased return on the surplus cash. A better hedge would be to invest surplus cash in floating rate instruments, as the increased interest income from higher interest rates will at least partially compensate for any loss of underlying business.

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### **Counterparties**

The investment policy will also need to identify a set of approved counterparties.

### **Banks**

For many instruments, the company's counterparty will be a bank. The policy will need to strike a balance between encouraging investment with more highly rated banks, whilst retaining a good spread of counterparties to prevent concentration risk.

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To do this, the policy should set limits for the company’s maximum exposure to any one counterparty bank. These may vary according to each bank’s published credit rating, with greater limits for more highly rated banks.

Establishing a policy on the permitted bank counterparties has implications for the company’s bank relationship management. Banks which provide the company with credit lines may want to be rewarded with a higher counterparty limit than other similarly rated banks. Companies will want to consider whether such an approach is appropriate, given their existing exposure to those banks.

The policy will also need to assess how to measure exposure to a particular banking group across the whole company, especially if a significant proportion of short-term investing takes place at a local level. Problems may arise if all local operating companies select the same banking group, as the company as a whole would be highly exposed to that group. Where the central treasury has the ability to do so, it should impose counterparty limits on all group subsidiaries. If not, the policy could require operating companies to provide information about their investing activity, which treasury could consolidate on a group-wide basis.

In these circumstances, treasuries need to be aware of the differing standards of banking supervision and level of government support for banks throughout the world. It may also be prudent to limit counterparty risk by jurisdiction as well as by entity.

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Although the counterparty policy may be heavily dependent on ratings, it is prudent to give the treasurer authority to make an immediate reduction in a bank’s limit, or even to remove a name from the permitted list, if signals reveal an increased risk. Triggers that can provide warning signals include press reports, ratings being put on negative alert for a possible downgrade, a sudden drop in share price, increases in CDS spreads over and above overall market changes, or a significant fall in the market implied ratings.

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The counterparty limit itself should refer to the invested principal. If an investment is made with a bank at the limit of, for example, USD 50 million, any accrual of interest will cause the limit to be breached. A pragmatic approach is for counterparty limits to ignore accrued interest or any changes in the principal’s market value as market rates change, but, depending on materiality, a more sophisticated policy could be adopted.

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Consider these alternative approaches to counterparty limits:

### Example 1: counterparty limits

The investment policy of ABC Inc takes a detailed and prescriptive approach to counterparty limits:

'The following counterparty limits shall be observed at all times against instruments with prescribed long-term and short-term credit ratings:

<b>Long-term credit rating</b>	<b>AAA/ Aaa/ AAA</b>	<b>AA+/ Aa1/ AA+</b>	<b>AA/ Aa2/ AA</b>	<b>AA-/ Aa3/ AA-</b>	<b>A+/ A1/ A+</b>	<b>A/ A2/A</b>
<b>Short-term credit rating</b>				<b>A1/ P1/F1</b>		
<b>Total counterparty limit (USD million)</b>						
	<b>400</b>	<b>350</b>	<b>300</b>	<b>200</b>	<b>100</b>	<b>50</b>
<b>Counterparty limit, per instrument (USD million)</b>						
US sovereign debt	<b>400</b>	–	–	–	–	–
Non-US sovereign debt	<b>350</b>	<b>300</b>	<b>200</b>	<b>100</b>	<b>10</b>	<b>5</b>
Bank deposits	<b>325</b>	<b>275</b>	<b>175</b>	<b>75</b>	<b>50</b>	<b>25</b>
Certificates of deposit	<b>200</b>	<b>175</b>	<b>150</b>	<b>100</b>	<b>50</b>	<b>25</b>
FRNs	<b>200</b>	<b>175</b>	<b>150</b>	<b>100</b>	<b>50</b>	–
Commercial paper	<b>200</b>	<b>175</b>	<b>150</b>	<b>100</b>	<b>50</b>	–
Repos	<b>200</b>	<b>175</b>	<b>150</b>	<b>100</b>	<b>50</b>	–
Money market funds	<b>400</b>	–	–	–	–	–
ABS	<b>375</b>	<b>325</b>	–	–	–	–

'Instruments not specified above can only be purchased with the express written consent of the group treasurer.

'The maximum maturity of any instrument shall be: three years in the case of US sovereign debt; two years in the case of non-US sovereign debt; three months in the case of bank deposits; one year in the case of certificates of deposit or commercial paper; three years in the case of floating rate notes with put options; three months in the case of repos; and five years in the case of asset backed securities.'

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**Example 2: counterparty limits**

The investment policy of XYZ Inc. is much less prescriptive, and reads:

‘This investment policy establishes global counterparty limits for the purposes of investing XYZ Inc.’s surplus cash.

‘Counterparty limits shall apply to cash investments (comprising all approved instruments converted to GBP using the daily Reuters rates).

<b>Counterparty limits for cash investments are:</b>	
<b>AAA:</b>	GBP 750 million
<b>AA:</b>	GBP 500 million
<b>A:</b>	GBP 250 million
<b>BBB:</b>	GBP 50 million

‘Cash investments with short-term ratings shall be subject to the counterparty limit of their corresponding long-term rating.

‘Investment in a money market fund is only permitted for those rated AA and above and shall not exceed more than 10% of the total value of the fund, and in any event shall not exceed GBP 750 million.

‘These counterparty limits may be multiplied by two times in the case of investments with global relationship banks.

‘The chief treasurer of global treasury in London has authority to make investments outside these counterparty limits, but only for specific, exceptional transactions (such as in an emerging market where there is no realistic alternative). Such investments shall be reported to the board, with an explanation of why the counterparty limit was felt to be inappropriate.

‘The chief treasurer of global treasury in London has authority to establish and impose regional counterparty limits, taking account of the needs of subsidiary companies and the markets in which they operate. The chief treasurer of global treasury in London will inform the board where those regional guidelines establish larger counterparty limits than those set out in this investment policy.’

The examples here only cover investing exposures. In addition, most companies will enter into foreign exchange and other transactions with banks, such as interest rate swaps or forward rate agreements. The credit

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exposures from these instruments must, in practice, be consolidated with exposures from investments. The financial instrument exposures will normally be assigned some risk weighting other than 100%. For example, on a foreign exchange deal for GBP/USD three months forward, if the bank defaulted, the loss to the company would be equivalent to the movement in exchange rates during the three months which was no longer covered, and not the full principal. Depending on the expected volatility of the exchange rates, a credit risk of 20%, for example, might be assigned to foreign exchange deals less than one year in maturity. Alternatively, rather than giving the exposure a percentage weighting, it could be based on the mark-to-market value of the instrument at any instant.

In the case of an FRA, a credit exposure may arise if interest rates move after the agreement is reached. If interest rates fall, the investor will be owed a payment on the FRA (to compensate for the fall in interest rates). Based on the volatility of interest rates, one could create a rule of thumb that the credit exposure should be treated as, say, 3% multiplied by the period, multiplied by the notional amount, assuming that there is a 95% confidence limit that rates will not move by more than 3%. (Note that, even if we assume the model is correct, rates could still move by more than 3%.) Alternatively, if we assume interest rates do not go negative, the maximum credit exposure could be calculated as the impact of a fall in interest rates to 0%.

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#### **Non-banks**

For other instruments, notably commercial paper, the company's counterparty will be a corporate issuer. Again, as the company will be assuming counterparty risk when investing in such instruments, similar counterparty limits should be set.

Although most US and European commercial paper issues are rated by one or more of the credit rating agencies, counterparty risk management in some local commercial paper markets is often name-driven. In such circumstances, the policy should set clear guidelines on approved counterparty issuers.

Where an issue is backed by assets or supported by credit lines, treasury should also consider the creditworthiness of the supporting assets.

#### **Breach of limits**

If a counterparty's credit rating is downgraded, this may mean an instrument issued by this counterparty may exceed the applicable limits. The policy should consider what should happen in such a circumstance: the treasurer could seek to dispose of any liquid investments, possibly taking a loss, or there could be a derogation to hold the instrument until maturity, notwithstanding the breach. Theoretically, it is possible to hedge the credit position by buying a credit default swap; however, the company will need to take its own view on the balance between risk and cost.

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Breaches caused by carelessness or mistakes by staff will be taken very seriously in many companies, and may lead to dismissal in the case of repeated occurrences.

## **Tax and regulatory issues**

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### **Tax issues**

#### **Judith Daykin**

Deloitte LLP

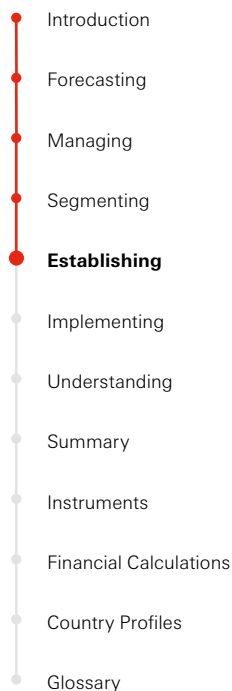
In the context of investing corporate cash, tax impacts on decisions in two significant ways. First, as discussed in Chapter 2, multinational companies of all sizes are increasingly using cash pooling techniques, both domestically and on a cross-border basis. The tax regime in the jurisdiction in which the liquidity management structure is headed could affect how such a structure operates (e.g. physical versus notional pooling) and, consequently, the quantity of funds available to invest, or needed to be borrowed, in that location. In addition, the local tax and regulatory regimes in every country will determine which of the group entities are permitted to participate in a cross-border structure and whether, if permitted, it is worthwhile for these entities to do so; in some cases it may be appropriate for group entities to participate as depositors in the structure but not as borrowers.

Second, whether or not any surplus cash to be invested has been concentrated via a liquidity management scheme, the return on the investment may also be affected by the prevailing tax regime. This section examines the main tax issues which arise when investing cash or drawing on pooled cash.

However, because tax rules are continuously changing, companies must ensure they understand the implications of any reforms on their business.

### **How tax issues arise when investing**

When making an investment, the treasurer will need to consider the tax implications of the decision. The taxation treatment will primarily depend on the tax rules in the jurisdictions where the business operates, and the entity classification of the participants (separate legal entities or branches). There are, however, many generic tax issues which are applicable to a number of jurisdictions.



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### Withholding tax

Many jurisdictions impose withholding tax, either on interest paid to resident companies or when interest is paid from one jurisdiction to another. The tax is so-named because the bank or party paying interest is obliged to deduct tax from the interest income when it is paid.

There may be various withholding tax rates for differing interest payments: a domestic rate applicable to general companies, a domestic rate for banks, a treaty rate or preferential rates or exemptions for payments of interest between certain related companies within the EU.

When applied to cross-border payments, withholding tax may be reduced or eliminated by the use of relevant double tax treaties, which may require tax treaty clearance applications to be completed in order to benefit from a preferential treaty tax rate. It is important that groups ensure they have procedures in place to ensure clearances are submitted on time and in the correct fashion. If this is not the case, such groups potentially expose themselves to tax, interest and penalties. In general, to benefit from a tax treaty it is necessary for the recipient to have a real business and beneficial ownership of the interest income in that jurisdiction, not simply a 'brass plate' office. Therefore, tax will often be considered in the context of the existing group structure, rather than introducing new entities which would require substance.

In some cases, where a double tax treaty does reduce or eliminate a withholding tax, the company may still find tax is withheld at source, so that a reclaim or tax credit will have to be sought at a later date. In these circumstances, the group as a whole will lose control of the withheld funds until a refund is received. This has implications for both cash flow (as a result of the time delay) and administration (in terms of the costs of reclaiming the withheld funds). These additional costs should be considered when comparing the return from alternative investment instruments, as they affect the overall expected return. Clearly, where double tax relief is not available, the post-tax return should be compared.

### Thin capitalisation

Thin capitalisation rules, which generally operate to restrict the level of interest that may be deducted for tax purposes, may apply when pooled cash surpluses are invested centrally. The tax authorities are concerned if equity capital is disproportionately low compared to debt levels. If a company receives excessive debt funding from affiliates, their profits will be largely sheltered by interest expense and this could result in a loss of tax take. The OECD Base Erosion and

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Profit Shifting (BEPS) Initiative introduced a limit of 30% tax/EBITDA interest limit to address tax evasion, which has been adopted in the EU (via ATAD/ATADII), the USA (as part of the 2017 corporate tax reforms), as well as other jurisdictions. These rules will need to be considered, not only when the company establishes its liquidity management structure, but on an ongoing basis also.

### Transfer pricing

Many tax jurisdictions have adopted transfer pricing legislation to protect against groups artificially diverting profits to low-tax jurisdictions or tax havens. In order to manage transfer pricing rules, the group must generally establish a clear policy in order to demonstrate that interest earned on pooled funds is distributed between participating group entities on an arm's-length basis and reflects the relative differences in credit risk between those entities (particularly important in the context of notional pooling and intercompany loans). The header company will often need to demonstrate commercial terms and rates when reallocating interest earned from any centralised investment activity between participating group entities. Where cash is invested centrally on behalf of all participating group entities, each entity will usually need to contribute towards the costs of any centrally provided services (such as counterparty credit management).

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These decisions and all arrangements between entities should be clearly documented on every occasion, particularly where notional pooling is used with no actual physical movement of funds and no intercompany loans are created. Care will need to be taken to ensure the required documentation is both contemporaneous and acceptable to all relevant fiscal authorities, in order to avoid interest and penalties on undeclared profits.

### Foreign exchange

In some jurisdictions, the taxation treatment of foreign exchange differences on cash balances arising due to the individual financial statements of an entity having a functional currency different to the currency of the balance, will follow the respective accounting treatment. However, this is by no means uniform, and certain jurisdictions have specific tax rules relating to the translation of foreign exchange differences which will need to be considered to mitigate the risk of any potentially one-sided tax impact.

### Controlled foreign company (CFC)

The definition of a CFC will depend on the legislation in the individual jurisdiction, and can be complex. There may also be specific exemptions from the legislation. If an entity is deemed to be a CFC, the taxation authorities may require income to be taxed on a real-time, rather than remittance, basis in the hands of its shareholders.

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The concern of the tax authorities in the shareholder's country is typically that any interest income that is artificially earned in a low-tax area may never be remitted back.

This is a potential high-tax risk area, especially if the entity managing the investing process of any pooled funds is tax-resident in a lower-tax jurisdiction and is controlled by a company in a higher-tax jurisdiction.

### **Selection of jurisdiction**

When making an investment, the treasurer should consider the jurisdiction which governs the instrument. In most cases, this will be determined by operational considerations, such as the preferred currency of investment and the state of the local secondary market for the specific investment instrument. However, the treasurer should also consider the tax treatment of particular investment instruments, which can vary significantly between jurisdictions. In particular, some instruments, such as government paper in some jurisdictions, do not attract withholding tax.

Consideration should also be given to a jurisdiction with little or no domestic withholding tax on interest or a comprehensive double tax treaty network. This may be considered desirable as it may reduce withholding tax obligations and, more importantly, result in minimal tax leakage to the group as a whole. However, in order to benefit from such treaties, sufficient substance in the relevant jurisdictions will be required.

The potential imposition of stamp duty or other forms of tax on financial transactions by certain jurisdictions should be carefully managed.

Although a plan to introduce a Financial Transaction Tax (FTT) in the EU has stalled, a proposal to introduce a harmonised FTT in participating EU member states (collectively referred to as the 'FTT Zone') remains under discussion. Because negotiations are ongoing, any legislation could capture non-financial services entities, such as a group treasury company, at least for some financial transactions.

Depending on the outcome of the FTT proposals, consideration should be given as to whether the activities of such entities could bring them within the scope of the rules, in order to quantify any potential financial impact on the group treasury activities.

### **Anti-avoidance tax legislation**

Groups implementing cash pooling and surplus cash management structures should always ensure that the purpose of any arrangements is driven by business and commercial requirements.

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Generally, one would not expect the implementation of a centralised cash management structure to fall foul of anti-avoidance legislation that considers the business purpose of such arrangements (however, note the more common considerations such as thin capitalisation and transfer pricing rules discussed above). More careful consideration will be required where tax-favoured jurisdictions/entities/instruments are included or involved in any surplus cash management arrangements.

### **The regulatory environment**

The legal and regulatory environment also influences the drafting of an investment policy and the investment decision-making process.

### **Regional treasury centres**

Regional treasury centres often enjoy preferential tax treatment, subject to meeting certain regulatory conditions. Treasurers who make use of regional treasury centres will therefore need to understand whether those regulatory conditions constrain investment decision-making.

### **Accounting rules**

Accounting standards determine how investments should be disclosed in companies' accounts. Treasurers typically prefer to hold assets for which their accounting disclosure mirrors the economic substance, particularly over the balance sheet date.

For example, International Financial Reporting Standards (IAS 7 paragraph 6) allow holdings of constant net asset value money market funds to be disclosed as cash and cash equivalent assets (rather than as securities, as is common in a number of local country accounting standards), assuming the holding is short-term, highly liquid, readily convertible into cash and not subject to a significant risk of change in value from the initial amount of investment, enabling them to be held over a balance sheet date without fear of distorting a financial analyst's understanding of a company's accounts. The new low-volatility net asset value (LVNAV) money market fund is expected to be accepted by the audit profession as cash and cash equivalents, but as is always true, will depend on the approach taken by the specific audit firm and the company's circumstances.

### **Highly regulated entities**

Some treasurers work for highly regulated entities whose investment decisions are strongly influenced by regulatory considerations. For example, treasurers of banks and insurance companies are subject to capital adequacy and solvency regulations which can give rise to greater or lesser capital requirements, depending on the type of investment that they hold. Similarly pension funds, local government agencies, insurance

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brokers, etc. are subject to regulatory regimes which can influence their investment decision-making.

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### Impact of regulation varies

The impact of regulation varies significantly from country to country. Some investors are subject to additional or different regulation. There is further discussion of the impact of regulation on banks and other financial institutions in Chapter 6.

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### Decision-making and reporting responsibility

Finally, the investment policy must address individual responsibilities both for decision-making and reporting. This should not be too prescriptive. Treasury should not be required to go back to the board every time there is a change in personnel, in order to change responsibilities.

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However, the policy should set clear limits to the authority of the treasury department. It should also set out a timeline for its review (e.g. annually) although this could be contained in a broader treasury policy document as well. Other occasions triggering an update may include a change in the finance director or treasurer, or the completion of a major acquisition or divestment.

### Implementation of policy

The policy must determine responsibility for its implementation. There are three main alternatives, which are not mutually exclusive:

#### ◆ Manage in-house

If investment is managed in-house, the investment policy must relate to other treasury policies to ensure appropriate internal treasury management, such as an adequate segregation of duties.

#### ◆ Automate

It is possible to automate the sweep of surplus cash into pre-determined instruments, such as deposit accounts and money market funds. As with other investments, automated sweeps should be subject to a maximum limit. These automated sweeps are most suitable for smaller balances, where the potential return would not justify manual intervention.

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◆ **Outsource to a specialist investment manager or agency treasury**

If a specialist investment manager or agency treasury is to be used, the policy should set out how those services will be used. This will determine how the manager is to be selected and how this activity will be overseen. Once the decision is taken to outsource some or all of the investment to a third party, the treasurer will need to set clear investment guidelines (including appropriate counterparty limits). The third party will then use these guidelines to manage the funds on a daily basis. Some companies use investment managers to manage ‘segregated funds’ or separately managed accounts. These allow the company to set the investment objectives, risk appetite and policy. The segregated fund manager will then manage cash for that company in line with the agreed policy.

A significant reason for outsourcing is to take advantage of the investment manager’s credit analysis capabilities. Most companies do not have the resources to monitor current and potential counterparties continuously. This is often a significant factor in choosing money market funds.

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**Case Study US MNC with Belgian in-house bank**

This company evaluated its investment approach and decided there was no significant added value from the in-house management of short-term cash. It made the decision to end all active management of short-term cash and to place all surplus cash in money market funds instead.

Today, the company manages its short-term cash, on average about USD 3.5 billion, via an investment portal. The portal gives the company much-improved visibility over its investments. The treasury can track investments by fund and also aggregate positions across all funds. This means, for example, that the treasury can view its exposure to particular instruments, such as ABCP, as well as to particular countries or regions and ensure all specific counterparty limits are maintained.

The decision to end active management was driven by the desire to improve operational efficiency. Investing short-term cash is now a 15-minute task each morning, not a whole morning’s task. Despite this, there has been no significant impact on yield.

Using money market funds also allows the in-house bank to meet any requirement from the US corporate headquarters to repatriate



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cash. Such requests often come at relatively short notice to allow the headquarters to make acquisitions. Had the company chosen to outsource investment management via a mandate, it would have not had the same easy access to cash.

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### **Low duration mandates: a solution for managing longer term cash surpluses**

#### **Olivier Gayno**

CIO Wealth & EMEA Liquidity  
HSBC Global Asset Management (France)

Liquidity funds<sup>1</sup> are the obvious solution for investors who wish to delegate the credit analysis duty to a professional institution when placing their daily operational cash.

A liquidity fund is an alternative to bank deposits although the nature and the risks of these instruments are very different. A liquidity fund is an investment product which is not guaranteed but which has much more diversified credit risk than a single bank deposit, which is a bank liability instrument with a return known in advance (barring any impairment of the bank). (See Comparing money market or “Liquidity” funds to deposits, HSBC Global Asset Management, March 2012).

### **Assessing different cash investment horizons**

Liquidity funds usually state that their investment objective is to maximise security and liquidity. But should an investor always target full liquidity for its cash? Not necessarily. When investors define their cash needs, there might be part of these assets that is needed on a much longer horizon than a day or a month. This is known as ‘cash tranching’. (Figure 4.1)

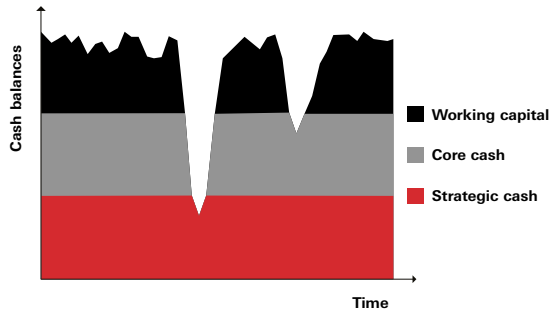
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<sup>1</sup> Liquidity funds are referenced in this section as UCITS/ESMA Short-Term Money Market Funds. Their investment objectives are preservation of capital and/or targeting an investment return which is in line with prevailing money market rates.

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**Figure 4.1. Segmenting cash.**



Source: HSBC Global Asset Management

While the strategic cash usually has no anticipated use over the medium long term, the core cash component is usually linked to forecasted drawdown requirements at particular points in time, most of the time within the next 12 months, such as dividend payments or bond repayments.

**Managing additional risk in core cash mandates**

Liquidity funds are probably the most suitable investment vehicles when placing working capital, i.e. the cash used in daily, weekly and monthly operations. Indeed, high levels of liquidity and capital preservation are key for this highly fluctuating cash segment.

Would it be possible to transform the longer investment horizon of the core cash component into investment opportunities, i.e. into an expected return surplus over liquidity funds?

As there is no free lunch in financial markets, higher expected returns are equivalent to an increase in investment risks. Let us examine which type of risks can be marginally increased when placing core cash (for example, having an investment horizon of one year) compared with a starting point such as a liquidity fund.

The main investment risks liquidity funds are targeting to minimise are:

- ◆ Interest rate risk.
- ◆ Liquidity risk (linked to the fund objective of serving all client redemptions on any day).
- ◆ Credit risk (linked to a capital preservation investment objective).

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### Interest rate risk

The interest rate risk is linked to the variability in an asset value stemming from unexpected swings in interest rates. Generally, such swings are generated by unexpected central bank decisions on their key interest rates. This risk in liquidity funds can be measured by the weighted average maturity (WAM) of the fund's investments, counting as maturity for this purpose the date of the next interest rate reset of each security. WAM is a proxy measure for duration. This risk is linked to the fact that the market value of securities fluctuates with the level of interest rates in the following way; taking a treasury bill as an example (where **P** is the price of the bill, **i** is the interest rate level, and **t** is the time remaining to the treasury bill maturity expressed as a fraction of one year):

$$P = \frac{100}{1 + i \times t}$$

Hence, as widely known, a security's price declines when interest rates rise and vice-versa. In order to minimise this risk, liquidity funds have a regulatory maximum WAM of 60 days.

When investing core cash, the investor does not need to sell any security before the investment horizon (provided cash needs have been correctly forecast at the inception). In this sense, an investor can allow for holding this treasury bill until maturity without worrying about intermediate variations in the security's price when the security is reimbursed at par. This holds true as long as other investors within the same investment vehicle do not massively redeem shares, forcing the investment vehicle to sell part of the securities in the fund and hence forcing realising a potential loss. This clearly shows that, when investing core cash; investors should segregate their investment from other investors in order to protect the investments from any forced sales before the investment horizon linked to the core cash segment.

As a conclusion, when investing core cash, an investor can marginally increase the interest rate risk (measured by the WAM) if:

- ◆ The WAM is lower or equal to the core cash component investment horizon.
- ◆ The investor holds segregated assets (i.e. is not invested in a pooled investment vehicle).

### Liquidity risk:

Financial markets are sometimes under strain and it might be difficult or impossible at such times to find a bidder for a money market security at a reasonable price (i.e. at a price close to the one stated

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by the formula above). This risk is known as liquidity risk and is generally triggered in a fund when investors redeem all together a large portion of the fund shares, forcing the sale of part of the fund assets. It is managed in liquidity funds by keeping minimum amounts of instruments in the fund maturing within stated timeframes. For example, 2a-7 (i.e. US domestic money market), as well as European CNAV and LV-NAV funds, are required to hold a minimum of 30% of their assets within a one week or shorter maturity. Highly secured and liquid treasury bills can be partially counted in these 'liquidity buckets' even if they have a longer maturity, as these instruments are deemed to be liquid in all circumstances.

As with managing interest rate risk, when investing core cash, the investor does not need to sell any security before its investment horizon (provided cash needs has been correctly forecast at the inception), provided other investor actions within the same investment vehicle do not force early asset sales. Hence, when investing core cash, an investor can marginally increase the liquidity risk (measured by liquidity bucket guidelines) if:

- ◆ Liquidity buckets reflect the core cash outflow schedule.
- ◆ The investor holds segregated assets (i.e. is not invested in a pooled investment vehicle).

#### **Credit risk:**

The credit risk is linked to the possibility that assets invested might be impaired, i.e. to the probability that the nominal amount of a security is not repaid at par at maturity by the issuer. A good proxy for measuring this risk in liquidity funds is the weighted average life (WAL) of the instruments in the fund. For this purpose, the life of a security is its maturity date<sup>2</sup>. In order to minimize the credit risk, liquidity funds have a regulatory maximum WAL of 120 days. However, managing credit risk cannot be marked down to an average maturity profile: issuer selection is key in this regard. That is why investment managers must have a well-resourced credit analyst team with a robust issuer selection process in order to avoid, as much as possible, credit impairments in liquidity funds. An important additional risk mitigation is achieved by internal diversification rules at the group issuer level, in order to limit the impact of a potential group issuer impairment on the fund net asset value.

When investing core cash, it is not obvious to see why investors would accept issuers that would not be eligible to liquidity funds. Indeed, an investor could accept to look for riskier names if the average surplus in yield is higher than the probability of impairment losses linked to

<sup>2</sup> When an instrument has a put option, i.e. an option at the hand of the fund requiring the issuer to reimburse the security at par at the put option date, such a put option date can be used in the WAL calculation.

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these investments. This can be debated for multi-year investment horizons such as those suited for the strategic cash, but is likely to be turned down for a one year or so investment horizon, especially in the current low interest rate environment. Hence, we would call for having a similar issuer selection list for liquidity funds as for core cash investments in order to appropriately follow individual issuer creditworthiness. This does not mean that credit risk will be identical in core cash solutions and in liquidity funds. Indeed, by simply allowing more concentration risk (i.e. lower diversification target) and extended average maturities, the credit risk in some core cash solutions would be higher than in liquidity funds even if it is borne on the same issuers. Intuitively, everybody understands it is more risky to invest in a one-year note than in a one-day certificate of deposit issued by the same bank. In fact, on short tenors (e.g. one year or less), specialists generally agree that, for a same issuer, credit risk can be assumed to rise in straight proportion with an instrument maturity, hence WAL being a proxy for measuring credit risk in liquidity funds.

To sum up, a core cash investor should evaluate its risk (particularly credit risk) tolerance and setting commensurate investment guidelines. A natural upper limit for WAL is the core cash investment horizon. On the investment manager side, a natural upper bound is the definition of slightly looser diversification and individual issuer maximum maturity guidelines and limiting investments to issuers eligible for liquidity funds. Hence, when investing core cash, an investor can marginally increase the credit risk (measured by WAL) if:

- ◆ Eligible issuers are similar to those allowed for liquidity funds.
- ◆ The portfolio WAL is lower or equal to the core cash investment horizon.

### **Assessing expected additional rewards versus increased risk**

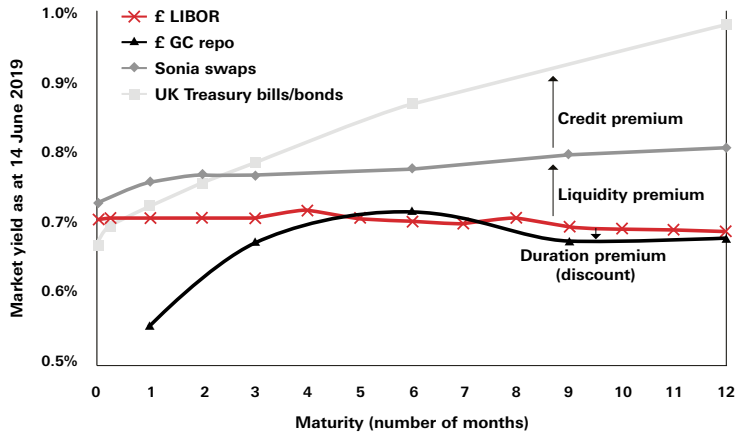
Having given thoughts and established guidelines on different risk extension, what are the benefits the investors can expect from that? There is no easy answer except back and forth model portfolios (with their respective expected returns) that would fall within these guidelines and which would be acceptable in terms of overall and specific risks to the investor. These simulations are obviously time dependent and can vary quite rapidly, especially in terms of specific issuer selection. Indeed, quality issuers do not offer attractive prices every day on the markets.

We can attempt though to give an order of magnitude currency by currency on the general levels of premiums offered against different risks. Let us take for example the sterling money market as at close of business 14 June 2019 (Figure 4.2).

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**Figure 4.2. Sterling money market rates as at 14 June 2019.**



Source: Bloomberg, Tradition UK

The first step is to define a ‘risk-free’ asset as a reference point. This investment would be the shortest and the most liquid instrument issued by the most creditworthy borrower. Although there is, again, no perfect answer, and the crisis taught us there is no absolute risk-free investment, one can assume the most suitable investment in sterling would be a UK treasury bill or bond maturing the next business day. Unhappily, there is no such investment regularly offered by the UK Debt Management Office in the market, so the next best proxy is an overnight reverse repurchase agreement (afterwards named ‘repo’) with general collateral (i.e. UK treasury bills and bonds) collateralised at 102%, which we would call the ‘less risky asset’. Indeed, such an investment is a one-business-day loan to a bank which is secured at all times with UK government securities kept at a third party (e.g. a clearing house) to a value of 102% of the nominal amount. If the counterparty bank fails during the day, the UK Government collateral is seized and sold, with the view that the 2% collateral premium will suffice to cover transaction costs and potential negative variations in market prices.

As at 14 June 2019, the overnight repo traded at 0.73%, close to the 0.70% level posted on Sonia (sterling overnight rate), which is an average overnight daily interest rate traded in sterling. If we assume (this might not be true all the times) that the overnight repo rate will trade closely with the Sonia level in the next 12 months, then the projected yield of the risk free investment would be the Sonia swap curve. A Sonia swap is an agreement with a bank to exchange every day the differential interest rate set by Sonia (a floating rate) and a predetermined fixed-rate (the quotation rate). For example, the 12

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month Sonia swap traded at 0.69% on 14 June, meaning an investor, by entering such a deal, would agree to exchange a fixed rate of 0.69% for the next 12 months in exchange for a Sonia capitalised return. Hence, 0.69% is the market expectation of the average Sonia level (which in our assumption is very close to the return of a rolling overnight repo) over the next 12 months.

From this starting point, adding pure interest rate duration to this 'less-risky asset' would be an investment in a UK treasury bill. Indeed, we can reasonably assume a UK treasury bill bears minimal credit risk and liquidity risk as history shows these bills can be sold with minimum market friction in almost any market circumstance. However, the market value of the bill will fluctuate day after day depending on the general interest rate in the market. For example, the bill could lose part of its value very quickly if the Bank of England decided to raise its key rate by 1%, whereas the market anticipates no movement or lower rates at this stage. A six-month UK treasury bill was trading at 0.72% while the 'less risky asset' expected return was close to 0.71%, i.e. a 1bps discount in the duration premium.

What, then, is similar to a UK treasury bill investment, bearing similar duration and (minimal) credit risk but with a full liquidity risk? The best answer is a term repo of a similar maturity. Indeed, the repo agreement is non-transferable and, if we assume the over-collateralisation is high enough to equalise its credit risk, then investing in a repo versus a treasury bill entails a sole increase in liquidity risk. A six-month term repo was trading at 0.78% when the corresponding maturity UK treasury bill was yielding 0.72%, i.e. a 0.06% liquidity premium for a six-month investment.

The next and final step: credit risk can be calculated as the difference in yield between the LIBOR curve and the general collateral (GC) repo yield curve. Indeed, LIBOR for a given maturity is the average interbank rate (i.e. non-transferable, illiquid instruments) between a panel of banks. This has the same liquidity and WAM and WAL profile as a GC repo, the only difference is the credit risk (banks versus UK Government equivalent risk). The six-month LIBOR rate was standing at 0.87% when the GC repo rate was 0.78%, hence a 0.09% credit premium at six-month maturity.

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This calculation can be summed-up as:

<b>Six-month LIBOR rate:</b>	0.87%
<b>Less-risky asset rate:</b>	0.71%
<b>+ Duration premium:</b>	+0.01%
<b>+ Liquidity premium:</b>	+0.06%
<b>+ Credit premium:</b>	+0.09%

Of course, the above rates and calculations should be taken with a pinch of salt as they might not exactly reflect ‘pure’ target investment returns and premia associated with different risks. First, certain instruments, like Sonia swaps, are not extensively used in the markets so this might be reflected in their pricing. Even for more liquid instruments, bid-ask spreads and quotation timing can alter calculations. Second, there are short-term market technicalities which can distort the relative pricing of overnight GC repo and very short-term treasury bills, whereas our assumption was that they are similar investments. Last but not least, LIBOR is not exactly a reflection of the purchase yields that can be achieved within low duration mandates as LIBOR are offered (not bid) rates, they are non-transferable (contrarily to short-term securities held in mandates) and the average LIBOR bank panels could not be replicated in a mandate as some members might not be eligible to such solutions.

However, these calculations help in assessing the order of magnitude of the expected returns associated with different types of risks according to the investment maturity. In particular, it highlights the fact that, in the current European (including UK) environment, the most highly remunerated risk is the six to 12-month credit risk, even if this remuneration might look low in absolute terms, and that, conversely, the duration risk is very poorly remunerated.

In conclusion, investing core cash needs a thorough evaluation of the future outflows, of the investment horizon (which could be the date of the next sizeable future outflow), and of the credit risk quantum the investor is ready to take. Then a plausible investment solution seems to call for:

- ◆ a segregated mandate.
- ◆ a WAL and WAM lower or equal to the investment horizon.
- ◆ liquidity bucket guidelines mirroring predicted cash outflows.



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This would ensure that, with a reasonable increase in risks, the investment solution is adapted to the investment objective of a suitable level of capital preservation at the investment horizon date. The different risk parameters should be assessed against their likely additional expected returns over liquidity funds.

One caveat is that investing with segregated mandates requires relatively large investments in order to maintain a reasonable pricing power when acquiring the portfolio's instruments. Of course, should the investor need cash flows before the expected dates, then there is much higher probability of a capital loss linked to the evolution of interest rates and/or market liquidity. That is why such a 'low duration mandate' solution can only be in the Variable NAV form, illustrating greater market-linked variability of the assets value between the investment start date and the investment horizon date.

### Reporting requirements

The final component of the policy should include details on how investment activities are reported and audited. This needs to be similar, in terms of detail, to the reporting and auditing of other treasury activities.

An outline of the various reports which need to be generated must be provided in this section, stating to whom and how frequently each report ought to be made. Maintaining an appropriate segregation of duties is important here; no individual should generate a report on an activity they performed. In companies with large treasury organisations, it may be appropriate to send regular investment management reports to the treasurer on a daily or weekly basis, possibly as part of a regular set of reports. The finance director and other members of a board-level treasury committee should then receive monthly or quarterly reports as part of their overall review of treasury activity. In smaller organisations, where the treasurer is directly involved in daily investment decisions, management reports should be sent elsewhere, either to the finance director or perhaps a financial controller or accountant who is not directly engaged with treasury activity.

Checking deal confirmations is a key internal control. All deal confirmations received from the outside party should be promptly checked against the records generated from the treasury deal recording system. This process can be automated with the support of third-party applications, which can automatically match deal confirmations, with exceptions reported via a process workflow. If performed manually, the check should be carried out by individuals outside the treasury department. There should be suitable exception reporting and escalation procedures.

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The company may also want to include a regular formal review and appraisal process. This may include a regular assessment of performance against specified market rates. There may also be reference to the audit process, although this should be detailed in a more general treasury policy.

The purpose of the reporting requirements is to ensure that there are appropriate controls in place on the treasury team as a whole.

**Checklist for investment policy**

**Scope of policy**

- ◆ The policy should state how it relates to other policies, including the treasury policy.
- ◆ It could contain a brief explanation of the role of investment within the company.
- ◆ It should state which entities are covered by the policy. In particular, does it only apply to central treasury, or does it allow central treasury to instruct operating companies?
- ◆ It should identify the sources of corporate cash that are subject to the policy. Does the policy apply to all group investments or to short-term investments only?

**Investment objectives**

There should be a brief overview of investment objectives. This will be partially determined by the scope of the policy. It should cover the three core objectives:

**Security**

At what point is the company prepared to accept a risk to principal? Does the company draw a distinction between acceptable risk for working capital and for long-term cash?

**Liquidity**

The policy should set minimum standards for the liquidity of the portfolio. It may determine a minimum proportion of investments maturing within a certain period, e.g. a week, or it may direct a liquidity ratio relative to the cash flow forecast.

**Yield**

The policy may set benchmark figures for an acceptable yield. If so, this will usually be related to a market rate. It may also state whether a proportion of investments should be held in fixed rate instruments.

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## **Investment guidelines**

The policy should provide clear investment guidelines.

## **Instruments**

The policy should state the names of approved investment instruments. In addition, it should state which body has the authority to add or remove instruments from the approved list.

## **Currencies**

The policy should state the currencies in which investments may be made. This could include an entity's local currency plus named international currencies. The policy should also state whether hedging of investments with foreign-exchange derivatives is permitted.

## **Maturities**

The policy should set limits on the maximum maturity of any instruments and may set a limit for the maturity or duration of the portfolio as a whole.

The policy may also require a proportion of any investments to mature regularly, perhaps every week or month.

## **Interest rate management**

The policy should reflect the group's approach to managing interest rate risk.

## **Counterparties**

The policy should either state the names of approved counterparties, or set a list of approved criteria (e.g. credit ratings) that all counterparties must meet.

The policy should state which body has the authority to add or remove counterparties from the approved list. It should also state who has the responsibility to set counterparty limits.

## **Tax**

The policy should state how tax calculations should be included in any decision to invest.

## **Decision-making responsibility**

The policy must state who has decision-making responsibility, and refer to the company's segregation of duties and policy on individual authorisation limits. The process for amending the policy will also need to be stated.

## **Breach of limits**

The policy will specify exception reporting of breaches of limits, along with the sanctions imposed for such behaviours. A period will be specified in which to effect a remedy or (if a remedy is not possible) to provide explanation for any breaches caused by market movements.

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## Reporting

The policy should outline how treasury reports on its investment activities. This will include reference to any audit process, and should contain reference to a regular investment appraisal.

## Sample investment policy

This is a sample investment policy for use by a typical company. It has been written to reflect the level of detail an investment policy should contain, and to provide a start for any treasurer who is looking to establish or review their company's investment policy. It should not be adopted by any company in its current form; rather the treasury team should debate the points in the context of the company's approach to risk before setting out the appropriate detail. Companies often debate how much detail should be included in the policy, and how much should be kept back to include in the more detailed procedures. In this sample policy, the approach taken is to go for greater detail, rather than just giving the main policy objectives.

When managing counterparty credit exposure, an integrated approach is required as exposures can arise from both investing and other financial instruments (such as foreign currency transactions and swaps). In this policy example, the exposures from other financial instruments have been ignored.

For the purposes of the illustration, the company is a European consumer goods manufacturer. It has production sites in five countries around the world and sells into about 50 countries. Cash is managed from three regional treasury centres; these are located in France, Singapore and the USA, although the policy is set by the group treasurer who is based in the company's French headquarters. Wherever possible, cash is physically concentrated to pool accounts held in the name of the appropriate regional treasury centre, which also is responsible for managing the short-term investment process.

## Scope of the short-term investment policy

This investment policy covers all investment of short-term operating cash, defined as cash with a maximum investment term of one year. It forms part of the group treasury policy and applies to all entities within the group.

## Objectives of short-term investment

The primary objective is to ensure the preservation of principal when investing. Liquidity should also be maintained such that the group should seek to avoid having cash investments whilst it has any short-term external borrowing.

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Yield should only determine an investment decision when deciding between two or more instruments which satisfy the first two objectives.

**Instruments**

The company can invest in the following investment instruments, subject to the counterparty and maturity limits set out below:

- ◆ sovereign debt, which is listed on a regulated market or exchange;
- ◆ bank deposits, with banks which are approved by the relevant local regulator;
- ◆ certificates of deposit, issued by banks which are approved by the relevant local regulator;
- ◆ floating rate notes;
- ◆ commercial paper, issued by entities with a listing on a regulated market or exchange;
- ◆ repurchase agreements, on sovereign debt (as above);
- ◆ money market funds, managed under 2a-7 rules or qualifying as EU short-term money market funds.

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Investment sub-limits by instrument type are given in the table on p. 86 and are intended to ensure a degree of diversification and minimise any systemic risk from problems over one instrument type.

**Currencies**

All funds invested by the treasury centres should be denominated in EUR or USD.

Funds invested locally should be in local currency or USD or EUR-denominated instruments.

Funds can be swapped into USD or EUR for the purposes of investment. Any swap should be for a maximum of one year.

**Maturity of instruments and the portfolio**

Investment decisions must be taken with the cash flow forecast in mind so that access to cash to meet forecast liquidity needs is not impaired. Short-term operating cash is defined as cash which is likely to be needed within the next year.

A secondary objective is to ensure that access to cash is not unduly restricted and to reduce the risk of being locked into an investment whilst

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the rating of the counterparty is deteriorating. Limiting maturities will help towards this objective. At all times, 50% of the invested cash should mature within three months, 25% within six months and 25% within one year.

In addition, the following maturity limits apply:

- ◆ Sovereign debt: the maximum maturity for any instrument is one year.
- ◆ Bank deposits: the maximum maturity for any deposits is one year.
- ◆ Certificates of deposit: the maximum maturity for a CD is one year.
- ◆ Floating rate notes: FRNs may only be bought when the time to maturity is less than a year.
- ◆ Commercial paper: any commercial paper must have a maximum maturity of three months.
- ◆ Repurchase agreements: the underlying instrument should have a maximum maturity of one year.
- ◆ Investments with maturities over six months must be with a counterparty rated AA-/Aa3 or better.

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### Interest rate management

The determination of the interest rate profile of investments should be based on the overall interest rate policy of the group, taking into account debt, financial instruments and the dynamics and requirements of the underlying business operations. The interest rate exposure may be managed independently of the maturity of the actual investments through the use of swaps or forward rate agreements. Speculative interest rate transactions are not permitted; in other words there must be an underlying cash position being hedged.

### Counterparties

The group treasury is responsible for overseeing the group's global counterparty limits and will maintain a list of approved counterparties. The group treasurer is authorised to add names to the approved counterparty list, subject to their meeting the conditions in this policy. Any changes to the approved counterparty list must be reported to the next board treasury committee.

Limits apply to all cash investments and are calculated by converting all instruments to EUR using the daily Reuters rates. Where a counterparty has more than one rating, the lowest rating will determine what overall limit applies to each counterparty. If an entity is on credit watch negative,

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then the limit to be applied should be taken as the limit for one rating notch lower.

The limits for any counterparty will be limited to no more than 10% of shareholders' funds or, in the case of a bank, its Tier 1 capital. The board treasury committee shall from time to time consider if it is appropriate to introduce a greater correlation of limits to the size of the counterparty, e.g. allowing only 75% of the normal limits for medium-sized entities and 50% of the normal limits for smaller entities.

Counterparty limits for cash investments are:

<b>Long-term credit rating:</b>	<b>AAA/ Aaa/ AAA</b>	<b>AA+/ Aa1/ AA+</b>	<b>AA/ Aa2/ AA</b>	<b>AA-/ Aa3/ AA-</b>	<b>A+/ A1/ A+</b>	<b>A/ A2/A</b>
<b>Short-term credit rating:</b>				<b>A1/ P1/F1</b>		
<b>Total counterparty limit (EUR million):</b>						
	<b>400</b>	<b>350</b>	<b>300</b>	<b>200</b>	<b>100</b>	<b>50</b>
<b>Counterparty limit, per instrument (EUR million):</b>						
Sovereign debt	<b>350</b>	<b>300</b>	<b>200</b>	<b>100</b>	<b>10</b>	<b>5</b>
Bank deposits	<b>325</b>	<b>275</b>	<b>175</b>	<b>75</b>	<b>50</b>	<b>25</b>
Certificates of deposit	<b>200</b>	<b>175</b>	<b>150</b>	<b>100</b>	<b>50</b>	<b>25</b>
FRNs	<b>200</b>	<b>175</b>	<b>150</b>	<b>100</b>	<b>50</b>	<b>-</b>
Commercial paper	<b>200</b>	<b>175</b>	<b>150</b>	<b>100</b>	<b>50</b>	<b>-</b>
Repos	<b>200</b>	<b>175</b>	<b>150</b>	<b>100</b>	<b>50</b>	<b>-</b>
Money market funds	<b>400</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>

(However, operating counterparty limits by instrument may be too restrictive an approach for many companies, in which case the above table need not be observed.)

Cash investments, even if short-term, shall be subject to the counterparty limit of their long-term rating. Where an entity only has a short-term rating then, if it is A1/P1/F1 or better, the limits applicable to AA-/Aa3/AA- will apply.

The group treasurer may propose additional country or sector limits to avoid undue concentration of risk or to mitigate risk from any perceived problem areas. These will need the approval of the board treasury committee.

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In the event that a limit is exceeded because of a downgrade after the original investment was made, the group treasurer will review the risks and possible likelihood to come back within limit. Any investments remaining in excess of limit will be reported to the finance director as part of the monthly report.

### **Group counterparty risk management**

In order to manage overall group exposures, the three treasury centres and other group entities with responsibility for short-term investment are permitted to invest with approved counterparties within sub-limits agreed with group treasury and which will be deducted from the central limits available. Locations that are able to view and report limit usage on a real-time basis will have the central limits available to them.

The three treasury centres must report all investment decisions to group treasury. Prior approval should be sought from group treasury for any investment decision which accounts for a quarter or more of the total counterparty limit outlined above.

The group treasurer in France, with the prior approval of the finance director, has authority to make investments outside these counterparty limits, but only for specific, exceptional transactions. Such investments must be reported to the board treasury committee, with an explanation of why the counterparty limit was felt to be inappropriate.

The group treasurer in France, with the prior approval of the finance director, has authority to establish and impose regional counterparty limits, taking account of the needs of subsidiary companies and the markets in which they operate. For example, limits may be allocated to the subsidiary of a bank which itself is not rated.

The group treasurer can reduce any limit if the specific counterparty risk worsens.

### **Tax**

Investment decisions should be evaluated on a net tax basis.

### **Operating procedures**

The group treasurer has overall responsibility for group investment policy. Procedures for monitoring credit ratings or any changes to the perceived credit standing of counterparties, e.g. checking credit default spreads, will be put in place. Operating procedures must be in place and agreed by the group treasurer for all group entities permitted to manage short-term investment decisions. These procedures should set clear guidelines for the segregation of duties, such that no single individual is able to authorise any deal that they have initiated. Each individual must have separate authorisation limits, capping their ability to transact. Procedures will also



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be implemented for the exchange of deal confirmations and the prompt checking of details by persons not involved with the dealing and recording.

**Settlement (daylight) exposure**

This policy does not specifically address the exposure that exists when moving funds between banks on a given day and which can be in excess of the limits in the table above. No separate daylight limits are imposed. Instead the risks are mitigated by the following procedures:

- ◆ Only major banks are used as a centralised clearing bank.
- ◆ Treasury must approve the opening of all new bank accounts within the group and will consider size of expected transactions and creditworthiness.

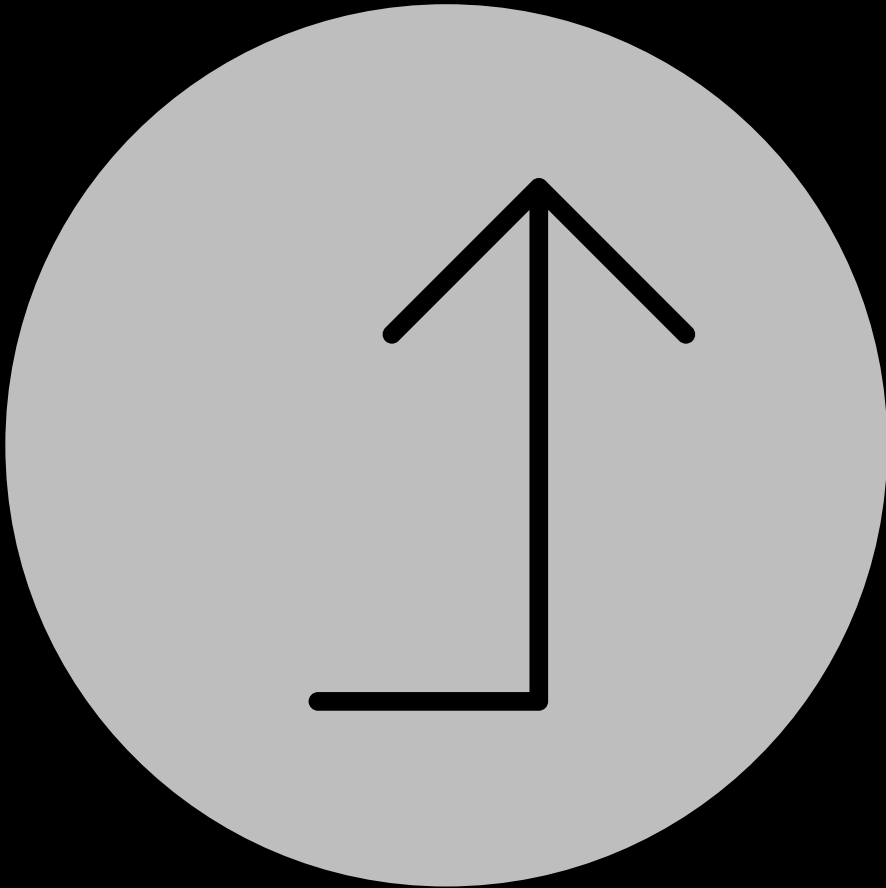
**Reporting**

All investment decisions should be reported to the group treasurer by the day after execution.

The group treasurer will prepare a monthly report for the finance director and the treasury committee members detailing the group’s short-term investment holdings. Any breaches of limits should be flagged. For every meeting of the board treasury committee, the group treasurer will prepare additional reports showing compliance with this group investment policy, with the group’s investment operating procedures, and with any changes to the list of approved counterparties. Records should be kept to allow compliance with the policy and procedures to be audited on a regular basis.

All investment decisions should be appraised on an annual basis.

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# Implement

# Implementing effective investment management

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## Introduction

With an investment policy now in place, the treasury needs to establish a set of operating procedures to follow when taking individual investment decisions. These procedures should set out, in detail, the precise steps which should be taken before a decision is made, including identifying the funds available to invest, selecting the appropriate instrument and counterparty to dealing and final settlement. The procedures must also outline how to monitor the investment from settlement through to maturity. This chapter identifies the main stages in the investment management process and outlines the procedures the treasury team should adopt at each stage.

Standardising the process helps reduce the level of operational risk within the department, as it allows individuals to understand the limits of their authority (this is especially valuable for new team members). It also formalises the audit process by creating a trail, which helps to protect both the company and the team members.

## Identifying investment circumstances

The first stage in the investment management process is to identify the circumstances in which the investment is being made; factors include the currency in which the funds are denominated (and whether foreign exchange transactions are permitted) and the time period for which the funds can be invested (and whether the company is comfortable with investing for that period), as well as the relative importance of security, liquidity and, if appropriate, yield as objectives. By doing this, the treasury team will be able to select an investment instrument to match the objectives and risk appetite for a particular set of conditions.

The conditions in which each investment decision is taken will differ. However, it is likely that the treasurer will have access to a wider range of investment options if the cash to be invested is characterised as strategic cash, rather than operating cash (see Chapter 3).

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## Selecting the instrument

The next stage is to select the instrument which best reflects the company's objectives.

### Characteristics

The investment policy should set out guidelines, including permitted instruments and counterparties, for specific circumstances. These may vary significantly, especially if the cash is characterised as being either operating or strategic cash. Given these constraints, the treasury team should identify all instruments which meet the company's objectives and reflect the risk the company is prepared to assume. The shortlisted instruments should all reflect the company's approach to market and liquidity risk. The treasury team will need to be mindful of credit risk when selecting the counterparty or issuer for the specific transaction.

It is possible that a combination of instruments (including, for example, a foreign exchange transaction) from a number of counterparties or issuers might offer a better solution than a single instrument.

There is more detail on the characteristics of individual instruments in Appendix 1.

### Precise instruments and markets

It is important to recognise that not all investment instruments are available in all markets. For instance, some governments do not issue short-term debt instruments. In other locations, there are no local money market funds, although investors may be able to access international money market funds.

Where particular instruments are available, the liquidity of local markets also varies from one country to another.

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Consider a British company with GBP 1 million to invest for three months. Invested locally, this would earn a return of 1.13%, or GBP 2,825 over the three months.

Alternatively, the company could invest in US commercial paper (USCP) issued by Company M, which would pay an annual equivalent return of 1.6%. As USCP is denominated in USD, the British company would have to buy USD at the prevailing spot rate (GBP 1 = USD 1.2796) and then sell them three months forward (at GBP 1 = USD 1.2769).

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The British company would invest USD 1,279,600 in Company M's USCP. Over the three months, this would earn a return of USD 5,118.40. The principal and the return (USD 1,284,718.40) would then be exchanged into GBP at the pre-agreed forward rate, giving GBP 1,006,122.95. This represents a return for the British company of GBP 6,122.95 over the three months. This is an equivalent annual return of 2.45%, significantly above that available directly in GBP.

In reality, such arbitrage opportunities may only exist between two less commonly traded currencies. When investing in a foreign currency, the treasurer may want to use the investment to hedge other open positions.

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The size of the respective local markets also affects the availability of instruments. Money market funds are popular in the USA and Europe. However, local mutual funds differ in the investment approaches they follow, primarily as a result of local regulation and the instruments available in the local market. It is important that investors understand the nature of these approaches and recognise that different funds in the same market may have significantly different risk profiles. Moreover, money market funds outside the USA and the EU (see Chapter 6 for information on regulatory requirements in these locations) may not be subject to the same restrictions as funds in those locations.

Finally, some instruments have different terms and conditions depending on the market in which they are issued. Typical factors which vary include:

#### ◆ **Interest**

The calculation of interest payments varies from currency to currency. Most interest is calculated on a 360-day year basis, although there is some use of a 365-day year basis. (For detail, see Appendix 2.)

#### ◆ **Minimum investment period**

Local banking regulations may prohibit the payment of interest on investments made for less than a minimum period.

#### ◆ **Maximum investment period**

Some instruments are issued subject to a maximum investment period. This is often due to local securities regulations. For example, USCP offered for sale to the public is limited to a maximum maturity of 270 days, otherwise it would be required to be registered with the US Securities and Exchange Commission.

#### ◆ **Tax liability**

Tax liabilities vary in different locations. It follows that specialist tax advice is necessary before taking the decision to invest.

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### ◆ **Investor eligibility**

Finally, some investors may be prevented from investing, due to local restrictions. For example, in normal circumstances, US investors are prohibited from investing in European money market funds. Some countries, including Russia, place restrictions on access to local bank accounts.

The availability of different instruments in selected markets is detailed in Appendix 1.

### **Standalone or part of a portfolio**

In some cases, treasury will be able to take a standalone decision. This may be appropriate, for example, if a company has concentrated its cash to a single account.

At other times, treasury may have to take a wider perspective. An investment decision will have an impact on the group's portfolio, especially if the group has significant sums of cash invested. Any large-scale investment, such as the management of the proceeds of a major corporate sale, will also have to be considered from the perspective of the impact on the group as a whole. When selecting appropriate investment instruments, treasury will have to model the impact of all potential instruments on the weighted average maturity (WAM) and duration of the portfolio as a whole. This is an important tool in modelling interest rate risk (see page 66).

In all cases, care will need to be taken to ensure counterparty limits are not breached and that sufficient liquidity is available by ensuring different instruments mature at different times (see page 63 for more on liquidity risk).

### **Counterparty mandates**

As well as being included on the approved counterparty list, treasury must have appropriate mandates or contracts in place with a counterparty before the transaction is agreed.

### ◆ **Deal mandate**

Any potential deposit with a bank must be covered by a bank mandate. This should detail the preferred method of transacting (whether via electronic banking or over the telephone), as well as a back-up process. It will also determine who is authorised to initiate deals on behalf of the company, including the terms of any automated sweeps. During any dealing or depositing process, it is important that treasury complies with the conditions of the mandate.

Introduction	Any bank dealing mandate should address the following details:
Forecasting	<ul style="list-style-type: none"> <li>the group entities covered by the mandate;</li> </ul>
Managing	<ul style="list-style-type: none"> <li>the transactions covered by the mandate, including limits on amounts;</li> </ul>
Segmenting	<ul style="list-style-type: none"> <li>individuals permitted to agree and confirm transactions, including any permission to give instructions by phone;</li> </ul>
Establishing	<ul style="list-style-type: none"> <li>standard settlement instructions (to cover each group entity, one per currency);</li> </ul>
<b>Implementing</b>	<ul style="list-style-type: none"> <li>action required to agree and confirm a transaction outside the scope of the established mandate; and</li> </ul>
Understanding	<ul style="list-style-type: none"> <li>action required to change the mandate to include any changes to standard settlement instructions. (The ACT suggests it is good practice to reproduce the entire list of names or accounts, to avoid confusion after any change to standard settlement instructions.)</li> </ul>
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The Bank of England's UK Money Markets Code provides additional guidance on the relationship between participants in the deposit, repo and securities markets in the UK. The Code states that 'a dealing mandate does not lessen the responsibility of UK Market Participants for the actions of their own staff; it is the responsibility of a UK Market Participant to ensure that any member of its own staff who commits it to a deal has the necessary authority to do so. Nor should a dealing mandate attempt to transfer or outsource such responsibilities to a counterparty'. (The full UK Money Markets Code can be found at [www.bankofengland.co.uk](http://www.bankofengland.co.uk).)

There are differences between what a company might want from a mandate and what a bank is prepared to accept. As long as the core details are contained in the mandate, the key is for the company to retain control of its own internal processes and its standard settlement instructions.

#### ◆ **ISDA (International Swaps and Derivatives Association) and similar documentation**

If a company expects to enter into over-the-counter derivatives transactions, it is usually prudent to agree an ISDA Master Agreement with all potential counterparties. This agreement will reduce the time (and cost) taken to negotiate standard terms and conditions before every derivative transaction. It includes standard settlement instructions.

The International Foreign Exchange Master Agreement (IFEMA) is a standardised agreement between two parties for the exchange of currency. The International Foreign Exchange and Currency Option



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Master Agreement (IFXCO) is a similar document covering foreign exchange and currency option transactions. IFEMA and IFXCO were developed by the New York Federal Reserve Bank's foreign exchange committee, the British Bankers' Association, the Canadian Foreign Exchange Committee, the Tokyo Foreign Exchange Market Practices Committee (IFEMA) and the Japanese Bankers' Association (IFXCO). The Global Master Repurchase Agreement (GMRA) is a standardised agreement for repurchase (repo) agreements.

In most cases, these mandates should be in place before a transaction is initiated. Standard documentation, such as the ISDA Master Agreement, makes it relatively straightforward to agree terms with a new potential counterparty. However, it is prudent to add counterparties to the approved list only once agreement has been reached.

In some cases, especially when investing strategic cash for a longer period, negotiating the counterparty mandate may be an integral part of the investment decision. This is especially likely to be the case when investment managers are appointed to manage a pool of funds for a particular period of time, such as in the use of a separately managed account.

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### Dealing

Each treasury should have a set procedure which details the deal process from selection of instrument and counterparty/issuer, through to the post-trade administration. It is possible for some investment activity to be automated, subject to preset rules and parameters, such as via a sweep to an interest-bearing account or money market fund.

Every time an investment decision is taken, it should be clearly documented. This provides protection for treasury (in case, for instance, a dispute arises later) and as a means to evaluate the decision itself.

### Deal process

The deal procedures should be designed to be as standard as possible. If local entities invest their own surplus cash (typically in overnight deposits with local banks), they should do so following standard group-wide procedures.

### Research transaction

The treasury team must research all the instruments identified as suitable for the specific transaction. For more complex scenarios, this may require the analysis of a number of alternative instruments, to see which would best meet the company's objectives. The decision must be based on the level of credit, liquidity and market risk the company is prepared to assume.

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For larger amounts, the treasury team will want to consider the number of individual transactions which will need to be made. For funds to be invested for longer periods, the team could also select a number of instruments with a range of maturities, to reduce both liquidity and reinvestment risks.

### **Authorise transaction**

Once the appropriate instrument(s) has been identified, an outline transaction should be authorised. Individual treasury team members will have their own deal limits, which may vary according to the instrument type. Any authorisation procedures should be followed carefully. An automated sweep should also be subject to an authorisation procedure if it breaches a preset limit. In addition, automated transactions should be subject to regular and spot audit checks.

The internal audit department (or a similar group acting as a 'second line of defence') should review the design and operating effectiveness of dealing controls on a regular basis. The review should analyse whether procedures are being followed, including whether transactions are being authorised appropriately.

### **Quote**

The dealing procedures need to indicate how many quotes are required to identify the best, or a market benchmark, quote. This may depend on whether a published market rate is available. It will also state in which circumstances treasury can rely on data from a dealing platform or from its market information screen. All quotes should be recorded, so they can be reviewed in the event of a dispute. These records will be available during the regular review of investment activity and performance. Some treasurers may also use these reviews to evaluate bank relationships.

If the transaction is large relative to market conditions, treasury should avoid asking too many banks to quote, because of the possible impact upon that market. In these circumstances, treasury may choose to employ the services of an asset manager.

### **Agree transaction**

Once the preferred quote has been identified, someone with appropriate authorisation should agree the transaction. The terms of the agreement must conform to the terms of the mandate or other contract. It must not breach counterparty limits. Although this suggests three separate authorisation stages, in practice these will often be completed by just one individual.

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Many companies have been taking a more sophisticated view of counterparty limits in recent years. In the past, companies ranked their approved counterparties by yield. Many would then simply invest funds with the counterparty at the top of the list up to the limit, and then move to the second on the list, and so on. This course of action would introduce a, possibly unintended, bias towards poorer credit quality investments. Today, companies are taking a much less simplistic view. They want to understand much more about the counterparty, a bank's exposure to particular markets or the contents of a money market fund portfolio, before deciding to invest. Investors are also not investing up to counterparty limits in every instance; rather they are looking to diversify their own exposures first.

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The authorised dealer should produce a deal ticket, providing the full detail of the agreed transaction. This should include the details of any quotes as well as the relevant authorisations. These tickets are increasingly likely to be electronically generated.

#### Confirm transaction

Once the deal ticket has been produced, it is passed to the back office for confirmation. It is here that there should be a clear segregation of duties. This means no one party to the deal agreement (dealer, or anyone who authorised the deal) should be involved in confirmations. In companies with a small treasury department, it may be necessary to use a member of the accounting (or another) department to perform confirmations.

To confirm a transaction, the back office will ensure the details of the agreement on the company deal ticket match those sent by the counterparty. For standard transactions, these are increasingly automated, either through the treasury management system (TMS) or by using a dedicated deal-matching service. In these cases the deal is entered into the TMS (ideally as an automated feed from the dealing platform), which then automatically generates trade confirmation data. The confirmation matching system will receive this data and equivalent data from the counterparty financial institution. If the data matches, the system will send a report as evidence. If there are any discrepancies, the system will automatically identify them to the treasurer.

At their simplest, confirmations can be managed by an exchange of messages on a single bank dealer platform. Companies with direct access to SWIFT, as well as users of some TMSs, can process SWIFT MT 300 message types, which permits real-time direct confirmations with counterparty banks. Most of the other TMS vendors have built interfaces to third-party confirmation and matching systems. These interfaces allow

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corporate treasury confirmation matching systems to 'read' messages initiated by financial institutions, and vice versa.

It cannot be stressed enough how important this control is. It is impossible to devise a system that can ensure fraudulent or malicious deals are not initiated. (See page 71 for more on operational risk.) However, through prompt checking of confirmations, any errors or false deals can be detected swiftly, and steps taken to reverse or neutralise them. The Bank of England UK Money Markets Code specifies that good practice is to exchange confirmations 'without undue delay'. The Code strongly recommends the use of automated confirmation matching systems, which provide the opportunity for improved control.

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The UK Money Markets Code's dealing practices are equivalent to a market agreed best practice. It sets out clear responsibilities for all market participants, including the importance of agreeing dealing principles and procedures. It recommends the necessary controls, including the need to have clear dealing mandates in place as part of the checks of counterparties. Finally, clear confirmation and settlement procedures should be agreed and followed, and there should be a mechanism to resolve discrepancies which are identified at the confirmation stage. The Code suggests the level of detail which ought to be included in money market confirmations. The same level of detail is appropriate for all dealing transactions.

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### Settlement instructions

After confirmation, the deal should be prepared for settlement. Detailed settlement instructions should be part of any mandate or other contract. The back office should check that any changes to these instructions have been prepared by an authorised member of staff. Equally, checks must be undertaken of any new or changed settlement instructions from the banks, to ensure they really have come from the bank. Care should be taken with instructions received by email, given the greater cybersecurity threat posed by business email compromise (BEC) scams. Checks can be made via cross-reference to the bank's website or by call-back to the bank to be sure the details are bona fide.

Maintaining current settlement instructions is an important tool in reducing settlement risk (see page 71).

### Reconciliation

Once the transaction has been settled, the back office team must reconcile all the relevant documentation for accounting and audit purposes.

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In today’s treasury, many of these activities can be automated. Most TMSs now include dealing modules, which permit payments to be initiated and then create accounting and management reports.

Where back office activity is automated, transactions should be subject to regular, as well as spot manual checks, to help to prevent fraud. Reconciliation is an important tool in reducing operational risk (see page 71).

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**Implementing**

As an illustration of the process, the British company investing in USCP (page 104) has worked to reduce headcount within the back office of the treasury department. When agreeing a spot foreign exchange transaction, the deal process is as follows:

The dealer will seek quotes. The company has access to one of the information screens, which records the current GBP/USD rate. It also participates in one of the foreign exchange portals. Both these systems provide the company with the current market rates. However, because of the complexity of the deal, the dealer also prefers to seek two voice quotes. This allows him to discuss the nature of the foreign exchange market with two bank dealers.

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Once the quotes have been received, the dealer executes the transaction with the most competitive bidder either by telephone or through the foreign exchange portal. The deal is entered into the TMS, which then automatically confirms the trade with the bank. On receipt of information from the counterparty bank, the system carries out an automatic matching and exception reporting process.

The TMS also initiates the payment, permitting the payment of GBP for settlement for, in this case, same-day value, since the USCP market operates on a same-day basis.

At the same time, the system also generates a deal report, which is part of the group treasurer’s end-of-day reporting. This also describes the treasury manager’s authorisation of the deal. The information is also used to update the cash flow forecast, on both the GBP and USD sides.

After settlement, another set of reports is generated, confirming the actual cash flows. The TMS will automatically create the cash book and accounting entries for posting to the company’s main accounting systems.

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**Automation in treasury**

Increasing numbers of treasury activities can be automated through the use of a TMS; a system can either be installed locally or hosted by a systems provider, and accessed using a web browser. TMSs, or other enterprise-wide resource planning (ERP) systems, provide significant advantages to treasurers at all levels of activity.

From an investment perspective, TMSs allow the treasurer greater visibility of cash balances, through cash flow forecasting modules. They manage the operation of group-wide liquidity management schemes and allow for the automation of much of the company’s investment activity.

TMSs are particularly valuable for record-keeping and report generation, although care needs to be taken to ensure back-up systems and controls are in place. Some systems use workflow solutions to embed a level of additional controls, such as clear authorisation procedures, and ensure a clear audit trail exists for future reference. These must be checked and audited on a regular and irregular basis to reduce operational risk.

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**Case Study: Achieving Control over Cash**

For a treasurer in a growing business, achieving and maintaining control over group cash can be difficult. To build the business, for example, the company may often need to establish entities in new jurisdictions quickly, leaving the treasurer with the problem of how best to optimise their use of cash without sufficient visibility. For many multinationals, this generally means making decisions on how to manage cash in different locations, and across multiple time zones.

Take for example, a growing US-based multinational with a central treasury located in the USA, and regional offices around the world, each of which is permitted to manage cash. With USD billions of cash, the group treasurer is acutely aware of the importance of exercising control over cash, even though much of it is managed away from the central treasury.

Having initially operated in a decentralised manner, the decision was made to exert more control over group treasury activities through the implementation of a series of global treasury policies and procedures. With the policies and procedures now in place, the department benefits more generally from improved internal controls and the demonstration of good corporate governance.

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To help implement the new policies and procedures, the department is adopting a new treasury management system (TMS). Initially, the target is to manage payments more effectively and provide central treasury with a greater visibility of cash. The system is being implemented gradually, with interfaces to banks with the most significant cash flows being added first. At the time of writing, two-thirds of the company's banks had been integrated with the TMS, with the remainder representing smaller pools of cash around the world.

The TMS has enabled treasury to move away from spreadsheet analysis, which in turn has led to improvements in cash management. The company is able to analyse cash on a case-by-case basis, by trying to identify how any surplus cash will be used and then investing it accordingly. Generally, any cash that will be required within a week will be swept automatically into an overnight account or placed with a money market fund. Any cash needed later that a week is invested in a bond or US treasury bill.

In summary, the improved analysis means the company can align investment decisions more closely with its cash flows, which in turn means the risks and rewards from the cash investment are more closely matched.

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### Using portals when investing

Portals are used by investors both to access information and to make money market investments. Investment portals can be standalone, in other words used for the single purpose of managing cash investments. Of these, some portals link only to money market funds, whereas others provide access to a wider range of instruments, including bank deposits and commercial paper. Some broader service platforms offer the ability to manage cash investments alongside other services, such as foreign exchange transactions. A number of banks also offer a portal or an automated sweep service to access certain investments, especially money market funds.

The benefits of a portal for the investor derive from the single point of access they provide. This reduces the time spent searching for and accessing information, information which can be used to initiate a transaction and reduce the level of manual intervention in the deal process which, results in a lower risk of fraud and error.

When using a portal to make investments, the same processes as outlined above should be followed. The exception will be that some stages, such as the recording of quotes and the deal transactions themselves, are

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automated. Crucially, rules about counterparty risk management must still be adhered to. Treasurers should only deal with counterparties if an appropriate mandate is already in place, and care should be taken to evaluate all the fund providers.

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### **Technology in Treasury and Liquidity Management: Evolution and Integration Continues at Pace**

**Martin McNamara**, EMEA Liquidity Product Specialist

Two significant areas of change have dramatically impacted the role and day-to-day operations of a corporate treasury function: the introduction of technology such as treasury management systems (TMS) and investment portals, and the digitalisation of banks' systems. With firms continuing to adopt and integrate technology into their treasury operations and banks investing heavily to enhance their propositions in the face of fierce competition, these trends show no sign of abating, even though the lines between the various technology providers and banks solutions are becoming increasingly blurred.

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Corporate treasury functions have been transformed by technology over the past decade; this transformation accelerated following the 2008 global financial crisis when even small corporates found clear cost justifications for strengthening their cash and risk management processes. The adoption or enhancement of TMS, investment portals and other technologies offer increasingly relevant solutions to manage cash in a risk-aware environment.

#### **Treasury management systems**

In contrast to spreadsheets, which are inefficient and prone to manual errors and associated risks, TMS can interpret and automate processes to deal with the vast amounts of data now available through the digitalisation of banks' systems. The implementation of a TMS offers corporate treasuries a consolidated view across all aspects of treasury activity, one that is very difficult to achieve on spreadsheets. With such a significantly enhanced view of their business's overall liquidity, intercompany and exposure position, treasurers are in a better position to make appropriate funding and investment decisions and well placed to support their board's strategic decision-making.

#### **Bank systems**

In parallel, the digitalisation of banks, and in particular the liquidity management services that provide cash concentration, pooling and



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most recently virtual account management, allows firms to centralise cash among subsidiaries. This has accelerated processing times of payments and reconciliations, making management of working capital more efficient – all the while reducing fees, optimising interest yield, enhancing visibility and control over cash positions, and allowing corporates to self-fund their structures. This change has also presented treasurers with the opportunity to segment cash, identifying resources not required today that could be placed into deposits or other cash equivalent investment solutions such as short-term money market funds (MMFs). In the case of investment in MMFs, additional technology could be deployed by way of the fund providers' own investment platform, automated sweep platforms operated by a corporate banking partner, via investment portals or by using SWIFT and other direct communication technologies.

### **Investment portals**

Portals can provide an efficient and economical means of accessing a variety of investment solutions by treasury functions, including bank deposits, MMFs, commercial paper, foreign exchange and repurchase agreements. A challenge facing corporate treasurers is how to procure the best portal and one that best integrates into existing technology. This reflects a broader evolution in the role of a corporate treasurer towards the procurement and oversight of treasury systems, investment portals and other treasury process-orientated infrastructure, in addition to adopting a strategic outlook on forecasting and hedging, achievable through the advances in technology.

Investment portals not only provide access to investment products, with enhanced reporting and risk analytics, they also provide treasury with a detailed view of the liquidity and exposure levels across investment portfolios necessary to ensure compliance with internal treasury policies and management reporting. Portals are available from a number of pure technology solutions as well as from asset managers, banks and other providers

Investment portals are seeking new ways to further integrate their proposition into treasury operations and increasingly we see investment portals forming partnerships with TMS providers, linking the investment dealing activity and liquidity and exposure reporting directly into the TMS. This strengthens the cash and risk management credentials of the TMS and further enhances the opportunity for the corporate treasury function to optimise working capital and other more strategic cash segments.

### **Automated sweep platforms**

Sweeps essentially provide a standing order between a client's cash management and custody account. Historically, this was

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most prevalent among custody banking arrangements where a custodial service provider receives all transactional activity across an account and can forecast to sweep any excess cash into a MMF, recalling some or all of it to meet future liabilities as they fall due (trade settlement or redemption activity for instance). With more accurate cash forecasting available to corporate treasury functions via the adoption of TMS systems or other stand-alone applications combined with digitalisation of banking operations, increasingly corporates are also using bank sweep infrastructure with rules-based investment criteria, defining how much and when cash should be subscribed and redeemed from one or more MMF. With much of the infrastructure necessary in place, bank sweep platforms are expanding to offer the self-service capabilities that have historically defined portals offering treasurers both options, increasing the level of integration between a treasury function and their chosen banking provider.

#### **What next?**

The economic and operational benefits new technology brings to treasury is undisputed. However, its adoption remains broadly limited to the largest corporates; smaller, resource-constrained corporate treasury functions struggle to justify the high costs and protracted implementation programmes required to integrate new technology with their existing systems and processes. But, technology can be harnessed to reduce the both the expense and disruption.

By providing a single access interface that grants access to cloud-based ecosystems that incorporate the tools necessary to service each element of a corporate treasurers' value chain, tools that can be quickly deployed without the cost or inconvenience, banks, TMS providers, investment platforms and other treasury system providers will enable companies of any scale to benefit from the continued development and sophistication of treasury technology. There are benefits too for the providers. As the distinction between banks and technology providers becomes blurred and technology becomes standardised, this 'one-stop shop' proposition presents an opportunity to distinguish themselves from the competition.

#### **Back-up systems**

The dealing procedures will include reference to any back-up processes in the event of a failure in the preferred systems. These must be reflected in the agreements with counterparties. For example, if deals are usually agreed online, the back-up process will usually be to agree the transaction by telephone. The procedure should establish when the back-up process is to be used.

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## Protecting and monitoring the investment

The final stage in the investment process is to ensure the security of the investment itself. Treasury has a number of tools which will assist in this process.

### Reports

Treasury must pay close attention to the regular cash flow forecasts. This is important not only in developing the investment strategy, but also to allow treasury to plan the realisation of current investments to meet unexpected cash demands. The treasurer (or finance director in a smaller organisation) should receive a daily deal report, providing details of all the transactions performed on a particular day. Treasury should also receive regular reports on the performance of their current investment portfolio. These should cover:

- ◆ the value of, and return generated by, each investment;
- ◆ a clear summary of maturing investments (both to ensure adequate cash flow and to manage reinvestment); and
- ◆ a counterparty report detailing the exposure to particular counterparties.

These reports should be prepared in a timely fashion, to allow the treasury sufficient time to act.

## Case Study A US MNC with European treasury centre

This US-headquartered multinational chemical company manages its international (non-US) cash management activities from its Swiss treasury centre. Its core structure is a USD-denominated cash pool, which has an average balance of USD 5 billion.

Historically, the company favoured its core bank relationships when placing this short-term cash. The treasury centre would tranche the cash, with most then placed on deposit with the core banks for terms from overnight up to 90 days. The remainder was invested in money market funds.

More recently, the company took the decision to invest a higher proportion of its cash in money market funds. On an operational basis, they have found money market funds easy to use, and this allows the company to manage its short-term cash through a team of only three Swiss-based dealers. The funds' transparency, including

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the selection of plain vanilla instruments, has made it easy for the company to track its own exposures.

From a risk management perspective, the company is reassured by the size of the major AAA rated money market fund portfolios and the fact that the funds are ring-fenced from any sponsoring institution. The company's policy is to limit its participation in any fund to 5% of that fund's assets under management. Via a strict due diligence process, the company also made sure it understood each fund's approach to investment. The company did not want to 'chase yield'; instead, it selected funds with investment policies which reflect its core objectives of maintaining liquidity and security of principal.

This approach has allowed the company to generate significant cost savings, while also diversifying its investment portfolio. These factors more than compensate for any relative loss of yield which might have occurred.

### **Custody arrangements**

For some money market instruments, including government bills and commercial paper, companies will need to appoint a custodian bank to hold their investments. Increasingly, instruments are being issued in a dematerialised form (as electronic documents), so investors need to ensure prospective custodians are committed to the business. A number of players have withdrawn from this market over recent years as the investment required to develop and maintain the appropriate level of technology (to perform delivery against payment, for example) has been, and continues to be, significant. These costs have also meant that some of the custodians which have remained in the market are no longer keen to provide services to corporate treasury departments. This is primarily because corporate treasury departments do not have the volume of business to generate sufficient fees to justify the custodian's costs.

In some cases, such as repurchase agreements and secured deposits, companies take collateral when making investments, as a way to minimise counterparty risk. In these circumstances, the company will have to hold the collateral (often a government or high-quality corporate instrument) securely and separately. While holding the collateral, the company may need to make arrangements to pay any accrued interest on the collateral instrument to the other party. Also, if the collateral is held with a third-party custodian (via a triparty agreement), the investor will be required to place cash with the custodian to compensate for any appreciation of the collateral asset during the agreement (this is known as a margin call). The custodian will revalue the collateral and, if necessary, call for additional

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cash daily, which may place an additional cash forecasting requirement on the investor.

That said, it has also become difficult for corporate treasurers to find banks to act as a third-party agent in triparty repo agreements. This, too, is largely a cost concern: triparty repo agreements are expensive to set up (and so are only potentially of interest to a small number of the most active treasury departments) and few banks are prepared to make the investment in technology and personnel necessary to provide this service. Although there are alternative trading platforms offering repo and other collateral lending services, these are relatively new and it may take some time for them to build sufficient volume to be of value to corporate treasurers.

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Dematerialised money market instruments are held in accounts with organisations, called securities depositories, such as Clearstream and Euroclear in Europe, or the Depository Trust Company (DTC) in the USA. These accounts are held by agents, called custodians, who hold the instruments in their clients' names. When an investor purchases an instrument, its ownership is recognised by a book entry across the account of the investor's custodian at the securities depository. Delivery of the instrument is against payment and, again, is processed through the depository. When realising the investment, the settlement process works in reverse, with the investor receiving payment on delivery of the instrument (also as a book entry at the depository).

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For many corporate and institutional treasurers, the use of money market funds effectively outsources custodial services (as well as investment research and analysis).

### **Changes in counterparty creditworthiness**

Even when treasurers devote significant resources to assessing the strength of their counterparties, these assessments can change once the company has invested in a particular instrument issued by an approved counterparty. The longer the term of the investment, the greater the chances of this happening become.

The challenge for the treasurer is how to respond if a current counterparty is placed on credit watch or its rating is downgraded, especially if this action would lead to it being taken off the company's counterparty list or suffering a reduction in the relevant counterparty limit.

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If a counterparty is placed on credit watch or faces a rating downgrade, appropriate revisions to counterparty limits should be immediately applied. Action should be taken to reduce an exposure if a new limit results in a breach. Depending on the remaining life of an investment, its size and the deemed risk, companies may decide to run any existing deposits through to their maturity. Equally, they may be forced to do this if the investment is not tradable or immediately liquid. The company's investment policy should already have set parameters for dealing with the circumstance of a downgrade and consequential breach of limits.

No new investments should be placed with this counterparty before additional credit checks are made. This approach should continue at least until the credit rating is affirmed or changed. It is important to reiterate here the necessity, when reviewing counterparty lists, not only to rely on changes in published credit ratings. Treasury teams should also analyse outlook reports and other documents to identify relevant trends.

If, on the other hand, a counterparty fails, the position for an institutional investor is more complex. In some countries, certain deposits made by institutional investors are covered by deposit insurance schemes, although in most cases these are restricted to retail investors. (Even if these deposits are not restricted to retail investors, the thresholds are generally low, and so are largely irrelevant for an institutional investor.) One of the major exceptions is the USA. There are a number of different schemes which give institutional investors access to deposit insurance by dividing large investments among enough banks to keep the amount placed with each bank below the FDIC threshold. Investors can use money market demand accounts (via, for example, Federally Insured Cash Accounts – FICA) or certificates of deposit (via, for example, the Certificate of Deposit Account Registry Service – CDARS) to access FDIC insurance. In some cases, a number of governments have taken action to support their banks by guaranteeing certain liabilities. If investments in a failed counterparty are covered by a deposit insurance scheme, the treasurer should apply to the scheme for compensation. If not, the treasurer should apply to the failed counterparty's administrators, who will treat the claim in accordance with the regulations in the relevant jurisdiction. Even if the company is successful in reclaiming some or all of its invested capital, no interest (on deposits) will have been earned from the date of failure. In addition, any repayment of principal may be made much later than the maturity date of the held investment. The treasurer will need to ensure sufficient cash is available to replace the funds held with the failed counterparty.

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### Investment appraisal

All investment decisions should be subject to a regular appraisal process. Performing an appropriate appraisal process which does not alter behaviour in an adverse way is not easy.

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For example, of the three core objectives when investing operating cash, treasury will usually want to prioritise security and liquidity. However, yield is easiest to measure. The appraisal process should avoid concentrating on yield, as it may result in selecting a higher yielding but less liquid instrument, when making an investment.

Any appraisal process needs to include the following:

◆ **Check compliance**

At the very least, all investments should be subject to an audit which ensures all investment policies and procedures are complied with.

◆ **Assess forecasts and models**

The appraisal process will give treasury the opportunity to assess the use of any forecasts and models. Although the cash flow forecasting model may be assessed separately, the investment process should be incorporated in this assessment to identify any weakness. Also, if the company uses a value at risk (VaR) model, its predictions can be assessed after the event and the model improved. It is important to recognise that any model or forecast, including VaR, is only as good as the assumptions made and the historic data used when building it. Some models, including VaR, generate an expected loss over a given period that has a probability of occurring on, typically, 5% or 1% of occasions. If the model generates a VaR at a level beyond the company's limits, the treasurer will need to consider taking action to minimise the potential risk of loss.

◆ **Improve performance**

Finally, the appraisal should seek to improve investment performance. As discussed, in this context yield may not be the most appropriate indicator. Instead, the appraisal process should concentrate on security (the selection of the investment instrument: was there any loss of principal in any investment over the appraisal period?) and liquidity (the robustness of the daily cash forecasting process: was there any point when the company had net cash, but was borrowing from the external market?). Should either case be answered in the positive, the appraisal process should seek to identify why.

Any performance measurement should use appropriate benchmarks. For example, it is possible to measure the efficiency of the dealing process. Did treasury manage to obtain the best investment rate? This can be assessed with reference to published market rates, although it is important to use an appropriate reference rate. Was the transaction completed in a timely fashion? This can be assessed by tracking the time between the identification of the cash surplus and the completion of the transaction. Security can be measured by reference to counterparty limits, for example. Liquidity can be assessed simply by establishing whether any short-term

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external borrowing was required whilst the company or group had a cash surplus. Operational control can be assessed by looking at timeliness of confirmation matching, and dealing with any discrepancies.

There is a risk that reliance on too few, or inappropriate, benchmarks will distort treasury activity. As an illustration, even if the company has a target time within which to execute a transaction, there are some situations where the target may not be appropriate. For example, some large transactions will require planning to ensure they are appropriate. Similarly, just because the company makes reference to counterparty limits, that benchmark does not, on its own, imply that the counterparty limits themselves are appropriate. To be effective, the appraisal process must assess these limits.

**Accounting**

The final stage in the process is to account for all the transactions. There are two aspects to this: recording the data and preparing reports, be they for internal management or external accounts for tax and other regulatory reasons. Treasurers will find that reporting accountants classify their investments as financial assets.

Most TMSs will be able to generate accounting entries automatically, minimising the back office work required in the treasury or finance team. This can be more complicated when a variety of systems are used within the company, as the treasurer will need to ensure appropriate interfaces are developed and work effectively.

For external accounts, the first requirement for the treasurer in a company which reports under IFRS is to have a clear set of accounting policies. (The requirements for entities reporting under different national accounting standards will vary, but all demand the use of accounting policies.) These will set out the basis under which accounts are published, and state how the use of financial instruments are presented, measured and disclosed and how the company’s exposures to credit, liquidity and market risk are disclosed. They will also state whether financial assets are recorded on the trade date or the settlement date.

One task for the treasurer is to establish whether the short-term financial assets made are considered as ‘cash equivalent’ under the terms of IAS 7. Most short-term investments (with a maturity of less than three months), including EU short-term money market funds, French OPCVM de trésorerie and US (2a-7) money market funds, are considered cash equivalent, although companies should check with their external auditors before preparing their accounts. For cash equivalent instruments, the original cost is considered to be the same as at fair value, because they are, by definition, liquid.



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Treasurers will also need to ensure that any instruments held to hedge the value of a short-term investment (perhaps to ensure the principal of the investment retains its foreign currency value) are accounted for appropriately under IFRS 9.

Advice should always be sought when preparing accounts.

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# Understanding the impact of tax and regulation on different markets

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## Introduction

Regulation can be an important factor in determining how a treasury can manage its short-term investment activity. However, regulations are constantly changing and evolving, and treasurers need to keep up to date with them.

Regulation is typically applied at national level. This is also true within the European Union (EU), where directives have to be incorporated into national law. (In some cases, EU directives are incorporated unchanged into national law and dependent regulations; in others, directives allow local regulation, resulting in differences between countries in the application of a supposedly pan-EU directive. EU regulations on the other hand become law in member states without the need for local legislation.

Regulation relevant to short-term investment applies in four main areas:

- ◆ It can impose requirements on the decisions the investor is permitted to take. For example, banks and some other financial institutions have to be mindful of capital adequacy requirements. Public authorities, on the other hand, usually need to comply with rules or legislation limiting the range of approved counterparties and investment instruments.
- ◆ It can set criteria which help investors to understand the nature of a particular investment instrument. For example, US commercial paper has a maximum maturity of 270 days, because longer-dated paper has to meet SEC registration requirements. Also in the USA, to be considered a money market fund, fund managers have to meet criteria set out in the 2a-7 rules.
- ◆ It can determine who is entitled to invest in particular instruments. For example, most European-based money market funds are not registered

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under the 1933 Securities Act or the 1940 Investment Company Act in the USA. As a result, they cannot be publicly marketed within the USA.

- ◆ It is also applied according to the nature of the investor. Companies, financial institutions, banks and public authorities are all considered 'institutional investors'; however, banks are typically subject to different regulations than other private companies, and public authorities have their own regulations, too.

There is insufficient room within this chapter to discuss the myriad complexities of regulation as applied to short-term investments worldwide. Rather, we will discuss:

- ◆ The consequences of European money market fund reform;
- ◆ Developments in money market fund regulation in Asia;
- ◆ The ring-fencing of UK banks; and
- ◆ The implications of the EU Recovery and Resolution Directive.

It is important to note here that treasurers should always take professional advice and seek regulatory approval, if appropriate, before finalising investment policy. Treasurers must do their due diligence on any investment. It is very important not to assume that what holds true in one jurisdiction (and can be relied on there) is applicable in any other jurisdiction.

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## **Consequences of European money market fund reform**

### **Jonathan Curry**

Global Chief Investment Officer, Liquidity; CIO USA

The bulk of money market funds (MMFs) converted to their post-reform format in January 2019. EUR MMFs did so in March of the same year. The good news is that we found the transition went smoothly across the industry. Assets under management (AUM) were largely stable—particularly in the USD and GBP MMFs while there was some limited reduction in EUR MMFs as the new regulation impacted EUR MMFs more than USD or GBP MMFs.

### **Evaluating money market funds: key considerations**

As a consequence of money market reform, we think it is more important than ever for investors to understand how liquidity risk

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is now managed in MMFs. This relates to the implementation of liquidity fees and redemption gates. Although we think these are appropriate mechanisms for protecting MMF investors during periods of stress, the new regulation has specific triggers which were not in place before.

The most significant of these is the requirement that a fee or gate must be applied if weekly liquidity falls below 10%. That said, most MMFs are unlikely to be in situations where fees or gates are warranted. For this reason alone, how liquidity risk is managed has a heightened importance.

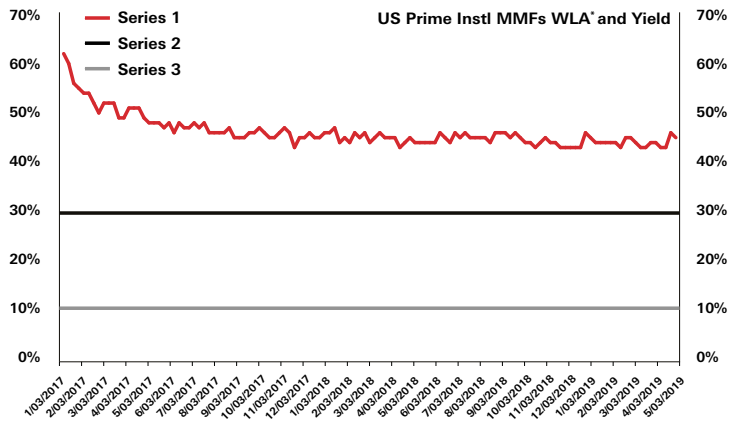
There are two considerations in evaluating a MMF's liquidity:

- ◆ The liquidity of its assets.
- ◆ The level of concentration in its investor base.

**Lessons from US money fund reform**

In the USA, post money market reform, we have seen a significant increase in the liquidity held in US 2a-7 prime funds<sup>1</sup> (Figure 6.1). While regulation requires a minimum weekly liquidity threshold of 30%, most prime funds are maintaining an average level close to 45%. The theory is that, by carrying this level of weekly liquidity, the fund will 'never' drop below the 30% trigger that requires the fund's Board to determine whether a fee or gate should be applied.

**Figure 6.1. US prime funds continue to operate with significant levels of liquidity.**



Source: HSBC Global Asset Management, May 2019. \* WLA, weekly liquid assets level.

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### **Changes post-European money fund reform**

We've seen a similar pattern in some European prime low volatility net asset value (LVNAV) funds, although here the issue is slightly less significant. In Europe, the board must consider the need to apply a fee or a gate if an MMF's weekly liquidity falls below 30%, and only if this has been caused by a greater than 10% one-day fall in its AUM. The probability of this double trigger being met is very low in our opinion.

Overall, a trade-off exists with excess liquidity in MMFs. Weekly liquidity levels in the 40-45% range are not necessarily in the best interest of investors as it can cost them 1-3bps in returns.

Client concentration is the other consideration in managing liquidity risk. Particularly in light of the new regulation, a concentrated investor base without a commensurate increase in overnight or weekly liquidity levels heightens the risk of a fee or gate trigger.

### **Reform outside the USA and Europe**

In 2019, developed markets have not been alone in enacting new MMF regulation. India, for example, has also implemented new reforms. The change in Indian MMF reform concerns the percentage of assets in a MMF that must use marked-to-market accounting versus amortised cost accounting. Post the new regulation, all Indian MMF assets with maturities between 30 and 90 days have to be marked-to-market; previously this applied only to assets with a maturity greater than 60 days. We think this is a sensible new regulation where short-term interest rates and credit spreads are more volatile.

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## **The regulatory environment for money market funds in Asia**

### **Michael Larsen**

APAC Head of Liquidity Product, HSBC

The regulatory environment for money market funds (MMFs) in Asia can be summed up in one word: divergent. Given that Asia comprises 48 countries, the biggest regulatory impact lies in the fact that some countries impose currency restrictions or capital controls and some do not. As such, we can divide the regulatory environment into two camps: restricted and unrestricted.

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The restricted markets usually require a MMF to be domiciled in the country and follow the local rules, which can vary significantly from country to country. What is a MMF in one country is not a MMF in another country. Representative 'restricted' markets are China, Indonesia, Thailand, Malaysia and India. Unrestricted markets are typically more open and allow for the selling of offshore fund products to locally domiciled companies. These markets also usually have a local MMF industry as well. Representative 'unrestricted' markets include Hong Kong, Singapore, Australia and, to a lesser extent, Japan.

These currency restrictions drive who can buy what funds and how and when funds can be marketed to customers. There are few pan-Asian MMF providers that can cater to a regional treasury with operations in multiple countries. Finding the right asset management partner to navigate these restrictions and help institute a consistent cash management strategy is key.

### **Recent and upcoming developments**

There are a number of specific regulations on the horizon, many of which are coming from China, the largest MMF market in Asia. For example, in January 2019, China announced plans to merge the QFII and RQFII schemes for offshore access to the onshore markets. The merger would also allow offshore investors the ability to buy onshore Chinese MMFs. Furthermore, China has been gradually tightening its MMF rules to converge to western standards and to make them more comparable to offshore products. As such, in the future, treasurers will have more access to a more transparent and consistent MMF products. In addition, China currently has a 'mutual recognition of funds' scheme with Hong Kong, meaning most funds can be registered and sold across both borders. These rules currently exclude MMFs. However, our view is that this could be relaxed over time.

Basel III is remains a driving force in the region as more regulators adopt the rules or tighten the restrictions and Basel III definitions. Specifically, as the in-country regulators revise rules regarding what can be treated as an operating deposit versus a non-operating deposit, banks may change their views on which deposits they want to hold on their balance sheet and which deposits would be better placed in a MMF. Treasurers should ensure they have several options for their cash in advance of banks making the decision for them.

The Australia Royal Banking Commission Review represents another important development in the region. While not specifically a regulation, it is changing the asset management and MMF landscape in Australia. Historically, the big four banks had not

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only the largest share of the deposit market, but also of the MMF space, with their captive asset management businesses. As part of the Review, the Australian government is pressuring the banks to simplify their operating model. As a bow to government pressure, all the big banks have been offloading their asset management, insurance and wealth businesses. This process will open up the MMF market to competition, as the new standalone asset managers or new owners will not only have guaranteed business, but will also be freer to sell to other banks' clients.

### **Challenges facing treasurers in Asia**

Staying on top of the local regulation in each country and ensuring treasurers know what they are buying is critical regarding MMFs in the region. For instance, a MMF in China can use leverage and derivatives to increase returns. This is not permitted in the EU or the USA, or other Asian countries. Furthermore, even within a country, there can be different types of MMF providers as the relevant local regulations can be broad. For example, in Hong Kong some funds are managed to international standards and others are managed to local standards. Lastly, even the ratings can be different. In many countries, only local rating agency ratings are allowed or available. AAA in India is not the same as AAA in Europe. So even though a fund is called a MMF, treasurers need to ensure they are conducting appropriate due diligence. They also need to ensure their investment guidelines are flexible enough to handle the different regulatory environments within their own risk tolerances.

### **MMF reform in the USA and Europe**

US MMF reform has not had a material impact on treasurers in Asia, with the exception of those with large US subsidiaries. US funds are primarily available and sold to US residents/corporations with a very low adoption rate from Asian multinationals.

As the majority of MMFs sold in unrestricted markets are European-based MMFs, EU MMF reform is having a direct impact on all treasurers in Asia, including treasurers of American and European multinationals based in the region. Being so affected by international rule changes is uncommon in Asia, and it has taken some time for treasurers to get comfortable with the new concepts of Low Volatility NAV (LVNAV) funds and the fact that they deliver the same risk profile. To date, there hasn't been a market-wide move of investors from the new LVNAV structure to CNAV government funds, as there was during US MMF reform (which saw a significant shift from prime to government MMFs between 2014 and 2016).

### **Conforming to international standards**

For many of the restricted markets such as Indonesia and Malaysia, conforming to international standards is many years off and will

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take a significant modernisation of the regulatory environment. The one exception is China, which, as has been discussed, in an effort to liberalise the market and attract offshore investment is already on a convergence path with international standards. Every year, new rules and guidance are issued ensuring MMFs have liquidity, client concentration limits, asset diversification, and reporting requirements similar to western rules.

In the unrestricted marketplace, it is expected that the primary regulator in Hong Kong, the Securities & Futures Commission (SFC), will issue new rules that are in line with European standards. The SFC has recruited a number of people from Europe-based regulatory bodies, who bring with them the knowledge and understanding of how to standardise rules towards international standards. Adopting international rules is critical to Hong Kong's success as a major fund domicile, especially if it wants to market funds across Asia and into Europe and the USA.

The remaining unrestricted Asian markets do not have the urgency of Hong Kong to become a major fund domicile for institutional MMFs, and as such, there is less of a focus, or drive, to align local rules with international standards. These countries will probably be content with allowing European products to be distributed into their countries by locally licensed entities and salespeople, rather than try to compete as a fully-fledged fund domicile location. What this does mean, is that European rules may become the de facto regulations in these countries.

### **Market challenges and product availability**

The impact of negative rates in Japan and stubbornly low rates in Singapore and Hong Kong is one of the major market challenges impacting the adoption and growth of MMF products in the region. As rates are low, the opportunity cost of a treasurer doing nothing with their cash is low, so there is less of a need for a diversified cash management strategy. When rates are negative, even a MMF cannot make a positive return without taking undue risk, so the launching of new funds is in most cases not commercially viable. Therefore the key to growth in those currency MMFs will be dependent on the interest rate climate.

One of the notable near-term developments in the market relates to how clients are accessing MMFs. The first development revolves around the growth in electronic access. MMF portals that previously only operated in the USA or Europe are now setting up outposts in Asia. An MMF portal allows clients to invest in multiple funds via one interface and often automatically integrates with those clients' bank accounts. In addition most banks and custody providers are



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now offering automated sweeps into their own and third-party MMFs, essentially automating a large piece of a treasurer’s cash management responsibilities. There is also a growing trend among TMS providers to allow direct investment into funds integrated with their accounting and other modules, which has the potential to greatly simplify a treasurer’s life. Given that these technological enhancements are increasingly available on mobile devices for on-the-go treasury management, the expectation is that, in time, everything from payments, to pooling, to end investment and to MMFs will be available 24/7 via electronic channels.

It is worth noting also that there have recently been several launches of MMFs as ETFs, consistent with the moves in other asset classes. To date, the adoption rates have been low, but it does appear to be a growing trend. It remains to be seen if the costs to run these funds are lower than the costs of the existing fund approach, and whether treasurers will be able to add ETFs as an asset class within their cash management investment guidelines.

**The outlook for MMFs in the region**

As treasury departments in Asia become more sophisticated, generate greater free cash flow and run up against counterparty limits, there is an expectation that the use of MMFs will grow. As USD rates continue to rise, the opportunity cost of leaving cash in corporate bank accounts becomes higher and the volume of work required to manage certificate of deposit ladders becomes too time consuming, so the treasurer’s natural solution becomes MMF investing. In Asia ex-China, the adoption rates of MMFs is in the low single-digit percentages. This compares to about 20% of corporate cash in the USA and 10-15% in Europe. If these figures are the benchmark, then Asia has a long growth period ahead.

**Ring-fencing of UK banks**

Another key reform which has significant scope to affect short-term investing decisions is the ring-fencing or legal separation of banks into retail and non-retail activities.

In the UK, banks had to comply with the reforms enacted via the Banking Reform Act 2013 (and other associated legislation) by January 2019. The reforms, the core recommendation of the Vickers Commission on Banking, require any UK bank with deposits in excess of GBP 25 billion to be divided between a ring-fenced and a non-ring-fenced operation. The ring-fenced entity includes retail operations, including consumer and

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small business banking. The non-ring-fenced entity includes investment banking activity. Corporate transactional banking may be within the ring fence, although this will vary between institutions. While still part of the same ownership structure, the two entities will be managed separately. The primary objective will be to make it easier for regulators to protect the wider financial system in the event of a bank failure, without having to use taxpayer funds to rescue the failing bank.

From an investor's perspective, ring-fencing alters the bank deposits and other bank-issued instruments as investment propositions. In particular, the credit standing of the two sides of a ring-fenced bank can be very different by virtue of the different sorts of business they undertake and the degree to which wholesale deposits are subordinated to other creditors or subject to bail-in risk.

In the USA, although President Trump has stated his support for similar measures, no formal proposals have been made to adopt similar ring-fencing rules. Proposals for a similar EU-wide reform were formally withdrawn in July 2018.

### EU Bank Recovery and Resolution Directive

Separately, the EU's Bank Recovery and Resolution Directive (and the Single Resolution Mechanism Regulation for banks directly supervised by the European Central Bank) places obligations on banks and regulators to have plans in place to enable action to be taken to forestall a bank failure. In the event that a bank failure is unavoidable, processes should be in place to enable an orderly winding down and to provide protection for preferred classes of creditors and payment systems.

The concept of bail-in is of particular significance for investors. If a bail-in is invoked, certain creditors of the failing bank would be forced to take a write-down in the value of their investments. This write-down represents an increase in capital for the bank, and would help the restructuring and rescue of the bank. A new category of funding for banks is envisaged which would include contractual bail-in rights for the bank.

More contentiously, regulators may have the power to impose bail-in on other classes of lender to the banks, including wholesale depositors. As retail depositors are unlikely to be bailed-in (because deposits covered by a deposit guarantee scheme are excluded from the scope of a bail-in), wholesale depositors would be disproportionately more at risk in a bank with a large retail deposit base. In these circumstances, institutional investors, including corporate investors, will need to understand the funding structure of a bank, as their place in the hierarchy of claims will become more critical.

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### Case study: Responding to regulation

By imposing more onerous liquidity ratios on banks, the Basel III regulations have had a significant, albeit indirect, impact on companies and non-bank financial institutions wanting to invest cash. Banks are now required to distinguish between cash deposits for transactional and working capital purposes and deposits available for investment (referred to as short-term non-operational cash), and then set aside more assets against non-operational cash deposits. Consequently, it has become less profitable for banks to hold such deposits.

As a result of the regulatory change, one non-bank financial institution (NBFI) was asked by a number of its banks to remove all its deposits. The treasurer needed to place these funds in assets considered to be cash or cash equivalent. Operationally the NBFI needs access to liquidity to meet margin calls and, as a regulated entity, the NBFI is required to hold all regulatory capital in liquid assets.

After reviewing the market, the NBFI selected constant net asset value money market funds as the location for its working capital and regulatory cash. The treasurer liked the quality of investments in the fund's portfolio and took comfort from the association of the fund manager to one of the company's relationship banks. From a risk management perspective, money market funds also appealed because the fund manager can run a diversified portfolio while still retaining cash equivalence.

Managing cash in-house was ruled out. Building an investment team would have been too expensive and, by using money market funds, the NBFI benefits from greater liquidity in real cash terms. Moreover, because of the NBFI's regulatory requirements, the NBFI simply would not be able to reflect the money market fund's portfolio if investing for its own account.

Using a money market fund allows this NBFI to comply with its regulatory requirements as the funds are considered to be cash equivalent. By using a money market fund, the NBFI is also able to obtain better diversification than if the cash was managed in-house.

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This is a short checklist of decisions which need to be taken in any investment process. It focuses on short-term investments, but could be applied to longer-term decisions as well.

### **Identifying the funds**

The first task is to identify the funds available for investment, or which need to be managed.

### **Forecasting cash flows accurately**

- ◆ How does treasury receive information about the present and future contents of bank accounts? Is it available in a consistent format?
- ◆ Is information available in advance (both committed and uncommitted), e.g. through a cash flow forecast? Can it be consolidated through the use of a treasury management, or similar, system?
- ◆ Does treasury have access to real-time information about the content of bank accounts?
- ◆ How accurate is this information?

### **Managing cash flows effectively**

- ◆ Does the company operate one or more centralised cash management structures? If so, where is cash concentrated to, and how frequently?
- ◆ Are the accounting and tax implications of the structures fully understood? How frequently are these implications reviewed?
- ◆ Are there any operating units or bank accounts which remain outside any centralised cash management structure? If so, where are they and who is responsible for managing their treasury activities?

### **Segmenting cash flows intelligently**

Once this information is collected, any surpluses have to be classified.

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- ◆ Where are the surplus funds?
- ◆ In which currency (or currencies) is (are) the fund(s) denominated?
- ◆ How much is available to be invested?
- ◆ For how long are the funds available to be invested (or do they have to be managed)?
- ◆ Can the funds be classified as operating cash or strategic cash?

### **Establishing an appropriate investment policy**

Treasury then needs to establish an investment policy, setting clear overall objectives for short-term investment and detailing how treasury will seek to manage the risks which arise.

### **Investment objectives**

For each cash surplus, treasury also needs to identify the investment objectives:

#### **Security**

- ◆ How much risk to principal can the company assume?

#### **Liquidity**

- ◆ How accessible must the invested funds be?

#### **Yield**

- ◆ Can the company afford to compromise the objectives of security or liquidity in order to earn a higher return?

### **Selecting the instrument**

Once the objectives have been identified, treasury will need to identify the most appropriate instrument(s) and market.

#### **Constraints on investment**

- ◆ Are there any constraints which prevent treasury investing in particular instruments?

#### **Internal**

- ◆ What limits are set by the treasury and investment policies?
- ◆ Are there restrictions in terms of which instruments can be used?

#### **External**

- ◆ Are there any regulatory restrictions on investment?

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● Introduction	◆ Are there any restrictions in lending agreements?
● Forecasting	◆ What are the tax implications of particular investments?
● Managing	◆ Are there any practical restrictions (cut-off times, transmission issues) preventing access to particular markets?
● Segmenting	
● Establishing	<b>Selecting the counterparty</b>
● Implementing	◆ Does the counterparty fit within the group policy?
● Understanding	◆ What counterparty limits are in place?
● <b>Summary</b>	◆ Will the transaction comply with existing counterparty limits, e.g. is there sufficient unused headroom within the limit?
● Instruments	◆ Does treasury have an appropriate dealing mandate or other contract in place with potential counterparties?
● Financial Calculations	◆ Has the appropriate credit rating been used to assess counterparty credit risk, and has it been checked recently for any changes or alerts?
● Country Profiles	
● Glossary	<b>Implementing effective investment management</b>

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#### Who makes the decision?

- ◆ How is the segregation of duties applied?
- ◆ What individual authorities are applied within the treasury?
- ◆ Does central treasury have the authority to direct or require local operating companies to behave in a particular way?
- ◆ Has an automated investment strategy (e.g. a sweep to a money market fund) been adopted?

#### Appropriate instruments

Given these restrictions, treasury may have to choose between different potentially suitable instruments:

#### Characteristics

- ◆ Does the instrument match the investment objectives, without exposing the company to unacceptable risks?
- ◆ Is the instrument available in the desired market? If so, is the market sufficiently liquid?
- ◆ How would an investment in such an instrument affect the investment portfolio as a whole?

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### Transaction

- ◆ Have the dealing procedures been followed?
- ◆ Were sufficient alternative quotes sought?
- ◆ Has an appropriate record been kept of the transaction?
- ◆ Has the transaction been confirmed?
- ◆ Are there sufficient authorised personnel in the office to effect the necessary funds transfers?

### Post-transaction

- ◆ Has the transaction been reconciled properly?
- ◆ Is the investment instrument sufficiently safeguarded? Is a custodian required?
- ◆ How is the value of the investment measured?
- ◆ Will the investment need to be realised early?

### Appraisal

- ◆ How is the investment decision appraised?
- ◆ Was the initial identification of funds accurate? If not, why not, and can anything be done to improve the process?
- ◆ Were the objectives appropriate at the time of determination and in hindsight? If not, why not?
- ◆ Did the chosen investment instrument match the investment objectives? If not, why not, and should that lead to a reassessment of the appropriate use of that instrument?
- ◆ Was the dealing process conducted in accordance with established procedures? Were any weaknesses in the procedures identified and, if so, what action can be (or has been) taken?

# Appendix 1



# Cash held with banks

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Large companies have traditionally held cash with their banks as balances in current accounts and sight and term deposits. Groups of companies have been able to net off bank accounts across entities by notional or physical pooling, thereby efficiently using surpluses in one account to offset overdrafts in another.

One effect of the changes in bank regulation necessary to meet Basel III is to make it less efficient for companies to hold cash with banks. Netting and pooling can result in corporate cash balances being treated by banks in the same way as interbank deposits and, therefore, requiring 100% capital retention against maturity. Similarly, short-term deposits may require 40% to 100% capital retention. This is achieved by the banks purchasing high-quality liquid assets (HQLA), normally government bonds, and the return available to the corporate depositor is therefore small, and in some jurisdictions negative.

Banks can only fully use deposited funds for lending purposes if they have a remaining maturity in excess of three months. This does not mean companies will not hold cash with banks. There are still many benefits from doing so, including to support a bank relationship, for the collateralisation of credit facilities, and in liquidity and counterparty exposure management. However, the yield earned from bank deposits has reduced compared to yields available pre-2008.

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# Interest-bearing current accounts

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## Core characteristics

### Key features

Interest-bearing current accounts are the simplest form of short-term investment instrument. Banks will pay interest on surplus balances in designated current accounts.

### Availability

Interest-bearing current accounts are available in many countries. Current accounts are available in local currency and, depending on location, in many international currencies as well.

In other locations, interest is not commonly offered on current account surpluses. In these jurisdictions, companies may be able to negotiate for the current account to be interest-bearing, or establish some sort of sweep arrangement into an interest-bearing account. Whether the bank agrees will depend on the nature of the bank relationship.

In a small number of jurisdictions, the payment of interest on current accounts is prohibited.

### Nature of the return

To qualify for interest payments, the company may need to maintain a minimum balance. The precise terms and conditions can vary:

#### ◆ **Daily balance**

This minimum balance may be calculated on a daily basis. In this case, interest is accrued daily only if the account is in credit or the balance is above a threshold level.

#### ◆ **Average balance**

Alternatively, the minimum balance is calculated as an average over a predetermined period. In these circumstances, treasury will need to understand how interest accrues.

Treasury will need to identify how interest is calculated and to select terms and conditions which match the company's likely account balance profile.

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Interest is usually paid in fixed intervals, typically monthly, quarterly or annually.

The rates of interest are low relative to many alternative investments. The offered rate may increase as the balance on the account increases.

Banks may levy a monthly or annual management fee.

### Accessibility

Investors access their current accounts through their banks. These accounts are typically used for payments and collections, and their balances will fluctuate daily. Investors will need to comply with account-opening procedures. These vary in complexity between countries and between banks.

### Main variants

As well as standalone current accounts, many banks offer a range of cash concentration and cash pooling structures. These can be single or multi-currency structures and be domestic or cross-border arrangements.

#### ◆ Cash concentration

In some cases, balances from a number of linked accounts are concentrated to one or more header or master accounts. These header or master accounts may be interest-bearing accounts, although usually the surplus balance is then invested in higher yielding instruments, such as money market funds.

#### ◆ Cash pooling

In other cases, linked accounts are notionally pooled to a master account. Interest may be offered on any surplus on this account, although again the surplus may be invested elsewhere.

### Benefits

#### Ease of use

One of the key benefits of investing in interest-bearing current accounts is their ease of use. Because cash will flow into these accounts as a result of all cash management activity, there will be no need for additional work by treasury to identify the best location for the surplus cash. Treasury's key task will be to ensure that the correct amount of interest is credited by the bank. This can be achieved by keeping accurate records, perhaps as part of a treasury management system.

#### Liquidity

Because cash remains in current accounts, there is no loss of liquidity. This cash continues to be available to meet short-term obligations, whilst simultaneously earning a return while invested.

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### **Local investment opportunities**

Although interest-bearing current accounts are prohibited in a few jurisdictions, they do offer companies the opportunity to generate a return in most locations on even a cash surplus.

For groups of companies operating in a number of locations, such accounts allow subsidiaries to earn a return without having to participate in a group-wide cash management structure. As a result, these subsidiaries avoid the need to comply with sometimes complex local regulations.

Where a local subsidiary does participate in a group-wide cash management structure, an interest-bearing current account allows the entity to generate a return on any funds which remain locally.

### **Potential problems**

#### **Low return**

The main disadvantage of investing in interest-bearing current accounts is that the return is usually low. Treasury will need to decide how important even a moderate return is on any investment. In those locations where there are limited short-term investment opportunities, treasury may consider alternative investment instruments to represent too great a risk.

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In periods of low market rates and heightened concerns over credit risk, highly rated banks will not want large current account balances. In such circumstances, some offer a negative rate of interest or apply a holding charge on large balances (which has the same effect).

#### **Counterparty risk**

Treasury will need to be wary of counterparty risk when leaving cash in interest-bearing current accounts. Where the company uses a small number of cash management banks, it is likely that any cash in current accounts will remain with those banks. It is important when seeking to manage counterparty risk to include any cash remaining in current accounts.

#### **Inefficiencies**

Because security and liquidity are often the main objectives when investing short-term cash, treasury can be satisfied with the small return generated when cash is deposited in interest-bearing current accounts. Reviewing cash management structures and treasury organisation could provide access to higher-yielding alternative instruments.

#### **Assessment**

As with all instruments, this assessment of investment suitability is designed as a comparative indication. It assumes similarly rated counterparties in the same jurisdiction.

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### **Security**

Current account surpluses are relatively secure investments. The level of security will vary from bank to bank. Published credit ratings provide a good indication of the relative counterparty risk. It is important to recognise that different entities within the same bank group may have different credit ratings. The level of bank supervision is also an important determinant of counterparty risk.

### **Liquidity**

Current account surpluses are highly liquid. In most cases, there will be no restrictions on access to funds. In a few cases, the terms and conditions of operating the current account may require a minimum credit balance to be maintained.

### **Yield**

Relative to other instruments, bank current accounts offer very low rates of return. In some jurisdictions, banks are prohibited from paying interest on current account balances.

### **Suitability**

Current accounts are most useful in the following circumstances:

- ◆ for the investment of small surplus balances, especially when current accounts are interest-bearing;
- ◆ for the investment of small surplus balances denominated in different currencies, to avoid foreign exchange transaction costs;
- ◆ if the accounts are part of a group liquidity management structure, whether physical concentration or notional pooling is used;
- ◆ for the investment of local surplus balances in the period between generation and repatriation to group treasury;
- ◆ when exchange controls require local subsidiaries to invest locally, and alternative short-term instruments expose the entities to unacceptable levels of risk;
- ◆ as a destination for overnight investment when cut-off times for higher-yielding instruments have passed;
- ◆ as a tool to maintain short-term liquidity, especially where the cash flow forecast may be inaccurate;
- ◆ as part of the pattern of managing the duration of the group's investment portfolio within acceptable limits;
- ◆ as a counterparty risk management tool.

# Bank demand deposits

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## Core characteristics

### Key features

Sometimes referred to as sight deposits, a bank's demand deposit account is a form of bank account which pays interest, but is not available to be used for cheques or other similar payments.

### Availability

Apart from some locations where payment of interest on demand deposit accounts is prohibited, demand deposits are widely available. Subject to exchange control rules, deposit accounts are usually available in the local currency as well as major international currencies.

### Nature of the return

Demand deposit accounts are interest-bearing, although investors may need to maintain a minimum balance to qualify. The rates of interest are low relative to many alternative investments. The offered rate may increase as the balance on the account increases.

Interest is usually paid in fixed intervals, typically quarterly or annually, although it may accrue daily.

Banks may levy a monthly or annual management fee.

### Accessibility

Investors typically access demand deposit accounts through their banks. In some cases, any investment decision will be implemented manually. In many others, a company will arrange for surplus current account balances to be swept into a demand deposit account on a daily basis. Investors will need to comply with account-opening procedures. These vary in complexity, both between countries and between banks.

### Main variants

The pure demand deposit allows the investor to have access to the funds at any time.

In addition, banks often provide a range of alternative deposit accounts to companies. There are two main variables:

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◆ **Notice period**

By agreeing to a notice period, the investor will be compensated by receiving a higher rate of interest on the deposited funds. The investor sacrifices some liquidity for a greater yield. This will suit subsidiaries which only submit funds to group treasury or make payments on a regular weekly or monthly basis.

◆ **Graduated rates**

Some deposit accounts pay increasing rates of interest as the balance level increases.

**Benefits**

**Ease of use**

Moving funds to a demand deposit account is usually the easiest alternative to leaving surplus cash in a current account. Interest-bearing demand deposit accounts are available to companies in most jurisdictions. They usually offer a higher rate of interest than interest-bearing current accounts.

Where there are difficulties in repatriating funds, or the volume of surplus cash is uncertain or low, it is often easiest for the treasurer to arrange to transfer funds to a deposit account at a pre-determined time. Some higher-yielding instruments impose early cut-off times and often apply a minimum investment amount.

**Availability**

Demand deposits can be used to invest short-term surplus funds in a variety of locations. They are widely available, even in countries with relatively few alternative investments.

They are suitable for companies with subsidiaries in locations outside the scope of the main group-wide cash management structures.

**Counterparty risk management**

Because they are relatively accessible, demand deposits can be used as a means of managing counterparty risk. By depositing with a number of banks, treasury will be able to reduce exposure to counterparty risk.

In a group of companies, especially a group in which local subsidiaries retain responsibility for short-term investment decisions, care should be taken to ensure all counterparty limits are adhered to at all times.

**Bank relationship management**

Leaving funds on deposit with one of a group's cash management banks, whether centrally or locally, may be one way to compensate those banks for the services they provide.

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## Potential problems

### Low return

The key disadvantage to investing in bank demand deposits is that they usually offer a relatively low rate of return. As mentioned, this return can be enhanced if the investor accepts certain restrictions, notably that of a notice period before funds can be withdrawn.

Treasury needs to determine the company's objective when making the investment. If the funds are deposited for a short period, perhaps to allow for compliance with exchange controls, the company may accept a relatively low return in exchange for the liquidity benefits.

### Restrictions

Although bank demand deposits are one of the simplest forms of short-term investments, there may still be some restrictions. Sometimes, interest-bearing demand deposits may not be available to companies. Where they are, a number of other restrictions may apply:

#### ◆ Term

Companies should be aware of demand deposits where the bank specifies a minimum period of investment before interest can be paid. Although most demand deposit accounts pay interest on a quarterly or annual basis, some may only apply interest once funds have been deposited for a minimum period. These accounts would be unsuitable, for example, for the overnight deposit of short-term cash surpluses.

#### ◆ Minimum balance

Treasurers should also be aware of any minimum balance requirement before interest can be earned. In addition, some accounts apply interest rate thresholds, with the rate increasing with additional deposits. Treasurers will need to understand how these rules apply, especially if the minimum balance must be maintained for a period of time.

#### ◆ Tax

Treasurers also need to understand how tax rules, especially withholding tax, apply to any interest earned on these investments. When evaluating all types of investment, the treasurer should assess the return net of tax.

### Inefficiencies

Although bank demand deposits may be a simple solution, especially where exchange controls exist, their use may mask operational inefficiencies within the treasury.

#### ◆ Cash management

Treasurers should revisit the cash management structure on a regular basis. Regulations, especially exchange control rules, are continuously



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changing. Over time, it may become possible to concentrate sufficient cash to one or more locations to make it practical to access higher-yielding instruments, such as money market funds.

### ◆ **Treasury management**

In decentralised companies, local finance teams may be responsible for the investment of short-term cash surpluses. This may well be appropriate in some jurisdictions. However, from a group perspective, this may be inefficient, and the treasurer may consider ways in which the treasury structure and responsibilities could be changed.

### **Assessment**

As with all instruments, this assessment of investment suitability is designed as a comparative indication. It assumes similarly rated counterparties in the same jurisdiction.

### **Security**

Bank demand deposits are relatively secure investments. This level of security will differ from bank to bank. It is also important to recognise that different entities within the same bank group may have different credit ratings. Balances on deposit may be covered by the local country's deposit protection scheme. The rules governing the eligibility of such schemes vary significantly between countries and may not apply to corporate deposits. A maximum level of coverage may also apply.

### **Liquidity**

Bank demand deposits are highly liquid. This liquidity can be restricted if notice periods apply.

### **Yield**

Bank demand deposits offer relatively low rates of return. Companies can often marginally increase these by depositing into accounts for which a notice period applies.

### **Suitability**

Bank demand deposits are most useful in the following circumstances:

- ◆ for the investment of small surplus balances, especially when current accounts do not pay interest;
- ◆ for the investment of local surplus balances in the period between generation and repatriation to group treasury;
- ◆ when exchange controls require local subsidiaries to invest locally and the other available short-term instruments represent too high a risk;

●	Introduction	◆	when an unexpected cash surplus is generated, such that cut-off times for higher-yielding investments are missed;
●	Forecasting	◆	as a tool to maintain short-term liquidity;
●	Managing	◆	as a counterparty risk management tool;
●	Segmenting	◆	as a means of rewarding cash management banks.
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# Bank time deposits/ money market deposits

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## Core characteristics

### Key features

Bank time or term deposits require investors to deposit funds for a fixed period. Banks usually offer a range of investment periods, from overnight to over two years.

### Availability

Bank time deposits are widely available in most jurisdictions. They are available in local currency and, depending on the local exchange control regulations, a range of foreign currencies as well.

### Nature of the return

Most time deposits pay a fixed rate of interest, although variable rate deposits may be available. This is typically payable on maturity for shorter-dated instruments. Some longer-dated deposits, especially those with a maturity of over a year, may make interim interest payments. Investors will know the return when making the deposit.

### Accessibility

Investors typically access time deposits through their banks or via brokers.

### Main variants

Time deposits usually have a fixed maturity, with returns increasing as the term increases.

Some banks offer increasing rates of interest as the sum invested increases. Companies should take care to ensure counterparty limits are not breached.

Because longer-term deposits help banks to manage their own liquidity, some banks offer higher rates on 'evergreen' deposits. These are time deposits which extend indefinitely, but have a notice period, typically of 30 or 90 days.



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### **Benefits**

#### **Ease of use**

The key benefit for the investor is that bank time deposits are widely available and are easily accessible via the company's banks.

In those jurisdictions which prohibit the payment of interest on current and sight deposit accounts, bank time deposits are the most accessible interest-bearing instruments for most companies.

#### **Local markets**

Bank time deposits do give investors access to relatively secure investment instruments in small local markets. This can be important if it is difficult to repatriate cash to central treasury. When investing locally in time deposits, treasury should consider country risk.

#### **Counterparty risk**

Because the time deposits are held with banks, counterparty risk is easier to manage. Banks have published credit ratings, although care should be taken to ensure the rating applies to the correct counterparty. In addition, banks are subject to a stricter supervisory regime than most other counterparties, although these regimes vary from country to country.

#### **Bank relationship**

As with all bank deposits, investing in time deposits allows treasury to reward their cash management banks. From this perspective, time deposits are of more value to the bank, because the cash is committed to the bank for the term of the deposit. The bank rewards the investor with slightly higher rates of interest than may be available on sight deposits.

#### **Potential problems**

##### **Inaccessibility**

The major problem with time deposits is the restriction on the withdrawal of funds before the maturity date. In most cases, cash is not accessible until the maturity date, although withdrawal may be possible on payment of a penalty fee. This can result in the company being forced to borrow funds to meet short-term obligations even though it has surplus cash.

##### **Tax**

As with all investments, investors should always be aware of the tax implications of any deposit.

##### **Accounting**

In order to be recorded as 'cash or cash equivalents' under international accounting rules, any deposit should have a short maturity. IAS 7,

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paragraph 7, states that a short maturity would be three months or less from acquisition. The limit is somewhat arbitrary and will be subject to some interpretation. The interpretation will also consider the purpose of holding the deposit: to be recorded as 'cash or cash equivalents', the deposit should be held to meet short-term cash needs, rather than as an investment.

### **Variable return**

The return available on time deposits varies according to the credit rating of each bank as well as the term for which cash is deposited. Once dealt, the rates become fixed for the specified period. The rates being quoted for deals will also vary according to conditions in the interbank market and the balance sheet position of the bank itself. This means that rates can fluctuate and will vary between banks. For this reason, investors should seek quotes from a number of different banks before making a deposit.

### **Group-wide counterparty risk**

Because of their availability, time deposits are used by groups of companies where operational and regulatory factors result in investment decisions being taken locally. In these circumstances, although central treasury may not have direct responsibility for each investment decision, they should take care that the group as a whole is not over-exposed to any counterparty banking group. This is more important for time deposits than sight deposits, as the cash is not immediately accessible.

### **Assessment**

As with all instruments, this assessment of investment suitability is designed as a comparative indication. It assumes similarly rated counterparties in the same jurisdiction.

### **Security**

Bank time deposits are relatively secure investments. This level of security will differ from bank to bank. It is also important to recognise that different entities within the same bank group may have different credit ratings. Balances on deposit may be covered by the local country's deposit protection scheme. The rules governing the eligibility of such schemes vary significantly between countries and may not apply to corporate deposits. A maximum level of coverage may also apply.

### **Liquidity**

Bank time deposits are usually only accessible on maturity. For this reason, deposits for less than a week are popular when investing working capital cash.

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### **Yield**

The return on the deposit will increase as the bank's control over the funds increases. For short-term deposits, rates can vary between banks.

### **Suitability**

Bank time deposits are most useful in the following circumstances:

- ◆ when the investment period is known and the investor wants to hold the instrument to maturity;
- ◆ to generate a fixed return (depending on the terms of the account);
- ◆ as a means of rewarding members of the core banking group;
- ◆ as a counterparty risk management tool;
- ◆ as part of a strategy of diversifying risk across a portfolio of investments;
- ◆ where a relatively secure investment instrument is required.

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# Investment in the form of securities

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The purchase of securities can allow investors to diversify counterparty risk away from deposit-taking banks. The following sections outline the characteristics of different forms of securities, all of which require a relationship with a custodian that is able to hold the securities until either redemption or sale. The custodian market has become competitive and efficient for high-volume users. Money market funds (MMFs) allow a corporate investor to benefit from the diversification of risk associated with the purchase of securities without the need for a custodian agreement and so may be more suitable for companies with low volumes of cash investment activity.

Investors should remain aware that any form of securities or derivatives investment exposes them to the risk of capital loss, as the value of the investments will vary in reaction to market changes in interest and foreign exchange rates, and other factors. This has been explicitly reflected in recent changes to money market fund regulations, which recognise this capital risk with the requirement for variable fund values. Although money market funds aim to return all the invested capital, investors should not assume this will always be possible. Corporate investors should also acknowledge that they cannot rely on redemption on demand of any securities in the event of a future liquidity crisis. In the case of money market funds, this is reflected in the use of redemption fees and gates which proved a means for funds to constrain redemption in times of liquidity crisis.

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# Commercial paper

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## Core characteristics

### Key features

Commercial paper is a short-term, unsecured promissory note. It is usually issued in bearer form, meaning it is a negotiable instrument. By issuing the paper, the issuer promises to pay the bearer the face value of the paper on a fixed maturity date. Originally commercial paper was issued in a physical form, although over recent years it has increasingly become dematerialised.

### Availability

Commercial paper is widely available in most local markets and in various currencies. There are many multicurrency programmes available, which allow investors to access favoured issuers in their favoured currency denomination.

Commercial paper is issued with a range of alternative maturities. Local securities' legislation usually determines the maximum maturity. This is usually the point at which a security has to be registered with the local securities' regulator.

There is also a small, but growing, market in extendable commercial paper. The investor has some limited options to extend the maturity of the paper owned, rather than allowing it to mature. There may be a small yield enhancement, as the issuer has longer use of the investor's funds.

### Nature of the return

In most cases, commercial paper is issued at a discount. On maturity, the issuer will then pay the paper's face value to the holder. The rate of return is determined by the difference in the two values and the term of issue.

Some commercial paper is issued as an interest-bearing instrument, but this is relatively rare.

In general, good quality commercial paper will yield close to LIBOR and more. It tends to offer a better return than bank deposits.



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### Accessibility

Investors buy commercial paper from dealers, usually banks. Commercial paper can be sold in one of two main ways:

#### ◆ **By the dealer to investors**

Dealers may sell paper in the open market. In some cases, dealers will sell to a small group of investors without alerting the market as a whole. This is known as a private placement. There are different regulations in the US commercial paper (USCP) market covering paper issued by private placement.

#### ◆ **By reverse enquiry**

Investors can also approach dealers to see whether an issuer is prepared to issue commercial paper. As a result, the investor may be able to purchase commercial paper issued in a currency (in the case of European commercial paper) and with a maturity to match their investment needs.

### Main variants

The prime variant of commercial paper is asset-backed commercial paper. Being asset-backed creates a number of characteristics to the investment, so asset-backed commercial paper is examined in the next section.

Aside from this, there are two main forms of commercial paper: domestic, of which USCP is the most significant, and European commercial paper (effectively international commercial paper).

### Domestic commercial paper

There is some form of domestic commercial paper in most local markets. Domestically, the instrument may not be called commercial paper. For example, French commercial paper is usually known as billets de trésorerie. In all markets where commercial paper is issued, however it is known, the instrument is an unsecured promissory note, with a predetermined maturity date.

The use of credit ratings varies from country to country. In some markets, it is only the largest and most well-known companies which issue commercial paper. In these markets, investors tend to purchase paper on the basis of the name of the issuer. A growing number of commercial paper issues are being publicly rated.

In most markets, both issuers and investors tend to be domestic residents.

### USCP

The USCP market is the largest domestic market in the world. Commercial paper is an important form of working capital financing in the US domestic market, as overdrafts are not permitted.

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The USCP market is different from most domestic commercial paper markets because almost all commercial paper has a published credit rating from one or more of the credit rating agencies. The agencies also rate the paper itself, rather than the issuing company. This means the paper can enjoy a higher credit rating than the issuing company, especially if the company has put some form of credit enhancement in place.

USCP can be issued with maturities ranging from overnight up to a maximum of 270 days.

There is a significant presence of foreign investors in the USCP market.

### **Euro commercial paper**

The Euro commercial paper market was established in the mid-1980s and is effectively an international commercial paper market (i.e. it can be bought by investors in other countries).

Euro commercial paper can be issued with maturities ranging from overnight up to one year. Like the USCP market, most issues are rated by one or more of the credit rating agencies.

Euro commercial paper is primarily denominated in EUR and USD. The GBP is the most common of the other currencies of issue. In practice, many Euro commercial paper programmes are multicurrency programmes. This means investors may be able to request that paper is issued in a currency to suit them.

Technically, Euro commercial paper is issued in one legal jurisdiction, often Luxembourg, and its legal status will depend on the country of issue. The STEP (Short-Term European Paper) label aims to standardise the terms and conditions for commercial paper issuance across all European jurisdictions.

## **Benefits**

### **Ability to match investment requirements**

Investors often have the ability to invest in commercial paper issued to a specific maturity. This means the investor can select the maturity either to match a particular cash flow or to realign the duration of the investment portfolio as a whole.

### **Range of issuers**

Because commercial paper is widely available, investors have a broad range of alternative issuers to choose from. Both banks and non-banks issue commercial paper. Investors can spread their risk by selecting issuers operating in different sectors of the economy.

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### **Information available**

When a commercial paper issue is made available in the open market, many dealer banks make presentations to potential investors on behalf of the issuers. Investors should always do their own research before committing to an investment. Because a successful commercial paper issuance programme relies on the availability of investors, information about specific issues is typically relatively accessible.

### **Legal basis**

For the largest markets (the US domestic market and the Euro commercial paper market), there is standard documentation covering commercial paper issuance. Although this documentation has primarily been developed to benefit issuance, it also ensures that there are common features to almost all commercial paper issues.

### **Negotiability**

Finally, commercial paper is usually issued in negotiable form. This means investors have the ability to sell paper in the secondary market if they need to realise their investment. This will depend on the liquidity in the particular market. However, most investors keep the paper until maturity.

### **Potential problems**

#### **Nature of the instrument**

Because commercial paper is an unsecured promissory note, its nature means it is a less secure investment than a number of alternative instruments. Investors should understand any credit enhancement facilities, such as credit back-up lines, before investing in the instrument. These are important, because many issuers seek to repay maturing commercial paper by 'rolling over' an issue, which means issuing new paper to raise funds to meet these repayment obligations. Credit enhancement facilities are designed to repay investors if market conditions do not permit a rollover.

The rating agencies insist that for any paper to attract a short-term rating of A or better, back-up facilities must be available to provide a liquidity source to cover maturing paper.

#### **Counterparty risk**

Just as when investing in other instruments, investors need to manage counterparty risk. Although it is the issue which is rated (rather than the issuer), investors will still need to set, and adhere to, strict counterparty limits. It is important to remember that, when purchasing commercial paper, the investor is fully exposed to the issuer. As a short-term instrument, there are no events of default documented so, unlike a bond or loan agreement, the investor has no rights to demand early repayment should the borrower's financial strength deteriorate.

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### Operational costs

There are some administrative costs associated with investing in commercial paper. The investor will need to appoint a custodian bank, both because the paper is increasingly dematerialised and to help to manage settlement risk. For more, see page 180.

Investors will probably want to perform their own credit checks of issuers, especially if the issue is not rated by one of the agencies. This will impose an operational cost within treasury.

### Assessment

As with all instruments, this assessment of investment suitability is designed as a comparative indication. It assumes similarly rated counterparties in the same jurisdiction.

### Security

The security of commercial paper varies significantly according to the issuer. It is dependent on the maturity of the issue and any additional credit enhancement facilities, especially when the issuer is a relatively weak credit. In some markets, security can be identified using credit ratings. It is crucial to ensure the correct issue's rating is assessed.

### Liquidity

Commercial paper is a relatively liquid instrument. It can usually be redeemed early via a sale in the secondary market. Its liquidity is therefore dependent on the size of the secondary market. In practice, most investors will purchase commercial paper with a maturity to suit their requirements.

### Yield

Most commercial paper is issued at a discount. Most investors hold paper to maturity, although it can be sold in the secondary market.

### Suitability

Commercial paper is most useful in the following circumstances:

- ◆ when the investment period is known and the investor wants to hold the instrument to maturity;
- ◆ when the redemption point is not known, since it can be traded on;
- ◆ as part of a strategy of diversifying risk across a portfolio of investments, particularly across non-bank counterparties;
- ◆ in smaller markets, as an alternative to bank deposits;
- ◆ to gain a rate advantage over bank deposits.

# Asset-backed commercial paper

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## Core characteristics

### Key features

Like standard commercial paper, asset-backed commercial paper (ABCP) is a short-term, unsecured promissory note.

Whereas standard commercial paper relies on the creditworthiness of the issuer to repay investors when the paper matures, ABCP is supported by specific assets. These assets are usually short-term receivables, such as mortgage, credit card and vehicle loan repayments.

Although there are differences, ABCP programmes are usually structured to be 'bankruptcy remote'. This means that a special entity, or conduit, is usually established by the sponsor (typically a bank). The conduit issues commercial paper to buy receivables (or other assets) from one or more borrowers.

To protect the interests of investors, the conduit will put some credit enhancement in place. This should ensure the investors are repaid in the event of any loss in value of the conduit's assets.

Most programmes will also have some liquidity support, usually in the form of back-up lines from the sponsor bank. Like standard commercial paper, many conduits rely on rolling over some or all of their issuance to repay maturing paper. If the market conditions make this difficult, liquidity support will allow the conduit to repay investors.

### Availability

Since 2007, ABCP has been less common than standard commercial paper, primarily because many weaker issuers have left the ABCP market.

### Nature of the return

Like most commercial paper, ABCP is issued at a discount. On maturity, the issuer will then pay the paper's face value to the holder. The rate of return is determined by the difference in the two values and the term of issue. Rates tend to be slightly higher than standard commercial paper, as investors tend to be rewarded for the higher degree of complexity and the additional specialist credit monitoring.

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### **Accessibility**

Like standard commercial paper, ABCP is sold through dealer banks.

### **Main variants**

There are two main types of ABCP programmes:

#### ◆ **Single seller**

These programmes are backed by assets generated by a single institution. Single seller programmes tend to be limited to financial institutions and a small number of other companies (including car manufacturers). Only these types of companies are able to generate enough suitable assets for such a programme.

#### ◆ **Multi-seller**

Multi-seller programmes are usually sponsored by a bank. The bank will establish a separately owned conduit. The conduit will issue commercial paper in its own name and then purchase assets from a variety of companies.

### **Benefits**

#### **Asset-backed**

The core benefit of ABCP from the investor's perspective derives from the nature of the assets purchased by the conduit issuing the paper. The investor will want the conduit to invest in assets which can be readily converted into cash. For this reason, most conduits tend to invest in short-term trade receivables. To avoid unnecessary counterparty risk, the assets will tend to be high-volume assets, such as credit card receivables, which can be easily assessed for their creditworthiness.

#### **Bankruptcy remoteness**

A second way in which ABCP enhances security for the investor, is by structuring the conduit to be bankruptcy remote. Unlike standard commercial paper, where the issuer is the entity seeking to borrow funds, a conduit will be structured to be independent of the end borrower. This means that, even in the event of the bankruptcy of a borrower, the conduit should be able to repay any investors when the paper matures.

### **Potential problems**

#### **Counterparty risk**

Although ABCP promises additional security over standard commercial paper, all investors should continue to manage counterparty risk carefully.

The investor should analyse the conduit's own counterparty risk management techniques. In a single-seller programme, the assets bought

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by the conduit will usually be receivables generated by one group of companies. As a result, the investor will be solely exposed to that group.

For a multi-seller programme, the investor should work to understand the conduit's approach to counterparty risk and to determine whether its limits are appropriate.

In either case, the investor should assess the creditworthiness of the conduit itself. This will require an understanding of the types of asset the conduit is permitted to purchase, the extent of credit enhancement and the degree of liquidity support.

The investor should also assess the degree of operational independence of the conduit from the sponsoring bank.

### **Assessment**

As with all instruments, this assessment of investment suitability is designed as a comparative indication. It assumes similarly rated counterparties in the same jurisdiction.

### **Security**

The security of ABCP varies according to the programme. By being bankruptcy remote, it is designed to be relatively secure. Like many standard commercial paper issues, ABCP programmes are usually rated by one of the credit rating agencies. The credit rating will be determined by the nature and quality of the assets purchased by the conduit, the nature of any credit enhancement and the rating of any bank providing liquidity support.

The choice of custodian is also an important factor in the security of investment.

### **Liquidity**

ABCP is a relatively liquid instrument. It can usually be redeemed early via a sale in the secondary market. Its liquidity is therefore dependent on the size of the secondary market. In practice, most investors will purchase commercial paper with a maturity to suit their requirements.

### **Yield**

Most commercial paper is issued at a discount. Most investors hold paper to maturity, although it can be sold in the secondary market.



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### **Suitability**

ABCP is most useful in the following circumstances:

- ◆ when the investment period is known and the investor wants to hold the instrument to maturity;
- ◆ when the investor wants to invest in commercial paper and benefit from additional security offered by asset-backed paper;
- ◆ as part of a strategy of diversifying risk across a portfolio of investments, particularly across non-bank counterparty risk;
- ◆ in smaller markets, as an alternative to bank deposits.

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## Core characteristics

### Key features

Certificates of deposit (CDs) are bank-issued investment instruments. The certificate is recognition by the bank that the investor has deposited funds with it. In many ways, a CD is similar to a term deposit, as the bank is committed to repaying the principal plus interest on a fixed maturity date. From the investor's perspective, a CD is negotiable, meaning the instrument can be sold in the secondary market, allowing the principal plus accrued interest to be redeemed before maturity.

### Availability

CDs are widely available in most local markets. They are issued with a range of alternative maturities, depending on the requirements of the issuing banks. They can be issued for terms ranging from under a month to over two years.

### Nature of the return

In most cases, CDs pay a fixed return (coupon) on maturity. Longer-dated instruments (typically those with a maturity of over a year) may pay a variable rate of interest, with the rate fixed on an annual basis using a benchmark rate.

### Accessibility

Investors can purchase CDs either at issue or in the secondary market.

#### ◆ Issue

Issuing arrangements vary between banks. In some cases, physical certificates are still issued, although in most markets these have been dematerialised.

#### ◆ Secondary market

In most countries, CDs can be traded in the secondary market.

### Main variants

There are two main variants to the standard fixed rate CD:



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### ◆ **Floating rate CDs**

Some CDs, typically those with a maturity of over a year, are issued paying a floating interest rate return. Investors need to understand how the rate is set, how often it is changed, and decide whether or not to hedge the return.

### ◆ **Call features**

A small number of CDs are issued with a call feature. If exercised, the issuer would pay the principal plus any accrued interest to the investor. As a result, the investor would face a reinvestment risk.

## **Benefits**

### **Bank issued**

From the perspective of the investor, one of the key benefits of CDs is that they are issued by banks. As a result, they will be subjected to greater supervisory scrutiny than other similar instruments issued by non-banks, such as commercial paper.

### **Counterparty risk**

In addition, because the issuing bank will have a published credit rating, it is usually easy for the investor to assess relative creditworthiness. It is important to ensure that the rating applies to the entity which has issued the CD.

### **Commonly available**

Another key advantage of CDs is that banks tend to issue them in their local market. As a result, they can be useful investment instruments for subsidiaries in countries where repatriation of cash is either difficult or not required.

### **Negotiable**

In most cases, CDs are negotiable instruments. This allows investors to realise their investment prior to the maturity of the instrument. In many markets there is a highly liquid secondary market for CDs. However, investors should be wary of relying on the ability to sell a CD in the secondary market. Some markets are more liquid than others. In addition, the ability to sell in the secondary market is also dependent on the volume of CDs issued, which varies.

In most cases, the issuing bank may be willing to repurchase the CD at market value before its stated maturity, which contributes liquidity.

### **Bank relationship**

By purchasing a CD from a bank, an investor is effectively placing cash on deposit with that bank for a predetermined period of time, providing significant benefit for the issuing bank. In contrast to time deposits, the

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investor can effectively withdraw the cash at any time (as long as the CD can be sold in the secondary market).

### **Potential problems**

#### **Minimum investment**

The biggest problem for investors is the nature of the certificates themselves. Because of local regulations and the cost of issue, CDs are often issued with a large minimum denomination. In companies where a large pool of cash is concentrated to the centre, this may not be a problem. However, in companies where the pools of available cash are relatively small, investing in CDs may be impossible without breaching counterparty limits.

#### **Calculation of return**

If a CD is being sold in the secondary market, care is needed when calculating the return from the instrument. This is because CDs are typically sold on a yield-to-maturity basis. When comparing yields against an alternative investment, it is necessary to use a like-for-like methodology.

If market rates have increased since issue, there will be a small risk to the principal value if a CD is sold prior to maturity. The principal value will also be dependent on the credit risk of the issuer, although this will normally not change over the short life of a CD.

#### **Tax**

As with all instruments, investors need to assess whether taxes are applied on investment returns.

#### **Local market**

A CD's liquidity is partially dependent on the maturity of the local market. Investors will want to assess the range of alternative investment instruments and the frequency of issue before investing in a CD. This will give an indication of the maturity of the market. This is particularly important if the investor wishes to sell the CD before maturity.

#### **Administration costs**

CDs have become dematerialised over recent years. Investors will need to incorporate the custodian costs in the costs of any transactions. For more, see page 172.

#### **Assessment**

As with all instruments, this assessment of investment suitability is designed as a comparative indication. It assumes similarly rated counterparties in the same jurisdiction.

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### Security

CDs are relatively secure instruments. This level of security will vary from bank to bank, and can be identified using credit ratings. It is crucial to ensure the correct entity's rating is assessed.

### Liquidity

CDs are relatively liquid instruments. They can usually be redeemed early via a sale in the secondary market. Their liquidity is therefore dependent on the size of the secondary market.

### Yield

Any interest is usually payable on maturity. Any investor selling a CD before maturity will earn a return, dependent on conditions, when sold in the secondary market.

### Suitability

CDs are most useful in the following circumstances:

- ◆ when the investment period is known and the investor wants to hold the instrument to maturity;
- ◆ when the redemption point is not known, since liquidity can be achieved through a secondary market sale;
- ◆ (in the case of fixed-rate CDs) to generate a fixed return;
- ◆ as a means of rewarding members of the core banking group;
- ◆ as a counterparty risk management tool;
- ◆ as part of a strategy of diversifying risk across a portfolio of investments;
- ◆ in smaller markets, as an alternative to bank deposits.

# Government paper

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## Core characteristics

### Key features

As part of their debt management policies, governments issue a variety of debt instruments with maturities ranging from a few days to a number of years. A number of terms are used to denote short-term government paper, including treasury bill. Most countries have a local language name for longer-term government paper, such as US Treasuries, UK gilts and French OATs (Obligations Assimilables du Trésor).

### Availability

The availability of government-issued debt instruments depends on the policies of individual governments. Most governments operate some form of debt issuance programme. However, the maturity of the issued instruments will vary according to the government's demands.

### Nature of the return

Investors earn a return on government paper in a variety of ways:

#### ◆ **Through the coupon paid**

Some instruments are coupon-bearing. This means the investor receives an interest payment on a regular basis. Coupon-bearing instruments tend to be issued for terms of a year or more. The interest may be fixed for the entire life of the investment or floating, with a periodic re-fixing.

#### ◆ **Through the price movements in the principal value**

Most short-term government instruments are sold at a discount. The investor will purchase the instrument for a price below the face value and receive the face value on maturity. However, if rates have fallen since the instrument was issued, its price may be above par (the face value) in the secondary market. In this case, the higher coupon will compensate for the loss at maturity.

#### ◆ **Through uplifts to the redemption value**

This can occur with index-linked issues.

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### Accessibility

Investors can purchase government-issued debt instruments either at issue or in the secondary market.

#### ◆ **Issue**

Issuing arrangements vary from country to country. Typically, government paper is issued by the central bank or by the ministry of finance.

#### ◆ **Secondary market**

Most countries have a secondary market for government instruments. These will normally be highly liquid markets, which allow investors to earn a return on the investment, without being required to hold it to maturity.

### Main variants

In addition to bills and bonds issued by governments, other public sector debt instruments are available in a number of countries. Issuers include:

#### ◆ **Central banks**

Some central banks issue very short-term instruments, often as a money supply management tool. Because of the reason for the issue, central banks primarily target banks as investors.

#### ◆ **Local and state governments**

In some countries, local and state governments can issue their own short- and longer-term debt instruments. Other public sector bodies may also issue debt instruments. Investors will want to understand whether these instruments are guaranteed by the central government.

### Benefits

#### Availability

Most governments issue some form of debt instrument. In most cases, short-term paper (with an initial maturity of under a year) is widely available. Where governments rely on short-term debt to finance their own borrowing, they will tend to issue new debt regularly to maintain the market. Long-term government paper which is nearing the end of its life effectively becomes short-term.

#### Liquidity

Another feature of short-term government paper is that it is usually widely available in the local secondary market. In effect, this means that investors will usually be able to realise their investment relatively easily, simply by selling in the secondary market.

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### **Portfolio management**

Investment in government paper allows treasury to adjust the duration of the portfolio as a whole. In particular, investors will be able to select instruments with maturities which match known liquidity requirements. In most government paper markets, instruments with ultra-long maturities of up to 30 years (or even 50) are available.

### **Counterparty risk management**

In most countries, the government ranks as one of the most stable counterparties. Purchasing government paper usually comes with a government guarantee, enhancing the security of the investment.

In countries where companies find repatriating funds to a central treasury difficult, some investment in government paper will diversify the counterparty risk away from banks.

### **Potential problems**

#### **Low return**

Government-issued instruments are commonly characterised by a relatively low rate of return, relative to other instruments with a similar maturity, because of the low credit risk. Investors in government paper will usually be seeking the combination of security and liquidity these instruments provide.

#### **Minimum investment**

Treasurers should be aware of any minimum investment requirement. This will be determined by the lowest denomination of issued paper.

#### **Administration costs**

Government paper has become increasingly dematerialised over recent years. Investors will need to incorporate the clearing house costs in the costs of any transactions. If the paper is not dematerialised, custodian costs must be met.

#### **Counterparty risk**

Although governments are usually stable counterparties, investors should be wary of two factors:

##### ◆ **Country risk**

From time to time, governments encounter financial problems. Although it is very rare, investors should be aware of the risk of government default, especially if the government cannot expand the money supply to meet its obligations (such as if the instrument is not denominated in the government's currency).

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### ◆ **Identity of the issuer**

Investors will need to take care to establish the precise identity of the issuer. If the issuer is not the central government, the nature of any government guarantee needs to be clear.

### **Assessment**

As with all instruments, this assessment of investment suitability is designed as a comparative indication. It assumes similarly rated counterparties in the same jurisdiction.

### **Security**

Compared with other instruments, government paper is very secure. The level of security will vary according to the issuer of the paper. Published sovereign credit ratings provide a good indication of the relative creditworthiness of individual government issuers.

### **Liquidity**

Government paper is relatively liquid. The liquidity of each instrument depends on the frequency of its issue and the size of the local secondary market.

### **Yield**

Government-issued instruments offer relatively low rates of return.

### **Suitability**

Government paper is most useful in the following circumstances:

- ◆ when a company wants to safeguard the security of the investment principal;
- ◆ as an alternative to bank deposits in smaller markets;
- ◆ as a counterparty risk management tool;
- ◆ as part of a strategy of diversifying risk across a portfolio of investments;
- ◆ when the redemption point is certain.



# Floating rate notes

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### **Core characteristics**

#### **Key features**

Technically, most floating rate notes (FRNs) are not short-term investment instruments. FRNs are typically longer-term bonds, with maturities in excess of a year. They pay interest (a coupon) on a regular basis. The coupon varies in value and is set (fixed) at the beginning of the interest period.

#### **Availability**

The availability of FRNs varies between local markets and according to market conditions.

#### **Nature of the return**

Investors in FRNs receive a regular interest (coupon) payment, typically every three or six months. The rate of interest is refixed at the beginning of every interest period. The rate is usually determined with reference to a money market interest rate (e.g. Euribor), although any indicator can be selected as the benchmark rate.

The FRN will usually be issued with a fixed face value and will then be sold for this price on the refixing date.

Investors only recoup the full principal if the FRN matures. Dependent on changes in the credit standing of the issuer, they may also do so if they sell the FRN in the secondary market at a refixing date. If the FRN is sold in between refixings, its value will vary according to any changes in the reference rate between the fixing date and the transaction date.

#### **Accessibility**

FRNs are sold via dealer banks, both at issue and in the secondary market. The liquidity of the secondary market is dependent on the activities of the dealer banks.

#### **Main variants**

There are two main variants:

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### ◆ **Reference rate**

Although most FRNs are referenced to a money market rate (historically LIBOR but likely to move to ESTER or SOFR), any published rate or index can be used.

### ◆ **Maturity date**

Although most FRNs are medium to long-term bonds, there are some variations. A few FRNs are issued with maturities of up to one year. Others are issued with no maturity date. These are known as perpetual FRNs. Investors can only redeem the principal by selling the instrument in the secondary market.

## **Benefits**

### **Floating rate**

Because the coupon rate is refixed at the beginning of every interest period, FRNs do not expose the investor to as much interest rate risk as a fixed rate investment. That said, the longer the individual interest period (the period between interest rate fixings), the greater the exposure to adverse movements in the market interest rate.

More importantly, the regular interest rate fixings protect the principal of the investment from some of the effects of market volatility. Again, the greater the interval between rate fixings, the higher is the exposure to interest rate volatility. This is because the value of the FRN fluctuates according to the difference between the fixing rate and the current market interest rate.

### **Negotiability**

FRNs are negotiable. This means an investor can sell the instrument in the secondary market to realise their investment. The investor's ability to do so depends on the state of the market.

### **Counterparty risk**

FRNs can be issued by both banks and non-banks. In most cases, the issuer will have a published credit rating, making it relatively easy for the investor to assess relative creditworthiness. It is important to ensure that the rating applies to the entity which has issued the FRN. For example, a subsidiary may not have the same rating as its parent, although any inter-company guarantees or support will be evident from the credit research process.

Most FRNs will be listed on an official exchange and will have to comply with the relevant listing rules. Typically, these require an initial prospectus covering the terms of the notes and providing some details about the issuer. There will be ongoing requirements to file accounts annually. For these reasons, information to assist in the credit analysis process should be readily available.

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## Potential problems

### Interest calculation

There are two elements when calculating the return from the investment:

#### ◆ The reference interest rate

In most cases, a money market rate is used. If some other index is used as the reference, the investor must understand the nature of the investment's exposure to changes in market conditions.

#### ◆ An additional margin

In addition to the reference rate itself, the investor will earn a margin. This will be determined by a range of factors, including the creditworthiness of the issuing counterparty and the relative liquidity of the local market. The investor will need to ensure the additional margin reflects any additional risk assumed.

### Market risk

Whatever reference rate is used, investors will be exposed to a certain degree of interest rate risk. This will affect the regular interest payments. In addition, if the FRN is sold between interest rate fixings, the value of the invested principal may also be affected.

### Tax

As with all instruments, investors need to assess whether any taxes are applied on investment returns. In particular, investors should be aware that there may be a difference in the tax treatment of coupon income and any capital gain.

### Secondary market

The liquidity of the instrument is dependent on the state of the secondary market. Investors may not be able to realise their principal investment immediately, giving rise to a liquidity risk.

### Counterparty risk

Although the interest rates are reset on a relatively short-term basis, the final maturity of an FRN will normally be medium term, perhaps out to ten years. Any changes in credit risk of the counterparty and its credit margin can have a material effect on the market value of the FRN. FRNs are issued with a relatively high minimum denomination (this will vary between markets). This means the instruments are only suitable for larger investors, who can ensure adequate diversification of credit risk.

### Operational costs

There are some administrative costs associated with investing in FRNs. The investor will need to appoint a custodian bank, because the notes are held with securities depositories, such as Euroclear. For more, see page 122.

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## Assessment

As with all instruments, this assessment of investment suitability is designed as a comparative indication. It assumes similarly rated counterparties in the same jurisdiction.

## Security

An FRN's security is determined by the creditworthiness of the issuer. The use of credit ratings will help to assess the relative creditworthiness. It is crucial to ensure the correct entity's rating is assessed. However, because FRNs are usually longer-term instruments, investors may like to build in their own assessments of suitability, although many investors do rely on credit ratings when assessing counterparty risk.

## Liquidity

FRNs are relatively liquid instruments. They can usually be redeemed before maturity via a sale in the secondary market. Their liquidity is therefore dependent on the size of the secondary market, which is determined partly by the activities of local dealer banks.

## Yield

The return available from FRNs will depend on the credit risk assumed by the investor as well as the final maturity of the note.

Interest is paid regularly, usually at three or six-month intervals.

## Suitability

FRNs are most useful in the following circumstances:

- ◆ when funds are available to invest for longer than the immediate short term;
- ◆ when treasury is unlikely to need to redeem the funds at short notice;
- ◆ to protect against fluctuations in very short-term interest rates;
- ◆ when treasury is seeking to earn an additional return on non-core cash by extending the maturity of its investments;
- ◆ as a counterparty risk management tool;
- ◆ as part of a strategy of diversifying risk across a portfolio of investments.

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## Core characteristics

### Key features

A repo (repurchase agreement) is a two-legged agreement involving the sale and repurchase of a security. Repos are usually arranged with a government debt instrument as security, but any mutually agreed instrument can be used.

Technically, a cash investor would enter into a reverse repo agreement. The investor would purchase a security from a counterparty (typically a bank) and then sell the security back to the bank on a predetermined date for the principal amount plus interest.

### Availability

Repos are widely available in most local markets. Historically, they have primarily been used as investment instruments by financial institutions, although there is now a growing trend towards large companies using them as a secured investment product. They can be arranged with maturities ranging from overnight upwards. Rolling overnight repos can be used to allow same-day access to the cash deposited. For tax reasons, few have maturities of over a year.

### Nature of the return

Interest is usually paid on the maturity of the agreement. The repo seller (usually the bank) pays an interest rate, called the repo rate, when buying back the securities. Technically, the investor is buying the security and agreeing to sell it back to the borrower at a higher price.

### Accessibility

Investors arrange repos with counterparty banks on an over-the-counter, bilateral or tri-party (see tri-party repos, below) basis. In most cases, companies will enter into a legal agreement with each counterparty bank. This will act as the framework for all transactions with that bank and is relatively standardised in the form of a Global Master Repurchase Agreement (GMRA). A Collateral Management Service Agreement (CMSA) is also required with each custodian or clearing organisation that will hold the collateral. For tri-party repos the custodian account is opened with the

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tri-party agent (TPA) to which the securities will be credited. The detail of each agreement will then be negotiated on a case-by-case basis.

### **Main variants**

#### **Open repos**

Most repos have a fixed maturity date, although it is possible to arrange open repos. These have no maturity date. Instead, both parties have the right to terminate the agreement on a daily basis.

#### **Tri-party repos**

With a tri-party repo, the fundamental transaction is the same, with the addition of a TPA acting as an intermediary. The TPA will also value the securities on a continuous basis and manage all collateral calls on behalf of the investor. It should be noted that, typically, TPA fees are paid for by the collateral provider and not by the investor.

### **Benefits**

#### **Flexibility**

The main benefit derives from the fact that repos are negotiated between two parties. As a result, the investor can arrange a repo to match the specific investment requirement. In particular, a repo's maturity can range from overnight to up to a year. Theoretically, repos can be arranged for any period, although tax rules typically limit them to terms of under a year. This flexibility means the investor can invest surplus cash until the cash is needed again.

#### **Standard terms**

Repo transactions tend to be governed by a GMRA drawn up by the US-based Securities Industry and Financial Markets Association (SIFMA) and the Swiss-based International Capital Market Association (ICMA). The GMRA provides a template for contracts to be signed by the company and individual counterparty banks, meaning treasury need not spend much time negotiating contracts, and all contracts cover the same issues.

#### **Counterparty risk management**

Because the investor receives possession of a security in return for the cash, it is in effect a two-name paper. The investor has the added protection that it can sell the security if the counterparty bank defaults on its obligation on maturity. In addition to the credit risk of the counterparty bank, the repo investor needs to be satisfied with the credit quality of the securities being held as collateral. If riskier security is being provided, the investor may insist on paying less than market value, by deducting a discount, called the initial margin (or a haircut). Poorer-quality securities should attract a larger haircut, and vice-versa. Initial margin is agreed on a trade-by-trade basis.

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### **Portfolio management**

Repos are useful tools which help treasurers manage their short-term investment portfolios. As discussed, they can be arranged to match short-term cash flow requirements. They also allow the treasury to spread the risk across a larger range of alternative instruments.

### **Potential problems**

#### **Interest calculation**

Although the investor will earn the repo rate on the transaction, there are a number of other details which need to be agreed before the full return can be calculated. As with all transactions, the day-count convention must be understood.

#### **Tax**

As with all instruments, investors need to assess whether any taxes are applied on investment returns. Because repos involve the sale of securities, they can attract withholding tax.

#### **Operational issues**

There are a number of operational issues which impose a cost on the investment:

#### ◆ **Settlement risk**

The settlement risk inherent in both legs of the repo transaction must be managed carefully. Companies will need to appoint a custodian bank to manage the settlement process and to fulfil the administrative tasks, including daily valuation.

#### ◆ **Legal terms**

Although there are standard legal agreements available to guide initial contract negotiations, the contracts will still need to be agreed. There is a risk that companies will agree different contract terms with different counterparty banks. This would make counterparty risk more difficult to manage.

#### ◆ **Administration**

Conceptually, a repo is much the same as a bank deposit, but the security given does introduce an administrative burden and added complexity – the need for a custodian, the need to value the collateral and to adjust the amounts being held by the custodian continuously.

### **Local market**

Repos are not available to companies in all jurisdictions. Treasurers should take care to ensure the necessary infrastructure is available to process repo transactions, to avoid being exposed to unnecessary settlement risk.

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## Assessment

As with all instruments, this assessment of investment suitability is designed as a comparative indication. It assumes similarly rated counterparties in the same jurisdiction.

The investor must decide whether it is going to invest in repos on a bilateral or tripartite basis.

## Security

Repos are relatively secure instruments, although the level of security is determined by the quality of the asset offered in exchange for the investment. The investor should scrutinise the characteristics of the underlying asset, including the creditworthiness of its issuer, before agreeing a repo transaction. As with other investments, it is crucial to ensure the correct issuer and the appropriate credit rating are assessed. A collateral liquidation plan should be developed upfront, in case a counterparty defaults. Even so, the primary risk is that of the borrowing counterparty. Investors will want to avoid the 'worst counterparty, best collateral' scenario.

The choice of custodian is also an important factor in the security of investment.

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## Liquidity

Repos are relatively liquid instruments, although this varies from market to market. Because they are arranged over the counter with a maturity to suit both parties, early redemption is not usually required. When necessary, it is possible to arrange an early redemption by agreeing an equal and opposite repo transaction.

## Yield

Interest is usually paid on the repo's maturity. The level of the return is usually dependent on market interest rates and the quality of securities held as collateral.

## Suitability

Repos are most useful in the following circumstances:

- ◆ when the amount of funds to be invested is relatively large. Overnight repos in the UK typically require a minimum investment size of between GBP 20 and 50 million, depending on the counterparty;
- ◆ when the investment period is known and the investor wants to hold the instrument to maturity;
- ◆ if the investor wants enhanced security;



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◆ as a counterparty risk management tool;

◆ as part of a strategy of diversifying risk across a portfolio of investments;

◆ as an alternative to bank deposits.

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## Core characteristics

### Key features

Money market funds are a form of mutual investment fund. As the name implies, money market funds invest in a range of money market instruments, including those discussed in this book.

To invest in a money market fund, an investor has to buy shares in the fund company. By doing so, the investor has access to the returns offered by the full range of instruments which the fund buys.

Most money market funds are domiciled in offshore locations for tax purposes.

### Availability

Money market funds are widely available in most local markets and are also provided out of a variety of tax-efficient locations.

In the USA, money market funds, as defined by the 2a-7 rules, are a popular location for short-term surplus cash. Money market funds following similar rules are also available in Europe. International money market funds typically have an AAA rating from one or more rating agencies. This rating imposes a slightly stricter requirement on the manager than the US 2a-7 rules.

### Nature of the return

When making an investment in a mutual fund, an investor technically buys a share in the fund company. Investors earn a return, a dividend, on a money market fund in one of two ways:

#### ◆ **Constant net asset value (CNAV)**

The value of the investment unit has a fixed face value. The fund's income is accrued daily. The investor receives cash or can purchase new units with the income. For administrative convenience, the daily accrual is normally allowed to build up and be paid monthly.

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### ◆ Variable net asset value (VNAV)

In these funds, income is again accrued daily. The investor benefits as the value of each investment unit increases to reflect that increase.

The EU also uses the concept of a low volatility net asset value (LVNAV) return, in which the face value of the investment unit is fixed as long as the portfolio value of the fund remains within 20 basis points of 1.00 per share. If this band is breached, an LVNAV fund has to be valued at net asset value.

### Accessibility

Investors can usually access the funds directly. This investment process can be in the form of an automated sweep, or via either proprietary or fund-independent web portals. In some cases, investors access funds through money brokers.

### Main variants

The use of the term money market fund varies significantly, especially between different markets, and has been used to describe funds with significantly different characteristics such as liquidity funds, which invest very short term (with a weighted average maturity less than about 90 days), and funds with extended terms, referred to as MMFplus or enhanced MMFs.

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To clarify the terminology used when describing money market funds, the European Securities and Markets Authority (ESMA) has designated two categories of money market fund: a short-term money market fund (STMMF) and a money market fund (MMF). The main differences between the two designations are listed below:

	STMMF	MMF
<b>Credit quality of portfolio instruments</b>	Limited to top two categories of credit rating	May invest in sovereign issuance of at least investment grade
<b>Maximum redemption period</b>	397 days	Two years; the maximum time until the next interest fixing is 397 days
<b>Weighted average maturity (WAM)</b>	Up to 60 days	Up to six months
<b>Weighted average life (WAL)</b>	Up to 120 days	Up to 12 months
<b>Net asset value (NAV)</b>	Constant and fluctuating both permitted	Must have fluctuating NAV

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Since the release of these designations, the ESMA has released guidance which states that any downgrade of a portfolio instrument, should not require a mechanistic sale of that instrument. Instead, the asset manager should 'undertake a new assessment of the credit quality of the money market instrument to ensure it continues to be of high quality.'<sup>1</sup> In the USA, the SEC has similarly removed the use of credit ratings as a mark of the credit quality of instruments held by 2a-7 funds. Instead, 'a money market fund is limited to investing in a security only if the fund determines that the security presents minimal credit risks after analyzing certain prescribed factors.'<sup>2</sup>

Enhanced money market funds are outside these guidelines so should not be referred to as money market funds in markets regulated by ESMA.

Mutual funds are common in many local markets. For example, a société d'investissement à capital variable (SICAV) is a popular open-ended mutual investment fund used in France. Fonds commun de placement (FCPs) are unit trust-style funds also used in France. Similar short-term funds are available in local markets. Investors will need to understand how fund managers purchase assets, what restrictions apply when determining the portfolio and what safeguards, if any, exist for investors. Some funds are rated, although the ratings cannot usually be compared to those issued to money market funds, as different criteria are used.

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Bond funds are also available in a number of locations. As their name implies, these tend to invest in longer-dated instruments. This offers a higher potential return, although at a greater risk to the security of the principal than money market funds.

## Benefits

### Diversified risk

Any investment in a money market fund represents a diversified risk, as the fund itself invests in a wide range of alternative instruments.

There are two key advantages for most investors:

#### ◆ Diversification at minimal operational cost

First, this diversification of risk comes at minimal operational cost to the investor. In order to invest in a portfolio of assets similar to those selected by the fund's manager, an investor would have to assess a large number of alternative assets to select the appropriate asset mix. Once selected, there would be custody arrangements to deal with, and the value and credit standing of these assets would need to be tracked on a regular basis.

<sup>1</sup> Review of the CESR guidelines on a Common Definition of European Money Market Funds, ESMA, 2014.

<sup>2</sup> SEC Removes References to Credit Ratings in Money Market Fund Rule and Form, SEC, September 2015.

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These activities would impose a significant back office cost on any group treasury. Smaller treasury departments would be unable to justify these costs.

Instead, money market funds allow smaller treasury departments to invest in the range of assets they would choose, if they had the expertise available. The fees charged by the funds are much lower than any back office costs might be. In addition, the investors benefit from access to professional fund managers' expertise.

◆ **Minimal investment amounts**

Second, by aggregating investments, money market funds allow investors to diversify risk even if they have only relatively small amounts to invest. In order to replicate the diversity offered by money market funds, investors would also need to have a large pool of cash to invest. Although money market funds have a minimum investment amount, this is comparable to the minimum investment in an individual instrument.

**Safety**

Money market funds have proved to be secure short-term investment instruments. Two factors help investors when making their decisions, although, as with any other investment, the investor in a money market fund assumes the risk of the investment:

**Regulation**

In some locations, money market funds are subject to regulation aimed at protecting investors. For example, the 2a-7 rules in the USA place restrictions on the type and maturity of instruments in which a money market fund can invest. In the EU, any collective undertaking which wants to call itself a money market fund must comply with guidelines established by the ESMA.

In other locations, the regulation of money market funds is less formalised and they may be subject to similar rules as apply to other fund managers. In these cases, investors should take care to understand the level of regulation and supervision to which a chosen fund is subject.

The key regulatory requirements for a money market portfolio under EU short-term VNAV, EU CNAV/LVNAV and US SEC 2a-7 rules are summarised below:

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	<b>EU MMF VNAV</b>	<b>EU MMF CNAV / LVNAV</b>	<b>2a-7</b>
Maximum weighted average life	<b>120 days</b>	<b>120 days</b>	<b>120 days</b>
Maximum weighted average maturity	<b>60 days</b>	<b>60 days</b>	<b>60 days</b>
Minimum proportion of assets convertible into cash within one day	<b>7.5%</b>	<b>10%</b>	<b>10%</b>
Minimum proportion of assets convertible into cash within one week	<b>15%</b>	<b>30%</b>	<b>30%</b>

Note that these are minimum requirements. Fund managers and rating agencies may apply more conservative requirements.

### Ratings

Some funds are also rated by credit rating agencies. The three largest agencies have each developed their own special rating scale and criteria for money market funds. If a fund is rated, the rating will usually appear with a suffix to indicate it is a fund rating; this varies according to the rating agency.

Investors should take care to understand each agency's approach to money market fund rating. The agencies publish their rating criteria: in order to attract a particular rating, funds are restricted to investing in specific instruments and for maximum defined durations.

In addition, the rating agency will examine the fund manager's operational effectiveness and receive statements of assets as frequently as weekly, to check that the investment policy is being complied with. Although money market funds allow investors to diversify risk, this does assume the fund manager is able to invest funds effectively and to manage those funds once invested. An operational failure by the fund manager could also affect the security of the invested principal.

### Stress testing

From 2020, EU money market funds will be required to report details of stress tests to the relevant national regulator.<sup>3</sup> The stress tests themselves will be updated at least annually to reflect changing market conditions. The first set of stress tests will assess the effect of a range of variables

<sup>3</sup> [www.esma.europa.eu/press-news/esma-news/esma-readies-stress-testing-requirements-money-market-funds](http://www.esma.europa.eu/press-news/esma-news/esma-readies-stress-testing-requirements-money-market-funds)

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(including changes in liquidity, changes in redemption levels and changes in macroeconomic conditions) on the money market fund.

### **Accessibility**

In most cases, money market funds allow same-day deposits and withdrawals, so for the investor they are highly liquid.

It is possible for investors to automate a daily balance sweep to some money market funds.

### **Potential problems**

#### **Knowing the rate of interest**

There is no published expected return, as the fund managers will be unable to calculate this figure until after the funds have been reinvested. This contrasts with competing investments, such as bank deposits and money market instruments. Returns can be estimated relatively accurately, though, because the volatility of return, especially over the short term, is low. Funds will often benchmark their yield against seven-day LIBOR and will be able to exceed this through holding slightly longer-term investments.

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In some circumstances, especially when market rates are increasing, the duration of the fund's portfolio may mean the fund will under-perform when compared to the overnight market. When market rates are falling, the reverse is generally the case.

#### **Nature of counterparty risk**

One reason for investing in a money market fund is to manage counterparty risk at a relatively low cost. However, because of the nature of the funds, it can be difficult for a treasury to manage its own counterparty risk completely.

Investing in more than one fund may not solve the problem, as these funds are often forced to purchase the same instruments (especially government paper and some paper issued by financial institutions) in certain market conditions. By investing in more than one fund, a company may paradoxically be more exposed to some counterparty risks than if it had only invested in one. However, the company would be less exposed to operational risk within the fund.

Where a company maintains a portfolio of short-term investments, in addition to the money fund, it may be over-exposed to a particular counterparty if the fund also invests in instruments issued by it. A number of fund managers have responded to this concern by providing more information about their funds' portfolios.

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Finally, a company should try to understand the nature of other investors with the fund. No company would want its investment to represent a significant proportion of the total assets under management with the fund, since this could make a rapid redemption of funds difficult. Equally, if other investors hold particularly large holdings, any large withdrawals could destabilise the fund.

### **Restrictions on investment**

One of the problems with money market funds is that not all funds are available to all investors. Local rules may prohibit offshore funds being marketed to local investors. Undertakings for the Collective Investment in Transferable Securities (UCITS) legislation has been used by European money market funds to market to investors within the EU. In some cases, regulations which prohibit entities investing in shares can prevent investment in money market funds.

### **Early cut-off**

Because fund managers need knowledge of the available investments, most funds apply an early cut-off time with respect to their local market (USD denominated funds have a later cut-off time than EUR funds). There is some difference in the times applied by different fund managers.

### **Tax and accounting**

Money market funds technically require investors to buy shares in the fund company. This can have complex tax and accounting implications, which need to be understood by investors, but for the most part they are treated as cash deposits earning interest. Specialist advice should be sought to confirm this treatment, especially where liquidity fees or redemption gates are applied.

### **Liquidity fees and redemption gates**

Following the 2014 reforms to US money market fund regulations, a fund may apply liquidity fees (a charge on a redemption from a fund) or a redemption gate (a restriction on redemptions) to prevent a run on that fund during periods of market stress. A fund's management board always has the discretion not to apply fees or gates and they only apply if the proportion of a fund's holdings of assets which can be converted into cash within a week falls below 30%. (If the weekly liquidity falls below 10%, the fund is required to impose liquidity fees, unless the board decides not to.)

The boards of EU CNAV and LVNAV funds similarly have to consider whether to apply a liquidity fee and/or redemption gate if the proportion of the fund's assets maturing within a week and if daily net redemptions exceed 10% of total assets on any day. (If the weekly liquidity falls below 10%, the fund must either impose a liquidity fee or apply a redemption gate for up to 15 days.) EU VNAV funds do not have to apply liquidity fees or redemption gates.



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## Assessment

As with all instruments, this assessment of investment suitability is intended as a comparative indication. It assumes similarly rated counterparties in the same jurisdiction.

## Security

Money market funds are relatively secure investments. The level of security will vary, depending on the nature of the fund, especially its investment rules. Many funds are run so as to ensure an AAA rating. When available, published credit ratings provide a good indication of the relative counterparty risk. The level of fund supervision is also an important determinant of counterparty risk. Treasurers should be aware that where a fund is VNAV or where redemption fees could be applied, there is an implied risk to principal, which needs to be understood prior to investment.

## Liquidity

Money market funds are highly liquid. In most cases, investors can choose to redeem their investment without giving notice (although, in practice, investors will want to give as much prior notice of a redemption decision as possible). Money market funds can be used as a location for overnight funds. To meet redemption requests, a proportion of a money market fund's assets are invested on an overnight basis. Funds will require a minimum amount to be invested. During periods of market illiquidity, funds may impose redemption gates, restricting investors' immediate access to principal.

## Yield

Money market funds offer returns based on the performance of the assets they buy. Because funds can purchase some longer-dated instruments, the overnight return is often better than an overnight return on an individual instrument. This is more likely when market rates are falling. The fund manager will charge a fee of around 10 to 15 basis points per annum; this varies between funds and depends on the size of the investment. Large users of a fund can often negotiate a fees rebate.

## Suitability

Money market funds are most useful in the following circumstances:

- ◆ if a group concentrates cash using a liquidity management structure and there is a need to invest short-term surpluses overnight;
- ◆ to invest surplus balances, especially when current accounts are not interest-bearing;
- ◆ when exchange controls require local subsidiaries to invest locally, and alternative short-term instruments expose the entities to unacceptable levels of risk;

●	Introduction	◆ as a destination for overnight investment when higher-yielding instruments cannot be accessed;
●	Forecasting	
●	Managing	◆ as a tool to maintain short-term liquidity, especially where the cash flow forecast can be inaccurate;
●	Segmenting	◆ as part of the pattern of managing the duration of the group's investment portfolio within acceptable limits;
●	Establishing	
●	Implementing	◆ as a counterparty risk management tool that delivers diversification.
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# Derivatives

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## Core characteristics

### Key features

A derivative is an instrument whose value is determined by another financial instrument. Fund managers and other traders often write derivatives to speculate in the market.

When investing working capital, companies are more likely to hold a derivative to hedge a particular position, rather than as an investment in its own right. From an investment perspective, a derivative is most likely to be used to provide a guaranteed minimum value for the investment. Derivatives can be used to lock into a set interest rate or exchange rate, or to guarantee a minimum interest rate or a minimum exchange rate.

### Availability

Most derivatives transactions are arranged on an over-the-counter-basis between an investor and a counterparty bank. The price will be determined at the time of negotiation. An investor can arrange a derivative transaction with any counterparty and is not tied to the issuer of the underlying instrument.

A small number of instruments, primarily futures and options, are traded on exchanges. These are available for standard terms. The price will be publicly quoted.

### Nature of the return

Unlike other short-term investment instruments, derivatives will be used by the investor to protect either the value of the principal or the value of any interest payments. Interest rate derivatives can be used to provide a guaranteed minimum investment return. Currency derivatives can be used to manage any foreign exchange transaction risk.

### Accessibility

Over-the-counter transactions are arranged on a bilateral basis between the investor and the arranging bank. In most cases, the investor will have negotiated an International Swaps and Derivatives Association (ISDA) agreement with the counterparty bank. This will set out the main terms

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and conditions covering all derivatives trades, leaving only the detail (term, amount and currency) on each trade to be finalised each time.

Exchange-traded derivatives are accessed through brokers, typically banks.

### **Main variants**

There are four main types of derivative transactions – swap, forward, option and future – often referred to as ‘plain vanilla’. In all cases, the principal amounts are not exchanged. Any payments between the investor and the counterparty bank will be calculated on a pre-agreed notional principal amount.

### **Swap**

Swaps are available to hedge both currency and interest rate risk.

#### ◆ **Interest rate swap**

An interest rate swap allows an investor to exchange two sets of cash flows associated with two investment instruments. Typically, the investor will swap a set of floating rate cash flows for fixed payments, or vice versa. In some cases, the investor will swap one set of floating rate cash flows for a set calculated on a different basis.

#### ◆ **Currency swap**

A currency swap is similar to an interest rate swap, except that the two parties will exchange cash flows denominated in different currencies. The currency cash flows may be any combination of fixed and floating rate payments.

### **Forward**

Forward agreements are available to hedge both currency and interest rate risk:

#### ◆ **Interest rate forward or forward rate agreement**

A forward rate agreement allows an investor to in effect pre-agree the rate applicable to a future contract period. To compensate for the difference between the pre-agreed rate and the actual market rate at the start of the contract period, a settlement payment is made from one party to the other at the beginning of the contract period. This will equal the difference between the present values of the two sets of interest payments at the beginning of the contract period.

#### ◆ **Foreign exchange forward**

A foreign exchange forward allows the investor to fix the exchange rate at a specific point in the future. It is calculated by taking the current exchange rate and extrapolating interest rates in both currencies to find the future value of the exchange rate. The forward rate is a simple

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calculation and does not incorporate any speculation or view on foreign exchange movements.

These are useful instruments as they allow investors to translate an asset from one currency to another to access higher-yielding investments or more liquid markets. See page 114 for an illustration of how a UK company could use an FX forward to access the USCP market.

### Option

An option gives the holder the right, but not the obligation, to buy or sell a set quantity of a particular asset at a predetermined price on, or sometimes before, a particular date in the future (the expiration date). A European option can only be exercised on the expiration date. An American option can be exercised on any date up to and including the expiration date.

Options are written by counterparties, usually banks. The investor will hold the option on payment of a premium, which is usually a lump sum at inception. The amount of the premium paid will depend on the likelihood of the holder exercising the option.

#### ◆ Interest rate option

An investor will use an interest rate option to ensure that a minimum interest payment will be earned. Typically, the investor will purchase an option giving the right to exchange floating rate interest payments for fixed rate payments if the market rate falls below a certain level.

#### ◆ Currency option

An investor could use a currency option to ensure that a minimum quantity of foreign currency is received in the future. For example, in order to ensure security and liquidity when investing, the investor may select an instrument denominated in an international currency. When this instrument matures, the funds will be exchanged into a local currency to meet a payment obligation. The option ensures the investor will have sufficient local currency funds when the investment matures.

It would be very unusual for a company to write an option (as opposed to buying an option), since this exposes the writer to an unlimited downside risk.

### Future

Futures contracts are exchange-traded and are the least common form of derivative used by companies investing working capital. This is because they cannot be tailored to the user's exact requirements, and because investors will be required to make margin payments on a daily basis, in the event of a serious adverse market movement.

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### **Benefits**

#### **Flexibility**

Because most derivatives transactions used by company treasuries are arranged over-the-counter, the terms and conditions can be set to suit each individual circumstance. In particular, the investor can determine the level of protection needed from the derivative.

#### **Ease of access**

It is relatively easy for a company to enter into a derivative agreement. Although there are a number of terms and conditions associated with any transaction, many of these can be standardised through the negotiation of an ISDA agreement. For a company intending to arrange a number of derivative transactions, it is often prudent to negotiate ISDA agreements with a group of counterparty banks. This allows the company to seek competitive quotes and to manage counterparty risk more effectively.

#### **Relatively low cost**

Once the ISDA agreements have been negotiated, derivative agreements are quick to negotiate. Options do require the payment of an initial premium, although its size will depend on the likelihood of the option being exercised. Other transactions are relatively inexpensive to arrange, although some settlement payment may need to be made.

However, if a derivative transaction does not meet the exemption qualifications for EMIR (in the EU) or Dodd Frank (in the USA), treasurers may be required to comply with the relevant regulations, which will add complexity and cost to the transaction.

### **Potential problems**

#### **Counterparty risk**

Derivative transactions are distinct financial agreements. Although no exchange of principal normally takes place, the investor is still faced with a counterparty risk. This is because, should the derivative counterparty fail, the investor will no longer be protected against the risk for which the derivative was purchased. If exchange rates or interest rates move significantly, the amounts potentially owing from one party to another can become material. If this is the case, the beneficiary party may want to impose some form of credit support agreement on the other party, such as margin calls or collateral.

#### **Investment policy**

Because of highly publicised reports of companies failing due to derivatives transactions, company boards are often nervous of their use. In some cases, this may be reflected in a restrictive investment policy

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which does not make agreeing a derivative transaction easy. As a result, a treasurer may need to ask the board to amend the investment policy to allow the use of derivatives.

### **Valuation**

In some cases, especially with more complex options, it can be difficult to value derivatives. This can be a problem if the company wants to apply hedge accounting rules.

### **Accounting**

International Financial Reporting Standard (IFRS) 9 and its equivalent in the USA, ASC 815, require all derivatives to be marked to market. The precise accounting rules, including the occasions on which hedge accounting can be used, are complicated. They can also require significant record-keeping and additional administration.

### **Assessment**

As with all instruments, this assessment of investment suitability is designed as a comparative indication. It assumes similarly rated counterparties in the same jurisdiction.

### **Security**

Because no principal is usually exchanged, derivatives transactions should pose limited risk to their holders. Even so, usage should be recorded against the credit limits marked for the counterparties involved. This assumes care has been taken to ensure the terms and conditions of the derivative will not leave the investor exposed to adverse movements in market prices. For this reason, investors of working capital should not write options.

### **Liquidity**

Options require the payment of an initial premium. Other derivatives transactions may give rise to a cash outflow. Since derivatives are normally tailored over-the-counter transactions, their liquidity is determined by the counterparty bank's willingness to unwind or buy back the deal. Although normally, this is possible, a derivative can always be effectively closed out by transacting an equal and opposite transaction with another bank.

Exchange-traded derivatives are highly liquid instruments, but are rarely used by companies investing working capital.

### **Yield**

Derivatives are rarely purchased by investors of working capital to generate a return. Instead they are used to protect the value of another investment.

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**Suitability**

Derivatives are most useful in the following circumstances:

- ◆ to protect the value of a short-term investment instrument;
- ◆ to protect against fluctuating short-term interest rates;
- ◆ to protect against fluctuating exchange rates;
- ◆ to match predicted future cash flows;
- ◆ as part of a strategy of diversifying risk across a portfolio of investments.

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# Structured deposits

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## Core characteristics

### Key features

As their name suggests, structured deposits are arranged with additional terms and conditions to meet the objectives of both the investor and the counterparty bank. The structured deposit itself will usually incorporate a derivative transaction which will allow the investor to hedge against movements in interest rates or foreign exchange rates.

### Availability

Structured deposits are increasingly available, as banks seek to develop products to attract investors. Initially, structured deposits were created as specific solutions to particular problems. Once developed, they became more commonly available, sometimes as standardised products.

### Nature of the return

The nature of the return from a structured deposit will vary and will depend on the terms and conditions. One of the attractions of structured deposits is that they allow the investor to achieve a range of alternative returns. This might include an enhanced return compared to alternative investments or a guaranteed minimum return over a period of time.

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For example, consider an agreement which states that if a specified interest rate remains within 3% and 4%, then a deposit's return would be enhanced by 50 basis points over the life of the instrument. If the specified rate moves below 3% or above 4% at any point, then the investor would lose interest income for the remaining life of the deposit. This shows that an investor must have a high degree of conviction before agreeing the parameters.

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### Accessibility

Structured deposits are available as over-the-counter products from banks. Terms and conditions will vary according to the nature of the funds being invested and the investor's requirements.

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### **Main variants**

Structured deposits allow the investor to select an instrument created to meet a particular need. In most cases, this will reflect a desire to manage interest rate risk. Foreign exchange risk can also be managed using a structured deposit.

### **Interest rate based**

In most cases, structured deposits enable the investor to achieve a guaranteed minimum return over a predetermined period of time. The investor may also benefit from an enhanced rate, which will usually be capped by the counterparty bank at a maximum rate, and will reflect different views of the future direction of market interest rates.

The precise terms and conditions, including the level of any capped rate, will be set at the time of arranging the deposit. Where a capped rate is set, the investor benefits from the opportunity to earn an enhanced return, in the belief that a higher variable rate will not be forgone.

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For example, a range-based deposit allows a company to earn a guaranteed rate of interest for a fixed period. The company benefits from any increase in market rates, up to a maximum ceiling rate, over the same period.

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### **Foreign exchange rate based**

Dual currency deposits allow an investor to make a deposit in one currency, with repayment in either the same or another currency. They allow the investor to hedge foreign exchange risk without having to arrange a separate currency option.

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For example, an Italian company decides to deposit some EUR in a dual currency deposit for one month. When placing the deposit, a conversion rate of EUR/USD of 1.212 is agreed. Over the life of the deposit, the USD appreciates against the EUR. At maturity the spot rate is EUR/USD 1.175. On maturity the treasurer elects to have the principal plus interest (EUR 1 million) repaid in USD. At the pre-agreed conversion rate, the Italian company will receive USD 1,212,000. This is a better return than the EUR 1,175,000 available in the spot market.

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## Benefits

### Flexibility

The chief advantage of structured deposits is that they are flexible investment instruments. An investor will arrange the terms and conditions of the deposit with the counterparty bank, allowing them to be set to match the investor's specific requirements.

### Enhanced return

One reason why investors are attracted to structured deposits is that they offer an enhanced return, when compared to alternative instruments available in the market.

Banks offer an enhanced return because the investor usually has to commit to invest for a predetermined period of time. This enhanced return is generated by giving up a return in certain circumstances, or effectively granting the bank some form of option. Structures that appear at first sight to be attractive may include some unwelcome downside risk. Furthermore, the investor must ensure that any loss of liquidity is justified by the promise of an enhanced, or guaranteed, return.

Structures can also be created that are asymmetric. This means the return is enhanced if the market moves in one direction. However, if the markets move the other way, the returns will be low or nil.

### Counterparty risk

Structured deposits allow the investor to achieve a particular objective, for example a minimum return, without having to arrange contracts with a number of different counterparties. This is because any derivatives transactions will be incorporated in the structured deposit.

## Potential problems

### Speculation

Because structured deposits incorporate a derivative transaction, investors will need to understand any implied speculation. The attraction of the structured deposit is that it may offer a guaranteed minimum return, or provide a hedge against an adverse movement in the exchange rate. Note that any implied speculation is also likely to result in the transaction not qualifying for hedging exemptions under EMIR or Dodd-Frank.

The difficulty for the investor is to understand the full potential implications of the investment. This may include penalty payments to redeem the investment early, or opportunity costs if markets do not move in the expected direction.

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### High minimum investment

Where structured deposits are created to meet an individual investor's specific requirements, the counterparty bank will insist on a relatively high minimum investment. The investor will need to take care to maintain investments within counterparty limits.

In addition, the bank may also require the investor to commit to a minimum investment term. Before committing to a structured deposit, the investor should understand the implications for group liquidity.

### Complex valuation

Because the structured deposit incorporates derivatives transactions, it can be difficult to value any investments accurately. Although treasury management systems are increasingly able to mark derivatives transactions to market, the very nature of the structured deposit makes automated valuation difficult. As a result, structured deposits may have to be valued independently. This will be time-consuming and will make managing the portfolio difficult.

### Assessment

As with all instruments, this assessment of investment suitability is designed as a comparative indication. It assumes similarly rated counterparties in the same jurisdiction.

### Security

The security of a structured deposit is determined by the creditworthiness of the counterparty bank. The use of credit ratings will help to assess the relative creditworthiness. It is crucial to ensure the correct entity's rating is assessed.

However, investors should also analyse the terms and conditions of the deposit to identify whether the value of the initial investment is at risk.

### Liquidity

Because structured deposits are arranged between the investor and the counterparty bank, they are relatively illiquid instruments. They cannot usually be redeemed before maturity, without payment of a penalty.

### Yield

The return available from structured deposits may be higher than more liquid instruments. This reflects the loss of liquidity faced by the investor and the optionality built in to the transaction.

Interest will be paid according to the terms and conditions of the deposit, typically on maturity.

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### Suitability

Structured deposits are most useful in the following circumstances:

- ◆ when funds are available to invest for longer than the immediate short term;
- ◆ when funds are available for a known period;
- ◆ when treasury is unlikely to need to redeem the funds at short notice;
- ◆ to protect against fluctuating short-term interest rates;
- ◆ when treasury is seeking to earn an additional return on non-core cash;
- ◆ as part of a strategy of diversifying risk across a portfolio of investments;
- ◆ to create a tailored form of return which can be used as a hedge against other exposures.

However, before using any such instrument, the treasurer should take extra care to understand the nature of the risks the company would be exposed to. The complex nature of these transactions means they are unlikely to be suitable for the investment of working capital.

# Separately managed accounts

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## Core characteristics

### Key features

A separately managed account (sometimes called a segregated account) is a method of outsourcing investment management decisions. An investor appoints an investment manager to manage funds according to a detailed mandate set by the investor. Unlike other fund management options, each investor's funds are maintained separately by the investment manager.

### Availability

Separately managed accounts are available from some banks and investment managers. They are primarily used for longer-term investments although they are increasingly available for short-term investment of cash and working capital.

### Nature of the return

The nature of the return from a separately managed account will vary and will depend on the mandate given to the investment manager. One of the attractions of separately managed accounts is that they allow the investor to set its own investment guidelines to reflect the organisation's risk appetite and investment objectives.

### Accessibility

Separately managed accounts are available from some banks and investment managers. Although the investor will set the investment guidelines within the mandate, the investment manager will also set specific terms and conditions for the wider use of the service.

## Benefits

### Controlled outsourcing

Separately managed accounts allow the investor to outsource much of the administration of investing whilst retaining the ability to set detailed investment policy.

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### **Counterparty risk**

As part of the agreement, any credit risk analysis will be performed by the specialists within the investment manager's team. As a separately managed account, the investor will have access to information about the portfolio of assets held on its behalf.

### **Potential problems**

#### **Counterparty risk**

Although the investor will set the investment parameters, there will be no day-to-day control over individual investment decisions. The investor will also be exposed to operational risks within the investment manager.

#### **Cost**

Because of the bespoke nature of the service, it can be a relatively expensive solution.

### **Assessment**

As with all instruments, this assessment of investment suitability is designed as a comparative indication. It assumes similarly rated counterparties in the same jurisdiction.

### **Security**

The security of a separately managed account is determined by the investment parameters set by the investor.

In a separately managed account, the investor holds the securities directly, rather than as a share in a traditional managed fund.

### **Liquidity**

The liquidity of a separately managed account is largely determined by the investment parameters set by the investor. However, a separately managed account is unlikely to be suitable for investors who require instant access to their cash.

### **Yield**

The return from a separately managed account is determined by the investor's risk appetite and investment policies.

### **Suitability**

Separately managed accounts are most useful in the following circumstances:

- ◆ when funds are available to invest for longer than the immediate short term;

Introduction	◆ when funds are available for a known period;
Forecasting	◆ when treasury is unlikely to need to redeem the funds at short notice;
Managing	◆ to implement an investment policy without needing to develop an in-house investment management team;
Segmenting	
Establishing	◆ when a company becomes cash-rich over a relatively short period of time;
Implementing	◆ as part of a strategy of diversifying risk across a portfolio of investments.
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# Longer-term instruments – bonds

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## Core characteristics

### Key features

Bonds are issued by companies, governments and other entities, for terms ranging from under a year to over 20 years. Some bonds, known as perpetuals, are issued without a maturity date. In effect a bond is a form of term loan that can be transferred between investors.

Bonds are issued in registered or bearer form. Registered bonds are issued in the name of the holder and are becoming less common, whereas bearer bonds are freely negotiable.

Although they are usually medium to long-term securities, as they near maturity, bonds begin to exhibit the characteristics of shorter-term investment instruments.

### Availability

The availability of bonds varies between local markets and according to prevailing market conditions. Bonds available in the international capital markets are known as Eurobonds. Despite their name, Eurobonds may be denominated in any currency.

### Nature of the return

Bonds usually generate a return for an investor in one of three ways:

#### ◆ **Coupon-bearing**

Most bonds make some form of interest payment, or coupon. Coupon payments will be made on a regular basis, typically at least annually. These may be structured in a number of different ways. Some bonds pay a fixed coupon throughout their life. Others pay a variable coupon, which is refixed after every coupon and is set with reference to a particular market rate. Stepped coupons increase in size over the life of a bond.

Other coupon payment types are available. For example, some bonds are dual-currency. The principal is denominated in one currency and coupon payments are made in another.

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The price of coupon-bearing bonds will vary according to the market interest rate. A bond price is calculated as the net present value (NPV) of the scheduled interest and capital payments discounted back at the current interest rates. This means that as the market interest rate falls, the price of the bond increases, and vice versa.

#### ◆ **Zero coupon bond**

As the name implies, zero coupon bonds do not pay interim interest payments. Instead, they are issued at a discount, with the investor being paid the face value at maturity. When sold in the secondary market, the price of these bonds will always be the net present value of the face value of the bond.

#### ◆ **Index-linked**

Index-linked bonds deliver a return that is linked to some other reference rate or market. Inflation linkage is widely available. An inflation-linked bond is normally structured to pay a low cash coupon (or 'real' rate of interest) annually, but calculated on an amount of principal that is itself uplifted each year by the reference inflation index. Assuming inflation is positive, this means that the interest amount each year will grow. At maturity, the principal repaid will also be uplifted by the lifetime move in the inflation index.

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#### **Accessibility**

Bonds are initially sold to investors by a dealer group of banks, appointed by the issuer. Some are standalone, whereas others are issued off a EUR medium-term note (EMTN) programme.

Some bonds are listed securities, meaning they are listed on a securities exchange and can be traded in that market. In other cases, bonds are issued as private placements, direct to investors. These are not usually traded in the secondary market.

#### **Main variants**

There are several types of bond issuer, including governments, both local and national, multinational agencies and companies.

#### ◆ **Government bonds**

In most cases, governments elect to issue their bonds into their own local markets. The level of issuance is determined primarily by the level of the government's public borrowing requirement.

#### ◆ **Corporate bonds**

Companies also issue bonds to finance their operations. The level of issuance by an individual company will depend on its borrowing requirement, its access to other forms of finance (shareholder funds, bank lending and other forms of debt issuance, such as commercial paper) and its preferred debt-to-equity ratio.

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Companies issue bonds into their own local markets. They may also issue Eurobonds, which are issued into the international capital markets and may be denominated in a number of international currencies.

### ◆ **Bond funds**

Investors can also decide to use bond funds, which have the benefit of diversifying counterparty risk. When investing in a bond fund, the investor should take care to understand the investment policy followed by the fund. Funds will often restrict themselves to investing in particular types of bond (in terms of credit rating or type of issuer) or in particular geographic areas. Investors should understand the nature of a fund's investment policy and ensure that it fits into the counterparty risk policy the investor is following.

### **Benefits**

#### **Liquidity**

Bond investors can sell their bonds in the secondary market to realise their investment. The investor's ability to do so depends on the size of the deal and the state of the market.

#### **Variety of bond issues**

No single bond issue has the same characteristics. For example, bonds may be interest bearing, and they are issued with a range of maturities. This variety of bond issues available, allows investors to purchase instruments with the characteristics to suit their portfolio requirements.

Because of these differences, when assessing different investment alternatives investors should always take care to ensure that they are comparing like with like. In particular, investors should establish which day-count convention applies, when calculating the yield from the bond.

#### **Riding the yield curve**

Because bonds are issued with longer maturities, there may be the opportunity for investors to 'ride the yield curve'. If the yield on a longer-term bond exceeds that of a shorter-term instrument, the investor can purchase the bond in order to benefit from the better return. The investor can hold the bond until such time that the two yields are equal, and then sell it. As a result, the investor will have generated a higher return on the bond.

### **Potential problems**

#### **Counterparty risk**

When purchasing a bond, the investor will be exposed to the credit risk of the issuer. Most public bond issues will carry a long-term credit rating from

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an international credit rating agency. The investor will need to take care to keep within agreed counterparty limits.

The investor is also at risk from a change in credit rating. A rating upgrade will reduce the yield and increase the market value; if an agency downgrades a bond, its yield will increase and the price will fall. This reflects changes in relative creditworthiness.

This risk can be mitigated by investing in bond funds. However, as with any alternative investment, this will expose the investor to different risks.

### **Liquidity risk**

Because bonds are longer-term instruments, the investor will usually need to sell the bond in the secondary market to redeem the principal. The investor's ability to do so will depend on the liquidity in the market. For example, in an economic downturn, there may be little appetite from investors to buy corporate bonds, especially the lesser-rated instruments.

### **Operational costs**

There are some administrative costs associated with investing in bonds. The investor will need to appoint a custodian bank, because the bonds are held with securities depositories, such as Euroclear. For more, see page 122.

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### **Assessment**

As with all instruments, this assessment of investment suitability is designed as a comparative indication. It assumes similarly rated counterparties in the same jurisdiction.

### **Security**

A bond's security is determined by the creditworthiness of the issuer. The use of credit ratings will help to assess the relative creditworthiness. It is crucial to ensure the correct entity's rating is assessed. However, because bonds are usually longer-term instruments, investors should not rely on credit ratings alone when assessing counterparty risk.

### **Liquidity**

Bonds are relatively liquid instruments. They can usually be redeemed before maturity via a sale in the secondary market. Their liquidity is therefore dependent on the size of the secondary market, which is determined partly by the activities of local dealer banks. The liquidity of government bonds will also be partially determined by government activity in the markets.

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## Yield

The return available from a bond will reflect its underlying creditworthiness. In each local market, bonds with the same credit rating will usually offer a similar return. The difference between the return available on differently rated bonds with the same maturity will vary over time.

There may also be a difference in the return offered on bonds with the same credit rating, but with different maturities. This is known as the yield curve effect.

Interest on all bonds is paid regularly. This varies according to the issuer, but will usually be quarterly, every six months or annually.

Like any fixed interest instrument the price of a bond will vary during its life as market interest rates move, or if the creditworthiness of the bond issuer changes. During a period of rising interest rates, any investment in a longer-term bond is only attractive on a hold to maturity basis.

## Suitability

Bonds are most useful in the following circumstances:

- ◆ when funds are available to invest for longer than the immediate short term;
- ◆ to take advantage of differences in the yield curve;
- ◆ when treasury is unlikely to need to redeem the funds at short notice;
- ◆ to protect against fluctuating short-term interest rates;
- ◆ when treasury is seeking to earn an additional return on non-core cash;
- ◆ as part of a strategy of diversifying risk across a portfolio of investments.

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# Alternative investments

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In addition to the short-term and longer-term instruments described above, there are many other alternative investment instruments available to companies. Although companies, especially their pension funds, may use the following instruments, for a variety of reasons, they are not likely to be suitable for the treasurer seeking to invest working capital.

## Equities

### Core characteristics

#### Key features

Equities are shares issued by local and foreign companies. They are usually listed and traded on the local stock exchange. Unlike debt instruments, when an investor purchases a share, this represents a proportional ownership in the issuing company.

#### Availability

Equities are widely available in almost all local markets. Most shares listed on a local stock exchange are issued by domestic companies. Some larger stock exchanges, notably the New York and London Stock Exchanges, list shares issued by foreign companies.

#### Nature of the return

Investors receive a return in two ways:

##### ◆ **Capital growth**

Capital growth is usually the main reward for the investor.

##### ◆ **Dividend payment**

Investors may also receive an annual dividend payment. Whether a dividend is paid, and the amount if it is, will depend on the policy of the management of the company. Rapidly growing companies may choose to reinvest profits rather than pay a dividend.

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### Accessibility

Investors access shares through trading members of a stock exchange.

### Assessment

#### Security

The value of the invested principal will fluctuate according to the price of the underlying share. In the event that that company falls into liquidation, the equity investors bear the first losses.

#### Liquidity

In any local market, equities are among the most liquid investments available. Liquidity does vary between markets, depending on the volume of activity on the exchange. There is a difference in liquidity, for example, between the New York and Namibian Stock Exchanges.

#### Yield

The yield will be determined by a range of factors, from those within the company's control to external factors, including the state of the economy and the impact of natural events.

#### Suitability

Because of the uncertain nature of the return and the risk to principal, treasurers would have limited use for equities when making a working capital investment.

Almost all company pension funds have assets invested in equities.

## Equity funds

### Core characteristics

#### Key features

Equity funds are the most common form of mutual fund. As the name implies, the funds invest in a range of quoted stocks. The nature of the stocks selected by a fund depends on the expressed aims of the fund manager and will affect the security and the yield of the fund. They are known as unit trusts or OEICs (open-ended investment companies) in the UK, mutual funds in the USA and OPVCMs (organismes de placement collectif en valeurs mobilières) in France.

#### Availability

Equity funds are widely available in most local markets.

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### Nature of the return

In most cases, equity funds are designed to provide long-term capital growth for the investor. When making an investment in an equity fund, an investor technically buys a share or unit in the fund company and the return is in the form of a dividend. Funds may be closed, with a fixed number of units/shares in issue, or open-ended, with the ability to create or cancel units to meet demand.

### Accessibility

Investors can access funds directly or through brokers.

### Main variants

There is a wide range of equity funds available.

#### ◆ **Geographic funds**

Some funds only invest in equities from particular countries or regions. Investors will need to consider country risk.

#### ◆ **Industry funds**

Some funds only invest in companies operating in a particular sector of the economy. Investors will need to consider the level of exposure to that industry.

#### ◆ **Growth or value funds**

Some funds concentrate on a particular size of company. Growth funds tend to invest in smaller companies which are expected to grow, including start-ups. Value funds tend to invest in larger, established companies which may be undervalued by the market as a whole.

#### ◆ **Ethical funds**

Some funds only invest in companies which meet certain socially responsible criteria.

#### ◆ **Balanced funds**

Some fund managers seek to create a fund with a diversified spread of risk. These include index funds which match the return offered by the market as a whole by following a particular market index (such as the FTSE, the Nikkei or the Dow Jones indices).

### Assessment

#### Security

Because the funds invest in equities, the value of the invested principal is determined by the performance of those equities. Investors can manage this risk by selecting particular equity funds, but the underlying risk will always remain.



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### Liquidity

Equity funds are liquid. Most funds allow investors to withdraw their investment with little or no notice, and with a minimal difference between bid and offer rates. However, during times of unusual market strain the manager may impose a restriction on withdrawals. Terms and conditions vary from fund to fund.

### Yield

The yield will be determined by a range of factors. The most important will be the investment choices made by the investment managers. The general performance of equities will also be crucial, especially for any index funds.

### Suitability

Because of the uncertain nature of the return and the risk to principal, treasurers would have limited use for equity funds when making a working capital investment.

Any company pension fund would consider investing in equity funds.

## Hedge Funds

### Core characteristics

#### Key features

Their name implies that hedge funds use trading strategies to protect their investment from, and to take advantage of, market movements. In practice, the term hedge fund applies to a range of funds, investing in a variety of instruments. Critically, hedge funds are not constrained by regulatory requirements or the oversight of credit rating agencies.

Most hedge funds are domiciled in offshore locations for tax reasons.

#### Availability

Hedge funds are increasingly available in a number of markets. They are mainly used by high net worth private investors and institutional investors.

#### Nature of the return

The nature of the return from an individual fund depends on the investment strategy it adopts. There are significant differences between the investment strategies adopted by individual hedge funds. Some funds target capital growth, whilst others seek to generate short-term income. Hedge funds differ from standard equity funds, because they are permitted to take short positions to benefit from falling markets.

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### **Accessibility**

Investors access hedge funds directly.

### **Main variants**

Individual hedge funds vary significantly in terms of their investment strategy. Some funds are highly leveraged, and invest heavily in derivatives. Other funds are much more conservative, and simply seek to use the flexibility offered by the lack of regulation to create a hedged portfolio.

### **Assessment**

#### **Security**

There are significant differences of investment approach from one hedge fund to another. Some hedge funds take a more conservative approach to risk and, as a result, the associated counterparty risk will be lower.

Two factors are important for investors of working capital cash:

#### ◆ **Lack of regulation**

Because hedge funds are subject to limited regulation, investors do not benefit from the same level of protection that applies with other instruments.

#### ◆ **Lack of transparency**

Linked to this, it is difficult for investors to have a firm knowledge of the risks being taken by the hedge fund managers. Unlike other funds, hedge funds are not subject to the scrutiny of the credit rating agencies. As a result, investors cannot fully evaluate the counterparty risk they assume when investing in a hedge fund.

### **Liquidity**

Hedge funds are relatively liquid investment instruments.

### **Yield**

The potential yield varies according to the approach of the hedge fund manager. Different funds have different investment objectives, which must be understood by investors.

### **Suitability**

Because of the lack of transparency and, sometimes, high-risk strategies, it is unlikely that treasurers would seek, or receive, board level approval to invest working capital in hedge funds.

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## Currency as an asset class

### Core characteristics

#### Key features

Although major currencies markets are highly liquid and transparent, minor inefficiencies may be created in the foreign exchange market by a number of participants including, for example, treasurers hedging a financial exposure. As a result, active currency managers aim to generate a return from these inefficiencies.

#### Availability

Active currency management is growing as an activity in the major financial centres.

#### Nature of the return

In theory, the greater returns should be available from currency pairs, whose value is more volatile. In most cases, active currency management is designed to provide long-term capital growth for the investor.

#### Accessibility

Most investors will use the services of a specialist active currency manager.

### Assessment

#### Security

Security is dependent on the risk-management policies adopted by the asset manager. It is possible that a manager could experience a loss of principal.

#### Liquidity

Active currency management is a long-term activity. However, investors should be able to redeem any principal at short notice.

#### Yield

Yield will be determined by the volatility in the foreign exchange markets.

#### Suitability

In most cases, companies would not choose currency as an asset when investing working capital. In the short term, treasurers use the foreign exchange market to hedge currency exposures, rather than as a location to deposit cash.

Company pension funds are increasingly turning to currency as an asset, in addition to more traditional instruments such as equities and bonds.

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### **Bank loans as an asset class**

Bank loans are emerging as an asset class, notably in the USA. These allow investors to purchase an interest in syndicated loans made to corporate borrowers. These are marketed as a better credit risk than a bond or other debt instrument issued by a similarly rated borrower, essentially because of the loan's seniority in the borrower's capital structure and the tighter covenants typically included.

However, these instruments are not suitable for corporate treasurers seeking to maintain the security and liquidity of their short-term cash. Set against any yield pick-up, there are potential disadvantages from the lack of a rating, the lack of liquidity, the inclusion of non-standardised, and possibly, complex terms and conditions and the risk of withholding tax on interest.

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# Appendix 2

# Financial calculations

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## Interest rate calculations

Note: the rate of interest or yield in these calculations is represented by the % rate/100. For example, for a 5% rate, calculate using the number 0.05.

For investments held for periods other than whole years, the day-count convention (see below) is important, especially when comparing investments which use different day-counts.

### Simple interest

The simplest investment instruments pay simple interest. This means the investor will invest a principal sum and then receive an interest payment calculated from that principal sum from the time of investment until either the instrument matures or the investor redeems the principal. The investor will receive the interest payment, but will be responsible for reinvesting it.

Bonds are perhaps the most common instrument paying a simple interest return. At every interest period, the investor will receive a coupon calculated on the basis of the original principal sum invested. The investor may have used previous interest receipts to purchase additional bonds, but they will generate their own return.

The annual proceeds can be calculated using the following formula:

$$\text{Proceeds} = [(\text{principal} \times (1 + \mathbf{r})) - \text{principal}]$$

where  $\mathbf{r}$  is the rate of interest.

So, for example, if an investor holds a five-year bond (face value 100) paying a fixed annual coupon of 8%, the investor will receive coupon payments at the end of the first four years of 8. At the end of the fifth year, the investor will receive the coupon of 8 plus the maturing principal 100.

Using the formula:

$$\text{Proceeds} = [(100 \times (1 + 0.08)) - 100] = 8$$

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If the investor receives semi-annual (six-monthly) coupon payments, this will be in form of two payments per year of four each time. Again, the investor is responsible for reinvesting the received coupons.

**Compound interest**

In other cases, the investment instrument pays compound interest. This means the investor will invest a principal sum. Any interest earned will be reinvested in the same instrument and added to the invested principal. Subsequent interest payments will be calculated using the enhanced principal.

This is known as compound interest, because interest is earned not only on the principal, but on the earned interest as well. For example, if an investor has deposited funds in a savings account, the bank will usually pay interest proceeds into the savings account. Once the interest has been added to the balance in the account, the investor will earn interest on the new, higher balance.

As a result, the annual proceeds from an instrument paying compound interest will be higher than from an instrument paying simple interest.

The annual interest proceeds can be calculated using the following formula:

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$$\text{Proceeds} = \text{principal} \left( 1 + \frac{r}{n} \right)^n - \text{principal}$$

where **n** is the number of interest payments a year and **r** is the nominal annual rate of interest.

Assuming quarterly interest payments on an invested sum of 100 and a nominal rate of interest of 8% p.a., the annual proceeds will be:

$$100 \left( 1 + \frac{0.08}{4} \right)^4 - 100 = 8.24$$

The more frequently interest is applied (assuming the proceeds are reinvested at the same rate), the higher the annual return will be.

**Long-term investment proceeds**

Compound interest also has an effect on instruments held for more than a year, even if interest is only paid annually. This is because the receipts are reinvested at the same rate and interest is then earned on the new principal.

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The long-term proceeds can be calculated using the following formula:

Long-term proceeds = [principal x (1 + r)<sup>y</sup> – principal]

where **y** is the number of years.

If we assume the same original principal of 100, the same rate of interest of 8% p.a. and the same investment period of five years, we can calculate the long-term proceeds:

[100 x (1 + 0.08)<sup>5</sup> – 100] = 46.93

This return compares well to the total proceeds of the bond paying a simple interest return illustrated above. This paid a total return of 40 (five different coupon payments of 8), compared to the compounded return of 46.93.

The investor may well have decided to reinvest the coupons earned under simple interest, but will only have been able to earn a total return of 46.93 if each coupon payment was reinvested at 8%, which may not have been possible. This is reinvestment risk. On the other hand, the investor may have been able to reinvest at a better rate than 8%, and then would have earned in excess of 46.93.

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**Nominal versus effective rates of interest**

When an investor is earning compound interest, it is useful to be able to calculate the effective rate of interest, especially if the instrument is paying interest more than once a year. It is essential to do this calculation when comparing the returns generated from investments with different interest payment frequencies. This enables the investor to compare like with like.

The effective rate of interest =  $\left[ \left( 1 + \frac{r}{n} \right)^n - 1 \right]$

where **n** is the number of interest payments a year and **r** is the nominal annual rate of interest.

For example, if an instrument pays interest twice a year (**n=2**) and the rate of interest is 3.5% p.a., then the effective rate of interest is:

$\left[ \left( 1 + \frac{0.035}{2} \right)^2 - 1 \right] = 3.53\%$

The effective rate is higher because it assumes the interest earned after six months is reinvested at the same rate for the next six months.



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### Continuously compounding interest

At the extreme, interest is continuously compounding. This is rare and assumes interest is earned continuously and immediately reinvested.

The annual proceeds can be calculated using the following formula:

$$\text{Annual proceeds} = [(\text{principal} \times e^r) - \text{principal}]$$

where  $e = 2.71828$ , the base of natural logarithms.

Using the example of 100 invested at 8%, the annual proceeds as a result of continuously compounding interest will be:

$$[(100 \times e^{0.08}) - 100] = 8.33$$

This is significantly higher than the proceeds when interest is paid quarterly (8.24).

### Total proceeds of a short-term investment

When making an investment for period under a year, the investor will also need to compare the respective potential returns from prospective instruments.

In this case, the interest proceeds from an investment made for under a year, and assuming interest at maturity only, can be calculated using the following formula:

$$\text{Proceeds} = \left[ \left\{ \text{principal} \times \left[ 1 + \left( r \times \frac{d}{y} \right) \right] \right\} - \text{principal} \right]$$

where  $r$  is the rate of interest,  $d$  the number of days in the interest period and  $y$  the number of days in the year.

In this case, the number of days in the year becomes important. This will depend on which particular day-count convention applies in the relevant market, either 360 or 365 days (see below).

This formula calculates the proportion of the full-term interest payment which should be earned.

For example, consider an investment of 100 held at a rate of 8% p.a. for 57 days, in a market in which the convention is 360 days. The proceeds would be as follows:

$$\left[ \left\{ 100 \times \left[ 1 + \left( 0.08 \times \frac{57}{360} \right) \right] \right\} - 100 \right] = 1.27$$

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### Bond pricing

The following techniques are useful for pricing bonds and other investment instruments. The principle underpinning all investment instrument valuation is the idea that the investor will pay the net present value of all future cash flows. The net present value represents the capital sum which, when invested at the discount rate, would be able to generate all the stated flows of that investment.

For a zero coupon bond (or a bond nearing maturity after the final coupon has been paid), an investor will pay:

$$\text{Price of zero coupon bond} = \frac{\text{maturity proceeds}}{\left[ 1 + \left( \text{yield} \times \frac{\text{number of days to maturity}}{\text{number of days in the year}} \right) \right]}$$

For a zero coupon bond with more than a year to run, the compounding effect means that with an annualised yield and n years to run, an investor will pay:

$$\text{Price of zero coupon bond} = \frac{\text{maturity proceeds}}{[1 + \text{yield}]^n}$$

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If a bond has interim coupon payments, the purchaser will have to compensate the seller for the time that they have held the bond since the last coupon payment. This can be calculated using the following formula:

$$\text{Value of an accrued coupon} = \frac{(\text{face value} \times \text{coupon rate} \times \text{number of days since last coupon})}{\text{number of days in the year}}$$

In some cases, the seller will have to compensate the purchaser of the bond. This occurs when a coupon payment is made after the bond is sold, but the administration process is delayed such that the coupon payment is made to the previous holder. This is known as an ex-dividend payment and the seller will have to pay the value of the accrued coupon, calculated using the following formula:

$$\text{Ex-dividend} = - \frac{(\text{face value} \times \text{coupon rate} \times \text{number of days until next coupon})}{\text{number of days in the year}}$$

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**Discount to yield**

Some short-term instruments, such as commercial paper, are issued at a discount and so they are non-interest bearing. This means the investor will invest a discounted amount and receive back face value on maturity. By convention, these instruments are nonetheless quoted as a yield.

$$\text{Discounted proceeds} = \frac{\text{Face value of principal}}{1 + \left( \frac{\text{Quoted yield} \times \text{days to run}}{\text{number of days in the year}} \right)}$$

**Bond yields**

The yield on a corporate bond can be expressed either as an absolute rate or as a spread over a reference market rate. The spread is usually given as the number of basis points over the relevant government security, or over the swap rate for the same maturity and currency. In most cases, corporate bonds pay interest annually, whereas government bonds and swap rates pay interest semi-annually.

When comparing yields, it is essential to ensure that any comparisons are done on a like-for-like basis.

**Repos – implied rate of interest**

These techniques can also be used to imply the rate of interest on a repo transaction. This is calculated using the following formula:

$$\text{Interest rate} = \left[ \left( \frac{\text{future value}}{\text{present value of purchased security}} \right) - 1 \right] \times \frac{\text{number of days in year}}{\text{number of days between sale and repurchase}}$$

In effect, this extrapolates the difference between the two transaction prices into an annual interest rate and can be useful when comparing alternative investment returns.

**Net present value**

One way of comparing alternative investment instruments is to translate all future cash flows into a present value.

The following formula translates a future cash flow into a present value:

$$PV = \frac{FV}{\left( 1 + \frac{r}{n} \right)^{\frac{d}{y}}}$$

Where **r** is the rate of interest, **n** is the number of interest payments every year, **d** is the number of days until the cash flow and **y** is the number of days in the year (as determined by the day-count convention).

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For example, the present value of 100 and a cash flow expected in 27 days in a 365-environment with the current interest rate of 4.75%, can be calculated as follows:

$$PV = \frac{100}{\left(1 + \frac{0.0475}{1}\right)^{\frac{27}{365}}} = 99.66$$

The net present value of a series of cash flows (perhaps those associated with a bond) is simply calculated by summing the present value of each individual future cash flow.

---

For example, consider a five-year bond with a face value of 100 paying annual coupons of 6% with a current yield of 4.5%. The price of the bond would be calculated by discounting each future cash flow (the five annual coupon payments and the repayment of principal at the end of the fifth year) to a present value.

Using the formula above, the calculation would be:

$$Price = \frac{6}{1.045} + \frac{6}{1.045^2} + \frac{6}{1.045^3} + \frac{6}{1.045^4} + \frac{106}{1.045^5} = 106.58$$

The bond price is above 100 (above par) because the current yield is below the coupon rate.

---

### Calculating duration

Duration uses the concepts of net present value to help investors manage their exposure to interest rate risk. An investment is sensitive to changes in the interest rate. In general terms and especially for instruments paying a fixed rate of interest, the price of an instrument falls as the interest rate rises, and vice versa.

The duration (sometimes called the Macaulay duration) of an investment is a measurement of how long it takes on average for the bondholder to receive the associated cash flows under the bond, including coupon payments. In its simplest form, duration is a measure of the weighted average of the timing of all the payment flows associated with that investment.

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It can be calculated using the following formula:

$$\text{Duration} = \frac{\text{sum of (present values of each cash flow x time to that cash flow)}}{\text{sum of (present values of each cash flow)}}$$

### Modified duration

This concept can also be extended to measure an investment's sensitivity to a change in the interest rate. Modified duration is calculated using the following formula:

$$\text{Modified duration} = \frac{\text{Macaulay duration}}{\left(1 + \frac{\text{YTM}}{n}\right)}$$

Where YTM is the yield to maturity and **n** is the number of interest periods per year.

Modified duration of **x** means that for every 1% fall in the interest rate, the price of the investment will increase by approximately **x**%. The price of an investment with a 15-year duration will move more as interest rates change than an investment with a ten-year duration.

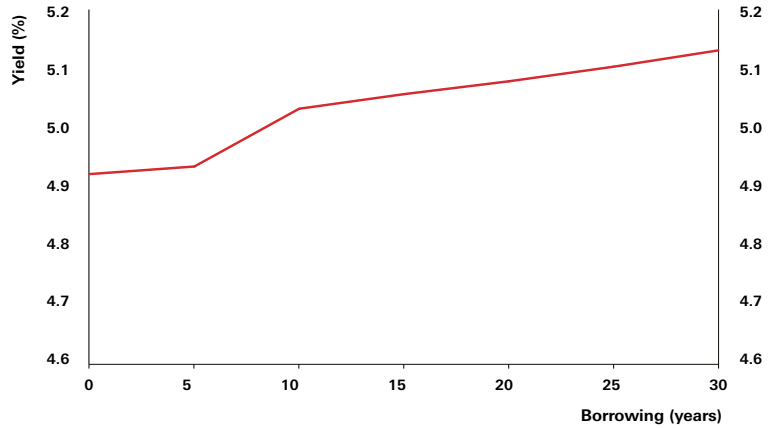
### Constructing a yield curve

As part of their investment strategy, investors often want to construct a yield curve. Knowing the shape of the yield curve allows investors to adopt different strategies. In most cases, the yield curve suggests that longer-dated instruments offer a higher return than shorter-dated instruments (see Figure A.1). Investors are rewarded for giving up some liquidity by a higher return.

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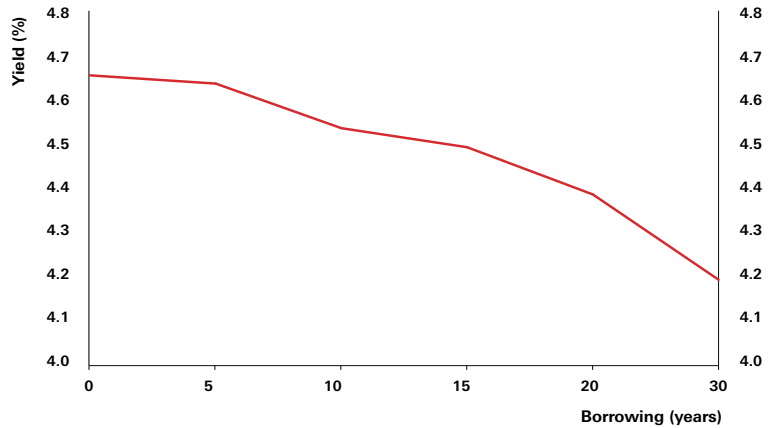
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**Figure A.1. Diagram of normal shaped yield curve.**



In some cases, the yield curve is unusual. For example, sometimes short-term instruments offer a better return than longer-dated instruments. This is seen in an inverted yield curve:

**Figure A.2. Diagram of inverted yield curve.**



This can arise for a number of reasons. The market may expect interest rates to fall, as a result of central bank activity, or due to general economic conditions. Alternatively, a government may have issued a large number of long-dated bonds and the market may simply be reflecting the short-term excess of supply over demand for that particular date.

It is possible to 'ride the yield curve' if there is an upward sloping yield curve. In these circumstances, an investor may invest in an instrument with a longer maturity before selling out when the maturity has shortened, at which point the price will have risen because the yield has reduced. This assumes the yield curve is static with time. There can be other

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opportunities to gain better returns than expected, especially if the curve is not a normal shape. However, to be successful, investors will need to understand why the yield curve’s shape is unusual and how it might change with time.

**Plotting a yield curve**

In order to plot a yield curve, investors can use market rates for instruments of different maturities. By using government paper (treasury bills and notes), the investors can minimise the effect of risk on the shape of the curve.

In some countries, governments only issue paper for a small number of maturities. In this case, investors may need to extrapolate and interpolate yields for different maturities to complete the curve.

This formula can be used to interpolating an interest rate, although it is based on a linear equation:

$$\text{Interest rate } r_d = r_x + (r_y - r_x) \times \frac{(d-x)}{(y-x)}$$

where  $r_d$  is the interest rate for  $d$  days,  $r_x$  is the interest rate for  $x$  days and  $r_y$  is the interest rate for  $y$  days.

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It is also possible to plot a forward yield curve using current spot rates. For example, knowing the current three-month and six-month LIBOR rates, we can calculate the forward rate for an investment placed in three months and redeemed in six months’ time (this rate is known as the 3 x 6 forward rate, as it starts in three months and matures in six months). This is because the return on an investment made at the three-month LIBOR rate which is reinvested for a further three months at the forward rate must equal the return on a six-month LIBOR investment. If not, arbitrage opportunities will be exploited until it does so.

The equation is as follows:

$$\left( 1 + \text{three-month Libor} \times \left( \frac{92}{365} \right) \right) \times \left( 1 + 3 \times 6 \text{ forward rate} \times \left( \frac{91}{365} \right) \right) = \left( 1 + \text{six-month Libor} \times \left( \frac{183}{365} \right) \right)$$

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So, if three-month Libor = 2.86% and six-month Libor is 3.03%, we can solve for the 3 x 6 forward rate ( $r$ ):

$$\left(1 + 0.0286 \times \left(\frac{92}{365}\right)\right) \times \left(1 + r \times \left(\frac{91}{365}\right)\right) = \left(1 + 0.0303 \times \left(\frac{183}{365}\right)\right)$$

$$1.0072 \times \left(1 + r \times \left(\frac{91}{365}\right)\right) = 1.0152$$

Solving for  $r$ , we get 0.0318, or 3.18%. This is intuitively correct, as the investor would expect to earn a higher return from the second three months to obtain the same return, had the funds been invested for the full six months.

A full forward curve can be calculated using existing spot rates to create 1 x 4, 2 x 5, 4 x 7 rates, and so on.

### Zero coupon yield curve

As zero coupon bonds pay no interim interest payments, they are issued at a discount and the face value of the bond is paid at maturity. It is therefore possible to calculate an implied interest rate from a single government instrument and also plot a zero coupon yield curve using a series of similar instruments with different maturity dates. Other values for interim maturities (for which no zero coupon bond exists) can be calculated using extrapolation and interpolation techniques, allowing the treasurer to build a continuous zero coupon yield curve. This can then be used to help value other instruments with different risk and maturity profiles.

Zero coupon yield curves can also be sourced from central banks (for example, both the Bank of England and the European Central Bank publish zero coupon yield curves) or from market information systems (such as Bloomberg or Reuters) if the treasury department has a subscription.

### Summary of day-count conventions

Interest is calculated in different ways, depending on the market in which an investment is made.

For a short-term investment, interest is accrued according to the formula:

$$\text{Interest accrued} = \text{principal} \times 1.0072 \times \left(r \times \frac{d}{y}\right)$$

where  $r$  is the rate of interest,  $d$  the number of days in the interest period and  $y$  the number of days in the year.



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Most markets base interest calculations on a 360-day year, although some calculate on the basis of a 365-day year (sometimes referred to as an actual basis).

There can also be variances in the calculation of the number of days in an interest period. In the money market, most calculations are done on an actual basis. Sometimes ‘bond basis’, where all months are assumed to have 30 days (and years to have 360 days), is applied in the money market (although this is more common in the bond markets).

Day-count conventions are determined by a combination of the currency of the issued security and the market (whether domestic or international) into which it is issued. A summary of the conventions is given below. However, as with any convention, it is important to establish exactly how interest is applied before making an investment.

Convention	Domestic money market	International money market
Actual/360 (ACT/360)	EUR DKK	EUR DKK, SEK, NOK
Number of days as is, 360 days in year	SEK, NOK (except treasury bills) CHF USD	CHF JPY USD
Actual/365 fixed	AUD, CAD, NZD JPY	AUD, CAD, NZD HKD, SGD, TWD,
Number of days as is, 365 days in year (even leap years)	ZAR GBP NOK treasury bills	ZAR GBP
30/360	SEK treasury bills	
30 days in month, 360 days in year		

Most US corporate and federal agency bonds are issued on ‘bond basis’. Some Eurobonds (those issued into the international market) and Swiss bonds are issued on a modified ‘Eurobond basis’ (if the last date of the interest period is 28 February, then the month will not be extended to 30 days).

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Other bonds, including EUR-denominated bonds, GBP-denominated bonds, and US treasury notes, are usually issued on an Actual/365 (or actual/actual) basis. This is different from Actual/365 fixed, as actual/actual computes on 366 days in a leap year.

**Interest basis – converting 360-day to 365-day basis**

In order to compare proceeds from investments calculated on a different basis, treasury will need to convert all rates to a common basis. This can be done using the following formula:

$$\text{Interest rate on comparison basis} = \frac{\text{interest rate on quoted basis} \times \text{number of days in comparison}}{\text{number of days in quoted year}}$$

So, if a treasurer wanted to compare a 4.5% interest rate calculated on a 365-day year with instruments calculating interest on a 360-day basis, the calculation would be:

$$\text{Comparison interest rate} = 4.5 \times \frac{360}{365} = 4.44\%$$

This formula can also be used to translate a 360-day interest rate into an equivalent 365-day rate. Note that rates prepared on a 360-day basis will always be slightly lower than those on a 365-day basis.

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## How LIBOR and Euribor rates are calculated

When appraising investments, it is important to understand any benchmark interest rates. One of the most commonly used benchmark rates is LIBOR.

The LIBOR rates used to be calculated daily for ten major currencies (AUD, CAD, CHF, DKK, EUR, GBP, JPY, NZD, SEK and USD) and for 15 maturities ranging from overnight (or spot/next) to the maximum 12 months.

Since the emergence of allegations of LIBOR manipulation, LIBOR has been calculated by ICE Benchmark Administration (IBA). IBA now calculates LIBOR daily for five major currencies (CHF, EUR, GBP, JPY and USD) and only for seven maturities (overnight/spot/next, one week, one month, two months, three months, six months and 12 months).

Each LIBOR rate is developed from a panel of contributor banks (ranging from 11 to 17 banks per currency), each of which is asked to respond to this question on a daily basis: 'At what rate could you borrow funds, were you to do so by asking for and then accepting interbank offers in a reasonable market size just prior to 11 am London time?' Personnel at each of the contributor banks file their bank's rates to the IBA. The top and bottom quartile submissions are deleted (to avoid outliers distorting the result) and each daily LIBOR rate is calculated as the mean of the remaining five to nine submitted rates and is presented as an annualised rate. The daily rates are then published electronically by nine data vendors.

The IBA is regulated by the Financial Conduct Authority and requires bank submissions to be supported by transactional evidence, while still requiring contributors to use professional judgement where transactional data is insufficient or unrepresentative. This change, plus certain governance reforms, should reduce the risk of banks being able to manipulate the rates.

The European Money Markets Institute (EMMI) (formerly Euribor-EBF) produces the Euribor benchmark on a daily basis. It uses a similar calculation method to LIBOR, with rates provided by a large panel of contributor banks, with the top and bottom 15% of submissions deleted before each rate is calculated. It is currently the rate at which contributors believe EUR interbank term deposits would be offered by one prime bank to another prime bank within the EMU zone, although transaction data will be used to calculate Euribor from mid-2017. Rates are published for eight maturities

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(one week, two weeks, one month, two months, three months, six months, nine months and 12 months).

The EMMI also produces an overnight reference rate for the EUR, the Euro OverNight Index Average (Eonia), which is calculated via the European Central Bank, and is a weighted average of overnight interbank lending transactions in the EUR area by the same panel banks which help to calculate Euribor.

Understanding the rate-setting process is essential. It is important to recognise that the contributor panel for Euribor and Eonia is larger than the LIBOR panels, which might increase the potential impact from involving banks with a lower credit standing in the EMMI rates, according to their interpretation of 'prime bank'. Generally speaking, the Euribor rate tends to come in at levels that are slightly higher than the LIBOR rate for euros, probably for liquidity reasons.

The Sterling Overnight Index Average (SONIA) was initially calculated by the Wholesale Market Brokers' Association (WMBA), as the average of all unsecured overnight cash transactions brokered in London by its member firms. The Bank of England became SONIA administrator in April 2016 and it plans to introduce reforms to the SONIA benchmark by April 2018. These change the method of calculating SONIA, which will also be extended to provide cover of unsecured sterling overnight transactions negotiated bilaterally, as well as through brokers.

Finally, because LIBOR started as an offered rate, it was seen as better suited to benchmark borrowing rates. To benchmark investing rates, a bid rate may be considered as more appropriate. Traditionally, the London Interbank Bid Rate (LIBID), taken as LIBOR less a margin of 0.125%, was used. Today, the use of LIBID is no longer widely used, given the somewhat arbitrary nature of this margin. Instead, a treasurer may be better served by benchmarking against LIBOR itself and determining an appropriate margin if necessary.

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## IBOR Transition

### Julie Bennett

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LIBOR, the London Interbank Offered Rate, is probably the most widely used financial benchmark, and covers financial products denominated in a number of currencies including GBP, USD, EUR, JPY, and CHF, among others.

After 2021, banks will no longer be required to submit data to LIBOR. The move away from using LIBOR to alternate benchmark interest rates is being driven by changes in the financial markets and interbank lending, which have reduced the number of reference transactions underpinning LIBOR, and an inadequate quoting system, particularly in light of the wider global initiative by regulatory authorities to improve processes for setting benchmark rates.

### IBOR transition: origins

The transition from IBOR will impact the way certain interest rates are determined or calculated in financial products, including loans, securitisations, derivatives and some bonds, such as floating rate notes. Products with notional of over USD 370 trillion are referenced to existing IBORs, of which derivatives account for close to 80%. Although the majority of these reference USD LIBOR and EURIBOR, the transition and its impact is global.

A company may also find that some of its LIBOR referencing exposures extend beyond financial contracts, and be referenced in leases, intercompany loans, and contracts, for example, as well as, being used for discount rates. In preparing for transition, and to fully understand the potential risk of LIBOR discontinuation, companies are advised to conduct a comprehensive review of LIBOR exposures, existing fall-back language and systems requirements.

### What are the alternatives?

To support the transition, public and private sector risk-free rate working groups have been established in several jurisdictions, including the USA, the UK and Japan. In the USA, the Alternative Reference Rates Committee (ARRC) has developed the Secured Overnight Financing Rate, or SOFR, as the alternate benchmark rate for USD LIBOR. This is a new daily rate, based on repo transactions, which the Federal Reserve Bank of New York began publishing in April 2018.

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For Sterling LIBOR, the alternate benchmark rate selected is the Sterling Overnight Index Average, or SONIA. Unlike SOFR, this is a pre-existing rate that the Bank of England administers, but the methodology was revised in 2018.

For EUR, the picture is more mixed. From 2 October 2019, €STR, the EUR short-term rate, a new overnight rate for EUR will be published, and will be a replacement rate for EONIA. After its publication, EONIA will become a tracker rate of €STR plus 8.5 basis points. There is no deadline at present for when EURIBOR will be discontinued. In 2019, an ECB working group revised the methodology for calculating EURIBOR to meet the requirements of EU Benchmark Reform and allow for its continued use after 2021 under this regulation. If there is an effective transition in other currencies, for example USD and GBP, and given the degree of regulatory alignment, there may be a transition in the future from EURIBOR to €STR.

### Considerations for using risk-free rates

The alternate rates are all risk-free or near risk-free rates. These rates are also based on transaction data, while the LIBORs are based on contributions provided by banks. These risk-free rates are all overnight rates, and do not have the term structure seen in LIBOR, such as one-month, three-month, etc.

When using the new rates, periodic payments for the products currently referencing them are based on averages over the interest calculation period, given they are overnight rates. Depending on the product and market, the use of simple and compounded average rates has been seen in new products referencing the risk-free rates. The derivatives market, and a large proportion of the floating rate note issuance, has used compounded rates, and the adoption of the use of compounded rates is supported by the public-private working groups supporting the transition.

Compounded rates in arrears may pose challenges for their use in some cash products, particularly loans. To address the risk of the amount of interest payable under a loan only being known on the date interest is payable, mechanics are being incorporated into agreements to provide for a 'lookback' or 'lock-out period', which will allow for the interest or payment amount to be known a few days before the payment date.

There is ongoing feasibility analysis by the central bank working groups to develop forward-looking term rates, more akin to the various tenors of LIBOR, that meet the benchmark regulation standards. Importantly, there is no guarantee that term rates will be developed in advance of the transition timeline.

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### Important transition considerations

Putting aside the introduction of term rates, it is important to consider the adjustments to find equivalency to move from an existing IBOR reference, such as three-month USD LIBOR, to the alternate rate.

As an example, in order for SOFR to become equivalent to the three-month USD LIBOR rate, adjustments for spread and term need to be made. The spread adjustment accounts for the fact that the risk-free rate does not include the bank credit risk implicit in LIBOR. The term adjustment addresses the difference between the risk-free rate being an overnight rate, compared to the three-month term of the LIBOR rate.

These are adjustments which will need to be made upon the transition of a contract currently referencing an IBOR to the alternate rate in the event the IBOR ceases to be published. Systems and calculation processes will also need to be adapted to reflect the fact that rates will only be available towards the end of the relevant interest period, as opposed to the start.

ISDA, in addition to other industry and central bank working groups, is running consultations to determine a consensus for the methodologies to be used for these adjustments.

### Next steps: progression of market adoption

Although 2021 may seem to be a distant point on the horizon, a number of milestones will move the market closer to realising the transition.

Notably, by the end of 2019, ISDA anticipates finalising its consultations on the adjustments applicable to IBORs across currencies with the aim of publishing amendments to the 2006 ISDA Definitions and protocol(s) to incorporate the alternate rates, adjustments and fall-backs in future and legacy contracts. One of ISDA's goals is to support transparency across the market and has announced that Bloomberg will publish the adjustments publicly, when available.

Central bank and industry working groups will also continue soliciting feedback for new fall-back language in contracts and the structuring of cash products referencing the alternate benchmark rates. The ARRC has already published recommended fall-back language for syndicated loans, floating rate notes, bilateral loans, and securitisations. The Bank of England and loan market organisations are working towards similar goals while the Loan Market Association has published guidelines for the documentation for new loans referencing the risk-free rates.



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Accounting and tax guidance are other key pillars supporting the ultimate transition of legacy positions and adoption of the alternate rates.

Recommendations from industry working groups and regulators on transition and increasing market liquidity will be guide posts for the progress of transition, but companies are being encouraged to start looking at the impacts now. While many of the steps to transition are currently outside the control of a treasurer, there are some actions that can be taken at this stage. A first step is to identify all of the exposures to IBORs and existing fall-back language within financial contracts and other arrangements and agreements. As IBORs may be referenced in many non-financial product agreements, the considerations and review of language, may be wide-reaching.

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### Transition away from IBOR – what it means for companies

The replacement of LIBOR with other market rates has major implications for corporate treasurers. LIBOR (and other IBORs) is used in intercompany loans and external borrowing and investing. Treasurers need to understand the implications of the transition away from LIBOR in two key respects:

- ◆ what replaces LIBOR; and
- ◆ how the different method of calculating the replacement rates affects the way treasurers should use those replacements.

### LIBOR replacements

Because the Bank of England will not require banks to provide data to calculate LIBOR after 2021, banks and companies will have to use an alternative reference rate. Regulators around the world have been working to identify a suitable replacement for their markets. Their decisions are summarised in the table below:



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<b>Existing rate</b>	<b>Alternate rate</b>	<b>Administrator</b>	<b>Publication date</b>
<b>AUD LIBOR</b>	<b>BBSW</b> (new methodology)	<b>Australian Stock Exchange</b>	New BBSW methodology since May 2018
<b>CHF LIBOR</b>	<b>SARON</b> (Swiss Average Rate Overnight)	<b>Swiss National Bank, SIX Swiss Exchange</b>	Pre-existing rate
<b>GBP LIBOR</b>	<b>SONIA</b> (Sterling Overnight Index Average)	<b>Bank of England</b>	Already published (23 April 2018)
<b>JPY LIBOR &amp; TIBOR</b>	<b>TONAR</b> (Tokyo Overnight Average Rate)	<b>Bank of Japan</b>	Pre-existing rate
<b>USD LIBOR</b>	<b>SOFR</b> (Secured Overnight Financing Rate)	<b>Federal Reserve Bank of New York</b>	Already published (2 April 2018)
<b>EURIBOR</b>	<b>Still being assessed</b> (€STR (Euro Short-Term Rate) or reformed EURIBOR)	<b>European Central Bank</b>	TBC
<b>EONIA</b>	<b>€STR</b>	<b>European Central Bank</b>	Already published (2 October 2019)

Source: HSBC

### How replacements should be used

The rates listed in the table opposite were identified by national regulators as near-risk free rates. Understanding how these differ from LIBOR will help treasurers identify how best to use them.

### LIBOR and alternative reference rates compared

The respective alternative rates differ from LIBOR in a number of ways:

#### ◆ Data used to create rate

LIBOR uses forward-looking data provided by banks. The alternative rates use actual transaction data.

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### ◆ **Term**

LIBOR is provided for a range of different terms. The alternative rates are provided on an overnight basis only, meaning there is no adjustment for the term.

### ◆ **Credit risk**

Because LIBOR is provided by different banks on the basis of the rates they would expect to use, LIBOR incorporates the market assessment of each contributor bank's credit risk. The alternative rates are near risk-free rates. LIBOR uses data based on unsecured transactions; some reference rates, including SOFR, use data from secured transactions.

### **The implications for treasurers**

The differences between LIBOR and the alternative reference rates mean that, for example, USD LIBOR and SOFR are not direct replacements. As an example, to be able to compare three-month USD LIBOR with SOFR, the treasurer would need to make the following adjustments to SOFR:

- ◆ Add a spread to reflect the difference in credit risk between LIBOR and SOFR (especially because SOFR is based on secured finance)
- ◆ Add a term premium to reflect the loss of three months' liquidity.

Treasurers also need to be aware of how the changes affect their operations. These are likely to be most significant for loan agreements (including intercompany loans) using LIBOR whose terms extend beyond 2021, as they will need to be replaced. The replacement will probably be managed using methodologies currently being developed by industry working groups.

Treasurers will also need to consider how to use the new rates when benchmarking their own investment performance. The spread and term adjustments outlined above will quantify how much credit and liquidity risk the company is prepared to accept when investing short-term cash. Treasurers will have to determine these adjustments separately, rather than relying on LIBOR to provide a market-driven assessment of the two risk premiums.

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## Foreign exchange calculations

### Forward exchange rates

When managing investments, treasury may want to fix a future exchange rate to ensure access to the required foreign currency on the date of maturity. This is possible through the use of a forward foreign exchange rate. Forward foreign exchange rates are calculated from the spot rate between the two currencies and the respective currency interest rates.

To calculate a forward exchange rate between the EUR and the USD for 60 days' time, we would use the following equation:

$$\text{Forward rate} = \text{spot rate} \times \frac{\left[ 1 + \left( r_v \times \frac{d}{y} \right) \right]}{\left[ 1 + \left( r_b \times \frac{d}{y} \right) \right]}$$

where  $r_v$  is the variable currency interest rate,  $r_b$  is the base currency interest rate,  $d$  is the number of days until settlement and  $y$  is the number of days in the year. By convention, all currency pairs are quoted in the same way. The first named currency is the base currency and the second is the variable currency. In most cases, the USD is quoted first (the exceptions against the USD are GBP, EUR, AUD and NZD, which are quoted first).

For example, to calculate the EUR/USD exchange rate 40 days forward when the spot rate is 1.20, with the EUR interest rate 2.5% and the USD interest rate 4.0%, we use the formula:

$$\text{Forward rate} = 1.2 \times \frac{\left[ 1 + \left( 0.04 \times \frac{40}{360} \right) \right]}{\left[ 1 + \left( 0.025 \times \frac{40}{360} \right) \right]} = 1.202$$

This can also be calculated using a points adjustment. In this case, the formula is:

$$\text{Forward rate} = \text{spot rate} + \left[ \text{spot rate} \times (r_v - r_b) \times \frac{d}{y} \right]$$

Using the example above:

$$\text{Forward rate} = 1.2 + \left[ 1.2 \times (0.04 - 0.025) \times \frac{40}{360} \right] = 1.202$$

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As an illustration, consider a European company which has EUR 500,000 to invest for 40 days. The company could invest in a EUR-denominated asset and earn 2.35% or swap into USD and earn 3.8%. The spot rate is 1.20 and the 40-day forward rate is 1.202. Which is the more profitable solution?

The total return on the EUR-denominated instrument will be:

$$500,000 \times \left( 1 + \left( 0.0235 \times \frac{40}{360} \right) \right) = \text{EUR } 501,305.56$$

To invest in the USD-denominated instrument, the company would first swap the EUR into USD using the spot rate of 1.2 = USD 600,000.

This would then be invested in the USD-denominated instrument, giving a return of:

$$600,000 \times \left( 1 + \left( 0.038 \times \frac{40}{360} \right) \right) = \text{USD } 602,533.33$$

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Because the company would know this return in advance, it could enter into a forward exchange rate contract to exchange the total return back into euros at the rate of EUR/USD = 1.202.

This would give a return of EUR 501,275.65. Therefore the company would choose to invest the funds in the EUR-denominated instrument.

(In reality, there is unlikely to be an arbitrage opportunity between EUR and USD, although there may be between two cross-currencies which are less commonly traded.)

By convention, exchange rates are quoted with a bid/offer rate. The bid rate is the rate at which the counterparty bank will buy the currency from the company and the offer rate is the rate at which the counterparty bank will sell the currency to the company. For example, the spot EUR/USD exchange rate may be quoted as 1.2020/1.2023. This shows a bank will sell USD 1.2020 for EUR 1. A company would need to sell USD 1.2023 to receive EUR 1.

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Forward rates are usually quoted in terms of the differential between the spot and the forward rate. For example, the spot GBP/USD rate could be 1.7625/1.7629, with forward points at 50/48. Because the larger number comes first, this means the points should be subtracted from the spot rate (indicating that US interest rates are higher than UK rates at the time of the quote). If the rate was quoted as 1.7625/1.7629, with forward points at 48/50, the points should be added to the spot rate, implying UK rates are higher than US rates. Finally, it is important to remember that spreads for forward rates are always greater than those for spot rates: a useful check that you have the convention the right way round.

## Derivatives transactions

### Swaps

When entering into an interest rate swap agreement, it may be possible to calculate the net present values of the two different sets of cash flows associated with the swap. The calculation of the net present value uses the formula explained earlier.

Calculating the net present value of the fixed-rate leg of an interest rate swap is relatively straightforward. Calculating the net present value of any floating rate leg is more complex. Investors can infer the likely future cash flows by using the forward interest rates implied by the current zero coupon yield curve. These can then be discounted to a present value using the same formula.

Finally, the net present value of the swap is represented by the difference between the two calculations.

### FRAs

A forward rate agreement allows one party to fix a rate of interest (the contract rate) from one point in the future to another (the contract period) and make payments on the basis of a set principal amount. The FRA effectively locks in either a payable or receivable rate for the future period. The settlement rate is determined with reference to an appropriate money market rate (e.g. LIBOR or Euribor) ruling on the start of the contract period.

The two parties will exchange a settlement amount at the beginning of the contract period. The settlement amount represents the difference between the settlement rate and the contracted rate discounted back from the end date. It is calculated using the following formula:

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$$\text{Settlement} = \frac{\left[ (\mathbf{s} - \mathbf{c}) \times \text{principal} \times \frac{\mathbf{n}}{\mathbf{y}} \right]}{\left[ 1 + \left( \mathbf{s} \times \frac{\mathbf{n}}{\mathbf{y}} \right) \right]}$$

where **s** is the settlement rate, **c** is the contract rate, **n** is the number of days in the contract period and **y** is the number of days in the year.

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For example, an investor may decide to enter into an FRA with a bank to fix the interest rate at 3% for three months in three months' time. If the nominal principal amount is EUR 450,000 and the rate at the beginning of the contract period is 3.15%, then the settlement payment will be:

$$\frac{\left[ (0.0315 - 0.03) \times 450,000 \times \frac{92}{369} \right]}{\left[ 1 + \left( 0.0315 \times \frac{92}{360} \right) \right]} = \text{EUR } 171.12$$

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Because the settlement rate is above the contract rate, this is paid by the party wanting to fix the rate to the counterparty bank.

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**Options**

Options are complex to value. The Black-Scholes model is one method of valuing an option. The original equation calculated the value of a call option on a stock. This gave the holder the right to buy the stock on a particular date in the future.

The value of the Black-Scholes call option is:

$$[\mathbf{P} \times \mathbf{N}(\mathbf{d}_1)] - [\mathbf{K} \times \mathbf{e}^{-\mathbf{rT}} \times \mathbf{N}(\mathbf{d}_2)]$$

where **P** is the current stock price, **K** is the exercise price, and **e<sup>-rT</sup>** is the factor which discounts **K** to a present value; **N(d<sub>1</sub>)** is an assessment of the likelihood of the option being exercised; and **N(d<sub>2</sub>)** is an assessment of the likelihood of the option being 'in the money' on exercise day (in other words, of **K < P** on exercise day).

This basic model has been adapted to value all types of option, including currency options.

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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	×	<ul style="list-style-type: none"> <li>◆ Although no restrictions exist, interest is not typically earned on resident and non-resident accounts. Companies are not permitted to open savings accounts.</li> <li>◆ Accounts are available in domestic (ARS) and foreign currency.</li> <li>◆ The common corporate current account can accept ARS deposits only. So called 'special current accounts' can accept deposits in ARS, USD and other foreign currencies, subject to central bank approval.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing USD and EUR-denominated savings accounts are available to individuals only. Companies are not permitted to open savings accounts.</li> <li>◆ Authorisation from the Central Bank of Argentina (BCRA) is required for interest-bearing savings accounts denominated in other foreign currencies.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Time deposits can be held in ARS (at fixed and variable rates for ARS and also UVA rates, which in turn are linked to the CER rate), USD and EUR.</li> <li>◆ ARS fixed rate deposits are subject to a 30-day minimum term.</li> <li>◆ ARS variable rate deposits are subject to a 120-day minimum term.</li> </ul>



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Instruments	✓ or ×	Comments
<b>Time deposits (continued)</b>	✓	<ul style="list-style-type: none"> <li>◆ UVA-linked time deposits are only available for maturities of 180 days or longer.</li> <li>◆ USD and EUR fixed rate deposits are subject to a 30-day minimum term.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Certificates of deposit are available in nominal and inflation-adjusted instruments with a range of maturities. The most popular maturities are under two months.</li> <li>◆ Certificates of deposits are not widely used as short-term investment instruments due to relatively low interest rates.</li> </ul>
<b>Treasury (government) bills</b>	✓	<ul style="list-style-type: none"> <li>◆ The Argentine Treasury issues Treasury Bills (known as LETES) denominated in ARS and USD. Subscription of USD-denominated LETES can be made either in ARS or USD.</li> <li>◆ LETES are issued with maturities ranging from 90 to 365 days.</li> <li>◆ The BCRA issues bills denominated in ARS. Fixed and floating rate bills are both available.</li> <li>◆ ARS-denominated BCRA bills are issued with maturities ranging from one month to three years.</li> <li>◆ The minimum investment amount is ARS 1,000 and USD 1,000.</li> </ul>
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>◆ Domestic commercial paper issuance is possible in Argentina, but is not widely used by companies.</li> <li>◆ Maturities range from 90 days to two years.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Money market funds</b>	✓	◆ Some banks offer access to money market funds as part of their suite of short-term investment products.
<b>Repurchase agreements</b>	✓	◆ Repurchase agreements are available with maturities ranging from overnight to 30 days (terms up to seven days are the most traded).  ◆ Repurchase agreements are used by financial institutions.
<b>Banker's acceptances</b>	×	◆ There is no evidence that banker's acceptances are not used by companies as short-term investment instruments in Argentina.

## Withholding tax on interest payments to companies

- ◆ To resident companies: 3%/6%.
- ◆ To non-resident companies (subject to tax treaties): 35%/15.05%.

Source: Deloitte Touche  
Tohmatsu, 2019.

## Custody and settlement arrangements

<b>Depository</b>	Caja de Valores SA.
<b>Central counterparty</b>	Mercado de Valores de Buenos Aires (Merval). Argentina Clearing S.A.
<b>Settlement</b>	◆ T+2.

Data as at April 2019.

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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest can be earned on resident and non-resident accounts.</li> <li>◆ Accounts are available in domestic (AUD) and foreign currency.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing demand deposit accounts are available to residents and non-residents.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Term deposits can be held in AUD and foreign currency.</li> <li>◆ Maturities range from seven days to over a year.</li> <li>◆ Interest rates range from 2% to 3%.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Certificates of deposit are available with maturities ranging from one to six months.</li> <li>◆ There is an active secondary market.</li> </ul>
<b>Treasury (government) bills</b>	✓	<ul style="list-style-type: none"> <li>◆ The Reserve Bank of Australia (RBA) issues Treasury notes on behalf of the Australian government (Australian Office of Financial Management).</li> <li>◆ Treasury notes are issued on an 'as required' basis with terms generally less than six months.</li> <li>◆ Treasury notes are exempt from non-resident interest withholding tax (IWT).</li> <li>◆ Overnight indexed swap rates are also issued by the RBA.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>Offered by Australian companies, discounted promissory notes are popular with institutional investors.</li> <li>Maturities range from seven days to six months.</li> <li>The minimum investment amount is typically AUD 1 million.</li> </ul>
<b>Money market funds</b>	✓	<ul style="list-style-type: none"> <li>Some banks offer access to money market funds as part of their suite of short-term investment products.</li> </ul>
<b>Repurchase agreements</b>	✓	<ul style="list-style-type: none"> <li>Repurchase agreements are available in Australia, but are more commonly used by financial institutions than by companies.</li> <li>Repurchase agreements have an average maturity of 30 days.</li> </ul>
<b>Banker's acceptances</b>	✓	<ul style="list-style-type: none"> <li>Known as bank bills in Australia, these are issued with maturities of one, three and six months. Maturities of one month are most common.</li> </ul>
<b>Withholding tax on interest payments to companies</b>		
		<ul style="list-style-type: none"> <li>To resident companies: None.</li> <li>To non-resident companies (subject to tax treaties): 10%.</li> </ul>
<b>Custody and settlement arrangements</b>		
<b>Depositories</b>		ASX Settlement. ASX Austraclear.
<b>Central counterparty</b>		ASX Clear.
<b>Settlement</b>	♦	T+2.

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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest can be earned on resident and non-resident accounts.</li> <li>◆ Accounts are available in domestic (EUR) and foreign currency.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing demand deposit accounts are available to residents and non-residents.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Time deposits are the most popular method of short-term investment among companies in Austria.</li> <li>◆ Time deposits can be held in EUR and foreign currency.</li> <li>◆ Maturities typically range from three months to more than ten years.</li> <li>◆ The maximum investment amount is EUR 500,000.</li> <li>◆ Withholding tax of 25% is levied in interest income.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Certificates of deposit are available with maturities ranging from overnight to one year.</li> <li>◆ Maturities of three months and six months are most common.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Treasury (government) bills</b>	✓	<ul style="list-style-type: none"> <li>◆ Treasury bills are issued by the Austrian Treasury on behalf of the Austrian government.</li> <li>◆ Bills are issued, usually at a discount, with maturities ranging from seven days to one year.</li> <li>◆ The minimum investment amount is EUR 100,000.</li> <li>◆ Treasury certificates and government bonds are also available.</li> </ul>
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>◆ Offered by large companies and public authorities, domestic commercial paper is issued at a discount with maturities of three, six, nine and 12 months.</li> <li>◆ Euro commercial paper can be issued in a range of currencies, typically USD, by larger companies with a published credit rating.</li> </ul>
<b>Money market funds</b>	✓	<ul style="list-style-type: none"> <li>◆ Some banks offer access to money market funds as part of their suite of short-term investment products.</li> </ul>
<b>Repurchase agreements</b>	✓	<ul style="list-style-type: none"> <li>◆ Repurchase agreements (repos) are popular short-term investment instruments for companies and financial institutions in Austria.</li> <li>◆ Maturities range from overnight to one week. Open repos are also available.</li> </ul>
<b>Banker's acceptances</b>	×	<ul style="list-style-type: none"> <li>◆ There is no evidence that banker's acceptances are used by companies as short-term investment instruments in Austria.</li> </ul>

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## Withholding tax on interest payments to companies

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◆ To resident companies: 0%/25%.

Source: Deloitte Touche  
Tohmatsu, 2019.

◆ To non-resident companies (subject to tax  
treaties): 0%/27.5%.

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## Custody and settlement arrangements

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### Depository

Oesterreichische Kontrollbank AG (OeKB).

◆ The OeKB acts as the central securities  
depository for equities, ETFs, government  
bonds, corporate bonds, T-bills,  
commercial paper, investment funds,  
rights and warrants.

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### Central counterparty

CCP.A.

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### Settlement

◆ T+2.

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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest can be earned on resident and non-resident current accounts.</li> <li>◆ Accounts are available in domestic (EUR) and foreign currency.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing demand deposit accounts are available to residents and non-residents.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Time deposits are a popular method of short-term investment among companies in Belgium.</li> <li>◆ Time deposits can be held in EUR or foreign currency.</li> <li>◆ Maturities range from one week up to 12 months.</li> <li>◆ Interest rates vary in accordance with the maturity and value of the time deposit.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Certificates of deposit are available with a minimum maturity of seven days and a maximum maturity of one year.</li> <li>◆ The minimum investment amount is EUR 250,000.</li> <li>◆ Most certificates of deposit have a fixed rate of interest.</li> </ul>



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Instruments	✓ or ×	Comments
<b>Treasury (government) bills</b>	✓	<ul style="list-style-type: none"> <li>◆ Two types of securities are regularly issued by the Belgian Debt Office:               <ul style="list-style-type: none"> <li>• Treasury bills (issued in any OECD currency with maturities of up to three months); and</li> <li>• Treasury certificates (issued in EUR at a discount with maturities of three, six or 12 months).</li> </ul> </li> <li>◆ Accrued interest is not subject to withholding tax.</li> </ul>
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>◆ Offered by companies and public authorities, commercial paper is available with a minimum maturity of seven days and a maximum maturity of one year.</li> <li>◆ The minimum investment amount is EUR 250,000. It is common for amounts to exceed EUR 5 million.</li> <li>◆ Belgian investors accept unrated EUR-denominated commercial paper from domestic issuers.</li> <li>◆ Euro commercial paper can be issued in a range of currencies, typically USD, by larger companies with a published credit rating.</li> </ul>
<b>Money market funds</b>	✓	<ul style="list-style-type: none"> <li>◆ Companies can invest in SICAVs, which are open-ended investment companies.</li> <li>◆ Local funds are based in Belgium and Luxembourg.</li> </ul>
<b>Repurchase agreements</b>	✓	<ul style="list-style-type: none"> <li>◆ Repurchase agreements are a popular short-term investment instrument among companies in Belgium.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Repurchase agreements (continued)</b>	✓	<ul style="list-style-type: none"> <li>◆ Maturities range from one day to one week.</li> <li>◆ Repurchase agreements are actively traded between banks.</li> </ul>

<b>Banker's acceptances</b>	×	<ul style="list-style-type: none"> <li>◆ There is no evidence that banker's acceptances are used by companies as short-term investment instruments in Belgium.</li> </ul>
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## Withholding tax on interest payments to companies

	◆ To resident companies: 30%*.
Source: Deloitte Touche Tohmatsu, 2019.	◆ To non-resident companies (subject to tax treaties): 30%*.

\* Unless the rate is reduced under the EU Interest and Royalties Directive or domestic law.

## Custody and settlement arrangements

<b>Depositories</b>	<p>Euroclear Belgium. Banque Nationale de Belgique/Nationale Bank van België (BNB/NBB).</p> <ul style="list-style-type: none"> <li>◆ Euroclear Belgium acts as central securities depository for equities, ETFs, government bonds, corporate bonds, investment funds, rights and warrants.</li> <li>◆ The BNB/NBB acts as CSD for government bonds.</li> </ul>
<b>Central counterparty</b>	LCH.Clearnet SA. EuroCCP.
<b>Settlement</b>	◆ T+2.

Data as at May 2019.

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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	✓	♦ Interest can be earned on resident and non-resident accounts although interest-bearing current accounts are not widely used.
<b>Demand deposits</b>	✓	♦ Interest-bearing demand deposit accounts are available from the leading banks in domestic (BMD) and USD.
<b>Time deposits</b>	✓	♦ Fixed term deposit accounts can be held in BMD and USD (GBP, Euro and CAD are also available upon request).  ♦ Maturities range from one week to one year.  ♦ The minimum investment amount is BMD 1,000.
<b>Certificates of deposit</b>	✓	♦ Certificates of deposit are available in BMD and all major foreign currencies.  ♦ Maturities range from one month to five years.
<b>Treasury (government) bills</b>	×	♦ Treasury bills are not issued in Bermuda.
<b>Commercial paper</b>	✓	♦ Commercial paper is available.
<b>Money market funds</b>	✓	♦ Some banks offer access to money market funds as part of their suite of short-term investment products.
<b>Repurchase agreements</b>	✓	♦ Repurchase agreements are available.

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Instruments	✓ or ×	Comments
<b>Banker's acceptances</b>	×	◆ There is no evidence that banker's acceptances are used by companies as short-term investment instruments. companies in Bermuda.
<b>Withholding tax on interest payments to companies</b>		
		◆ To resident companies: None.
		◆ To non-resident companies (subject to tax treaties): None.
<b>Custody and settlement arrangements</b>		
<b>Depository</b>		Bermuda Securities Depository
<b>Settlement</b>		◆ T+2.
Data as at June 2019.		

Source: Deloitte Touche Tohmatsu, 2019.

# Brazil

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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	×	◆ This is not formally available in Brazil. However, some banks use automatic investment of surplus balances on mutual funds to generate very similar results.
<b>Demand deposits</b>	✓	◆ Interest-bearing BRL-denominated savings accounts are available to residents and non-residents. However, not all banks offer this product to non-residents.
<b>Time deposits</b>	✓	◆ Time deposits can be held in BRL, with maturities between 30 and 120 days.
<b>Certificates of deposit</b>	✓	◆ Certificates of deposit (known as CDB) are widely used by companies in Brazil as a method of short-term investment.  ◆ Maturities typically range from one month to one year (although there is no maximum maturity).  ◆ Both fixed and floating rate CDBs are issued and widely available.  ◆ Financial institutions determine their own minimum investment amounts.
<b>Treasury (government) bills</b>	✓	◆ Two types of treasury bills are issued in Brazil: National Treasury Bills (known as LTNs) and Treasury Financial Bills (known as LFTs). Treasury bills are available online via the Tesouro Direto; only resident individuals are permitted to invest online via the Tesouro Direto.  ◆ A portfolio of National Treasury Notes is also issued, denominated in both BRL and USD.

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Instruments	✓ or ×	Comments
<b>Treasury (government) bills (continued)</b>	✓	<ul style="list-style-type: none"> <li>Both bills and notes are issued for a wide range of maturities.</li> <li>Bills (LTNs and LFTs) are issued and traded at a discount over par value.</li> <li>Notes pay a coupon over face value, which is usually index-linked.</li> <li>The Central Bank of Brazil issues its own bills (LBCs) and sells them in the market through daily auctions.</li> </ul>
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>Domestic commercial paper is a popular type of investment in Brazil.</li> </ul>
<b>Money market funds</b>	✓	<ul style="list-style-type: none"> <li>Money market funds are an extremely popular type of short-term investment in Brazil. The majority of the total assets under management are invested in mutual funds of this category.</li> <li>Money market mutual funds may be incorporated as short-term or long-term funds (lower tax rates for long-term funds).</li> </ul>
<b>Repurchase agreements</b>	—	<ul style="list-style-type: none"> <li>Repurchase agreements are not widely used by companies in Brazil.</li> </ul>
<b>Banker's acceptances</b>	×	<ul style="list-style-type: none"> <li>Banker's acceptances are prohibited in Brazil.</li> </ul>
<b>Withholding tax on interest payments to companies</b>		
		<ul style="list-style-type: none"> <li>To resident companies: 0–22.5%.</li> <li>To non-resident companies: 0–15–25%.</li> </ul>

Source: Deloitte Touche  
Tohmatsu, 2019.

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## Custody and settlement arrangements

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<b>Depositories</b>	BM&FBOVESPA Central Securities Depository (CSD).
	Central de Custódia e de Liquidação Financeira de Títulos (CETIP).
	Sistema Especial de Liquidação e Custodia (SELIC).

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<b>Central counterparty</b>	BM&FBOVESPA.
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<b>Settlement</b>	♦ T+3 for equities.
	♦ T+0 or T+1 for debt.

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Data as at May 2019.

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Instruments	✓ or ✗	Comments
<b>Interest payable on bank account surplus balances</b>	✓	◆ Interest can be earned on resident and non-resident accounts.
		◆ Interest is paid on the surplus balances of domestic currency (BND) current accounts and BND saving accounts.
		◆ Interest is less commonly available on foreign currency current accounts.
		◆ Interest is typically calculated on deposits of BND 1,000 or more.
<b>Demand deposits</b>	✓	◆ Interest-bearing demand deposit savings accounts are available to residents and non-residents.
<b>Time deposits</b>	✓	◆ Time deposits are a popular method of short-term investment among companies in Brunei.
		◆ Time deposits can be held in BND and major foreign currencies.
		◆ Shariah-compliant term deposits are available.
		◆ Maturities range from one month to one year.
<b>Certificates of deposit</b>	✓	◆ Sharia-compatible certificates of deposit are available in Brunei for terms up to five years.
		◆ The minimum investment amount is BND 1,000.



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Instruments	✓ or ×	Comments
<b>Treasury (government) bills</b>	✓	<ul style="list-style-type: none"> <li>◆ The Autoriti Monetari Brunei Darussalam sells and discounts BND-denominated 'Brunei Government Sukuk Al-Ijarah' on behalf of the government. These sukuk are available to banks.</li> <li>◆ Maturities of 91 and 364 days are most common.</li> </ul>
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>◆ Sharia-compatible commercial paper is issued by companies in Brunei, priced at a comparable rate to government sukuk bills.</li> <li>◆ Maturities of up to 12 months are available.</li> </ul>
<b>Money market funds</b>	✓	<ul style="list-style-type: none"> <li>◆ Some banks offer access to money market funds as part of their suite of short-term investment products.</li> </ul>
<b>Repurchase agreements</b>	✓	<ul style="list-style-type: none"> <li>◆ The repurchase market is being developed in Brunei. OTC and private report transactions are allowed.</li> <li>◆ There are plans to allow Brunei Government Sukuk Al-Ijarah for repo transactions in the interbank market.</li> </ul>
<b>Banker's acceptances</b>	—	<ul style="list-style-type: none"> <li>◆ Banker's acceptances are available in Brunei but they are not widely used by companies as short-term investment instruments.</li> </ul>

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## Withholding tax on interest payments to companies

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♦ To resident companies: None.

Source: Deloitte Touche  
Tohmatsu, 2019.

♦ To non-resident companies (subject to tax  
treaties): 2.5%.

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## Custody and settlement arrangements

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### Depository

None.

Brunei is yet to establish a stock exchange.

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Data as at May 2019.

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Instruments	✓ or ✕	Comments
<b>Interest payable on bank account surplus balances</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest can be earned on resident and non-resident accounts.</li> <li>◆ Accounts are available in domestic (CAD) currency and USD.</li> <li>◆ Cash management/current accounts with interest generally pay a prime discounted interest rate on daily deposits. This is paid monthly. Interest earned on US deposits is based on the US Base Rate on a discounted basis. These accounts are the most liquid.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing demand deposit accounts are available to residents and non-residents.</li> <li>◆ Cash management/current accounts with interest generally pay a prime discounted interest rate on daily deposits. This is paid monthly. Interest earned on US deposits is based on the US Base Rate on a discounted basis. These accounts are the most liquid.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Term deposits can be held in both CAD and foreign currency.</li> <li>◆ CAD-denominated term deposits up to CAD 100,000 with terms up to five years are guaranteed by the Canada Deposit Insurance Corporation (CDIC), if the deposit-holder is a member of the CDIC. As of 30 April 2020, CDIC coverage will include eligible deposits held in foreign currency and deposits with terms greater than five years.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Canadian banks issue Guaranteed Investment Certificates (GICs).</li> <li>◆ Short-term GICs are issued with maturities ranging from one month to five years. Some have the option of early redemption.</li> <li>◆ The minimum investment amount is CAD 1,000 or, more commonly, CAD 5,000, depending on the term length.</li> </ul>
<b>Treasury (government) bills</b>	✓	<ul style="list-style-type: none"> <li>◆ Treasury bills (T-bills) are issued by both the federal and the provincial governments and their agencies.</li> <li>◆ Federal government three, six and 12-month T-bills are auctioned off bi-weekly.</li> <li>◆ Federal government cash management bills are issued with maturities ranging from overnight to three months. Auctions are held when necessary.</li> <li>◆ T-bills under six months can be found in the secondary market with maturities placed every two weeks. T-bills with maturities of six months to one year are available with maturities placed every month.</li> <li>◆ The minimum investment is CAD 5,000 for T-bills with maturities of three months to one year, and CAD 25,000 for T-bills with maturities of one or two months.</li> <li>◆ There is an active secondary market.</li> </ul>
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>◆ Commercial paper is commonly issued by companies with maturities of one, two and three months. Maturities ranging from overnight to one year are possible.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Commercial paper (continued)</b>	✓	<ul style="list-style-type: none"> <li>◆ US and international companies frequently access the Canadian market with USD and CAD commercial paper programmes.</li> <li>◆ The minimum investment amount is CAD 100,000 or USD100,000. There is an active secondary market for both domestic and foreign issuers.</li> </ul>
<b>Money market funds</b>	✓	<ul style="list-style-type: none"> <li>◆ Money market funds are widely available.</li> </ul>
<b>Repurchase agreements</b>	✓	<ul style="list-style-type: none"> <li>◆ Repurchase agreements are popular short-term investment instruments for companies in Canada.</li> <li>◆ Maturities range from overnight to one year. Overnight paper can be continuously rolled over.</li> </ul>
<b>Banker's acceptances and banker deposit notes</b>	✓	<ul style="list-style-type: none"> <li>◆ Banker's acceptances (BAs) and bearer deposit notes (BDNs) are popular short-term investment instruments in Canada.</li> <li>◆ Maturities of one, two, three, six and 12 months are most common, although maturities ranging from overnight to one year are available in the secondary market.</li> <li>◆ The minimum investment amount is CAD 25,000 for retail investors and CAD 100,000 for institutional investors. BDNs require a minimum investment of CAD 1 million; however, small lots are found in the secondary market.</li> <li>◆ BAs and BDNs, which are issued by Canada's largest financial institutions, have minimal credit risk and provide a benchmark for other short-term credits.</li> <li>◆ There is an active secondary market.</li> </ul>

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**Withholding tax on interest payments to companies**


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- ◆ To resident companies: None.
- ◆ To arm's length non-resident companies (subject to tax treaties): none.
- ◆ To non-arm's length non-resident companies (subject to tax treaties): 25%.

Source: Deloitte Touche  
Tohmatsu, 2019.

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**Custody and settlement arrangements**


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**Depository**

CDS Clearing and Depository Services Inc.

**Central counterparties**

The Canadian Derivatives Clearing Corporation.

CDS Clearing and Depository Services Inc.

ICE Clear Canada Inc.

Natural Gas Exchange Inc.

- ◆ The Canadian Derivatives Clearing Corporation acts as central counterparty for equity derivatives, index derivatives and interest rate derivatives.
- ◆ CDS Clearing and Depository Services acts as the central counterparty for Government of Canada bonds, treasury bills, Government of Canada-guaranteed corporate bonds, provincial government bonds, notes and treasury bills.

**Settlement**

- ◆ T+3 for equities and debt securities.
- ◆ T+0 for money market instruments and short-term federal bonds.

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Data as at May 2019.

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Instruments	✓ or ✕	Comments
<b>Interest payable on bank account surplus balances</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest can be earned on resident and non-resident accounts but the practice is not widespread.</li> <li>◆ Accounts are available in domestic (CLP) and foreign currency (USD and EUR).</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing demand deposit accounts to residents and non-residents are permitted.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Time deposits are a popular method of short-term investment among companies in Chile.</li> <li>◆ Time deposits can be held in in CLP, UF (unidades de fomento), EUR and USD.</li> <li>◆ Maturities range from one week to one year. The most popular maturity is one month.</li> <li>◆ UF-denominated deposits are inflation-indexed and available for periods over three months.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Certificates of deposit are available with maturities ranging from one month to one year.</li> <li>◆ Certificates of deposit with maturities of less than 89 days are denominated in CLP. Those with maturities of three months and above are inflation-indexed and denominated in UF.</li> <li>◆ Financial institutions determine their own minimum investment amounts.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Treasury (government) bills</b>	✓	<ul style="list-style-type: none"> <li>◆ Treasury bills (T-bills) in the form of discountable promissory notes are issued by the Chilean government via auction, with maturities ranging from one month to one year.</li> <li>◆ T-bills are issued via an auction.</li> <li>◆ The Chilean Central Bank issues its own discountable promissory notes (PDBC's) with maturities ranging from one month to one year on a regular basis. The most common maturities are one and three months. There is an active secondary market.</li> <li>◆ There is an active secondary market.</li> </ul>
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>◆ Commercial paper can be issued with maturities up to 36 months.</li> <li>◆ The minimum denomination is UF 250.</li> </ul>
<b>Money market funds</b>	✓	<ul style="list-style-type: none"> <li>◆ Some banks offer access to money market funds as part of their suite of short-term investment products.</li> </ul>
<b>Repurchase agreements</b>	✓	<ul style="list-style-type: none"> <li>◆ Repurchase agreements are popular short-term investment instruments for companies in Chile.</li> </ul>
<b>Banker's acceptances</b>	—	<ul style="list-style-type: none"> <li>◆ Banker's acceptances are available in Chile but there is no evidence that they are used by companies as short-term investment instruments.</li> </ul>



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**Withholding tax on interest payments to companies**


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- ◆ To resident companies: None.
- ◆ To non-resident companies (subject to tax treaties): 4%/35%.

Source: Deloitte Touche  
Tohmatsu, 2019.

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\* 4% withholding rate applies to interest payments made to foreign banks, financial institutions and by insurance companies or pension funds that comply with certain registration requirements, provided the lender and borrower are unrelated.

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**Custody and settlement arrangements**


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**Depository** Deposito Central de Valores (DCV).

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**Central counterparty** Contraparte Central de Liquidacion de Valores (CCLV).

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**Settlement**

- ◆ T+2 for equities;
- ◆ T+0 or T+1 for bonds.

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Data as at June 2019.

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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest can be earned on resident and non-resident accounts.</li> <li>◆ The interest rate is subject to a ceiling published by the People's Bank of China (PBoC).</li> <li>◆ Banks are free to set rates on EUR, HKD, JPY and USD deposits if amounts are equal to or higher than USD 3 million or its foreign currency equivalent. The interest rate on low-value deposits (amounts less than USD 3 million or its foreign currency equivalent) denominated in EUR, HKD, JPY and USD, is subject to a ceiling published by the PBoC.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing demand deposit accounts are available to residents and non-residents.</li> <li>◆ Domestic (RMB) and foreign currency demand deposit accounts are available.</li> <li>◆ Banks are free to set rates on EUR, HKD, JPY and USD deposits if amounts are equal to or higher than USD 3 million or its foreign currency equivalent.</li> <li>◆ The interest rate on low-value deposits (amounts less than USD 3 million or its foreign currency equivalent) denominated in EUR, HKD, JPY and USD, is subject to a ceiling published by the PBoC.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Time deposits are a popular method of short-term investment among companies in China.</li> <li>◆ Term deposit accounts can be held in RMB and foreign currency.</li> <li>◆ RMB deposit accounts are available with maturities of three and six months and one, two, three and five years. Foreign currency accounts have terms of one and two weeks, one, two, three and six months and one and two years.</li> <li>◆ Banks are free to set rates on large fixed deposits (amounts equal to or higher than USD 3 million or its foreign currency equivalent) denominated in EUR, HKD, JPY and USD.</li> <li>◆ The interest rate on low-value fixed deposits (amounts less than USD 3 million or its foreign currency equivalent) denominated in EUR, HKD, JPY and USD, is subject to a ceiling published by the PBoC.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Although certificates of deposits are available, the market is ill-developed and illiquid.</li> <li>◆ Negotiable Certificates of Deposit (NCDs) are issued by financial institutions, with trading on the interbank market. The Shanghai Interbank Offered Rate is used as a reference rate.</li> <li>◆ NCDs must be issued at over RMB 50 million.</li> <li>◆ Fixed rate certificates of deposit must have a maximum maturity of one year. Floating rate certificates of deposit must have maturities of more than one year.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Treasury (government) bills</b>	✓	◆ Foreign banks, QFIs, RQFIs are permitted to invest in Chinese government securities.
<b>Commercial paper</b>	✓	◆ Offered by companies and financial institutions, commercial paper is issued with maturities of up to six months.  ◆ Foreign-invested enterprises are permitted to invest in commercial paper.  ◆ All commercial paper issued with a face value of more than RMB 3 million must be executed electronically.
<b>Money market funds</b>	✓	◆ Money market funds are available, and increasingly popular, in China.
<b>Repurchase agreements</b>	✓	◆ Repurchase agreements can be arranged on both government and corporate bonds.  ◆ Foreign-invested enterprises must sign a master agreement before entering into a repurchase agreement with a counterparty.
<b>Banker's acceptances</b>	✓	◆ Banker's acceptances are available in China and widely used by companies as short-term investment instruments.

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## Withholding tax on interest payments to companies

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- ◆ To resident companies: None.
- ◆ To non-resident companies (subject to tax treaties): 10%\*.

Source: Deloitte Touche  
Tohmatsu, 2019.

\* A 6% VAT also is imposed.

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## Custody and settlement arrangements

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**Depositories** China Securities Depository and Clearing Corporation (CSDCC).

China Government Securities Depository Trust & Clearing Corporation (CDC).

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**Central Counterparties** CSDCC.

CDC.

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**Settlement** ◆ T for 'A' shares and bonds. Net cash settles on T+1.

◆ T+3 for 'B' shares, held by foreign investors.

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Data as at April 2019.

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# Colombia

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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	✓	♦ Interest is not offered on resident COP-denominated standard current accounts. It is offered on remunerated current accounts.
<b>Demand deposits</b>	✓	♦ Interest-bearing savings accounts are available to residents.
<b>Time deposits</b>	✓	♦ Term deposits are available in the form of certificados de ahorro a termino (CDATs). These are savings certificates issued by banks with maturities ranging from one day to 30 days.
<b>Certificates of deposit</b>	✓	♦ Certificates of deposit are issued by banks with maturities ranging from one month to over a year. Maturities of less than three months are the most common.  ♦ The minimum investment amount is COP 1 million.  ♦ There is a secondary market via the Colombian Securities Exchange.
<b>Treasury (government) bills</b>	✓	♦ The Colombian government issues treasury bills (T-bills) weekly through registered dealers.  ♦ The minimum investment amount is COP 500,000.  ♦ Maturities for short-term bills (TES B-Class bills) range from 30 days to one year.

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<b>Treasury (government) bills (continued)</b>	✓	<ul style="list-style-type: none"> <li>◆ Long-term TES bills can be denominated in COP, UVR (an inflation-indexed unit) and TRM (a reference foreign exchange rate (USD/COP)).</li> </ul>
		<ul style="list-style-type: none"> <li>◆ There is an active secondary market.</li> </ul>
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>◆ Commercial paper is not commonly used by companies as a short-term investment instrument.</li> </ul>
		<ul style="list-style-type: none"> <li>◆ Maturities range from 45 days to one year.</li> </ul>
<b>Money market funds</b>	✓	<ul style="list-style-type: none"> <li>◆ Short-term mutual investment funds are available in Colombia.</li> </ul>
<b>Repurchase agreements</b>	✓	<ul style="list-style-type: none"> <li>◆ Repurchase agreements are available in Colombia. The market is dominated by financial institutions, although some companies do use them as short-term investment instruments.</li> </ul>
<b>Banker's acceptances</b>	✓	<ul style="list-style-type: none"> <li>◆ Banker's acceptances are available in Colombia and used by companies as short-term investment instruments.</li> <li>◆ Issued with maturities up to one year, banker's acceptances are traded on the Colombian Electronic Market.</li> </ul>
<b>Withholding tax on interest payments to companies</b>		
		<ul style="list-style-type: none"> <li>◆ To resident companies: 7%.</li> <li>◆ To non-resident companies (subject to tax treaties): 5%/15%/20%*.</li> </ul>

Source: Deloitte Touche Tohmatsu, 2019.

\* Interest paid to a non-resident is subject to a final withholding tax of 20%, if the loan term does not exceed 12 months. Otherwise the rate is typically 15%. Payments to a foreign entity on loans granted for development of infrastructure programmes are subject to a reduced rate of 5%.

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## Custody and settlement arrangements

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### Depositories

Deposito Centralizado de Valores de Colombia SA (DECEVAL) for the country's stock exchange (Bolsa de Valores de Colombia).

Deposito Central del Valores (DCV) for government bonds.

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### Central counterparty

Bolsa de Valores de Colombia.

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### Settlement

◆ T+3 for equities.

◆ T+0 to T+3 for bonds.

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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest can be earned on resident and non-resident accounts.</li> <li>◆ Accounts are available in domestic (CRC) and major foreign currencies, including EUR and USD.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing demand deposits accounts are available to residents and non-residents.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Term deposits are available in maturities ranging from one month to one year, with three, six and 12-month terms most common.</li> <li>◆ Term deposits can be held in CRC and foreign currency.</li> <li>◆ Interest rates vary according to the amount invested.</li> <li>◆ Minimum investment amounts are determined by individual banks.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Offered by commercial banks, certificates of deposit are available in CRC, EUR and USD, with maturities ranging from one month to five years.</li> <li>◆ Minimum investment amounts are determined by individual banks.</li> </ul>
<b>Treasury (government) bills</b>	✓	<ul style="list-style-type: none"> <li>◆ Several types of Treasury bills are issued by different government entities.</li> <li>◆ Monetary-stabilisation bonds (BEMs) are central bank bills issued via auction, with maturities ranging from one to 12 months. They are used widely as short-term investment instruments.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>◆ Commercial paper is commonly issued by local companies and can be purchased through the stock market or directly from the issuing firm.</li> </ul>
		<ul style="list-style-type: none"> <li>◆ Maturities are less than 360 days.</li> </ul>
<b>Money market funds</b>	✓	<ul style="list-style-type: none"> <li>◆ A number of banks offer access to money market funds as part of their suite of short-term investment products.</li> </ul>
<b>Repurchase agreements</b>	✓	<ul style="list-style-type: none"> <li>◆ Repurchase agreements are popular short-term investment instruments for companies in Costa Rica.</li> </ul>
<b>Banker's acceptances</b>	✓	<ul style="list-style-type: none"> <li>◆ Banker's acceptances are used by companies as short-term investment instruments and are widely available from commercial banks.</li> <li>◆ Banker's acceptances are traded on the stock exchange.</li> </ul>

### Withholding tax on interest payments to companies

- ◆ To resident companies: 5.5%\*.

Source: Deloitte Touche  
Tohmatsu, 2019.

- ◆ To non-resident companies (subject to tax treaties): 0%–15%\*\*.

\* Only paid by financial intermediaries or entities registered on a stock exchange.

\*\* There is no withholding tax on interest payments to bilateral or multilateral organisations.

### Custody and settlement arrangements

**Depository** InterClear Central de Valores SA.  
Bolsa Nacional de Valores

**Central counterparty** There is no central counterparty.

**Settlement**

- ◆ T+3 for equities.
- ◆ T+1 for bonds.

Data as at June 2019.

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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	×	◆ Interest can be earned on resident and non-resident accounts. However, due to Denmark's negative interest rate policy, banks no longer pay interest on current accounts or on most savings accounts.
<b>Demand deposits</b>	✓	◆ Interest-bearing demand deposit accounts are available to residents and non-residents.
<b>Time deposits</b>	✓	◆ Time deposits are the most popular method of short-term investment among companies in Denmark.
<b>Certificates of deposit</b>	✓	◆ Certificates of deposit are offered by banks.  ◆ Terms range from five days to five years.
<b>Treasury (government) bills</b>	✓	◆ Government securities are popular with both companies and financial institutions in Denmark.  ◆ T-bills are offered via auction, typically on the second last trading day of each month.
<b>Commercial paper</b>	✓	◆ Commercial paper is issued by both companies and financial institutions.  ◆ The minimum investment amount is typically DKK 1 million.
<b>Money market funds</b>	✓	◆ Some banks offer access to money market funds as part of their suite of short-term investment products.

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Instruments	✓ or ×	Comments
<b>Repurchase agreements</b>	✓	<ul style="list-style-type: none"> <li>◆ Repurchase agreements are available with maturities ranging from one day to six months.</li> <li>◆ The minimum investment amount is DKK 1 million.</li> <li>◆ The minimum investment amount for a reverse repo is DKK 500,000.</li> </ul>

<b>Banker's acceptances</b>	×	<ul style="list-style-type: none"> <li>◆ There is no evidence of banker's acceptances being used by companies as short-term investment instruments in Denmark.</li> </ul>
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### Withholding tax on interest payments to companies

	◆ To resident companies: None.
	◆ To non-residents companies (subject to tax treaties): 0%/22%.

### Custody and settlement arrangements

<b>Depository</b>	VP Securities.
	<ul style="list-style-type: none"> <li>◆ VP Securities acts as the central securities depository for equities, ETFs, government bonds, corporate bonds, T-bills, commercial paper, investment funds, rights and warrants.</li> </ul>

<b>Settlement</b>	◆ T+2.
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Data as at June 2019.

Source: Deloitte Touche  
Tohmatsu, 2019.

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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest can be earned on resident and non-resident accounts.</li> <li>◆ Accounts are available in domestic (EGP) and foreign currency.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing savings accounts are available to residents and non-residents.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Time deposits are a popular method of short-term investment among large companies in Egypt.</li> <li>◆ Time deposits are offered by the majority of commercial banks in Egypt.</li> <li>◆ Maturities of one, three, six and 12 months are most common, but can range from one week to five years. Time deposits with maturities exceeding one year are uncommon.</li> <li>◆ Deposits in EUR and USD are offered with three-month maturities, but their rates of interest are significantly lower than those denominated in EGP.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Certificates of deposit (CDs) are issued in EGP, USD, EUR and GBP by public sector banks. CDs issued by private sector banks represent only a small proportion of the total.</li> <li>◆ CDs in EGP are available with maturities of three and five years. The minimum issue amount is EGP 1,000 or EGP 5,000, depending on whether the interest is calculated on a fixed or floating basis.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Certificates of deposit (continued)</b>	✓	<ul style="list-style-type: none"> <li>Foreign currency CDs are available in USD and EUR with maturities of three, five and seven years. The minimum issue amount is USD/EUR 1,000.</li> </ul>
<b>Treasury (government) bills</b>	✓	<ul style="list-style-type: none"> <li>Treasury bills (T-bills) are the most popular method of short-term investment in Egypt.</li> <li>T-bills are issued by the the Ministry of Finance through the Central Bank of Egypt via weekly auctions. They are available via the secondary market.</li> <li>T-bills are issued in denominations of EGP 25,000 and its multiples. The minimum investment amount is EGP 25,000.</li> <li>Bids for T-bills are required to be placed via financial institutions licensed by the Central Bank. Foreign institutions are exempt from restrictions on such investments.</li> <li>Maturities of 91, 182, 273 or 364 days are most common.</li> <li>20% withholding tax is deducted at maturity.</li> </ul>
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>Discounted commercial paper is available in Egypt but the market for such paper is underdeveloped.</li> </ul>
<b>Money market funds</b>	×	<ul style="list-style-type: none"> <li>Money market funds are not available.</li> </ul>
<b>Repurchase agreements</b>	✓	<ul style="list-style-type: none"> <li>Repurchase agreements on T-bills are available.</li> <li>Seven-day and 28-day repos are available.</li> <li>The minimum investment amount is EGP 1 million.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Banker's acceptances</b>	×	◆ Banker's acceptances are available in Egypt but are seldom used by companies as short-term investment instruments.
<b>Withholding tax on interest payments to companies</b>		
		◆ To resident companies: 20%.
		◆ To non-resident companies (subject to tax treaties): None/20%*.
Source: Deloitte Touche Tohmatsu, 2019.		
* Interest paid under a long-term loan (i.e. exceeding three years) is not subject to withholding tax.		
<b>Custody and settlement arrangements</b>		
<b>Depository</b>		Misr Company for Central Clearing, Depository & Registry (MCDR).
<b>Settlement</b>		◆ T for eligible securities traded on the Intra-day Trading System.
		◆ T+1 for Treasury bonds.
		◆ T+2 for other securities.

Data as at May 2019.

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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	×	<ul style="list-style-type: none"> <li>◆ Interest can be earned on resident and non-resident accounts. However, due to Finland's exceptionally low interest rates, banks no longer pay interest on current accounts or most savings accounts.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing demand deposit accounts are available to residents and non-residents.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Time deposits are a popular method of short-term investment among smaller companies in Finland.</li> <li>◆ Time deposits can be held in domestic (EUR) and foreign currency.</li> <li>◆ Maturities range from one month to ten years.</li> <li>◆ Interest rates are within the range 0.20%-2.50%.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Offered by commercial banks, certificates of deposit (CDs) have traditionally been the most popular method of short-term investment among companies in Finland.</li> <li>◆ Maturities range up to 12 months.</li> <li>◆ CDs can be traded prior to their maturity date. CDs traded on the interbank market are typically valued at EUR 5 million to EUR 10 million.</li> <li>◆ The minimum investment amount is EUR 100,000.</li> </ul>



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Instruments	✓ or ×	Comments
<b>Treasury (government) bills</b>	✓	<ul style="list-style-type: none"> <li>Issued by the State Treasury, Treasury bills are available in EUR and USD, with maturities ranging from one day to 364 days.</li> <li>T-bills are issued in a minimum denomination of EUR 1,000 and in multiples of EUR 1,000.</li> <li>The minimum investment amount is EUR 100,000.</li> </ul>
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>Commercial paper is a popular short-term investment instrument among companies in Finland.</li> <li>Finnish companies may also invest in Euro commercial paper, typically in USD.</li> <li>The minimum investment amount is EUR 100,000.</li> </ul>
<b>Money market funds</b>	✓	<ul style="list-style-type: none"> <li>Banks offer access to money market funds as part of their suite of short-term investment products.</li> </ul>
<b>Repurchase agreements</b>	✓	<ul style="list-style-type: none"> <li>Repurchase agreements are available in Finland.</li> </ul>
<b>Banker's acceptances</b>	×	<ul style="list-style-type: none"> <li>There is no evidence that banker's acceptances are used by companies as short-term investment instruments in Finland.</li> </ul>
<b>Withholding tax on interest payments to companies</b>		
		<ul style="list-style-type: none"> <li>To resident companies: None.</li> <li>To non-resident companies (subject to tax treaties): None.</li> </ul>
Source: Deloitte Touche Tohmatsu, 2019.		

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## Custody and settlement arrangements

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### Depository

Euroclear Finland Oy.

- ◆ Euroclear Finland acts as the central securities depository for equities, ETFs, government bonds, corporate bonds, T-bills, commercial paper, investment funds, rights and warrants.

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### Settlement

- ◆ T+2.

Data as at June 2019.

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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest can be earned on resident and non-resident current accounts.</li> <li>◆ Accounts are available in domestic (EUR) and foreign currency.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing demand deposit accounts are available to residents and non-residents.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Time deposits can be held in EUR and foreign currency.</li> <li>◆ Maturities range from one week to one year.</li> <li>◆ Interest rates range from 0.7% to 1.5%.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Certificates of deposit are available with a minimum maturity of one day and a maximum maturity of one year. Maturities of three to six months are most common.</li> <li>◆ Certificates of deposit can be denominated in EUR or foreign currency.</li> <li>◆ The minimum investment amount is EUR 150,000.</li> <li>◆ Interest rates can be fixed or variable.</li> </ul>
<b>Treasury (government) bills</b>	✓	<ul style="list-style-type: none"> <li>◆ Treasury bills are regularly issued to commercial banks and funds by the Agency France Trésor.</li> <li>◆ Discounted Treasury bills (BTFs) have maturities ranging from two weeks to one year.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Treasury (government) bills (continued)</b>	✓	<ul style="list-style-type: none"> <li>◆ The minimum investment amount is EUR 1 million.</li> </ul>
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>◆ France has the busiest commercial paper (CP) market in Europe.</li> <li>◆ Offered by companies and public authorities, domestic CP is popular among commercial banks. Most outstanding CP is held in OPCVMs (see below).</li> <li>◆ CP has a minimum maturity of one day and a maximum maturity of one year. Maturities of between one month and three months are the most common.</li> <li>◆ The country's leading banks act as dealers in CP programmes. Issuers rarely distribute CP directly.</li> <li>◆ The minimum investment amount is EUR 150,000 or the equivalent in foreign currency. If the financial documentation is written in a language other than French, the minimum amount is set at EUR 200,000 or the foreign currency equivalent.</li> <li>◆ Euro commercial paper can be issued in a range of currencies, typically USD, by larger companies with a published credit rating.</li> </ul>
<b>Mutual investment funds</b>	✓	<ul style="list-style-type: none"> <li>◆ OPCVMs, a popular and flexible method of short-term investment, are mutual investment funds into which residents can transfer excess funds.</li> </ul>

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<b>Mutual investment funds (continued)</b>	✓	<ul style="list-style-type: none"> <li>◆ An OPCVM can take the form of an open-ended investment company (SICAV) or a unit trust based on the contractual co-ownership of transferable securities (FCP) which, unlike a SICAV, does not have to publish its net asset value on a daily basis.</li> <li>◆ OPCVMs are used to invest in money, bonds or equities.</li> </ul>
<b>Repurchase agreements</b>	✓	<ul style="list-style-type: none"> <li>◆ Repurchase agreements are popular short-term investment instruments for companies in France.</li> <li>◆ Maturities range from one day to one week.</li> </ul>
<b>Banker's acceptances</b>	×	<ul style="list-style-type: none"> <li>◆ There is no evidence that banker's acceptances are used by companies as short-term investments instruments in France.</li> </ul>

### Withholding tax on interest payments to companies

- ◆ To resident companies: None.

Source: Deloitte Touche  
Tohmatsu, 2019.

- ◆ To non-resident companies: None.

### Custody and settlement arrangements

**Depository** Euroclear France.

**Central counterparty** LCH.Clearnet SA.

**Settlement** ◆ T+2.

Data as at May 2019.

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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest can be earned on resident and non-resident accounts.</li> <li>◆ Accounts are available in domestic (EUR) and foreign currency.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Demand deposit accounts (known as Day Money/Day Money Account) are available to residents and non-residents.</li> <li>◆ Most domestic companies place their cash surplus with commercial banks for short maturities.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Time deposits can be held in EUR or foreign currency.</li> <li>◆ The amounts deposited range from EUR 100,000 to EUR 10 million.</li> <li>◆ Maturities range from overnight to 12 months.</li> <li>◆ Interest rates are negotiable, vary depending on maturity, but typically range from 0.01 to 1.50%.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Certificates of deposit (CDs) are issued by companies and banks, mainly into the primary market but are not widely used.</li> <li>◆ Maturities range between 30 days and 180 days. Maturities in excess of six months are possible for CDs with a value above EUR 1 million.</li> <li>◆ The minimum investment amount is EUR 5,000.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Certificates of deposit (continued)</b>	✓	<ul style="list-style-type: none"> <li>◆ CDs are generally issued as fixed rate instruments but flexible rates are sometimes available.</li> </ul>
<b>Treasury (government) bills</b>	✓	<ul style="list-style-type: none"> <li>◆ Treasury bills (T-bills) are regularly issued by the federal government.</li> <li>◆ Fixed rate T-bills have maturities ranging from three months to several years.</li> <li>◆ Zero-coupon T-bills have maturities ranging from six months to two years.</li> <li>◆ Bubills are zero coupon T-bills with maturities of six months. Bubills are issued on a monthly basis by the German Finance Agency to refund the federal debt on a short-term basis.</li> <li>◆ Bundesschatzanweisungen are T-bills issued by the Bundesbank with maturities of two years.</li> </ul>
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>◆ Offered by companies and the country's larger banks, commercial paper is typically issued with maturities ranging from one week to two years. Maturities of three months is most common.</li> <li>◆ Commercial paper is principally sold in the primary market.</li> <li>◆ Euro commercial paper can be issued in a range of currencies, typically USD, by larger companies with a published credit rating.</li> </ul>
<b>Promissory notes</b>	✓	<ul style="list-style-type: none"> <li>◆ Companies in Germany have traditionally used the private placement of promissory notes (Schuldscheindarlehen).</li> <li>◆ Maturities range from two years to ten years.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Money market funds</b>	✓	◆ Some banks offer access to money market funds as part of their suite of short-term investment products.
<b>Repurchase agreements</b>	✓	◆ Repurchase agreements are popular short-term investment instruments among companies in Germany. They can be used as a money market substitute.  ◆ Maturities range from one day to one week.
<b>Banker's acceptances</b>	✓	◆ Banker's acceptances are available with maturities of 30 days to 90 days.
<b>Withholding tax on interest payments to companies</b>		
		◆ To resident companies: 0%/26.375% (including solidarity surcharge).  ◆ To non-resident companies: 0%/26.375% (including solidarity surcharge).
<b>Custody and settlement arrangements</b>		
<b>Depository</b>		Clearstream Banking Frankfurt.  ◆ Clearstream Banking acts as the central securities depository for equities, ETFs, government bonds, corporate bonds, T-bills, commercial paper, investment funds, rights and warrants.
<b>Central counterparty</b>		Eurex Clearing AG.
<b>Settlement</b>		◆ T+2.

Source: Deloitte Touche  
Tohmatsu, 2019.

Data as at May 2019.



# Greece

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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest can be earned on resident and non-resident accounts.</li> <li>◆ Accounts are available in domestic (EUR) and foreign currency.</li> <li>◆ Interest rates are competitive and open to negotiation.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing demand deposit accounts are available to residents and non-residents in EUR and foreign currency.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Time deposits can be held in EUR or foreign currency, with maturities ranging from one day to one year.</li> <li>◆ Interest is typically paid on the maturity date, although monthly interest payments are possible for 12-month deposits.</li> <li>◆ The minimum investment amount is EUR 5,000.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Certificates of deposit are available and widely used by companies.</li> <li>◆ Maturities range up one year.</li> <li>◆ The minimum investment amount is EUR 5,000.</li> </ul>
<b>Treasury bills</b>	✓	<ul style="list-style-type: none"> <li>◆ Greek treasury bills (T-bills) are auctioned by the Ministry of Finance with maturities of 13, 26 or 52 weeks.</li> <li>◆ T-bills are auctioned in denominations of EUR 5 million.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>Offered by companies, commercial paper is available with maturities ranging up to one year.</li> <li>Euro commercial paper can be issued in a range of currencies, typically USD, by larger companies with a published credit rating.</li> </ul>
<b>Money market funds</b>	✓	<ul style="list-style-type: none"> <li>Some banks offer access to money market funds as part of their suite of short-term investment products.</li> </ul>
<b>Repurchase agreements</b>	✓	<ul style="list-style-type: none"> <li>Most repurchase agreements are made on T-bills and government bonds.</li> </ul>
<b>Banker's acceptances</b>	×	<ul style="list-style-type: none"> <li>There is no evidence that banker's acceptances are used by companies as short-term investment instruments in Greece.</li> </ul>

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**Withholding tax on interest payments to companies**

- To resident companies: 0%/15%.

Source: Deloitte Touche  
Tohmatsu, 2019.

- To non-resident companies (subject to tax treaties): 0%/15%.

**Custody and settlement arrangements**

**Depositories** Hellenic Exchanges SA (HELEX).

**Central counterparty** ATHEXClear

**Settlement** ♦ T+2.

Data as at June 2019.

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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest can be earned on resident and non-resident accounts.</li> <li>◆ Accounts are available in domestic (HKD) and foreign currency.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing demand deposits are available to residents and non-residents.</li> <li>◆ Accounts are available in HKD and foreign currency.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Time deposits are popular method of short-term investment among companies in Hong Kong.</li> <li>◆ Time deposits can be held in HKD and foreign currency.</li> <li>◆ Licensed banks are permitted to issue deposits of any size or maturity. Restricted licence banks are limited to offering time deposits of HKD 500,000 or more while deposit-taking companies are confined to offering deposits of HKD 100,000 or more, with a maturity of at least three months.</li> <li>◆ Maturities range from overnight to a year.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Certificates of deposit are issued by financial institutions in a number of currencies for a range of maturities.</li> <li>◆ The minimum investment amount is HKD 50,000.</li> </ul>

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<b>Certificates of deposit (continued)</b>	✓	◆ Maturities typically range from three months to three years.
		◆ Interest rates are either fixed or floating.
<b>Treasury (government) bills</b>	✓	◆ The Hong Kong Monetary Authority issues Exchange Fund Bills with maturities ranging from one week to 12 months.
		◆ Exchange fund bills are issued at a discount, with a minimum denomination of HKD 500,000.
		◆ Exchange fund bills are exempt from profits tax and stamp duty.
		◆ The HKMA typically issues bills with maturities of one week to one year.
		◆ The minimum investment amount is HKD 500,000.
<b>Commercial paper</b>	—	◆ Commercial paper is available but not widely used by companies as a method of short-term investment.
<b>Money market funds</b>	✓	◆ Commercial banks offer access to money market funds as part of their suite of short-term investment products.
<b>Repurchase agreements</b>	✓	◆ Repurchase agreements are available in Hong Kong and used by some large companies.
<b>Banker's acceptances</b>	—	◆ Banker's acceptances are available in Hong Kong but not widely used by companies as short-term investment instruments.
		◆ Banker's acceptances are typically only available in USD.

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## Withholding tax on interest payments to companies

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◆ To resident companies: None.

Source: Deloitte Touche  
Tohmatsu, 2019.

◆ To non-resident companies (subject to tax  
treaties): None.

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## Custody and settlement arrangements

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### Depositories

Hong Kong Securities Clearing Company  
Limited (HKSCC).  
Central Clearing And Settlement System  
(CCASS).  
Central Monetary Unit (CMU).

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### Central counterparty

HKSCC.

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### Settlement

◆ T + 2 for equities.

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Data as at April 2019.

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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest can be earned on resident and non-resident current accounts.</li> <li>◆ Accounts are available in domestic (HUF) and foreign currency.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing demand deposit accounts are available to residents and non-residents.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Time deposits are the most popular method of short-term investment among companies in Hungary.</li> <li>◆ Time deposits can be held in HUF and major foreign currency.</li> <li>◆ Maturities range from one week to one year.</li> <li>◆ The minimum investment amount varies depending on on the term of the deposit, but is typically HUF 100,000.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Certificates of deposit are available with maturities ranging from one month to three years.</li> <li>◆ The minimum investment amount is HUF 5,000.</li> </ul>
<b>Treasury (government) bills</b>	✓	<ul style="list-style-type: none"> <li>◆ Discount treasury bills (T-bills) are issued with a maturity of less than one year, and typically three and 12 months. Auctions of three-month Discount T-bills are held on Tuesday every week and 12-month bills on the Thursday of every second week.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Treasury (government) bills (continued)</b>	✓	<ul style="list-style-type: none"> <li>◆ T-bills are auctioned in denominations of HUF 10,000.</li> <li>◆ One-year Hungarian Government Securities are fixed-rate government securities with a tenor of one year. The minimum denomination of this instrument is HUF 10,000.</li> <li>◆ Government bonds are also issued with maturities of over one year, two, three, five, ten and 15 years. These are used by both domestic and international investors. Auctions are held on the Thursday of every second week.</li> <li>◆ The minimum denomination of Hungarian Government Bonds is HUF 10,000.</li> <li>◆ The National Bank of Hungary auctions central bank deposits on a weekly basis with maturities of three months.</li> </ul>
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>◆ Offered by companies and local authorities, commercial paper can be issued via auction by dealers or by direct private placement.</li> <li>◆ Maturities range up to 12 months.</li> <li>◆ Domestic commercial paper is issued in denominations of HUF 500,000.</li> <li>◆ Euro commercial paper can be issued in a range of currencies, typically USD, by larger companies with a published credit rating. Euro commercial paper is issued in denominations of EUR 500,000.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Money market funds</b>	✓	◆ Some banks offer access to money market funds as part of their suite of short-term investment products.
<b>Repurchase agreements</b>	✓	◆ Repurchase agreements on T-bills are used for short-term investment purposes by all banks and brokerage companies.
<b>Banker's acceptances</b>	×	◆ Banker's acceptances are available in Hungary, but they are seldom used by companies as short-term investment instruments.

#### Withholding tax on interest payments to companies

◆ To resident companies: None
◆ To non-resident companies (subject to reduction or exemption under tax treaties): None

Source: Deloitte Touche  
Tohmatsu, 2019.

#### Custody and settlement arrangements

<b>Depository</b>	Központi Elszámolóház és Értéktár (Budapest) Zrt (KELER).  ◆ KELER acts as central securities depository for equities, ETFs, government bonds, corporate bonds, T-bills, commercial paper and investment funds.
<b>Central counterparties</b>	KELER CCP Ltd. Central Clearing House and Depository Budapest.
<b>Settlement</b>	◆ T+2.

Data as at June 2019.

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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest can be earned on resident and non-resident demand deposit accounts but is not permitted on current accounts.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing demand deposit accounts are available to residents and non-residents.</li> <li>◆ Accounts are available in domestic currency (INR) and foreign currency.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Time deposits are available to residents and non-residents.</li> <li>◆ Term deposits can be held in INR and foreign currency.</li> <li>◆ There is no minimum investment term for residents. Non-residents may be required to invest for a minimum of one year.</li> <li>◆ Companies can invest in other companies for short periods (typically for no longer than six months) through inter-corporate deposits.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Certificates of deposit (CDs) are available to residents and non-residents. CDs can only be issued to non-residents on a non-repatriable basis.</li> <li>◆ CDs issued by banks have maturities ranging from seven days to a one year. Other financial institutions issue CDs with maturities of one year to three years.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Certificates of deposit (continued)</b>	✓	<ul style="list-style-type: none"> <li>◆ CDs are issued in multiples of Rs 1 lakh (INR 100,000). The minimum investment amount is Rs 1 lakh.</li> <li>◆ CDs can be interest-bearing or issued at a discount.</li> </ul>
<b>Treasury (government) bills</b>	✓	<ul style="list-style-type: none"> <li>◆ The Reserve Bank of India (RBI) issues Treasury bills (T-bills) at weekly auctions. The 91-day T-bill is auctioned every Wednesday and the 182-day and 364-day T-bills are issued on alternate Wednesdays.</li> <li>◆ T-bills are available to residents and non-residents.</li> <li>◆ The minimum investment amount is INR 10,000.</li> <li>◆ Maturities are typically three, six and 12 months.</li> <li>◆ There is an active secondary market, especially for the longer-dated bills.</li> </ul>
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>◆ Commercial paper (CP) is offered by companies, primary dealers and All-India Financial Institutions. CP is available to both residents and non-residents.</li> <li>◆ Maturities range from seven days to one year. The most common maturity is three months.</li> <li>◆ The minimum investment is Rs 5 lakh (INR 500,000).</li> <li>◆ CP must be rated by an RBI-specified Indian rating agency.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Money market funds</b>	✓	◆ Money market funds are available in India.
<b>Repurchase agreements</b>	✓	◆ Repurchase agreements can be arranged against certain instruments without a limit on maturity.  ◆ Only RBI-authorized financial institutions can participate in the repurchase agreement market.
<b>Banker's acceptances</b>	×	◆ Banker's acceptances are not permitted in India.
<b>Withholding tax on interest payments to companies</b>		
		◆ To resident companies: 10%.
		◆ To non-resident companies (subject to tax treaties): 5%/20%/40% plus applicable surcharge and cess.
<b>Custody and settlement arrangements</b>		
<b>Depositories</b>		Central Depository Services (India) Limited (CDSL). National Security Depository Limited (NSDL). Reserve Bank of India.
<b>Settlement</b>		◆ T+2 for equities.  ◆ T+N for bonds.

Source: Deloitte Touche  
Tohmatsu, 2019.

Data as at April 2019.

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Instruments	✓ or ✗	Comments
<b>Interest payable on bank account surplus balances</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest can be earned on resident and non-resident current accounts.</li> <li>◆ Accounts are available in domestic (INR) and foreign currency.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing demand deposit accounts are available to residents and non-residents.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Time deposits can be held in INR and foreign currency.</li> <li>◆ Maturities range from one month to two year.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Certificates of deposit are offered by some domestic and international banks.</li> <li>◆ Certificates of deposit are predominantly issued in IDR.</li> <li>◆ Maturities range from one week to one year.</li> </ul>
<b>Treasury (government) bills</b>	✓	<ul style="list-style-type: none"> <li>◆ Sertifikat Bank Indonesia (SBI) are issued weekly via auction by Bank Indonesia with maturities of one, three, six, nine and 12 months.</li> <li>◆ SBIs are available in denominations of IDR 1 million.</li> <li>◆ The minimum investment amount is IDR 1 billion for banks who purchase SBIs directly from Bank Indonesia.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>◆ Commercial paper is not widely used by companies as a method of short-term investment.</li> <li>◆ Maturities range from one week to nine months.</li> </ul>
<b>Money market funds</b>	✓	<ul style="list-style-type: none"> <li>◆ Some banks offer access to money market funds as part of their suite of short-term investment products.</li> </ul>
<b>Repurchase agreements</b>	✓	<ul style="list-style-type: none"> <li>◆ Repurchase agreements are available in INR and foreign currency.</li> <li>◆ Repurchase agreements most commonly have overnight maturities.</li> <li>◆ All market participants are required to use the Indonesia Global Master Repurchase Agreement (GMRA Indonesia).</li> </ul>
<b>Banker's acceptances</b>	×	<ul style="list-style-type: none"> <li>◆ Banker's acceptances are available in Indonesia but they are not widely used by companies as short-term investment instruments.</li> </ul>
<b>Withholding tax on interest payments to companies</b>		
		<ul style="list-style-type: none"> <li>◆ To resident companies: Exempt (banks) or 15% (non-banks).</li> <li>◆ To non-resident companies (subject to tax treaties): 20%.</li> </ul>
Source: Deloitte Touche Tohmatsu, 2019.		

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## Custody and settlement arrangements

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### Depositories

Bank Indonesia.  
Indonesian Central Securities Depository (KSEI).

- ◆ KSEI is the central securities depository for all securities listed and traded on IDX, as well as most of the securities that are traded in the OTC market.

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### Central counterparty

Bank Indonesia.

- ◆ T+3 for equities.

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### Settlement

- ◆ T+2 for income securities.

Data as at April 2019.

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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest can be earned on resident and non-resident current accounts.</li> <li>◆ Accounts are available in domestic (EUR) and foreign currency.</li> <li>◆ Interest rates are negotiable but typically average 0.1%.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing demand deposit accounts are available to residents and non-residents.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Time deposits are a popular method of short-term investment among companies in Italy.</li> <li>◆ Time deposits can be held in EUR and foreign currency.</li> <li>◆ Maturities range from overnight to one year.</li> <li>◆ Terms are negotiable.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Certificates of deposit are available, with maturities ranging from three months to five years. Maturities exceeding 18 months are not permitted to be cashed until after the first 18 months.</li> <li>◆ Certificates of deposit are available in USD, GBP and CHF, in addition to other major foreign currencies.</li> <li>◆ The minimum investment amount is EUR 5,000.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Certificates of deposit (continued)</b>	✓	◆ Certificates of deposit can have fixed or floating rates of interest.
		◆ There is no secondary market.
<b>Treasury (government) bills</b>	✓	◆ Treasury bills (T-bills – Buoni ordinari del Tesoro) are the most popular short-term investment in Italy.
		◆ Maturities of three, six and 12 months are most common, although the Ministry of Economy and Finance's Department of Treasury can issue T-bills for any period.
		◆ T-bills can be purchased via financial intermediaries and online.
		◆ There is an active secondary market.
<b>Commercial paper</b>	✓	◆ Bonds are also issued by regional, provincial and municipal authorities (buoni obbligazionari comunali).
		◆ Commercial paper is seldom used in Italy.
		◆ Maturities range from three to 12 months.
		◆ The minimum investment amount is EUR 50,000.
<b>Money market funds</b>	✓	◆ Italian companies may invest in Euro commercial paper, typically in USD.
		◆ A number of banks offer access to money market funds as part of their suite of short-term investment products.
		◆ The minimum investment amount is EUR 25,000.



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Instruments	✓ or ×	Comments
<b>Repurchase agreements</b>	✓	<ul style="list-style-type: none"> <li>◆ Repurchase agreements (also known as pronti contro termine) are increasingly popular short-term investment instruments among companies and institutional investors in Italy.</li> <li>◆ Most repurchase agreements have a spot value date, although maturities of one week, one month or three months are available.</li> </ul>
<b>Banker's acceptances</b>	—	<ul style="list-style-type: none"> <li>◆ Banker's acceptances are available in Italy but they are seldom used by companies as short-term investment instruments.</li> <li>◆ Maturities range from three to 12 months.</li> </ul>
<b>Withholding tax on interest payments to companies</b>		
		<ul style="list-style-type: none"> <li>◆ To resident companies: 0%/26%.</li> <li>◆ To non-resident companies (subject to tax treaties): 12.5%/26%.</li> </ul>
<b>Custody and settlement arrangements</b>		
<b>Depository</b>		<p>Monte Titoli SpA.</p> <ul style="list-style-type: none"> <li>◆ Monte Titoli acts as the central securities depository for equities, ETFs, government bonds, corporate bonds, T-bills, investment funds, rights and warrants.</li> </ul>
<b>Central counterparty</b>		Cassa di Compensazione e Garanzia.
<b>Settlement</b>		◆ T+2.

Data as at May 2019.

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Instruments	✓ or ✕	Comments
<b>Interest payable on bank account surplus balances</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest can be earned on resident and non-resident accounts.</li> <li>◆ Accounts are available in domestic (JPY) and foreign currency.</li> <li>◆ It is possible for companies to sweep surplus balances into an interest-bearing overnight account.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing savings accounts are available to residents and non-residents.</li> <li>◆ Accounts are available in JPY and foreign currency.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Time deposits can be held in JPY or foreign currency.</li> <li>◆ Maturities range from one month to five years.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Banks issue fixed interest rate certificates of deposit for maturities ranging from overnight to five years. Three-month maturities are the most common.</li> <li>◆ Certificates of deposit pay a fixed interest rate.</li> <li>◆ There is an active secondary market.</li> </ul>
<b>Treasury (government) bills</b>	✓	<ul style="list-style-type: none"> <li>◆ The Japanese government issues short-term treasury bills (T-bills) via bi-monthly auctions.</li> <li>◆ Maturities of three or six months and one year are most common.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Treasury (government) bills (continued)</b>	✓	<ul style="list-style-type: none"> <li>◆ T-bills of JPY 10,000 are issued to retail investors with a three-year fixed-rate, five-year fixed-rate and ten-year floating-rate.</li> <li>◆ T-bills of JPY 50,000 are issued with maturities of two, five, ten, 20, 30 and 40 years.</li> </ul>
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>◆ Commercial paper is issued by companies at a discount with maturities up to one year. Three-month maturities are the most common.</li> <li>◆ The minimum investment amount is JPY 100 million.</li> </ul>
<b>Money market funds</b>	✓	<ul style="list-style-type: none"> <li>◆ Money market funds are a popular method of short-term investment among companies in Japan.</li> </ul>
<b>Repurchase agreements</b>	✓	<ul style="list-style-type: none"> <li>◆ Repurchase agreements are used by companies as short-term investment instruments.</li> </ul>
<b>Banker's acceptances</b>	×	<ul style="list-style-type: none"> <li>◆ Banker's acceptances are not available in Japan.</li> </ul>

### Withholding tax on interest payments to companies

- ◆ To resident companies: 0% /20%.

Source: Deloitte Touche  
Tohmatsu, 2019.

- ◆ To non-resident companies: 20%\*.

\* From 1 January 2013 to 31 December 2017, an additional special reconstruction income tax of 2.1% is applicable to the withholding tax levied on certain payments made by Japanese companies to non-residents. This increases the withholding tax rate on dividends, loan interest, royalties or technical services fees paid to a nonresident to e.g. 20.42% (i.e. 20% + (20% x 2.1%)). The rate is often reduced under a tax treaty.

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## Custody and settlement arrangements

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### Depositories

Bank of Japan.  
Japan Securities Depository Centre (JASDEC).

- ◆ The Bank of Japan is the central depository for Japanese government bonds.
- ◆ JASDEC is the central securities depository for equities and corporate bonds.

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### Central counterparty

Japan Securities Clearing Corporation.

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### Settlement

- ◆ T+3.

Data as at April 2019.

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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest can be earned on resident and non-resident accounts.</li> <li>◆ Accounts are available in domestic (EUR) and foreign currency.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing demand deposit accounts are available to residents and non-residents.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Time deposits can be held in EUR or foreign currency.</li> <li>◆ Maturities range from one week to 12 months.</li> <li>◆ Interest rates vary in accordance with maturity and amount.</li> <li>◆ Market rates determine the rate of interest.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Certificates of deposit are available with a minimum maturity of one day and a maximum maturity of one year.</li> <li>◆ The minimum investment amount is EUR 5,000.</li> </ul>
<b>Treasury (government) bills</b>	×	<ul style="list-style-type: none"> <li>◆ Treasury bills are not issued by the government.</li> </ul>
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>◆ Offered by companies and public authorities, commercial paper has a minimum maturity of one day and a maximum maturity of one year.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Commercial paper (continued)</b>	✓	◆ Euro commercial paper can be issued in a range of currencies by larger companies with a published credit rating.
<b>Money market funds</b>	✓	◆ Companies can invest in SICAVs, which are open-ended investment companies.
<b>Repurchase agreements</b>	✓	◆ Repurchase agreements are popular short-term investment instruments for companies in Luxembourg.
		◆ There is no minimum investment amount.
		◆ Repurchase agreements are actively traded in the interbank market.
<b>Banker's acceptances</b>	×	◆ Banker's acceptances are available in Luxembourg but there is no evidence that they are used by companies as a short-term investment instrument.

 Contact HSBC

**Withholding tax on interest payments to companies**

◆ To resident companies: 0%\*/15%.

Source: Deloitte Touche  
Tohmatsu, 2019.

◆ To non-resident companies (subject to tax treaties): 0%\*/15%.

\* So long as the rate and conditions are at 'arm's length'.

**Custody and settlement arrangements**

**Depositories** Clearstream Banking SA Luxembourg.  
LuxCSD SA.

**Settlement** ◆ T+2.

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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	✓	<ul style="list-style-type: none"> <li>Financial institutions are permitted to offer interest-bearing current accounts to their corporate customers.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>Interest-bearing demand deposit accounts are available to residents and non-residents.</li> <li>Accounts are available in both domestic (MYR) and foreign currency.</li> <li>A deposit must have a tenor of 30 days before interest is payable.</li> <li>Demand deposits have maturities of up to 60 months.</li> <li>Companies can earn overnight interest by depositing funds with a bank with principal dealer status.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>Time deposits are a popular short-term investment instrument among companies in Malaysia.</li> <li>Time deposits can be held in MYR and foreign currency.</li> <li>Maturities range from one month to 60 months.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>Certificates of deposit are a popular short-term investment instrument used by companies.</li> <li>Short-term certificates of deposit are issued with maturities ranging from one month to a year.</li> <li>There is an active secondary market.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Treasury (government) bills</b>	✓	<ul style="list-style-type: none"> <li>◆ The Malaysian government issues treasury bills (T-bills) in both Islamic and conventional form through regular tenders.</li> <li>◆ T-bills have maturities of three, six and 12 months. T-bills are issued on a weekly basis, typically on a Thursday.</li> <li>◆ The central bank issues Bank Negara Monetary Notes (BNMN), which have a maximum maturity of three years.</li> <li>◆ BNMN may be issued either on a discounted or a coupon-bearing basis, depending on investors' demand. Coupon-based BNMN is traded using the market convention of Malaysian Government Securities (MGS).</li> <li>◆ Cagamas notes are short-term bonds issued by Cagamas Berhad (the National Mortgage Corporation) to refinance mortgage loans.</li> <li>◆ Cagamas notes are issued with maturities ranging from one month to ten years.</li> </ul>
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>◆ Commercial paper is used as a short-term investment instrument by companies. Islamic commercial paper is also issued.</li> <li>◆ Maturities range from one month to one year.</li> </ul>
<b>Money market funds</b>	✓	<ul style="list-style-type: none"> <li>◆ Conventional and sharia-compliant money market funds are widely available in Malaysia.</li> </ul>
<b>Repurchase agreements</b>	✓	<ul style="list-style-type: none"> <li>◆ Repurchase agreements are available with maturities up to one year.</li> </ul>



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## Instruments

Instruments	✓ or ×	Comments
<b>Banker's acceptances</b>	✓	◆ Banker's acceptances are available in Malaysia and used by companies as short-term investment instruments.

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## Withholding tax on interest payments to companies

	◆	To resident companies: None.
	◆	To non-resident companies (subject to tax treaties): 15%.

Source: Deloitte Touche  
Tohmatsu, 2019.

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## Custody and settlement arrangements

<b>Depositories</b>		Bursa Malaysia. PayNet.
	◆	Bursa Malaysia operates a central depository system for securities traded on Bursa Malaysia and cleared through Bursa Malaysia Securities Clearing.
	◆	PayNet operates a Scripless Securities Depository System.

<b>Settlement</b>	◆	T+3 for Bursa Securities-listed.
	◆	T+2 for SSTS-eligible.

Data as at April 2019.

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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest can be earned on resident and non-resident current and savings accounts, but is not typically offered on current accounts</li> <li>◆ Accounts are available in domestic (EUR) and foreign currency, although interest is not usually paid on foreign currency accounts.</li> <li>◆ Interest of 0.2% is typical on EUR-denominated savings accounts with a balance between EUR 5,000 and EUR 50,000.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing demand deposit accounts are available to residents and non-residents.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Time deposits can be held in EUR or major foreign currency.</li> <li>◆ Maturities range from one week to over a year.</li> <li>◆ Interest rates vary in accordance with the maturity and amount.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Certificates of deposit are offered by commercial banks with maturities ranging up to one year.</li> <li>◆ The minimum investment amount is EUR 5,000.</li> </ul>
<b>Treasury (government) bills</b>	✓	<ul style="list-style-type: none"> <li>◆ Treasury bills are issued by the Treasury Department of the Ministry of Finance with maturities of one, three, six, nine or 12 months.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>◆ Offered by companies and government bodies, commercial paper is issued with maturities ranging up to one year.</li> <li>◆ The minimum investment amount is EUR 50,000.</li> <li>◆ Euro commercial paper can be issued in a range of currencies, typically USD, by larger companies with a published credit rating.</li> </ul>
<b>Money market funds</b>	✓	<ul style="list-style-type: none"> <li>◆ Some banks offer access to money market funds as part of their suite of short-term investment products but these cannot accommodate overnight investments.</li> </ul>
<b>Repurchase agreements</b>	✓	<ul style="list-style-type: none"> <li>◆ Repurchase agreements (repos) are a popular method of short-term investment among companies in Malta.</li> <li>◆ Repos are used in monetary operations and in interbank transactions.</li> <li>◆ Repos on government securities are available from the central bank.</li> </ul>
<b>Banker's acceptances</b>	×	<ul style="list-style-type: none"> <li>◆ There is no evidence that banker's acceptances are used as short-term investment instruments by companies in Malta.</li> </ul>
<b>Withholding tax on interest payments to companies</b>		
		<ul style="list-style-type: none"> <li>◆ To resident companies: 35%.</li> <li>◆ To non-resident companies: None.</li> </ul>

Source: Deloitte Touche  
Tohmatsu, 2019.

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## Custody and settlement arrangements

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### Depository

The Malta Stock Exchange Central Securities Depository (MSE CSD) acts as the central securities depository for equities, government bonds, corporate bonds, T-bills and commercial paper.

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### Settlement

◆ T+2.

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Data as at May 2019.

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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	×	<ul style="list-style-type: none"> <li>◆ Interest can be earned on resident and non-resident accounts, although interest-bearing current accounts are not commonly used.</li> <li>◆ Companies are able to sweep surplus balances into overnight investment accounts.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing demand deposit accounts are available to residents and non-residents, although a minimum investment may be required.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Term deposits are not a popular method of short-term investment among companies in Mexico.</li> <li>◆ Term deposits can be held in domestic currency (MXN) and USD.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Certificates of deposit (CEDES) are available with maturities ranging from two to 12 months.</li> <li>◆ CEDES are issued in MXN and UDIs, which are local investment units.</li> <li>◆ There is a minimum investment amount of MXN 5,000.</li> <li>◆ Companies prefer to invest in pagares, which are short-term promissory notes issued by banks. These are issued at a discount.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Treasury (government) bills</b>	✓	<ul style="list-style-type: none"> <li>◆ The Banco de México issues Federal Treasury Certificates (CETEs) at weekly auctions. CETEs are issued at a discount.</li> <li>◆ Maturities of one, three, six and 12 months are available.</li> <li>◆ There is an active secondary market.</li> </ul>
<b>Commercial paper</b>	—	<ul style="list-style-type: none"> <li>◆ Although commercial paper is issued, the market is not liquid and therefore companies do not use it as a short-term investment instrument.</li> </ul>
<b>Money market funds</b>	✓	<ul style="list-style-type: none"> <li>◆ Some mutual funds are available in Mexico.</li> </ul>
<b>Repurchase agreements</b>	✓	<ul style="list-style-type: none"> <li>◆ Repurchase agreements are popular short-term investment instruments for companies in Mexico.</li> <li>◆ Maturities typically range from overnight to one month, but can be arranged for terms in excess of one month.</li> </ul>
<b>Banker's acceptances</b>	×	<ul style="list-style-type: none"> <li>◆ Banker's acceptances are available in Mexico, but are not widely used by companies as short-term investment instruments.</li> </ul>
<b>Withholding tax on interest payments to companies</b>		
		<ul style="list-style-type: none"> <li>◆ To resident companies: None.</li> <li>◆ To non-resident companies (subject to tax treaties): 4.9%–35%/40%.</li> </ul>
Source: Deloitte Touche Tohmatsu, 2019.		

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## Custody and settlement arrangements

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<b>Depository</b>	Institución para el Depósito de Valores S.A. (INDEVAL).
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<b>Central counterparties</b>	Contraparte Central de Valores de México (CCV). ASIGNA Compensación y Liquidación
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- ◆ Contraparte Central de Valores de México acts as the central counterparty (CCP) for stocks traded on the BMV.

- ◆ ASIGNA Compensación y Liquidación acts as the CCP for derivatives traded on MEXDER.

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## Settlement

- ◆ T+3 for equities.

- ◆ T+1 – T+2 for government securities.

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Data as at June 2019.

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Instruments	✓ or ✗	Comments
<b>Interest payable on bank account surplus balances</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest can be earned on resident and non-resident current accounts.</li> <li>◆ Accounts are available in domestic (EUR) and foreign currency.</li> <li>◆ Interest on current accounts is paid on a gross basis (typically quarterly) as they are exempt from withholding tax.</li> <li>◆ Interest rates are low. However, it is possible to sweep surplus balances to attain higher yields.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing demand deposit accounts are available to residents and non-residents.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Time deposits are the most popular method of short-term investment among companies in the Netherlands.</li> <li>◆ Time deposits can be held in domestic currency (EUR) or major foreign currency.</li> <li>◆ Maturities range from one day up to several years.</li> <li>◆ Time deposits can have fixed, floating or annuity interest rates.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Certificates of deposit are available with maturities ranging up to one year.</li> <li>◆ The minimum investment amount is EUR 5,000.</li> </ul>



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Instruments	✓ or ×	Comments
<b>Treasury (government) bills</b>	✓	◆ Dutch Treasury Certificates are issued by the Dutch State Treasury Agency with maturities of three, six, nine or 12 months.
<b>Commercial paper</b>	✓	◆ Offered by companies and public authorities and traded by banks, commercial paper typically has a minimum maturity of one month and a maximum maturity of two years.  ◆ The minimum investment amount is EUR 500,000. Euro commercial paper can be issued in a range of currencies by larger companies with a published credit rating.
<b>Money market funds</b>	✓	◆ Some banks offer access to money market funds as part of their suite of short-term investment products.
<b>Repurchase agreements</b>	✓	◆ Belening (collateralised loan) is a local form of repurchase agreement.
<b>Banker's acceptances</b>	×	◆ Banker's acceptances are not available in the Netherlands.
<b>Withholding tax on interest payments to companies</b>		
		◆ To resident companies: None.
		◆ To non-resident companies (subject to tax treaties): None.

Source: Deloitte Touche  
Tohmatsu, 2019.

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## Custody and settlement arrangements

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### Depositories

Euroclear Nederland.  
Netherlands Inter-professional Securities Centre.

- ◆ Euroclear Nederland acts as the central securities depository for equities, government bonds, corporate bonds, T-bills, commercial paper, rights and warrants.

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### Central counterparty

EuroCCP.  
ICE Clear Netherlands.  
LCH.Clearnet.

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### Settlement

- ◆ T+2.

Data as at May 2019.

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Instruments	✓ or ✗	Comments
<b>Interest payable on bank account surplus balances</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest can be earned on resident and non-resident accounts.</li> <li>◆ Accounts are available in domestic (NZD) and foreign currency.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing demand deposit accounts are available to residents and non-residents.</li> <li>◆ Accounts are available in NZD and foreign currency.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Time deposits are a popular method of short-term investment among companies in New Zealand.</li> <li>◆ Time deposits can be held in NZD and foreign currency.</li> <li>◆ Maturities range from one week to five years.</li> <li>◆ Banks often require a minimum deposit of between NZD 5,000 and NZD 10,000.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Offered by commercial banks with maturities ranging from one week to one year. Maturities range from seven to 365 days. One, two or three month maturities are most common.</li> <li>◆ Certificates of deposit are issued as either transferable or negotiable.</li> <li>◆ The minimum investment amount is NZD 100,000.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Treasury (government) bills</b>	✓	<ul style="list-style-type: none"> <li>◆ Treasury bills (T-bills) are auctioned by the New Zealand Debt Management Office on a weekly basis.</li> <li>◆ Maturities of three, six or 12 months are available.</li> <li>◆ The minimum investment is NZD 1 million.</li> <li>◆ Reserve Bank bills are auctioned with maturities of up to 12 months.</li> <li>◆ Bills are issued in denominations of NZD 1 million.</li> </ul>
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>◆ Commercial paper is typically issued by corporates with a high credit rating.</li> <li>◆ Maturities range from one to three months. Maximum tenor is typically 364 days.</li> </ul>
<b>Money market funds</b>	✓	<ul style="list-style-type: none"> <li>◆ Some banks offer access to money market funds as part of their suite of short-term investment products.</li> </ul>
<b>Repurchase agreements</b>	✓	<ul style="list-style-type: none"> <li>◆ Typically used by retail banks for short-term liquidity management.</li> </ul>
<b>Banker's acceptances</b>	✓	<ul style="list-style-type: none"> <li>◆ Banker's acceptances are available in New Zealand and are issued in multiples of NZD 5,000.</li> <li>◆ Maturities of one, two or three months are available.</li> </ul>
<b>Withholding tax on interest payments to companies</b>		
		<ul style="list-style-type: none"> <li>◆ To resident companies: 10.5%, 17.5%, 28%, 30% or 33%.</li> <li>◆ To non-resident companies (subject to tax treaties): 15%.</li> </ul>
Source: Deloitte Touche Tohmatsu, 2019.		

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## Custody and settlement arrangements

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### Depositories

NZClear.

New Zealand Central Securities Depository.

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### Settlement

◆ T + 3 for equities.

◆ T+2 for corporate debt (negotiable up to T+3).

◆ T+3 for government securities.

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Data as at April 2019.

📧 Contact HSBC

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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	×	◆ Although no restrictions exist, interest is not typically earned on resident and non-resident current accounts.
<b>Demand deposits</b>	✓	◆ Interest-bearing demand deposit accounts are available to residents and non-residents.
<b>Time deposits</b>	✓	<p>◆ Time deposits are a popular method of short-term investment among companies in Norway.</p> <p>◆ Time deposits can be held in domestic (NOK) and foreign currency.</p> <p>◆ Maturities range from one day to two years, although maturities of one week to three months are most common.</p> <p>◆ There are no specific minimum/maximum amount restrictions but the minimum investment amount is typically NOK 1 million.</p>
<b>Certificates of deposit</b>	✓	<p>◆ Offered by major commercial banks, certificates of deposit are well established as short-term investment instruments for larger companies in Norway.</p> <p>◆ The minimum investment amount is NOK 1 million.</p>
<b>Treasury (government) bills</b>	✓	◆ Norwegian treasury bills (T-bills) are issued by Norges Bank on behalf of the Ministry of Finance. They are listed on the Oslo Stock Exchange.

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Instruments	✓ or ×	Comments
<b>Treasury (government) bills (continued)</b>	✓	<ul style="list-style-type: none"> <li>◆ T-bills are issued with maturities of three, six, nine and 12 months.</li> <li>◆ T-bills are issued in denominations of NOK 1,000.</li> </ul>
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>◆ Offered by large domestic companies, local authorities and mortgage institutions, commercial paper is purchased by financial institutions, large domestic companies and, more commonly, by medium-sized enterprises.</li> </ul>
<b>Money market funds</b>	✓	<ul style="list-style-type: none"> <li>◆ Some banks offer access to money market funds as part of their suite of short-term investment products.</li> </ul>
<b>Repurchase agreements</b>	✓	<ul style="list-style-type: none"> <li>◆ There are just a small number of participants in Norway's repo market.</li> <li>◆ Most repurchase agreements are made with Norwegian Treasury bills and covered bonds as collateral. The maturities of such agreements are normally between one week and one month.</li> </ul>
<b>Banker's acceptances</b>	×	<ul style="list-style-type: none"> <li>◆ There is no evidence that banker's acceptances are used by companies as short-term investment instruments in Norway.</li> </ul>
<b>Withholding tax on interest payments to companies</b>		
		<ul style="list-style-type: none"> <li>◆ To resident companies: None.</li> <li>◆ To non-resident companies (subject to tax treaties): None.</li> </ul>
Source: Deloitte Touche Tohmatsu, 2019.		

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## Custody and settlement arrangements

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<b>Depository</b>	<p>Norwegian Central Securities Depository (Verdipapirsentralen ASA (VPS)).</p> <ul style="list-style-type: none"> <li>◆ The VPS acts as the central securities depository for equities, ETFs, government bonds, corporate bonds, T-bills, commercial paper, investment funds, rights and warrants.</li> <li>◆ VPS is not part of TS2.</li> </ul>
<b>Central counterparty</b>	<p>SIX x-clear. LCH Clearnet.</p>
<b>Settlement</b>	<ul style="list-style-type: none"> <li>◆ T+2 or less for Norwegian short-term instruments. Negotiable to a minimum of T+0.</li> </ul>

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# Panama

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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	✓	<ul style="list-style-type: none"> <li>◆ Although no restrictions exist, interest is not typically earned on resident and non-resident current accounts.</li> <li>◆ Accounts are available in domestic (PAB) and foreign currency.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing demand deposit accounts are available to residents and non-residents in PAB and USD.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Term deposits are a popular method of short-term investment among companies in Panama.</li> <li>◆ Term deposits can be held in PAB and foreign currency.</li> <li>◆ Maturities range from overnight to over a year.</li> <li>◆ Term deposits are usually subject to a minimum investment of USD 10,000.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Certificates of deposit are issued by banks in non-negotiable form.</li> <li>◆ Interest rates are negotiable and may depend on the relationship between client and bank.</li> </ul>
<b>Treasury (government) bills</b>	✓	<ul style="list-style-type: none"> <li>◆ The Panama government issues USD treasury bills (T-bills) at monthly auctions.</li> <li>◆ T-bills are issued with for maturities of three, six, nine and 12 months.</li> <li>◆ The minimum investment amount is USD 1,000.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>Some companies issue commercial paper in the form of valores comerciales negociables (VCNs) or pagarés de empresa.</li> <li>Issuance levels vary, although VCNs are traded on the Panama Stock Exchange.</li> <li>The minimum investment amount for VCNs is USD 1,000.</li> </ul>
<b>Money market funds</b>	✓	<ul style="list-style-type: none"> <li>Banks offer access to money market funds as part of their suite of short-term investment products.</li> </ul>
<b>Repurchase agreements</b>	✓	<ul style="list-style-type: none"> <li>Repurchase agreements are available for a range of maturities. The most popular maturities are one, three, six and nine months.</li> <li>Overnight repurchase agreements are also available.</li> <li>Repurchase agreements are traded on the Panama Stock Exchange.</li> </ul>
<b>Banker's acceptances</b>	×	<ul style="list-style-type: none"> <li>Banker's acceptances are available in Panama, but there is no evidence that they are used by companies as short-term investment instruments.</li> </ul>
<b>Withholding tax on interest payments to companies</b>		
		<ul style="list-style-type: none"> <li>To resident companies: 5%*.</li> <li>To non-resident companies (subject to tax treaties): 12.5%**.</li> </ul>
<p>Source: Deloitte Touche Tohmatsu, 2019.</p> <p>* If not an authorised financial institution.  ** Being 25% corporate tax rate on 50% of the interest remittance.</p>		

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## Custody and settlement arrangements

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<b>Depository</b>	Central Latinoamericana De Valores SA (LATINCLEAR).
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<b>Settlement</b>	◆ T+3.
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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	×	<ul style="list-style-type: none"> <li>Although no restrictions exist, interest is not typically earned on resident and non-resident accounts.</li> <li>Accounts are available in domestic currency (PEN), USD and EUR.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>Interest-bearing demand deposit accounts are available to residents and non-residents.</li> <li>Interest is payable on PEN and USD-denominated savings accounts.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>Term deposits can be held in PEN, USD and EUR.</li> <li>Maturities typically range from 30 days to 360 days.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>The Central Reserve Bank of Peru issues certificates of deposits via regular auctions. Maturities range from overnight to 36 months.</li> </ul>
<b>Treasury (government) bills</b>	✓	<ul style="list-style-type: none"> <li>T-bills are issued with maturities of three, six, nine and 12 months. T-bills with maturities of three and nine months are issued on the first Tuesday of each month and the terms of six and 12 months are issued on the third Tuesday of each month.</li> <li>The minimum investment amount is PEN 100.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>◆ Commercial paper is offered by companies in Peru.</li> <li>◆ The maximum maturity is 180 days.</li> </ul>
<b>Money market funds</b>	✓	<ul style="list-style-type: none"> <li>◆ Some short-term mutual investment funds are available. The minimum investment period is three days.</li> </ul>
<b>Repurchase agreements</b>	✓	<ul style="list-style-type: none"> <li>◆ Repurchase agreements are available for a range of maturities.</li> </ul>
<b>Banker's acceptances</b>	×	<ul style="list-style-type: none"> <li>◆ Banker's acceptances are available in Peru, but there is no evidence that they are used by companies as short-term investment instruments.</li> </ul>

### Withholding tax on interest payments to companies

<ul style="list-style-type: none"> <li>◆ To resident companies: None.</li> <li>◆ To non-resident companies (subject to tax treaties): 4.99%/30%*.</li> </ul>
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Source: Deloitte Touche Tohmatsu, 2019.

\* The 30% rate is applicable to interest paid abroad to economically related parties or to interest payable to non-related parties exceeding the maximum allowed by law.

### Custody and settlement arrangements

<b>Depository</b>	CAVALI SA.
<b>Settlement</b>	<ul style="list-style-type: none"> <li>◆ T+3 for equities.</li> <li>◆ T+2 for bonds.</li> <li>◆ T+0 for fixed income.</li> <li>◆ T+0 to T+2 for money market.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest can be earned on resident and non-resident accounts.</li> <li>◆ Accounts are available in domestic (PHP) and foreign currency.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing demand deposit accounts are available to residents and non-residents.</li> <li>◆ Accounts are available in PHP and foreign currency.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Time deposits can be held in PHP and major foreign currency (USD and CNY).</li> <li>◆ Maturities typically range from one month to a year. However, they can extend to five or six years.</li> <li>◆ The minimum investment amount required varies between banks.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Long Term Negotiable Certificates of Deposit (LTNCD) are issued by commercial banks with a minimum maturity of five years. They are denominated in PHP.</li> <li>◆ The minimum investment amount is typically PHP 50,000 with increments of PHP 10,000 thereafter.</li> </ul>
<b>Treasury (government) bills</b>	✓	<ul style="list-style-type: none"> <li>◆ Treasury bills (T-bills) are auctioned by the Philippines Bureau of Treasury with maturities of 91, 182 and 364 days.</li> <li>◆ The minimum investment is PHP 50,000.</li> </ul>

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<b>Treasury (government) bills (continued)</b>	✓	<ul style="list-style-type: none"> <li>◆ Treasury bonds are issued with maturities of two, five, seven, ten and 20 years.</li> </ul>
<b>Commercial paper</b>		<ul style="list-style-type: none"> <li>◆ Commercial paper is issued by large companies in the Philippines with a maturity of 365 days or less.</li> <li>◆ The issuance of commercial paper needs to be registered with the SEC and requires a rating from a Philippine credit rating agency.</li> <li>◆ Interest due from commercial paper is subject to a 20% final withholding tax for residents and a 30% final withholding tax for non-residents.</li> <li>◆ Commercial paper is actively traded in the money markets.</li> </ul>
<b>Money market funds</b>	✓	<ul style="list-style-type: none"> <li>◆ Some banks offer access to money market funds as part of their suite of short-term investment products.</li> </ul>
<b>Repurchase agreements</b>	✓	<ul style="list-style-type: none"> <li>◆ The peso repo market is in its nascent stages in the Philippines.</li> <li>◆ Qualified Investor Participants are allowed to participate in the repo market.</li> <li>◆ Tenors range from overnight to three months.</li> </ul>
<b>Banker's acceptances</b>	✓	<ul style="list-style-type: none"> <li>◆ Banker's acceptances are available. They are actively traded in the money market.</li> </ul>
<b>Withholding tax on interest payments to companies</b>		
		<ul style="list-style-type: none"> <li>◆ To resident companies: 0%.</li> <li>◆ To non-resident companies (subject to tax treaties): 20%.</li> </ul>

Source: Deloitte Touche Tohmatsu, 2019.

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## Custody and settlement arrangements

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<b>Depositories</b>	Bureau of Treasury. Philippine Depository and Trust Corporation.
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<b>Settlement</b>	<ul style="list-style-type: none"> <li>◆ T + 3 for equities.</li> <li>◆ T+2 for corporate debt. Negotiable for unlisted corporate bonds.</li> <li>◆ T+1/T+2 for government bonds.</li> </ul>
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Data as at April 2019.



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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest can be earned on resident and non-resident accounts.</li> <li>◆ Some banks provide sweep accounts, which offer higher rates of interest on short-term surplus cash than current accounts.</li> <li>◆ Accounts are available in domestic (PLN) and foreign currency.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing demand deposits accounts are available to residents and non-residents.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Time deposits are the most popular method of short-term investment among companies in Poland.</li> <li>◆ Time deposits can be held in PLN or foreign currency.</li> <li>◆ Maturities of one week, one, three or six months, or one, two or three years are available. The most popular deposits have maturities of three or six months.</li> <li>◆ Minimum investment amounts are determined by individual banks.</li> <li>◆ Interest is typically paid at maturity. However, interest can be paid every quarter period for deposits with maturities of two years and above. Deposits with a maturity below six months typically pay a fixed rate of interest. Those with a maturity above six months usually pay a floating rate.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Certificates of deposit are available with maturities ranging from one month to one year.</li> <li>◆ Certificates of deposit with a maturity below six months typically pay a fixed rate of interest. Those with a maturity above six months usually pay a floating rate.</li> <li>◆ Certificates of deposit cannot be resold.</li> </ul>
<b>Treasury (government) bills</b>	✓	<ul style="list-style-type: none"> <li>◆ Treasury bills (T-bills) are particularly popular among institutional investors, including those located abroad.</li> <li>◆ T-bills are auctioned regularly by the National Bank of Poland (NBP) on behalf of the Ministry of Finance with maturities ranging from 20 weeks to 52 weeks. T-bills with maturities of one, three, five or six weeks or three months are also occasionally issued.</li> <li>◆ NBP bills with maturities ranging from one day to one week are auctioned on a weekly basis to money market dealers (banks) to control the banking sector's liquidity.</li> <li>◆ There is a minimum investment amount of PLN 100,000. Most investments range between PLN 500 million and PLN 1 billion.</li> </ul>
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>◆ Offered by companies, commercial paper is mainly placed with domestic investors.</li> <li>◆ Maturities range from one week to one year.</li> <li>◆ Investments typically range between PLN 100,000 and PLN 500,000.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Money market funds</b>	✓	◆ Some banks offer access to money market funds as part of their suite of short-term investment products.
<b>Repurchase agreements</b>	—	◆ Repurchase agreements on T-bills are available but seldom used in Poland.
<b>Banker's acceptances</b>	—	◆ Banker's acceptances are not commonly used by companies as short-term investment instruments.

### Withholding tax on interest payments to companies

	◆ To resident companies: None.
Source: Deloitte Touche Tohmatsu, 2019.	◆ To non-resident companies (subject to tax treaties): 0%/20%*.

\* New withholding tax rules are applicable to certain payments as from 1 July 2019.

### Custody and settlement arrangements

<b>Depository</b>	National Depository for Securities SA (KDPW).  ◆ The KDPW acts as central securities depository for equities, ETFs, government bonds, corporate bonds, commercial paper, rights and warrants.
<b>Central counterparty</b>	KDPW CCP SA.
<b>Settlement</b>	◆ T+2 for equities.  ◆ T+2 for bonds.

Data as at May 2019.

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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest can be earned on resident and non-residents accounts, although a low rate of interest is usually applied.</li> <li>◆ Accounts are available in domestic (EUR) and foreign currency.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing demand deposit accounts are available to residents and non-residents.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Time deposits can be held in EUR or foreign currency.</li> <li>◆ Maturities range up to 367 days.</li> <li>◆ A low rate of interest is applied to time deposits, depending on the bank and the term.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ These are offered by commercial banks and Banco de Portugal.</li> <li>◆ The minimum investment amount is EUR 5,000.</li> </ul>
<b>Treasury (government) bills</b>	✓	<ul style="list-style-type: none"> <li>◆ Treasury bills are issued at a discount by the Portuguese Government Debt Agency with maturities ranging up to 12 months.</li> <li>◆ Treasury bills can be traded on the MTS and on other major European trading platforms.</li> </ul>
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>◆ Offered by domestic and international companies, commercial paper is usually issued as a tranche of a longer-term programme.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Mutual investment funds</b>	✓	◆ Some banks offer access to money market funds as part of their suite of short-term investment products.
<b>Repurchase agreements</b>	✓	◆ Repurchase agreements are available in Portugal.
<b>Banker's acceptances</b>	×	◆ There is no evidence that banker's acceptances are used by companies as short-term investment instruments in Portugal.
<b>Withholding tax on interest payments to companies</b>		
		◆ To resident companies: 25%.
		◆ To non-resident companies (subject to tax treaties): 0–25–35%.
<b>Custody and settlement arrangements</b>		
<b>Depository</b>		Interbolsa.  ◆ Interbolsa acts as the central securities depository for equities, ETFs, government bonds, corporate bonds, T-bills, commercial paper, investment funds, rights and warrants.
<b>Central counterparties</b>		LCH OMIClear
<b>Settlement</b>		◆ T+2.

Source: Deloitte, 2019.

Data as at June 2019.

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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	✓	<ul style="list-style-type: none"> <li>◆ Prior approval from the Saudi Arabian Monetary Agency (SAMA) is required for the payment of interest on resident and non-resident current accounts.</li> <li>◆ Accounts are available in domestic (SAR) and foreign currency.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing savings accounts and deposit accounts are available to residents and non-residents.</li> <li>◆ Demand deposit accounts are offered by commercial banks.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Time deposit accounts are offered by commercial banks in SAR, with maturities up to one year.</li> <li>◆ Islamic investment accounts are increasingly popular. These accounts link banks' profits to payments on time deposits, respecting the Islamic prohibition of interest.</li> </ul>
<b>Certificates of deposit</b>	×	<ul style="list-style-type: none"> <li>◆ Certificates of deposit are not available in Saudi Arabia.</li> </ul>
<b>Treasury bills</b>	✓	<ul style="list-style-type: none"> <li>◆ Treasury bills (T-bills) are issued on a weekly basis by the SAMA in denominations of SAR 1 million for banks and other institutions.</li> <li>◆ The minimum investment is SAR 50,000.</li> <li>◆ T-bills are issued with maturities of one week and one, three, six and 12 months.</li> <li>◆ T-bills are exempt from withholding tax.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Commercial paper</b>	—	◆ Commercial paper issuance is not prohibited. However, there is no dedicated commercial paper market.
<b>Money market funds</b>	✓	◆ Money market funds are available in SAR and USD.
<b>Repurchase agreements</b>	✓	◆ Repurchase agreements are popular short-term investment instruments for large banks in Saudi Arabia.  ◆ Maturities range from overnight to one week.  ◆ Repurchase agreements are exempt from withholding tax.
<b>Banker's acceptances</b>	✓	◆ Investment instruments similar to banker's acceptances are available from some Islamic financial institutions in Saudi Arabia.

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### Withholding tax on interest payments to companies

- ◆ To resident companies: None.
- ◆ To non-resident companies (subject to tax treaties): 5%.

Source: Deloitte Touche  
Tohmatsu, 2019.

### Custody and settlement arrangements

**Depositories** Securities Depository Center Company (Edaa)

**Settlement** T+2 for all securities transactions.

Data as at May 2019.

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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	✓	◆ Interest can be earned on resident and non-resident accounts.
		◆ Companies need to maintain a minimum credit balance before interest is earned.
		◆ Accounts are available in domestic (SGD) and foreign currency.
<b>Demand deposits</b>	✓	◆ Interest-bearing demand deposit accounts are available to residents and non-residents.
		◆ Accounts are available in SGD and foreign currency.
<b>Time deposits</b>	✓	◆ Time deposits are a popular method of short-term investment among companies in Singapore.
		◆ Time deposits can be held in SGD and foreign currency.
		◆ Maturities range from one week to over a year.
		◆ Banks often require a minimum deposit of between SGD 5,000 and SGD 10,000 to open an account.
<b>Certificates of deposit</b>	✓	◆ Banks issue negotiable certificates of deposit (NCDs) in SGD and foreign currency, subject to the rules set by the Monetary Authority of Singapore (MAS).
		◆ Wholesale and offshore banks are permitted to issue NCDs but these are subject to MAS restrictions.



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Instruments	✓ or ×	Comments
<b>Certificates of deposit (continued)</b>	✓	◆ Maturities for SGD-denominated CDs range between three months and five years. The minimum investment amount is SGD 100,000.
		◆ Maturities for USD-denominated CDs range from one month to five years. The minimum investment amount is USD 100,000
		◆ Interest on NCDs with a maturity up to one year is paid at maturity.
<b>Treasury (government) bills</b>	✓	◆ Treasury bills (T-bills) are issued by MAS on behalf of the Singapore government.
		◆ Three-month bills are auctioned weekly. One-year bills are auctioned twice yearly.
		◆ The minimum investment is SGD 1,000.
		◆ T-bills are sold at a discount.
		◆ Longer-term government bonds are also issued, with maturities ranging from two years to 20 years.
<b>Commercial paper</b>	✓	◆ Offered by a small number of companies and banks, commercial paper is not a popular short-term investment instrument.
<b>Money market funds</b>	✓	◆ Some banks offer access to money market funds as part of their suite of short-term investment products.
<b>Repurchase agreements</b>	✓	◆ There is an established repurchase agreement market in Singapore.
<b>Banker's acceptances</b>	—	◆ Banker's acceptances are available in Singapore, but they are not widely used by companies as short-term investment instruments.

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## Withholding tax on interest payments to companies

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Source: Deloitte Touche  
Tohmatsu, 2019.

- ◆ To resident companies: None.
  - ◆ To non-resident companies (subject to tax treaties): 15%.
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## Custody and settlement arrangements

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### Depositories

Central Depository Pte Ltd (CDP).  
Monetary Authority of Singapore (MAS).

- ◆ The CDP provides clearing, settlement and book-entry central registration facilities for equities and fixed-income instruments.
  - ◆ MAS is the central depository for government securities.
- 

### Settlement

- ◆ T + 3.
  - ◆ T+1 for government securities; cash trades on T.
  - ◆ T+5 generally, but negotiable for unlisted corporate bonds.
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Data as at April 2019.

# South Korea

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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	×	<ul style="list-style-type: none"> <li>◆ Interest bearing current accounts are not permitted. It is possible to automate end-of-day fund movements from current to savings accounts where interest may be earned.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing demand deposit accounts are available to residents and non-residents.</li> <li>◆ Accounts are available in KRW and foreign currency. KRW time deposits must have more than a 30-day tenor. USD time deposits have no such requirement.</li> <li>◆ Banks often require a minimum deposit of KRW 10,000 to open an account.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Time deposits are a popular method of short-term investment among companies in South Korea.</li> <li>◆ Time deposits can be held in KRW and foreign currency.</li> <li>◆ Maturities range from overnight to five years.</li> <li>◆ Non-residents are not permitted to invest in KRW-denominated time deposits with a maturity of less than one year.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Banks issue certificates of deposit with maturities of 30 days to five years. Typically certificates of deposit have maturities of three months.</li> <li>◆ The minimum investment amount is KRW 10 million.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Treasury (government) bills</b>	✓	<ul style="list-style-type: none"> <li>◆ Treasury bills (T-bills) are issued by the government with maturities of less than one year, and typically with a maturity date of 63 days.</li> <li>◆ The Ministry of Economy &amp; Finance issues Korea Treasury Bonds with maturities ranging from three years up to 50 years.</li> <li>◆ Monetary Stabilisation Bonds (MSBs) are issued by the BoK.</li> <li>◆ Maturities range from 14 days to two years. Short-term MSBs have a maturity of less than 28 days.</li> </ul>
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>◆ Commercial paper is a popular short-term investment instrument.</li> </ul>
<b>Money market funds</b>	✓	<ul style="list-style-type: none"> <li>◆ Some banks offer access to money market funds as part of their suite of short-term investment products.</li> </ul>
<b>Repurchase agreements</b>	✓	<ul style="list-style-type: none"> <li>◆ There is an established repurchase agreement market in South Korea.</li> </ul>
<b>Banker's acceptances</b>	✓	<ul style="list-style-type: none"> <li>◆ Banker's acceptances are available in South Korea.</li> </ul>
<b>Withholding tax on interest payments to companies</b>		
		<ul style="list-style-type: none"> <li>◆ To resident companies: None.</li> <li>◆ To non-resident companies (subject to tax treaties): 15.4%/22%.</li> </ul>
Source: Deloitte Touche Tohmatsu, 2019.		

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## Custody and settlement arrangements

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<b>Depositories</b>	Korea Securities Depository.
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<b>Settlement</b>	<ul style="list-style-type: none"> <li>◆ T + 2 for stocks.</li> <li>◆ T+1 for government bonds.</li> <li>◆ T for general bonds.</li> </ul>
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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest can be earned on resident and non-resident accounts.</li> <li>◆ Accounts are available in domestic (EUR) and foreign currency.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing demand deposit accounts are available to residents and non-residents.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ The majority of leading commercial banks and savings banks in Spain offer short-term deposits with maturities of one, three, six and 12 months.</li> <li>◆ Time deposits can be held in EUR or foreign currency.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Certificates of deposit are rarely used as short-term investment instruments by companies.</li> <li>◆ The depósito financiero (time deposit) is a more popular method of investment. It is a short-term deposit that banks immediately invest on behalf of their customers in Treasury Securities. If the maturity is less than 15 days, the product is called a 'financial account'. If the maturity is above 15 days, it is called a 'financial deposit'.</li> <li>◆ The minimum investment amount is EUR 5,000.</li> <li>◆ Interest rates can be negotiated and tend to vary widely.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Treasury (government) bills</b>	✓	<ul style="list-style-type: none"> <li>◆ Treasury bills (T-bills) with maturities of three, six, nine and 12 months are issued by the treasury via monthly auctions.</li> <li>◆ T-bills are issued at a discount. The minimum investment amount is EUR 1,000.</li> <li>◆ T-bills are particularly popular among foreign investors.</li> <li>◆ Earnings on government securities are exempt from withholding tax.</li> </ul>
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>◆ Commercial paper (CP) is seldom used as a short-term investment instrument by companies.</li> <li>◆ Financial institutions are the main investors in CP issued by companies and public authorities.</li> <li>◆ CP is exempt from withholding tax.</li> </ul>
<b>Money market funds</b>	✓	<ul style="list-style-type: none"> <li>◆ Some banks offer access to money market funds as part of their suite of short-term investment products.</li> </ul>
<b>Repurchase agreements</b>	✓	<ul style="list-style-type: none"> <li>◆ Repurchase agreements are popular short-term investment instruments for companies in Spain.</li> <li>◆ The most common maturities are one day and one week, although maturities of one, two and three months are also available.</li> </ul>
<b>Banker's acceptances</b>	×	<ul style="list-style-type: none"> <li>◆ Banker's acceptances are not used by companies as a short-term investment instrument.</li> </ul>

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## Withholding tax on interest payments to companies

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- ◆ To resident companies: 0%/19%.
  - Source: Deloitte Touche Tohmatsu, 2019.
  - ◆ To non-resident companies (subject to tax treaties): 0%/19%.
- 

## Custody and settlement arrangements

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- Depository** Iberclear.
- ◆ Iberclear acts as the central securities depository for equities, government bonds, corporate bonds, T-bills, commercial paper, rights and warrants.
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- Settlement** ◆ T+2.
- 

Data as at June 2019.



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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	—	<ul style="list-style-type: none"> <li>◆ Although no restrictions exist, interest is not typically earned on resident and non-resident current accounts.</li> <li>◆ Interest rates are bank-specific, but they are ultimately based on the Stockholm Interbank Offered Rate.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing demand deposit accounts are available but interest rates tend to be very low.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Time deposits are offered to companies by commercial banks and financing associations in a range of currencies.</li> <li>◆ Maturities typically range from three to 12 months. Terms up to 48 months are available.</li> <li>◆ The interest rates are within the range 0.25%-1.80 %.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Certificates of deposit are available in SEK, EUR and USD.</li> <li>◆ Maturities are up to one year but are typically three or six months.</li> <li>◆ Minimum investment amounts are determined by individual banks but usually range from SEK 1,000 to SEK 50,000.</li> </ul>
<b>Treasury (government) bills</b>	✓	<ul style="list-style-type: none"> <li>◆ Government securities are a popular method of short-term investment among companies in Sweden, as they are low risk and highly flexible.</li> </ul>

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<b>Treasury (government) bills (continued)</b>	✓	<ul style="list-style-type: none"> <li>◆ Treasury bills (T-bills), treasury bonds and inflation-linked bonds are issued by the National Debt Office (NDO) and sold via banks acting as primary dealers.</li> <li>◆ A six-month bill is issued every third month. A three-month bill is issued in other months.</li> <li>◆ Maturities range from one month to one year.</li> </ul>
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>◆ Offered by companies and public authorities, commercial paper is usually purchased by Sweden's major domestic companies.</li> </ul>
<b>Money market funds</b>	✓	<ul style="list-style-type: none"> <li>◆ Some banks offer access to money market funds as part of their suite of short-term investment products.</li> </ul>
<b>Repurchase agreements</b>	✓	<ul style="list-style-type: none"> <li>◆ Repurchase agreements are popular short-term investment instruments for companies in Sweden.</li> <li>◆ Rates of interest depend on the demand.</li> </ul>
<b>Banker's acceptances</b>	—	<ul style="list-style-type: none"> <li>◆ Banker's acceptances are seldom used by companies as short-term investment instruments.</li> <li>◆ There is no formal market for banker's acceptances in Sweden.</li> </ul>
<b>Withholding tax on interest payments to companies</b>		
		<ul style="list-style-type: none"> <li>◆ To resident companies: None.</li> <li>◆ To non-resident companies (subject to tax treaties): None.</li> </ul>
Source: Deloitte Touche Tohmatsu, 2019.		

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## Custody and settlement arrangements

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**Depository** Euroclear Sweden.

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**Central counterparty** European Multilateral Clearing Facility.

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**Settlement** ♦ T+2.

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Data as at June 2019.

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Instruments	✓ or ✗	Comments
<b>Interest payable on bank account surplus balances</b>	—	<ul style="list-style-type: none"> <li>♦ Paying interest on current accounts is not common practice in Switzerland, although some banks offer minimal interest on domestic currency (CHF) and EUR-denominated accounts.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>♦ Interest-bearing call deposit accounts are available to residents and non-residents, although a notice period of up to 48 hours may apply.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>♦ Time deposits can be held in CHF, EUR and other major foreign currencies.</li> <li>♦ Maturities range from overnight to over a year, although maturities of three months or six months are typically used by large domestic companies.</li> <li>♦ A minimum deposit is required in certain cases.</li> <li>♦ Interest is subject to withholding tax of 35%.</li> </ul>
<b>Fiduciary deposits</b>	✓	<ul style="list-style-type: none"> <li>♦ Fiduciary deposits are the preferred liquidity instrument among companies in Switzerland because they provide considerable flexibility.</li> <li>♦ This instrument is offered in any currency and with any maturity up to one year.</li> <li>♦ Interest rates paid are equivalent to the time deposit.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Certificates of deposit are available. However, domestic banks do not usually issue certificates of deposit for maturities below one year.</li> </ul>
<b>Treasury (government) bills</b>	✓	<ul style="list-style-type: none"> <li>◆ The Swiss National Bank (SNB) issues money market debt register claims on behalf of the federal government with maturities of three, six and 12 months. These are auctioned on a weekly basis.</li> <li>◆ The minimum denomination is CHF 50,000.</li> <li>◆ The SNB also auctions its own SNB bills in CHF and USD. CHF-denominated bills are auctioned on a weekly basis in denominations of CHF 1 million, with maturities ranging from one week and one year.</li> <li>◆ USD-denominated bills are auctioned every fortnight in denominations of USD 500,000 with maturities of one, three and six months.</li> </ul>
<b>Commercial paper</b>	×	<ul style="list-style-type: none"> <li>◆ There is no domestic commercial paper market in Switzerland.</li> <li>◆ Some companies issue CHF-denominated commercial paper in the European market, with maturities ranging from one to six months.</li> </ul>
<b>Money market funds</b>	✓	<ul style="list-style-type: none"> <li>◆ Some banks offer access to money market funds as part of their suite of short-term investment products.</li> <li>◆ Money market funds are available in major currencies.</li> <li>◆ Money market funds are commonly domiciled in Luxembourg and managed from Switzerland for tax reasons.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Repurchase agreements</b>	✓	◆ Repurchase agreements are available on the SIX Swiss Exchange.
		◆ The repurchase agreement market is highly active.

<b>Banker's acceptances</b>	×	◆ Banker's acceptances are available in Switzerland but there is no evidence that they are used by companies as short-term investment instruments.
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### Withholding tax on interest payments to companies

	◆ To resident companies: 35%.
	◆ To non-resident companies: 0%/35%.

Source: Deloitte Touche  
Tohmatsu, 2019.

### Custody and settlement arrangements

<b>Depository</b>	SIX SIS.
	◆ SIX SIS acts as the central securities depository for equities, ETFs, government bonds, corporate bonds, T-bills, commercial paper, investment funds, rights and warrants.

<b>Central counterparty</b>	SIX x-clear AG.
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<b>Settlement</b>	◆ T+2.
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Data as at June 2019.

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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	×	<ul style="list-style-type: none"> <li>◆ Interest cannot be earned on current account surplus balances.</li> <li>◆ Residents only are permitted to open current accounts in Taiwan.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing demand deposit accounts are available to residents and non-residents in domestic (TWD) and foreign currency.</li> <li>◆ Individuals may not withdraw funds in cash from demand deposit accounts opened in an offshore banking unit (OBU); withdrawn funds are allowed to be sent outside Taiwan only. These restrictions do not apply to company accounts held in an OBU.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Fixed term deposits are available to residents and non-residents in both TWD and foreign currency.</li> <li>◆ Local currency accounts have maturities ranging from one month to three years.</li> <li>◆ Foreign currency accounts have maturities ranging from overnight to one year.</li> <li>◆ Minimum investment amounts are determined by individual banks.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Certificates of deposit are available with maturities ranging from one month to a year.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Treasury (government) bills</b>	✓	<ul style="list-style-type: none"> <li>◆ The Central Bank of China issues Treasury bills (T-bills) via a public auction.</li> <li>◆ Maturities range from 63 to 364 days.</li> <li>◆ Longer-term bonds are available with maturities ranging from two years to 20 years.</li> <li>◆ The minimum denomination is TWD 5 million for initial auctions and TWD 1 million at buy-back auctions.</li> <li>◆ There is a secondary market for T-bills.</li> </ul>
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>◆ Commercial paper is the most commonly issued short-term paper in Taiwan.</li> <li>◆ Maturities range from one month to one year. Maturities of less than three months are most common.</li> </ul>
<b>Repurchase agreements</b>	✓	<ul style="list-style-type: none"> <li>◆ Repurchase agreements are available in Taiwan, although they are more commonly used by financial institutions.</li> </ul>
<b>Banker's acceptances</b>	×	<ul style="list-style-type: none"> <li>◆ Banker's acceptances are available in Taiwan but are not widely used by companies as short-term investment instruments.</li> </ul>
<b>Withholding tax on interest payments to companies</b>		
		<ul style="list-style-type: none"> <li>◆ To resident companies: 10%.</li> <li>◆ To non-residents (subject to tax treaties): 15%/20%*.</li> </ul>

Source: Deloitte Touche  
Tohmatsu, 2019.

\* A 15% withholding tax applies to interest paid to a non-resident on short-term bills, interest on securitised certificates, interest on corporate bonds, government bonds or financial debentures, as well as interest derived from repurchase transactions for those bonds or certificates. The rate in all other cases is 20%, unless the rate is reduced under a tax treaty.



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**Custody and settlement arrangements**

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<b>Depository</b>	Taiwan Depository & Clearing Corporation (TDCC).
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<b>Settlement</b>	◆ T+2.
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Data as at April 2019.

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Instruments	✓ or ✕	Comments
<b>Interest payable on bank account surplus balances</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest can be earned on resident and non-resident accounts.</li> <li>◆ Accounts are available in domestic (THB) and foreign currency.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Demand deposit accounts are available to residents and non-residents.</li> <li>◆ Accounts are available in THB and foreign currency.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Time deposits are a popular method of short-term investment among companies in Thailand.</li> <li>◆ Time deposits can be held in THB and foreign currency.</li> <li>◆ Maturities of three, six, 12, 24 and 36 months are available.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Banks issue certificates of deposit in THB or foreign currency with maturities ranging from three months to three years.</li> </ul>
<b>Treasury (government) bills</b>	✓	<ul style="list-style-type: none"> <li>◆ Treasury bills (T-bills) are issued by the Ministry of Finance via auction on a weekly or fortnightly basis with a maturity of less than one year.</li> <li>◆ T-bills are issued in minimum denominations of THB 1,000.</li> <li>◆ BOT bills are issued by the Bank of Thailand via auction on a weekly basis.</li> <li>◆ Maturities of one, three and six are available.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Treasury (government) bills (continued)</b>	✓	◆ Monthly auctions are held for one-year BOT bills.
<b>Commercial paper</b>	✓	◆ Corporates issue commercial paper with a maturity of no more than 270 days.  ◆ The most common form of commercial paper in Thailand takes the form of a bill of exchange. These are THB-denominated and interest-bearing or discounted instruments.
<b>Money market funds</b>	✓	◆ Some banks offer access to money market funds as part of their suite of short-term investment products.
<b>Repurchase agreements</b>	✓	◆ There is an established repurchase agreement market in Thailand.  ◆ There is no direct access to the repo market for foreign investors.
<b>Banker's acceptances</b>	✓	◆ Banker's acceptances are available.
<b>Withholding tax on interest payments to companies</b>		
		◆ To resident companies: None.
		◆ To non-resident companies (subject to tax treaties): 15%.
<b>Custody and settlement arrangements</b>		
<b>Depositories</b>		Thailand Securities Depository. Bank of Thailand.
<b>Settlement</b>		◆ T + 3 for equities.  ◆ T+2 for bonds.  ◆ T+2 for fixed income securities.

Source: Deloitte Touche  
Tohmatsu, 2019.

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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest can be earned on resident and non-resident current accounts.</li> <li>◆ Accounts can be held in domestic (TRY) or foreign currency.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing demand deposit accounts are available to residents and non-residents.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Time deposits are one of the most popular methods of short-term investment among companies in Turkey.</li> <li>◆ Time deposits can be held in TRY or foreign currency.</li> <li>◆ Time deposits typically have maturities of one, three, six or 12 months. Interest is paid on the maturity date.</li> <li>◆ Many companies keep funds in repurchase agreements rather than deposit accounts.</li> </ul>
<b>Certificates of deposit</b>	—	<ul style="list-style-type: none"> <li>◆ Certificates of deposit are rarely used as short-term investment instruments by companies.</li> <li>◆ Maturities range up to 12 months.</li> <li>◆ Yields can differ substantially.</li> </ul>
<b>Treasury (government) bills</b>	✓	<ul style="list-style-type: none"> <li>◆ Treasury bills (T-bills) are the most popular method of short-term investment among banks in Turkey.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Treasury (government) bills (continued)</b>	✓	<ul style="list-style-type: none"> <li>◆ T-bills are fixed-rate investments issued occasionally by the Undersecretariat of the Treasury with maturities of three, six, nine or 12 months.</li> <li>◆ Government bonds have maturities of over one year.</li> <li>◆ The Central Bank issues liquidity bills for terms ranging up to three months. Liquidity bills can be sold and purchased in the secondary market.</li> </ul>
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>◆ Larger companies in Turkey issue commercial paper. The maturity term may not be longer than one year.</li> <li>◆ A bank bill is a similar investment instrument to commercial paper and is issued by investment banks and development banks. The maturity term of bank bills to be offered to the public must be between 60 days and one year. The maturity of bank bills to be sold by allocation method must be between 15 days and one year.</li> </ul>
<b>Money market funds</b>	✓	<ul style="list-style-type: none"> <li>◆ Some banks offer access to money market funds as part of their suite of short-term investment products.</li> </ul>
<b>Repurchase agreements</b>	✓	<ul style="list-style-type: none"> <li>◆ Repurchase agreements are increasingly popular short-term investment instruments for companies in Turkey.</li> <li>◆ Repurchase agreements on government securities typically have a maturity of one week.</li> </ul>
<b>Banker's acceptances</b>	✓	<ul style="list-style-type: none"> <li>◆ Banker's acceptances are available in Turkey but are not widely used by companies as a short-term investment instrument.</li> </ul>

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## Withholding tax on interest payments to companies

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- ◆ To resident companies: 0–15%.
- ◆ To non-resident companies (subject to tax treaties): 0–10%.

Source: Deloitte Touche  
Tohmatsu, 2019.

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## Custody and settlement arrangements

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### Depositories

Central Registry Agency (MKK).

Takasbank.

- ◆ The MKK acts as the central securities depository for equities, ETFs, government bonds, corporate bonds, T-bills, commercial paper, investment funds, rights and warrants.
- ◆ Takasbank acts as the central securities depository for equities, ETFs, government bonds, corporate bonds and T-bills.

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### Central counterparty

Takasbank.

### Settlement

- ◆ T+2 for equities.
- ◆ T+0 for bonds.

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Instruments	✓ or ✗	Comments
<b>Interest payable on bank account surplus balances</b>	✓	<ul style="list-style-type: none"> <li>◆ Subject to approval, interest can be earned on resident and non-resident current account surplus balances.</li> <li>◆ Accounts are available in domestic (AED) and foreign currency.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing demand deposit accounts are available to residents and non-residents.</li> <li>◆ Accounts are available in both AED or major foreign currency.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Time deposits can be held in AED or major foreign currency.</li> <li>◆ Maturities of one, two, three, six, nine or 12 months are most common.</li> <li>◆ Interest is paid on the maturity date.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ The Central Bank auctions certificates of deposit with maturities ranging from one week to five years.</li> <li>◆ Certificates of deposit are offered in USD and EUR as well as in AED. The minimum investment is USD/EUR or AED 1 million.</li> <li>◆ AED-denominated certificates of deposit with maturities of one week to one year are auctioned daily with the exception of Fridays, Saturdays and official holidays. USD and EUR-denominated certificates of deposit are auctioned daily, with the exception of Fridays, Saturdays and official holidays.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Certificates of deposit (continued)</b>	✓	<ul style="list-style-type: none"> <li>◆ USD and EUR-denominated certificates of deposit are auctioned daily, with the exception of Fridays, Saturdays and official holidays.</li> <li>◆ Certificates of deposit with maturities of two to five years are auctioned monthly.</li> </ul>
<b>Treasury (government) bills</b>	×	<ul style="list-style-type: none"> <li>◆ The UAE government currently does not issue short-term debt instruments.</li> <li>◆ Government sukuk bonds are available.</li> </ul>
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>◆ Commercial paper is typically issued at a discount by financial institutions, with maturities of less than nine months.</li> </ul>
<b>Money market funds</b>	✓	<ul style="list-style-type: none"> <li>◆ Some banks offer access to money market funds as part of their suite of short-term investment products.</li> </ul>
<b>Repurchase agreements</b>	✓	<ul style="list-style-type: none"> <li>◆ Repurchase agreements are used by companies in the UAE as a method of short-term investment.</li> <li>◆ Both standard and Sharia-compliant forms of repurchase agreement are available.</li> </ul>
<b>Banker's acceptances</b>	×	<ul style="list-style-type: none"> <li>◆ Banker's acceptances are available in the UAE but there is no evidence that they are used by companies as short-term investment instruments.</li> </ul>

### Withholding tax on interest payments to companies

Source: Deloitte Touche  
Tohmatsu, 2019.

There are no withholding taxes in the UAE.



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## Custody and settlement arrangements

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### Depositories

Abu Dhabi Securities Exchange (ADX).  
Dubai Financial Market (DFM).  
Nasdaq Dubai.

- ◆ Each of the three stock exchanges operates its own depository for the settlement and central registration of its respective (equity or corporate debt) instruments.

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### Settlement

T+2.

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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest can be earned on resident and non-resident accounts.</li> <li>◆ Accounts are available in domestic (GBP) and foreign currency.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing demand deposit accounts are available to residents and non-residents.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Time deposits are the most popular method of short-term investment among companies in the UK.</li> <li>◆ Time deposits are offered by commercial banks in several different currencies with a wide range of maturities.</li> <li>◆ The most popular time deposits have a maturity of 30 days, though they can be arranged for terms ranging from overnight up to five years.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Certificates of deposit (CDs) denominated in GBP are offered by the majority of the UK's leading banks and building societies. Many banks also offer CDs denominated in EUR or USD.</li> <li>◆ GBP-denominated CDs are issued in denominations of GBP 50,000. The minimum investment amount is GBP 50,000.</li> <li>◆ The minimum investment amount for a USD-denominated CD is USD 1 million.</li> <li>◆ Maturities range from one week to five years, although maturities of three or six months are most common.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Certificates of deposit (continued)</b>	✓	<ul style="list-style-type: none"> <li>◆ There is an active secondary market.</li> </ul>
<b>Treasury (government) bills</b>	✓	<ul style="list-style-type: none"> <li>◆ Treasury bills (T-bills), notes and short-term government bonds (gilts) are issued by the UK Government Debt Management Office (DMO) through weekly auctions. They are a popular method of short-term investment among companies.</li> <li>◆ The DMO issues T-bills with maturities of one, three, six and 12 months. The minimum investment amount is GBP 500,000.</li> <li>◆ Short-term gilts typically have maturities below two years but maturities can range up to five years.</li> <li>◆ There is an active secondary market in UK Treasury securities.</li> <li>◆ Short-term obligations are also issued by local authorities.</li> </ul>
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>◆ Offered by companies and public authorities, commercial paper is usually purchased by financial institutions, money market funds, pension funds and insurance companies.</li> <li>◆ Maturities range from one week to one year, although maturities of three to six months are most common.</li> <li>◆ The minimum denomination for commercial paper is GBP 100,000. The minimum investment amount is GBP 500,000.</li> <li>◆ The domestic GBP-denominated commercial paper market is highly liquid.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Commercial paper (continued)</b>	✓	◆ Euro commercial paper can be issued in a range of currencies, typically USD, by larger companies with a published credit rating.
<b>Money market funds</b>	✓	◆ Money market funds are widely available, with investments offered in GBP, EUR and USD.  ◆ The ease of sweeping surplus balances enables companies to take advantage of high-yielding money market funds.
<b>Repurchase agreements</b>	✓	◆ There is an active repurchase agreement market in the UK. However, repurchase agreements are more popular short-term investment instruments for financial institutions than companies.
<b>Banker's acceptances</b>	×	◆ Banker's acceptances are available in the UK but are seldom used by companies as short-term investment instruments as returns are minimal.

### Withholding tax on interest payments to companies

	◆ To resident companies: None.
Source: Deloitte Touche Tohmatsu, 2019.	◆ To non-resident companies (subject to tax treaties): 0%/20%.

### Custody and settlement arrangements

<b>Depository</b>	Euroclear UK & Ireland.
<b>Central counterparties</b>	LCH.Clearnet. SIX x-Clear AG. EuroCCP.
<b>Settlement</b>	◆ T+2 for equities.  ◆ T+1 for government bonds.  ◆ T+0 for money market instruments.

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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	✓	<ul style="list-style-type: none"> <li>◆ Since the repeal of Regulation Q, banks have been allowed to pay interest on bank account surplus balances.</li> <li>◆ Accounts are available in domestic (USD) and foreign currency.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Since the repeal of Regulation Q, banks have been allowed to pay interest on company demand deposits.</li> <li>◆ Accounts are available in USD and foreign currency.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Time deposits are a popular method of short-term investment in the USA, particularly among smaller companies.</li> <li>◆ Maturities range from seven days to over a year.</li> <li>◆ Companies are subject to a maximum deposit per bank of USD 150,000.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Certificates of deposit (CDs) are issued by banks with maturities ranging from one week to over a year. The most popular maturities are between three and six months.</li> <li>◆ Interest is paid at maturity for CDs with maturities under a year. The interest rate can be fixed or floating.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Certificates of deposit (continued)</b>	✓	◆ CDs are issued in denominations of USD 100,000 and above.
		◆ There is an active secondary market.
<b>Treasury (government) bills</b>	✓	◆ Treasury bills (T-bills) are issued by the US Treasury Bureau of the Public Debt via auctions held weekly (for maturities of four, eight, 13 and 26 weeks) and monthly (for maturities of one year).
		◆ T-bills are issued at a discount.
		◆ The minimum investment amount is USD 100.
		◆ T-bills are also available to resident companies and individuals through the internet (TreasuryDirect.gov).
		◆ State governments and local authorities also issue short-term securities.
		◆ Federal agencies, including Ginnie Mae, Freddie Mac and Fannie Mae, issue mortgage-backed securities.
		◆ There is a highly liquid market for T-bills.
<b>Commercial paper</b>	✓	◆ Companies issue commercial paper (CP) for maturities ranging from overnight to a maximum of 270 days.
		◆ Most CP is issued at a discount, although some is interest bearing.
		◆ Each issue usually has a published credit rating.
		◆ The minimum investment amount is typically USD 100,000.
		◆ The USCP market is highly liquid.

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Instruments	✓ or ×	Comments
<b>Money market funds</b>	✓	<ul style="list-style-type: none"> <li>◆ Money market funds are a popular short-term investment instrument in the USA.</li> <li>◆ Money market funds must comply with rule 2a-7 of the 1940 Investment Company Act.</li> <li>◆ The minimum investment is set by each fund but is typically USD 1,000.</li> </ul>
<b>Repurchase agreements</b>	✓	<ul style="list-style-type: none"> <li>◆ Repurchase agreements are available for maturities ranging from overnight to three months.</li> <li>◆ Overnight repurchase agreements are popular short-term investment instruments for US companies.</li> </ul>
<b>Withholding tax on interest payments to companies</b>		
<b>Banker's acceptances</b>	×	<ul style="list-style-type: none"> <li>◆ Banker's acceptances are available in the USA but are not widely used by companies as short-term investment instruments.</li> <li>◆ To resident companies: None.</li> <li>◆ To non-resident companies (subject to tax treaties): 0–30%.</li> </ul>
Source: Deloitte Touche Tohmatsu, 2019.		

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## Custody and settlement arrangements

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<b>Depositories</b>	Depository Trust Company (DTC). Federal Reserve.
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<b>Central counterparties</b>	National Securities Clearing Corporation (NSCC). Fixed Income Clearing Corporation (FICC).
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- ◆ The NSCC acts as central counterparty for equities, corporate and municipal debt, American depository receipts, exchange-traded funds and unit investment trusts.
  - ◆ The FICC includes Fixed Income Clearing Corporation Government Securities Division (US Treasury and agency securities) and Fixed Income Clearing Corporation Mortgage-Backed Securities Division (mortgage-backed securities).
- 

<b>Settlement</b>	<ul style="list-style-type: none"> <li>◆ T+2 for equities, corporate bonds and municipals.</li> <li>◆ T+0 or T+1 for money market instruments and government securities.</li> </ul>
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Instruments	✓ or ×	Comments
<b>Interest payable on bank account surplus balances</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest can be earned on resident and non-resident accounts.</li> <li>◆ Accounts are available in domestic (VND) and foreign currency.</li> </ul>
<b>Demand deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Interest-bearing demand deposit accounts are available to residents and non-residents.</li> <li>◆ Accounts are available in VND and foreign currency.</li> </ul>
<b>Time deposits</b>	✓	<ul style="list-style-type: none"> <li>◆ Time deposits are a popular method of short-term investment among companies in Vietnam.</li> <li>◆ Time deposits can be held in VND and foreign currency.</li> <li>◆ Maturities range from one week to 36 months.</li> <li>◆ Minimum investment is typically VND 10 million, VND 20 million or USD 1,000.</li> </ul>
<b>Certificates of deposit</b>	✓	<ul style="list-style-type: none"> <li>◆ Available in VND and foreign currency.</li> <li>◆ Maturities of one, three, six, nine months and 364 days available. Two-year tenors are also available.</li> </ul>
<b>Treasury (government) bills</b>	✓	<ul style="list-style-type: none"> <li>◆ Treasury bills (T-bills) are issued by the State Treasury with maturities of less than one year (typically 13, 26 and 52 weeks).</li> <li>◆ The minimum investment is VND 100,000.</li> </ul>

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Instruments	✓ or ×	Comments
<b>Treasury (government) bills (continued)</b>	✓	<ul style="list-style-type: none"> <li>◆ The Ministry of Finance limits the purchase and trading of T-bills to local or overseas Vietnamese organisations and foreign organisations in Vietnam.</li> </ul>
		<ul style="list-style-type: none"> <li>◆ The State Bank of Vietnam issues SBV bills.</li> </ul>
<b>Commercial paper</b>	✓	<ul style="list-style-type: none"> <li>◆ The commercial paper market in Vietnam is not well-established at present.</li> <li>◆ Commercial paper is issued with maturities of either less than 270 days or 365 days. Most mature within one or two months.</li> </ul>
<b>Money market funds</b>	✓	<ul style="list-style-type: none"> <li>◆ Some banks offer access to money market funds as part of their suite of short-term investment products.</li> </ul>
<b>Repurchase agreements</b>	✓	<ul style="list-style-type: none"> <li>◆ The repo market in Vietnam is in its infancy.</li> <li>◆ Repos of government bonds are available. Preferred terms are two weeks and one, two and three months.</li> </ul>
<b>Banker's acceptances</b>	✓	<ul style="list-style-type: none"> <li>◆ Banker's acceptances are available.</li> </ul>
<b>Withholding tax on interest payments to companies</b>		
		<ul style="list-style-type: none"> <li>◆ To resident companies: None.</li> <li>◆ To non-resident companies (subject to tax treaties): 5%.</li> </ul>
<b>Custody and settlement arrangements</b>		
<b>Depositories</b>		Vietnam Securities Depository.
<b>Settlement</b>		<ul style="list-style-type: none"> <li>◆ T + 3 for equities.</li> <li>◆ T+1 for bonds.</li> </ul>

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## **Accumulating Net Asset Value (ANAV)**

A method of compensating money market fund investors through increasing the net asset value (NAV) of each fund unit, rather than through dividend payout. See Floating Net Asset Value (FNAV), Stable Net Asset Value (SNAV).

## **Accrued Interest (AI)**

The interest accumulated on a debt security since its issue date but not yet paid out. This is accounted for in the actual gross purchase price of the debt security.

## **Agent Bank**

A custody term designating any bank providing custody services on behalf of a custodian for securities traded in the country where the bank is based.

## **American Option (American-style Option)**

A type of derivative that is widely used in the USA. It gives its holder the right to buy or to sell a certain amount of the underlying financial product at any time, from its purchase to its date of expiry.

## **Annual Equivalent Rate (AER)**

The notional annual rate of interest applied to current, deposit and savings accounts assuming that all interest is reinvested or compounded.

## **Arbitrage**

The process by which profits are generated from the buying of an asset in one market and the simultaneous sale in another market of the same asset or its economically equivalent derivative. Arbitrage occurs when there is a price differential for the same asset in two different markets.

## **Arm's-length Principle**

The arm's-length principle assumes that pricing for transfers between affiliated companies should be identical to that applied to transfers between fully independent companies.

## **Asian Option**

A type of option where the amount that needs to be repaid is determined by the underlying asset's average value over a specific period of time.

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### **Ask Price**

The offered (selling) price of traded securities or other instruments, i.e. the price which a buyer would be expected to pay.

### **At-the-Money (Option)**

A situation where the strike price of an option is equivalent to the underlying instrument's current market price.

### **Authorisation**

A key control in treasury. Authorisation needs to be provided for all transactions in treasury and given only by a small number of people with the appropriate (seniority) qualifications. The individuals with power of authorisation should be listed in a document also specifying the various transactions that can be authorised, procedures for controlling authorisation, etc.

### **Authority Limits**

Limits set by treasury to the number of dealers allowed to carry out transactions, the value of the transactions that they can execute and the number of people giving authorisation. More generally, limits can also be applied to the financial risk that a company or organisation is willing to bear. Limits can, for example, be set for the proportion of foreign exchange exposures and the time period within which they should be hedged. The company/organisation may also, for liquidity reasons, limit the types of deals that it wants to have transacted. Another area of authority limit concerns the level of counterparty credit exposures resulting from deals such as those in derivative products. In some exceptional situations, the dealer may have to exceed the risk and authority limits set by the management. In such cases, it is essential for the dealer to have the transaction approved by the relevant responsible manager.

### **Average Maturity**

The amount of time needed for all securities held in a portfolio to reach maturity, weighted by the amount of assets invested in each security.

### **Average Effective Maturity**

- 1 A calculation of the maturity of a bond taking account of any potential early redemption.
- 2 A calculation of the weighted average of the maturities of bonds in a portfolio, which includes all adjustable coupons, mortgage prepayments and puts.

### **Average Nominal Maturity**

As opposed to average effective maturity, it does not take account of a potential early call, adjustable coupons, mortgage prepayments and puts.

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### **Average Weighted Maturity (Weighted Average Maturity – WAM)**

A calculation of the weighted average of the maturities of the fixed rate periods for instruments held in a portfolio. Average weighted maturity is correlated to the interest rate risk profile of the portfolio, i.e. a longer WAM implies greater price volatility.

### **Back Office**

The part of the treasury organisation that administers and supports the trading activities of the treasury front office. The back office's main functions are to process, confirm, verify, settle, reconcile and record financial market transactions. The back office is also responsible for ensuring that the organisation's treasury management policy and controls are followed, as well as ensuring general compliance with rules and regulations. In a more general sense, the term refers to all administrative functions that support an organisation and includes areas such as payroll and expenses, accounts payable, accounts receivable and accounting.

### **Backwardation**

The extent to which a spot price of a foreign currency plus carrying costs exceeds the forward price.

### **Barrier Option**

An option that is initiated or terminated, if the underlying asset's value exceeds or goes below a reference price threshold.

### **Base Currency**

Generally, this means the currency to which other currencies are compared. In a multicurrency liquidity arrangement, the base currency refers to the currency in which the master account is denominated and to which all other currencies are converted. The base currency also serves as the basis for all interest rate calculations.

### **Basis**

In futures markets, this is the price differential between the price of the asset underlying the futures contract and the price of the futures contract.

### **Basis Point (bp)**

One-hundredth of one percent, i.e. 1% equals 100 basis points or bps. While bond coupons may be expressed in fractions (i.e. in quarters, eighths or sixteenths), yields and prices of most money market instruments, such as commercial paper or treasury bills, are quoted in basis points.

### **Basis (Rate) Swap**

An arrangement where payments based on different floating rates are swapped. The payments can also be denominated in different currencies.

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### **Bearer Bond or Bearer Security**

A bond/security that is not registered in the name of a specific owner; the owner of the bond is the person who holds it. Thus, the title to the bearer bond is transferred through delivery. Principal and interest were historically paid to a paying agent, upon presentation of coupons. Nowadays, bearer bonds usually operate by book entry, whereby investors buy and sell their interests in a global note representing the entire issue and held within the clearing system.

### **Benchmark**

A standard set by the market (such as a stock market index) or by an institutional investor (such as an internally developed benchmark) against which the performances of a fund or portfolio can be managed and tracked.

### **Beneficiary**

The party that is named by the grantor, settler or creator of the trust and is entitled, according to the terms in the respective trust deed, to benefit from the revenues of the trust.

### **Best Ask**

Dealer's instruction to sell securities or assets at the highest price possible.

### **Best Bid**

Dealer's instruction to buy securities or assets at the lowest price possible.

### **Best Execution**

An obligation on a dealer to achieve the best results for its clients when executing instructions.

### **Bid and Ask**

Quote (quotation) at a given point in time that simultaneously includes the highest bid price (bid) for a security and the lowest offer price (ask). The spread between the highest bid and lowest offer is referred to as 'the touch'.

### **Bid Price**

The market-maker's buying price of securities or assets.

### **Bid Rate**

The price at which banks and other market participants are willing to buy currencies, securities, commodities, instruments and derivatives or to take deposits.

### **Bid-Offer Spreads**

The difference between the prices that a holder or trader of assets (generally a financial institution or financial intermediary) is willing to buy

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and sell those assets. These assets can be currencies, shares, fund units, etc.

### **Black-Scholes Model**

A method of determining the price of an option contract by taking into account the price of the underlying asset, strike price, date of expiry, risk-free interest rate and volatility of the option.

### **Book Entry**

An electronic method of registering ownership of and transferring securities.

### **Book-entry System**

An accounting system that allows the transfer of claims (e.g. securities) without the physical movement of paper documents or certificates.

### **Broker**

An individual or a firm (also called a broking house) that acts as an agent for investors by dealing in securities. Usually, brokers will charge commission (called brokerage) for their advisory and trading services. Brokers do not buy or sell on their own account but acts as an agent for their clients.

### **Call**

The act of paying/redeeming a security's principal before its actual maturity date in line with the rules laid out in the bond documentation.

### **Call Option**

The option to buy a certain amount of an underlying financial product on (a) specific date(s) at a predetermined price.

### **Cap**

A maximum limit on a price, interest rate or coupon.

### **Cash Concentration**

A cash management technique whereby account balances are physically transferred to/from a single master account for liquidity management purposes.

### **Cash Flow Forecast**

A regular report sent by the company's operations and subsidiaries to the treasury management headquarters informing it about any cash excesses and deficits that they may have in the future.

### **Cash Flow Management**

The monitoring, analysing and adjusting of cash flow to organisation requirements.



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### **Cash Pooling**

A cash management technique aimed at improving liquidity management by pooling an organisation's account balances either under the form of a cash concentration or a notional pooling arrangement.

### **Central Counterparty (CCP)**

An institution, acting in one or more securities or cash markets, that is interposed between two trading parties. The central counterparty guarantees the performance of the underlying transaction by acting as a matching seller to the buyer and a matching buyer to the seller.

### **Certificate of Ownership**

A certificate issued to prove ownership of a given security.

### **Clean Price**

The price of a bond excluding any interest accumulated.

### **Clearance**

The process of transmitting, reconciling and, in some cases, confirming payment orders or security transfer instructions prior to settlement, possibly including netting of instructions and calculating final positions for settlement. Sometimes the term is used (imprecisely) to include settlement. Outside the securities market, this process is generally referred to as clearing.

### **Clearstream**

In addition to Euroclear, Clearstream is one of the leading clearing systems and depositories for euromarket securities, as well being a major international central securities depository (ICSD) and the central securities depository for the German and Luxembourg markets. Clearstream is owned by the Deutsche Borse.

### **Collar (Interest Rate or Foreign Exchange Rate Collar)**

A risk management arrangement where the purchase of an option and sale of another occur contemporaneously for the same underlying financial product. The payment acquired from the sale reduces the cost of the purchase. If both the payment and receipt match exactly, this is known as a zero-cost collar. The collar places a band around the potential outcome for this risk-hedging technique.

### **Compounding**

The process of accumulating the time value of money forward in time. When money is invested at compound interest, each interest payment is reinvested to earn additional interest in subsequent periods. See Time Value of Money.

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### **Confirmation**

A document through which a market participant notifies its counterparties or customers of the details of a trade/transaction and, typically, allows them time to affirm or question the trade/transaction. The issue and matching of confirmations is one of the key controls in treasury dealing activity. Increasingly, confirmations are being transmitted and matched by electronic means, but the same rules, relating to the separation of the dealing function from the confirmation function, still apply.

### **Constant Net Asset Value (CNAV)**

A form of money market fund whose distributing shares maintain a 'constant' price through the application of amortised cost accounting, rather than marking to market the value of the investments held in its portfolio.

### **Continuous Linked Settlement (CLS)**

A global real-time settlement system for foreign exchange transactions that eliminates foreign exchange settlement risk caused by delays arising from time-zone differences; the so-called Herstatt risk.

### **Counterparty**

One of the opposing parties involved in a transaction.

### **Coupon**

The periodic rate of interest paid on bonds and money market securities, stated as a percentage of the principal and usually paid out once or twice a year, depending on the terms of the issue.

### **Coupon Rate**

The rate of interest, expressed as an annual percentage, to be paid on debt securities.

### **Credit Default Swap (CDS)**

A credit default swap is a derivative transaction in which the participants exchange the risk of counterparty default associated with two fixed income instruments. The pricing of CDS is used as a market valuation of relative counterparty risk. See Credit Valuation Adjustment.

### **Credit Derivative**

A contract allowing for the transfer of credit risk via a derivative instrument. The party transferring credit risk is obliged to pay a fee to the transferee.

### **Credit Enhancement**

The increasing of the creditworthiness of securities. There are three main methods of credit enhancement:

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- 1** Junior/senior tranches: the entire debt is divided into so-called junior and senior tranches, with the former bearing all the first losses. Thus, the credit standing of the remaining senior tranches is raised considerably.
- 2** Insurance: a third party, usually an insurance company, undertakes to insure the credit risk of the respective securities (called 'wrapping').
- 3** Collateralisation: securities may be backed by other financial assets, usually equity, of higher values. The difference serves as collateral for the repayment of the debt (over-collateralisation). The issuing company may also put collateral on the differential between the respective security's original and market values (margin).

### **Credit Rating**

A standardised assessment, expressed alphanumerically, of the creditworthiness of an entity raising debt capital – be it a company, an investment vehicle (mutual fund), a country (sovereign) and its affiliated public agencies or regional/local authorities or a supranational institution – provided by credit rating agencies to investors and analysts. Ratings also serve as a measure of the risks related to specific financial investments.

### **Credit Rating Agencies (CRA)/Rating Agencies**

Independent institutions that assess the creditworthiness or the credit risk of issuers and provide credit ratings which are publicly available and used by investors, as well as analysts, as a guide for investment decisions.

### **Credit Spread**

- 1** The difference in yield between a given security and a comparable benchmark government security. It gives an indication of the issuer's credit quality.
- 2** The difference in value of two securities with comparable maturity and yield but different credit qualities.

### **Credit Valuation Adjustment (CVA)**

This values the risk of default by the issuer of a security, so is a market measurement of counterparty risk. See Credit Default Swap.

### **Cross-border Sweeping**

A cash management technique used to automatically concentrate funds derived from different countries into a bank account located in a different jurisdiction.

### **Currency Forward Contract**

An agreement to buy or sell a specified amount of a foreign currency at a future date for a predetermined price.

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### **Currency Futures**

Exchange traded, and therefore standardised, contracts to buy or sell a specified amount of foreign currency at a specific price and at a specific date in the future.

### **Currency Option**

A derivative giving its holder the right, but not the obligation, to buy or to sell a certain amount of a foreign currency at a predetermined price on a specified date.

### **Current Yield (Running Yield)**

The annual return in the form of dividend or interest payment on an investment. It is equal to the coupon/dividend divided by the market price, expressed as a percentage. Also known as flat yield or income yield.

### **Custodian**

A bank, financial institution or other entity responsible for maintaining accurate and up-to-date registration details of the beneficial owners of those securities for which it has custodial responsibility. Custodians are also responsible for the administration of the assets they hold (including trade settlement), the collection of interest or dividends, exercising the voting rights attached to certain types of securities if so required, as well as being able to provide other services such as the production of portfolio valuations and performance measurement. As a result of dematerialisation, the need to hold and safe keep securities in physical form has been largely removed in many of the world's major securities markets. See Global Custodian and Local Custodian.

### **Custody**

The registration and administration of securities and financial instruments on behalf of investors.

### **Custody Risk**

This is the risk of loss of securities held in custody occasioned by the insolvency, negligence or fraudulent action of the custodian or of a sub-custodian.

### **Custody Services**

These include the processing of securities trades, keeping financial assets safe and servicing the associated portfolios.

### **Central Securities Depository (CSD)**

A facility for holding securities that allows securities transactions to be processed by book entry. Physical securities may be immobilised by the depository or securities may be dematerialised (solely recorded as electronic records). In addition to safekeeping, a central securities depository may provide comparison, clearing and settlement functions.

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### **Day Count**

- 1** The number of days within a specific interest payment period in which interest payments are due.
- 2** The convention governing the way such interest payments are to be calculated (e.g. 360/365 days).

### **Debt Book-entry System**

A book-entry system for the issue and registration of debt securities.

### **Delivery**

The final settlement of a securities transaction.

### **Delivery Versus Payment (DVP) System or Delivery Against Payment System**

A mechanism in an exchange-for-value settlement system that ensures that the final transfer of one asset occurs only if the final transfer of (an) other asset(s) take(s) place. Assets are, among others, monetary assets (this includes foreign exchange), all types of securities and other financial instruments.

### **Demand Deposit Account (DDA)**

A type of bank account available in the USA and Canada that allows the account holder to transfer funds to a third party via cheque, wire transfer, or an automated clearing house (ACH) transfer and to withdraw funds on demand.

### **Dematerialisation**

The elimination of physical certificates or documents of title which represent ownership of securities, so that securities exist only as accounting records.

### **Depository**

An agent whose primary function is to record securities either physically or electronically and to keep records of the ownership of these securities.

### **Depository Trust Company (DTC)**

In the USA, a subsidiary of the Depository Trust & Clearing Corporation (DTCC), the DTC is an automated central securities depository. It is a member of the US Federal Reserve System, a limited-purpose trust company under New York State banking law and a registered clearing agency with the Securities and Exchange Commission.

### **Derivative (Derivative Security)**

An instrument, such as an option, future or swap, of which the criteria and value are determined by those of an underlying asset such as a stock, currency or commodity.

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### **Differential Swap**

An arrangement involving the exchange of payments denominated in different currencies and with a different floating exchange rate. However, actual payments are always denominated in the same base currency.

### **Discount**

The difference between a financial instrument's market price and its face value or redemption price when its market price is the lower of the two.

### **Discount Instruments**

Securities that are sold at a discount to face value.

### **Discount Note**

A short-term note (with a maximum maturity of 360 days) issued at a discount to its par value. It pays out no interest but investors receive par value upon maturity.

### **Discount Rate**

- 1** The generic name for the rate of interest at which the future cash flows of an investment are discounted in order to obtain the net present value of the cash flows. The choice of discount rate should reflect the risks of the investment/project.
- 2** In the USA, the interest rate that member banks pay the Federal Reserve when the banks use securities as collateral. The discount rate acts as a benchmark for interest rates issued. Other central banks also have similar discount rates.

### **Discounted Cash Flow (DCF)**

A method for the evaluation of investments. This is calculated by discounting the future cash flows at an appropriate discount rate of interest in order to arrive at a single net present value (NPV) figure, which can be compared with other investments.

### **Domestic Fund**

A mutual fund which only invests in securities originating from a single country, which is more often than not the country in which the fund is domiciled.

### **Domicile**

The country of a fund's creation.

### **Double Taxation**

Instances where the same income or profit is subject to tax twice.

### **Double Tax Treaties**

Agreements between countries to attribute taxing rights and provide relief where double taxation might otherwise apply.

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### **Duration (Macaulay Duration)**

The weighted average timing of the cash flows of an instrument, weighted by the present values of the cash flows. Macaulay's duration uses the yield to maturity of the instrument to work out the present values to use for weighting in the duration calculation. The longer the duration, the more a security's price is likely to be affected by changes in interest rates. Duration is also used as a measure to compare debt securities that have different maturities and yields.

### **Embedded Option**

- 1** A provision in a debt security which allows the issuer or the holder to exercise an option – this is generally a call option (issuer) or a put option (holder). The option is generally linked to specific dates and may be subject to other conditions.
- 2** A provision in a debt security which links payments on the security to pre-specified changes in an underlying security, currency, index or commodity.

### **Euro Interbank Offered Rate (Euribor)**

Sponsored by the European Money Markets Institute (EMMI), Euribor is the benchmark rate at which EUR interbank term deposits within the eurozone are offered by one prime bank to another prime bank at 11:00 CET. Euribor is calculated daily and covers periods ranging from one day to one year. See Appendix 1.

### **Euro Overnight Index Average (Eonia)**

An effective overnight rate computed as a weighted average of all overnight unsecured lending transactions in the interbank market, initiated within the eurozone by the contributing panel banks. Eonia is widely used as the underlying rate for derivatives transactions within the eurozone. Eonia will be replaced by €STR. See Appendix 1.

### **Euro Short Term Rate (€STR)**

An interest rate calculated by the European Central Bank that reflects wholesale overnight borrowing costs for eurozone banks. It has been designed as the eurozone replacement for Eonia.

### **Eurobonds**

International long-term debt securities with maturities over one year denominated in any Eurocurrency. International distribution is a key feature and they are usually in bearer form, but the bonds can be issued in any currency or any interest basis.

### **Euroclear**

Located in Brussels, Euroclear is the world's largest settlement system for domestic and international securities transactions (covering equities,

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bonds and funds), providing a comprehensive range of services to major financial institutions located in more than 80 countries worldwide. It also acts as the CSD for Belgian, Dutch, French, Irish and UK securities.

### **Eurocurrency**

Generic term for deposits or financial instruments which may be issued and held outside the country/countries in whose currency they are denominated, though this does not usually exclude purchases by domestic investors.

### **EURONIA**

A euro overnight index average that tracks actual average market euro overnight funding rates each day for settlement that day and is a EUR-equivalent of SONIA.

### **European Markets and Infrastructure Regulation (EMIR)**

EU regulation on over-the-counter derivatives.

### **European Option (European-style Option)**

A derivative that gives its holder the right to buy or to sell a certain amount of the underlying financial product on its date of expiry or for a short specific period (i.e. one day) just beforehand.

### **Ex-coupon**

Debt securities that are sold without the right to receive the next or due coupon.

### **Exchange-traded Funds**

Open-ended funds tracking an index that are priced on a continuous basis and can be bought or sold like shares.

### **Exchange-traded Option**

An option that is traded on an exchange, as opposed to over the counter, i.e. with a bank or other financial institution.

### **Exercise Price**

The predetermined price in a contract at which the option holder can either purchase or sell the underlying security, instrument or commodity.

### **Exotic Option**

A range of options with unconventional payout structures and underlying securities/commodities.

### **Expiry Date**

The final day that an option holder can purchase or sell an underlying security/commodity.

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### **Face Value (Par Value/Principal Value/Nominal Value)**

The nominal amount indicated on the security which is the basis for interest or dividend payments.

### **Fair Value (Fair Market Value)**

The price at which an asset can be bought or sold in transparent/perfect markets, i.e. where contracting parties are informed and act in their best interest. It represents the theoretical equilibrium price of securities or derivatives on open markets, i.e. neither buyers nor sellers perceive them as either over-priced or under-priced.

### **Federal Funds Rate**

In the USA, the rate of interest charged on overnight loans from banks' deposit accounts held at the Federal Reserve (the USA's central monetary authority) to other banks.

### **Firm Bid/Firm Offer**

Unconditional order to purchase or sell securities during a specific period at a specified price.

### **Floating Net Asset Value (FNAV)**

A form of money market fund whose distributing shares maintain a floating price through the marking to market the value of the investments held in its portfolio.

### **Floor**

The minimum interest rate paid on a security or under a derivative agreement.

### **Fonds Commun de Placement (FCP)**

Type of collective investment scheme available in France and Luxembourg, which provides participants with co-ownership of a portfolio of securities managed by an investment management company. Unlike SICAVs, FCPs are not distinct legal entities.

### **Foreign Currency Option**

A contract where the buyer/holder has the right, but not the obligation, to purchase/sell a fixed amount of a foreign currency at a specific price within a specific timeframe.

### **Foreign Exchange Portal**

A browser-based electronic marketplace that regroups several foreign exchange providers who provide online quotes in real time, thereby enabling foreign exchange products to be traded on a fully automated basis. Foreign exchange portals are increasingly being used for smaller foreign exchange trades that do not require human intervention.

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### **Foreign Exchange Swap**

A contract where it is agreed that certain amounts of a particular currency are exchanged between two parties on a specific date, combined with a reverse exchange of the same two currencies at a future date and at a rate agreed at the outset, which will normally be different.

### **Forward Discount**

The situation in which the spot price of a currency is greater than the forward price of that currency.

### **Forward Foreign Exchange Contract**

Foreign exchange contracts that are constructed to mature and be settled at a future date. They are priced by adjusting the spot rate to reflect the interest rate differential between the two currencies involved for the forward period. They are used to hedge against future value fluctuation by locking in future price or rates.

### **Forward Foreign Exchange Rate**

The agreed exchange rate on the day a transaction is entered into for a foreign currency transaction that settles more than two days in the future. The rate is determined by adjusting the spot rate to reflect the interest rate differential between the two currencies involved for the forward period.

### **Forward Forward**

A foreign exchange swap or other swap arrangement where the transaction commences at some date in the future and is in force for a further future period.

### **Forward Market**

A marketplace that allows same-day price fixing of currencies, commodities and securities that will be delivered at a future date.

### **Forward Premium**

The premium that has to be paid when a traded currency's forward price is greater than its spot price.

### **Forward Price**

The price for a transaction that has a start date in the future, or later than the spot date.

### **Forward Rate**

A fixed rate to be applied to a transaction that will come into force at a specific date in the future.

### **Forward Rate Agreement (FRA)**

A bilateral forward contract that fixes the interest rate on the day of the agreement for payment at a future settlement date; this can be up to two

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years later. FRAs are used to hedge against interest rate exposure, in the sense that one of the parties pays a fixed rate and the other a variable rate. If, at the settlement date, the market rate is lower than the previously agreed rate, the purchaser will indemnify the seller for that difference and conversely, if the market rate has risen, the seller will compensate the purchaser.

### **Forward Start Swap**

Swap arrangement where the commencement of the swap is delayed for a period exceeding the market standard. The pricing and terms of the transaction are agreed at the outset.

### **Front Office**

The part of the treasury function that executes transactions for the cash investment, funding, foreign exchange and risk hedging requirements of the company. The front office is the unit of the treasury which interfaces with the group's entities or subsidiaries, and provides treasury services to them, and which interacts most with the company's lenders and other financial counterparties.

### **Futures (Futures Contracts)**

Contracts stipulating the purchase or sale of commodities, currencies or securities of a specified quantity, at a specific price and on a predetermined date in the future. Futures tend to be standardised in terms of quantity, price and maturity periods.

### **Global Custodian**

An international financial institution that is able to provide custody services to leading international investors in several financial markets. See Custodian.

### **Global Fund**

A mutual or investment fund that has its assets invested in all major financial markets.

### **Hedge Accounting**

Under International Financial Reporting Standards (IFRS), a hedge, and the underlying transaction being hedged, are accounted for separately. Hedge accounting ensures that both items receive similar accounting treatment, to reflect that the transactions are economically self-cancelling. There are qualifications that must be satisfied in order that hedge accounting may be used: for example, that the hedge can be shown to be effective.

### **Hedging**

The implementation of a set of strategies and processes used by an organisation with the explicit aim of limiting or eliminating, through the use of hedging instruments, the impact of fluctuations in the price of credit,

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foreign exchange or commodities on an organisation's profits, corporate value or investments.

### **High-yield Bond (Junk Bond)**

A bond with a sub-investment (speculative) grade credit rating. This type of bond is used particularly to finance leveraged buy-outs and to pay higher yields to investors than bonds with higher ratings do. The term, therefore, increasingly refers to financial instruments with speculative credit ratings.

### **Implied Volatility**

The volatility of the asset, liability, security or commodity underlying a derivative, which is derived from the option pricing formula and the anchor price of the option itself.

### **Institutional Money Market Funds Association (IMMFA)**

The trade association for providers of triple-A rated money market funds within Europe. Its members currently have funds domiciled in Dublin, Luxembourg and the Channel Islands.

### **Interest**

The price paid by the borrower or issuer of debt securities to the lender or investor for providing funds. It is usually expressed as a percentage rate over a period of time (usually one year), and is paid out once or twice a year. See Coupon.

### **Interest-bearing Instruments**

Securities on which a specific rate of interest is required to be paid periodically or at maturity.

### **Interest Rate Caps**

Maximum thresholds applied to the amount of interest that can be charged on debtors' periodic payments.

### **Interest Rate Collar**

A combination of a cap and a floor (which see).

### **Interest Rate Enhancement (Interest Rate Netting or Interest Rate Optimisation)**

A cash management practice that acts as a substitute for notional pooling in several European countries where tax or regulatory constraints limit the potential for cost-effective notional pooling. As is the case for notional pooling, interest rate enhancement aims to view the account balances of a company or its subsidiaries as a whole for the purposes of interest calculation. However, unlike notional pooling, there is no formal scheme set up to allow the systematic offsetting of the various participants' credits and debits.

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### **Internal Rate of Return (IRR)**

An accounting method for calculating the return achieved on a (potential) investment by equating the net present value (NPV) of cash inflow over time to zero.

### **Interest Rate Swap (IRS)**

A swap arrangement where interest payments on a certain amount of principal are exchanged between two parties on a specific date. One of the payment streams involved is usually based on a fixed interest rate, while the other is based on a floating rate.

### **International Central Securities Depository (ICSD)**

A central securities depository that provides clearing and settlement facilities for cross-border transactions in domestic securities and/or international securities transactions.

### **International Fund**

A fund which invests in securities outside the country of the investor.

### **In-the-Money (ITM)**

A revalued derivative position showing a gain because of market changes.

### **Inverted/Negative Yield Curve**

A situation where securities with short-term maturities attract higher interest rates than those with long-term maturities. So called because the term premium is negative.

### **Investment Grade**

Securities with credit ratings equal to or above investment grade, which is currently BBB or better.

### **ISDA (International Swaps and Derivatives Association)**

An international trade association, composed of over 600 members, for institutions dealing in derivatives, swaps and options.

### **Issue**

The creation of new securities by a private or public entity in exchange for cash or assets. An issue can involve one or more types of debt and/or equity security.

### **Issuer**

A company or other entity that borrows or raises capital via the financial markets through the issuance of securities.

### **Jumbo Certificate of Deposit (CD)**

In the USA, a certificate of deposit with a high face value generally purchased by institutional investors looking for low-risk investments.

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### **LIBOR (originally the London Interbank Offered Rate)**

A daily published rate reflecting the average rate from a panel of contributor banks in the London market. The daily rate is published for seven different maturities for five different currencies. Contributor banks will not be required to provide data for LIBOR calculation after 2021. LIBOR is being replaced in the UK by SONIA. See Appendix 1.

### **Liquidity Fee**

A charge imposed on a money market fund redemption.

### **Listed Investments**

Securities which have been admitted for trading on an official exchange.

### **Local Custodian**

Provides custody services for securities traded and settled in the country in which the custodian is located. See Custodian.

### **Long-dated Swap**

A long-term agreement between two parties to exchange a set of cash flows for a minimum of one year and up to 15 years in the future.

### **Low Volatility Net Asset Value (LVNAV)**

A form of money market fund whose distributing shares maintain a 'constant' price, as long as certain criteria are met.

### **Mandates**

Agreements regulating the dealing relationship between the company and its counterparties, authorising people to conduct transactions, possibly applying limits to the size of deals and procedures concerning settlement, and regulating the opening and closing of transactions. Mandates are a key element of treasury control and are an essential mechanism for reducing the company's dealing risk.

### **Margin**

In the context of the securities markets, where securities are bought using credit supplied by the broker, margin is the cash collateral put up by the purchaser. The margin amount is subsequently adjusted to reflect changes in value of the securities broker.

In the context of derivatives, margin is cash collateral paid by market participants to protect their counterparties in the market against the risk of a default.

### **Marking to Market**

The practice of revaluing securities and financial instruments using current market prices. In some cases, unsettled contracts to purchase and sell securities are marked to market and the counterparty with an, as yet,

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unrealised loss on the contract is required to transfer funds or securities equal to the value of the loss to the other counterparty.

### **Master Account (Central Account or Concentration Account)**

Account in a cash pooling structure used to fund zero/target/threshold balance accounts automatically or concentrate funds from participating accounts automatically. The master account may be interest bearing.

### **Matching**

The process used by market participants before settlement of a transaction to ensure that they agree with respect to the terms of the transaction.

This is usually done by matching transaction confirmations sent to a counterparty with those received from that counterparty.

### **Mid-Market Price (Mid Price)**

The average value of the bid price and offer price of a security or fund unit.

### **Middle Office**

With the front and back offices, the middle (or mid-) office completes the key best practice division of duties and responsibilities in the treasury operation. Its basic responsibilities include treasury reporting, accounting for treasury and determining and monitoring the internal treasury control framework. Many companies may not have operations that are sizeable enough to require a middle office; in these cases, its role is performed by the back office or the accounting department.

### **Multicurrency Cross-border Pooling**

A cash management technique in which excess funds from companies' accounts in different countries, which are denominated in different currencies, are concentrated and used to offset deficits for the purpose of determining interest earned or owed.

### **Multicurrency One-country Pooling**

A cash management technique in which excess funds from companies' accounts in the same country, which are denominated in different currencies, are concentrated and used to offset deficits for the purpose of determining interest earned or owed.

### **Mutual Fund**

A pool of capital provided by small, as well as institutional investors, and invested in a portfolio of securities. There are two types of mutual fund: open-ended and close-ended. While close-ended mutual funds have a predetermined amount of capital to be invested, open-ended mutual funds do not.

### **Net Asset Value (NAV)**

The market price of an investment fund's portfolio of securities (after the deduction of debt to be repaid) calculated by dividing the total value with the total volume of securities.

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### **Net Present Value (NPV)**

Refers to the present value of an investment based on the calculation of its future cash flows minus the costs. See Internal Rate of Return (IRR).

### **Netting**

An agreed offsetting of positions or obligations by trading partners or participants. The netting reduces a large number of individual positions or obligations to a smaller number of obligations or positions, thereby reducing the overall credit, liquidity and settlement risk. Netting may take several forms that have varying degrees of legal enforceability in the event of default of one of the parties.

### **Non-investment Grade**

A rating attributed to a security that is deemed speculative, i.e. less certain in respect of the preservation of capital, in the opinion of a credit rating agency such as Fitch Ratings, Moody's or Standard & Poor's.

### **Notional Pooling**

A cash management technique where account balances are offset without physical movement or co-mingling of funds, for the purpose of interest compensation by the bank.

### **Notional Principal Amount (Notional Principal)**

In a derivatives contract, the amount of underlying assets used to calculate the obligations between the different parties.

### **Offer Rate**

The price at which currencies, assets, securities, commodities or instruments are sold, or money/funds are lent by market participants.

### **Offset**

Ability to set assets against liabilities in multiple bank accounts. Also used in netting transactions.

### **Offshore**

This term is generally used in the context of transactions with (or) a company resident in a tax haven.

### **Offshore Fund**

Any fund or investment company (in the case of a unit trust or FCP) that is legally established outside the country of the investor. Popular offshore fund locations are Bermuda, the Channel Islands, Ireland and Luxembourg.

### **Open-ended Investment Company (OEIC)**

A limited company listed on the stock exchange whose sole aim is to invest in securities issued by other entities. Unlike an investment trust, there is no limitation on the number of shares that can be issued (i.e. it is



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an open-ended structure). The value of the shares is determined by the OEIC's underlying assets; however, there is no bid-offer spread. OEICs can be the underlying structure for a single fund or the umbrella fund for a family of sub-funds.

### **Option**

A derivative giving its holder the right, but not the obligation, to buy or to sell a certain amount of the underlying financial product, usually a security, on a specific date at a predetermined price.

### **Out-of-the-Money (OTM)**

A revalued derivative position showing a loss because of market changes.

### **Outsourcing**

The contracting of all or part of the treasury operation to a specialist third-party service provider, rather than it being performed in-house. This is now a commonly used model and has particular application where treasury needs change due to some form of corporate restructuring or change.

### **Overnight Index Swap (OIS)**

An OIS is a fixed rate interest rate swap against a floating overnight rate index such as SONIA or EONIA or against central bank interest rates

### **Over-the-Counter (OTC)**

A market for the trade of securities that are not listed on the stock exchange consisting of bilateral dealing contracts between brokers. As opposed to an organised stock exchange, prices in the OTC markets are set by direct negotiation between dealers, and not by an auction system. The OTC market is a market for companies which do not fulfil the listing requirements of the official stock exchange markets, or for derivatives or other financial instruments that do not have a liquid market.

### **Paying Agent**

An institution, a company or a bank which, on behalf of the issuing company, makes interest payments and repayment of the principal upon presentation of coupon and/or bond certificates.

### **Pfandbrief**

Mortgage bond issued by German mortgage banks. The strict regulatory regime governing Pfandbrief and their relatively high credit ratings have enabled issuers to sell them widely to international investors.

### **Plain-vanilla**

Instruments that have only the standard features.

### **Portfolio**

A collection of financial assets purchased by private or institutional investors in order to achieve a return on the capital invested.

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### **Positive Yield Curve**

Where yields increase as maturities lengthen.

### **Present Value**

The current equivalent value of cash available immediately for a future payment or a stream of payments to be received at various times in the future. The present value will vary with the discount (interest) factor applied to the future payments.

### **Primary Market**

The market for new issues of securities with the aim of raising new capital.

### **Principal**

The face value of a debt instrument. The principal amount of a trade is the face value of the debt instrument involved in the trade.

### **Private Placement**

The sale of securities by a lead manager directly to a limited number of institutional investors, instead of to a wider group of investors as is the case with a public offering. Securities sold via private placement are not listed on the stock exchange.

### **Put Option**

The option to sell a certain amount of an underlying financial product on (a) specific date(s) at a predetermined price.

### **Quotation/Quote**

**1** A dealer's bid or offer price for a security.

**2** A security's listed market price.

### **Rate Reset**

An amendment, in accordance with a specific formula, in the rate of interest applied to an adjustable rate debt security.

### **Redemption**

The paying off or buying back of a debt security by the issuer on or before its stated maturity date. The redemption can be made at par value or at a premium, as is the custom when exercising a call option.

### **Redemption Gate**

A temporary suspension of withdrawals from money market fund.

### **Rule 2a-7**

This is the section of the US Investment Companies Act of 1940 which specifically defines investment restrictions for money market funds.

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### **Safekeeping**

The physical holding and preservation of securities, or the maintenance of up-to-date CSD records, for the beneficial owners of securities by an agent bank, custodian or fund administrator. See Custody.

### **Same-day Funds**

Money balances that the recipient has the right to transfer or take out of the account on the same day as the funds are received. The value date is equal to the date on which the funds transfer is initiated.

### **Secondary Market**

The market for the trading in securities that have previously been bought by investors as new issues in the primary market.

### **Secured Overnight Financing Rate (SOFR)**

A USD interbank overnight interest rate, published by the New York Federal Reserve based on rates from the US Treasury repurchase agreement market. SOFR is the Federal Reserve's preferred replacement for LIBOR.

### **Securities Settlement System (SSS)**

A system which permits the transfer of securities either free of payment, i.e. free delivery (for example in the case of pledge), or against payment. Settlement of securities occurs on securities deposit accounts held with a CSD (private CSDs or a central bank acting as a CSD) or with a central bank (safe custody operational accounts). In the latter case, the central bank acts as the intermediate custodian of the securities. The final custodian is normally a CSD. Settlement of cash occurs in an interbank funds transfer system (IFTS) through a settlement agent.

### **Settlement**

The exchange of securities between buyer and seller and the corresponding transfer of money between the two contractual parties. Settlement is usually preceded by confirmations on, among other things, the date and method of exchange and payment.

### **Settlement Agent**

An institution that is responsible for managing all aspects of the settlement process (including the calculation of settlement positions and the monitoring of the exchange of payments) on behalf of transfer systems or other settlement arrangements.

### **Settlement Date**

The date on which a security transaction is settled, i.e. payment is made and securities are physically received and delivered, or beneficial ownership records are changed in CSDs. See Trade Date.

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### **Single Legal Account Pooling**

A cash management technique based around a single legal master account structure in the name of the parent or group financing company where the other participant accounts act as memo accounts of that legal account. This cash management technique is widely used in Northern Europe (Nordic and Baltic countries).

### **Société d'Investissement à Capital Variable (SICAV)**

Type of collective investment scheme available in France and Luxembourg. Unlike FCPs, SICAVs are distinct legal entities, with each investor being a shareholder of the company. In other words, SICAVs are open-ended investment companies.

### **Spot Market (Cash Market)**

A market in which a currency or commodity is traded for immediate delivery and against cash payment. Settlement usually occurs within two business days.

### **Spot Price**

The rate or price applying to the immediate delivery of a commodity or currency.

### **Spot Rate**

- 1 The annual rate of return on a zero-coupon instrument.
- 2 Synonym for spot price, particularly when involving currency transactions.

### **Spot Transaction**

A transaction where both parties agree to pay each other a specific amount in a foreign currency either on the same day or within a maximum two days of each other.

### **Spread**

- 1 The differential between the yields of two fixed-income securities, mostly expressed in basis points.
- 2 The difference between the bid and ask prices quoted for a security.

### **Spread to Treasury/Governments**

The spread differential between the yields of a non-government fixed income security and that of a treasury/government security with the same or similar characteristics, whereby the latter acts as a benchmark.

### **Stable Net Asset Value (SNAV)**

See Constant Net Asset Value (CNAV).

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### **Sterling Overnight Interbank Average (SONIA)**

A sterling overnight index average that tracks actual average market sterling overnight funding rates each day for settlement that day. See Appendix 1.

### **Strike Price**

The price in an option contract at which the option can be initiated, i.e. the price at which the option's underlying security/commodity can be bought or sold.

### **Sub-custodian**

Any company/institution providing custody administration services on behalf of other custodians who may not have an operation in the country concerned.

### **Swap**

An agreement between two parties to exchange (or swap), under specified conditions, a set of cash flows at a future point in time.

### **Swaption**

An option on a swap where the buyer of the option has the right, but not the obligation, to enter into a specified swap at a specific future date.

### **Sweep Account**

A bank account that automatically transfers excess balances into an overnight interest-earning investment with the same bank.

### **Target Balance**

The minimum amount that needs to be maintained in each sub-account under a target balancing scheme.

### **Target Balancing (Target Concentration or Sweeping)**

A cash concentration technique whereby all account balances are physically transferred into a nominated account leaving a predetermined amount in the sub-accounts.

### **Taxable Equivalent Income (Taxable Equivalent Yield)**

Adjusting method that allows tax-free income or yield to be compared to gross taxable income before any taxes are deducted in order to determine how much taxable income/yield is required to equal the income or yield generated by a tax-free investment.

### **T-bill Rate**

In the USA, the yield derived from the interest rate achieved on the weekly auctions of the three-month treasury bill.

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## **Tenor**

- 1** The term may be used synonymously with maturity.
- 2** The period between a security issue and its maturity.

## **Threshold Balancing**

A cash concentration technique where the balances of the sub-accounts are physically transferred in their totality into a nominated account each time the sub-accounts' balances reach a predetermined threshold.

## **Time Value of Money**

The concept that the value of money is linked to time because of its capacity to earn interest over time. Thus, a given amount of money available today is worth more than a given amount of money to be received tomorrow, because the amount available now can be invested immediately.

## **Total Return**

Return on an investment, taking into account reinvested income as well as capital appreciation.

## **Trade Date (Transaction Date)**

The date on which a transaction is executed following which settlement will occur on the agreed settlement date.

## **Tranche**

One part of a number of different securities that are issued by the same company at the same time. Such securities may differ in terms of risk, yield and/or (most commonly) maturity.

## **Transfer Agent**

An individual or company that records, on behalf of a company, the sale and purchase of a company's securities as well as maintaining detailed ownership records of the company's shares and other registered securities. Sometimes called a registrar in the USA.

## **Treasury Inflation-indexed Securities (TIIS)/Treasury Inflation-protected Securities (TIPS)**

(USA) Government securities which are inflation-protected in respect of their real value through their linkage to the consumer price index.

## **Undertaking for Collective Investments in Transferable Securities (UCITS)**

Generic term for any open-ended collective investment scheme involving investments in assets that are available under the form of transferable securities, i.e. FCPs, OEICs, SICAVs and unit trusts.

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### **Variable Net Asset Value (VNAV)**

A form of money market fund whose value fluctuates on account of marking to market the value of the investments held in the fund's portfolio.

### **Volatility**

The level of fluctuation in the rate/price of financial instruments and assets.

### **Weighted Average Final Maturity (WAFM)**

This is used to measure credit risk. WAFM is calculated by taking the final maturity of the underlying money market instruments held by the fund, weighted according to the relative holdings per instrument.

### **Weighted Average Life (WAL)**

This is used to measure credit risk. Although the terms WAFM and WAL are currently used interchangeably with respect to money market funds, the WAL is technically the weighted average of the times when principal is repaid. Instruments which repay principal over several years will have a shorter WAL than those which repay all principal at maturity.

### **Weighted Average Maturity (WAM)**

This is used to measure interest rate risk. WAM is calculated by taking the maturity of the fixed rate periods of the underlying instruments held by the fund, weighted according to the relative holdings per instrument.

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### **Withholding Tax**

Tax retained at source, generally on dividend and interest income.

### **Working Capital**

The short-term assets a company has at its disposal to produce assets. These include items such as cash, accounts receivable, inventory and marketable securities. The amount by which these exceed the company's short-term liabilities is the net working capital or net current capital.

### **Yield**

The annual rate of return from income paid out on an investment in securities, expressed as a percentage of the current market price of the relevant securities.

### **Yield Curve**

A graphical representation demonstrating the relationship between yield and maturity on comparable debt securities with different maturities, usually for a single issuer or a very closely related group of issuers.

### **Yield Spread**

The difference in the effective rate of interest offered by two debt securities.

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### **Yield to Maturity (YTM)**

The return on a security held to maturity, taking account of the coupon and reinvestment rates and the buying price compared to its face value. YTM assumes that all coupons are fully paid out on their due dates and reinvested at the same yield and that the principal is paid back in full upon maturity. It is an internal rate of return calculation performed on the security's expected cash flows.

### **Zero Balance Account (ZBA)**

A bank account that is automatically brought to a zero balance each day. Debits are covered by a transfer of funds from a master account at the same bank. Credit balances are automatically transferred to the master account.

### **Zero Balancing**

A cash concentration technique where all account balances are physically transferred into a nominated master account.

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HSBC Global Asset Management offers clients a range of investment products including equity, fixed income, liquidity and multi-asset strategies. We believe that we are well placed to provide a globally consistent, disciplined, investment process across our capabilities which draws on the local knowledge and expertise of our team around the world.

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Our investment philosophy is that liquidity management must be focused on risk management.

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Thanks to our global expertise and solutions driven approach, our clients have entrusted HSBC Global Asset Management with USD 507.3 billion in total assets under management, including USD 81.0 billion in liquidity and USD 185.4 billion in fixed income solutions<sup>1</sup>.

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<sup>1</sup> As at 30 June 2019.

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The Treasury Tax team comprises over 20 professionals located across London, Manchester, Birmingham, Leeds, Bristol, Reading and Scotland, and the team links in to the Deloitte global network of treasury tax specialists.

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## **About WWCP**

WWCP is a UK-based research and publishing company, specialising in the provision of information and editorial on the full range of corporate treasury and cash management.

WWCP's core business is the development of editorial content, including thought leadership papers and case studies, and the production of technical handbooks for financial professionals. WWCP has researched, written and published a series of treasurers' guides on core treasury-specific topics, such as treasury technology, international cash management, trade finance and investing short-term cash.

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