



**WHITE PAPER**

# **FUNDS TRANSFER PRICING (FTP): A PRIMER**

**Setting the Standard for  
Modern Treasury**

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# EXECUTIVE SUMMARY

The objective of this paper is to describe a robust methodology for financial institutions, particularly banks, to allocate revenues and costs given the risks of making loans and taking deposits.

The methodologies that financial institutions use to allocate line items between business units are called Funds Transfer Pricing (FTP) methodologies. FTP is not only a vital tool for managing a company's balance sheet and measuring the risk-adjusted profitability, it is now a mandated regulatory requirement.<sup>1</sup>

We will show how a robust FTP framework can be structured by using internal transactions to transfer and ringfence credit, market and liquidity risks to specific books or business units. The financial institutions revenues and costs on the risks are then clearly allocated, allowing more transparency on financial results and allowing for clear hedging strategies for such risks.

At Finastra, we are relentless on finding ways to help our clients build robust businesses. Given our experience with 600+ clients that leverage our Treasury and Risk solutions, we have decided to share our target operating model for Funds Transfer Pricing.

## **Paper Structure**

First, we will give a brief explanation of how banks generate their revenues and account for profit. Then explain the need for a robust FTP methodology as banks evolve and their balance sheets become more complex.

In order to describe the methodology, we will focus on three risks: liquidity, credit and market. We will then describe a general process of a bank extending a loan to a corporate and how to allocate the risks across business units.

Lastly, we provide clear support as to why adopting a modern and transparent methodology for FTP allows banks and financial institutions to allocate risks and P&L to ultimately run their business more efficiently.

1. Commission de Surveillance de Secuteur Financier Luxembourg, CSSF Circular 12/552 implementing CEBS Guideline GL31 11, Dec 2012.

# FTP is Key to Manage Risks and Improve Efficiency and Profitability



A modern FTP method allows a bank to gain more transparency and efficiency across their portfolio.”

A bank is a financial institution that accepts deposits from the public and creates credit, as per the definition from the Bank of England.<sup>2</sup> Lending and funding activities can be performed either directly with end clients or indirectly through capital markets. The difference between the payoff received from the credit given and the payoff paid for funds received is the net income of the bank.

The calculation of the bottom line revenues on an accrual basis as the difference between the current payoffs of money lent and money deposited is the basic standard that banks have been using for many years now, and it is not a very complex task. For example, a very simple bank where money is lent and borrowed at fixed rates and the maturity of these transactions match, it is fairly easy to calculate the profitability by accruing the interest payments received and paid.



However, when considering the banks associated risks, allocating these revenues at a contract level is not a simple or clear process. In order to function properly, financial institutions have FTP methodologies to allocate the revenues to the risks of the associated loans and deposits. As bank sophistication levels continue to evolve (in terms of mismatching liquidity and market exposures and expanding product ranges), they are challenged with representing current profitability as an indication of future profitability (e.g. accruing floating rate deposits vs. fixed rate loans when interest rates are moving higher).

In addition, central banks and regulators have raised concerns about the systemic risk nature of financial institutions when they do not have a transparent methodology to allocate and manage the costs and revenues on their product portfolios. The UK Prudential Regulation Authority<sup>2</sup>, US Federal Reserve<sup>3</sup>, and CEBS<sup>4</sup> issued papers explaining that the proper use of FTP is fundamental for the stability of the financial system. FTP is also a key concept for BIS<sup>5</sup> as stated in the IRRBB regulation. To adapt, banks have improved accrual calculations to allocate revenues to different business units through more modern FTP methods. While this can be used for simple portfolios, this paper will show a general framework that can be applied to any bank structure.

While financial products can have many risks, we will consider three main risks for this paper:

- **Credit Risk:** the risk that the credit taker will not pay back what is due;
- **Liquidity Risk:** the risk that the bank's depositors withdraw their money before the debtors will pay back;
- **Market Risk:** the risk a change in market conditions will impact the profitability of the bank operations.

2. Bank of England Quarterly Bulletin, 2015 Q2. 'A bank within a bank...,' June 2015.

3. US Federal Reserve, 'Interagency Guidance on FTP,' March 2016.

4. CEBS, 'Guidelines on Liquidity Cost Benefit Allocation,' October 2010.

5. Bank for International Settlements (BIS), 'Interest rate risk in the banking book,' April 2016.

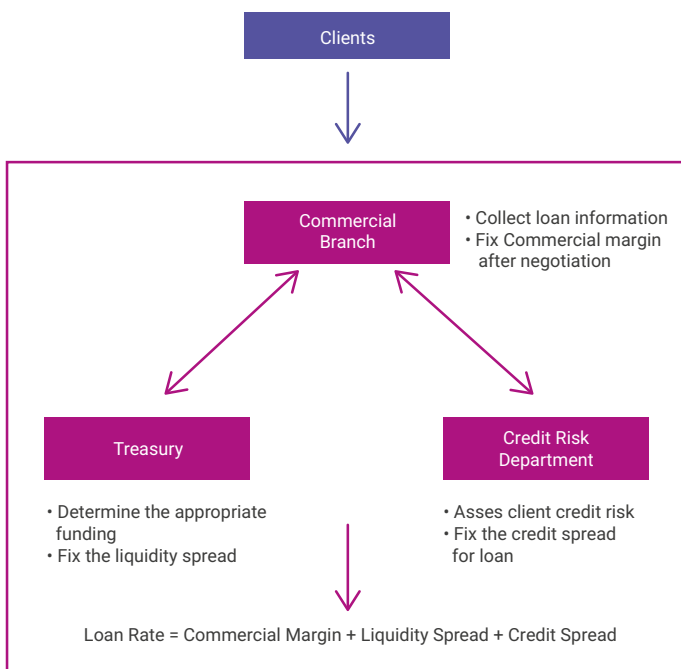
# Banking Units Working Together to Execute Loans

Let’s start with an example of a bank lending money to a small business client. Typically, the following steps would take place (see Figure 1):

1. The client goes to a branch and describes the need and usually a preference for a specific loan – what is the maturity, the size, and the payoff structure in terms of both amortization and payments.
2. The bank manager contacts the credit officer who is responsible for assessing the bank’s risk level to extend this loan to the client. The credit officer classifies the loan at a particular risk bracket and defines the spread necessary to cover the credit risk of providing the loan (usually represented in basis points per year).
3. The bank then evaluates the liquidity costs of raising the funds necessary to extend the loan – usually dependent on the size and maturity of the loan (typically represented as a spread over a floating rate).
4. Given the type of payoff structure the loan requires, there will be a market risk cost. That is the price paid by the bank to hedge the market exposure of the payoff of the loan.
5. The branch then determines what commercial margin it needs to charge over the credit, liquidity and market risk costs of the loan, and offer this calculated rate to the client.
6. If the client agrees with the rate, the loan moves forward.

**Figure 1: Example of Bank Loan Rate Process**

During this process, the Treasury will usually price the liquidity and market risk of the loan, while the Credit Risk Department prices the credit cost.

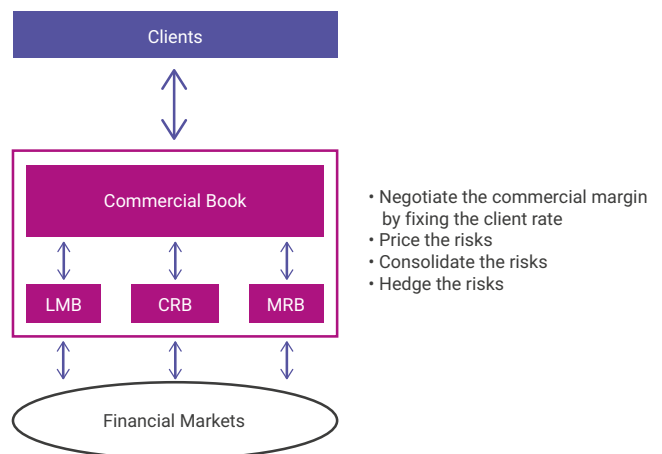


In order to analyze the risks and the costs, let's look at the following bank business units which we will organize as books:

- The commercial unit, or the commercial book (CB). This is the unit that extends the loan and evaluates the commercial margin that is appropriate for a client.
- The credit unit, or the credit risk book (CRB). This is the book that will run the risk of a client default.
- The liquidity desk, or the liquidity management book (LMB). This unit manages the maturity mismatch between payables and receivables.
- The trading desk, or the market risk book (MRB). This unit manages the market risk of the loans and deposits (usually FX and interest rate risk, but these can vary depending on the payoff structure of the loans and deposits).

The model can be extended by creating additional business units dedicated to additional costs of risks such as regulatory costs or regulatory capital charges. Figure 2 represents the interactions between the clients and these books.

**Figure 2: Loan Process: Client and Banking Units Interactions**



# Maximize Efficiency and Minimize Risk with a Modern FTP Method

In this section we will explain the internal transactions needed to have the loan risks ringfenced for these business units or books. To efficiently allocate the risks linked to origination of the commercial deals, the following internal transactions are made:

### **To Efficiently Allocate the Risks Linked to Origination of the Commercial Deals, the Following Internal Transactions are Made:**

1. An internal loan between the LMB and Commercial Book to transfer the liquidity risk (the management of the asset and liability maturity mismatches);
2. An interest rate swap between the MRB and the Commercial Book to transfer the market risk (the management of moves in interest rates);
3. An internal credit default swap between the CRB and the Commercial Book to transfer the risk of default on the loan (the management of potential nonpayment and defaults).

### **Example: Managing Risks Associated With a Loan**

For simplicity sake, let's assume that the bank is extending a fixed rate loan for a set maturity and it benchmarks the funding using the 3-Month US Dollar (USD) LIBOR Interest Rate Index (3M LIBOR), which is the average interest rate at which a selection of banks in London are prepared to lend to one another in American dollars with a maturity of 3 months.

The following Funds Transfer Pricing diagrams show a chronological process. To start, the following diagram shows the cashflows between the Commercial Unit and the client as it extends the loan, including the notional payments and the fixed coupon payments. The following explanatory diagrams labelled 1, 2, 3, 4 and 5 are from the viewpoint of the customer facing branch.



The Commercial Branch extends a loan:

1. Needs to get the \$100 to give to the client
2. Will receive a fixed coupon X and the \$100 at the end of maturity

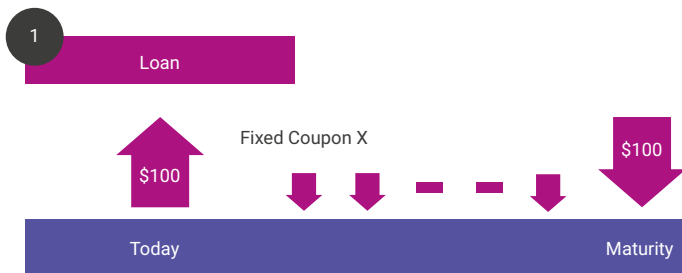


Diagram 1: Loan Cashflows

### Managing Interest Rate Risk:

As the bank benchmarks its assets and liabilities to the 3M LIBOR, we will now create an interest rate swap where the CB will be paying a fixed rate coupon versus receiving the 3M LIBOR interest rate plus a spread in basis points – this price is given by the MRB.

The CB now has a synthetic floating rate loan (fixed rate loan + swap)

So now, the Commercial Branch enters an interest rate swap:

1. They pay the fixed coupon and receive floating rate vs. a spread of  $X_1$
2. The CB now has no market risk and is getting a net spread of  $X_1 - X_2$

But it still runs liquidity and credit risk – meaning if the client defaults

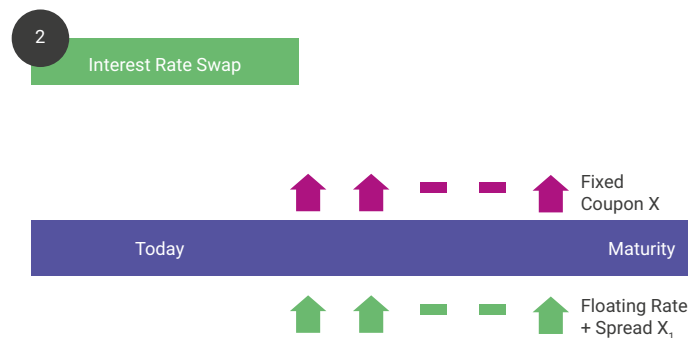


Diagram 2: Internal Interest Rate Swaps

### Managing Liquidity Risk:

The Commercial Unit needs to source the funds from the LMB using an internal loan and will pay 3M LIBOR plus a spread. Then, the net flows for the CB are solely the spreads it is paying to the LMB and the spread it is receiving from the MRB.

1. The Commercial Branch now goes to the Liquidity desk and gets a loan from them
2. The loan is a floating rate loan + a spread  $X_2$

The CB has a net flow receiving a spread  $X_1$  and paying a spread  $X_2$

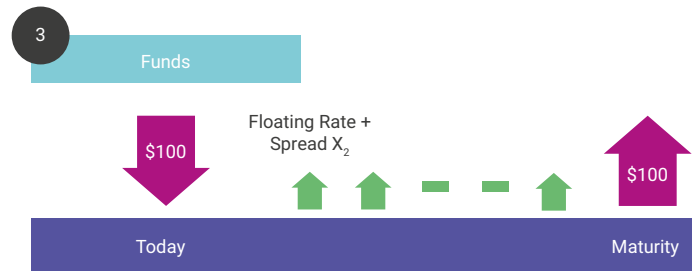


Diagram 3: Internal Loan to Transfer Liquidity Risk

**Managing Credit Risk:**

Now the only risk left for the CB is the default of the client, which would cause a mismatch on the payments. In order to mitigate this risk, the CB enters into a transaction with the CRB in which the CRB agrees to take over the payments due for the client. This is a yearly fee paid in basis points on the notional of the loan.

The net result (see Diagram 4) is that the CB receives and pays spreads to the units at the bank that are managing the risk of the loan. Therefore, it has a net inflow of the commercial margin that it decides to have on the loan.

**1. Commercial Branch pays a spread Z1 to the Credit unit (or book)**

This is under a service level agreement – so for that fee, if the client defaults, the credit unit (or book), makes a good on the payments from the client.

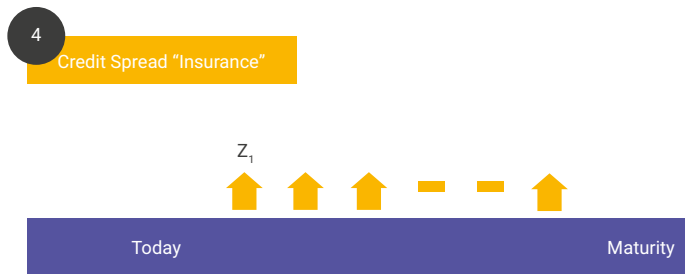


Diagram 4: Internal Credit Default Swap

After all of the above internal transactions, the commercial unit is left with minimal risk and the net income is simply the difference of the spreads.

1. The Commercial Brand receives spread  $X_1$
2. The CB borrows 3M Libor +  $X_2$  (same maturity as loan to client) from the LMB, leaving the CB with a net cashflow of  $X_1 - X_2$
3. The CB 'buys insurance' for a default of the loan it extended to the client, and pays  $Z_1$  to the CRB

The CB net cashflow result is the difference of the spreads ( $X_1 - X_2 - Z_1$ ) and all risk is now hedged

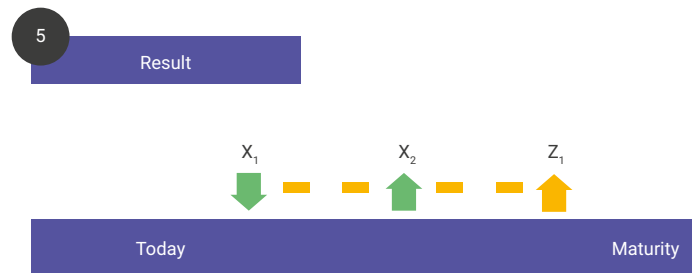


Diagram 5: Net Income Result

**Allocating Risk and P&L (Profit & Loss)**

In the previous section, it is clear how the internal deals convert all risks back to floating rates and spreads, allowing the measurement of revenues of the commercial unit.

These internal deals can be consolidated and managed by the risk units using market hedges, or they can be managed one by one with counterparts. As the risks on these books mimic the risks generated by the commercial deals, their P&L will reflect how efficiently the bank is managing its risks.

# Eliminate Single Asset or Loan Risk While Increasing Overall Transparency

In order to explain the ringfencing of risks, profit and loss, let's assume that the risk units are micro-hedging the loans – meaning that all the internal transactions will have mirror trades with the market.

Figure 3: Micro-hedging a Loan

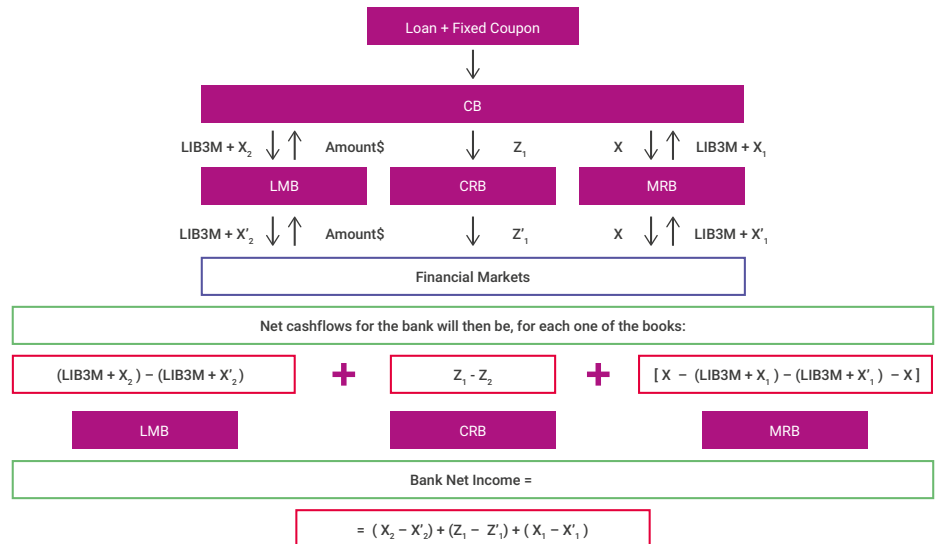
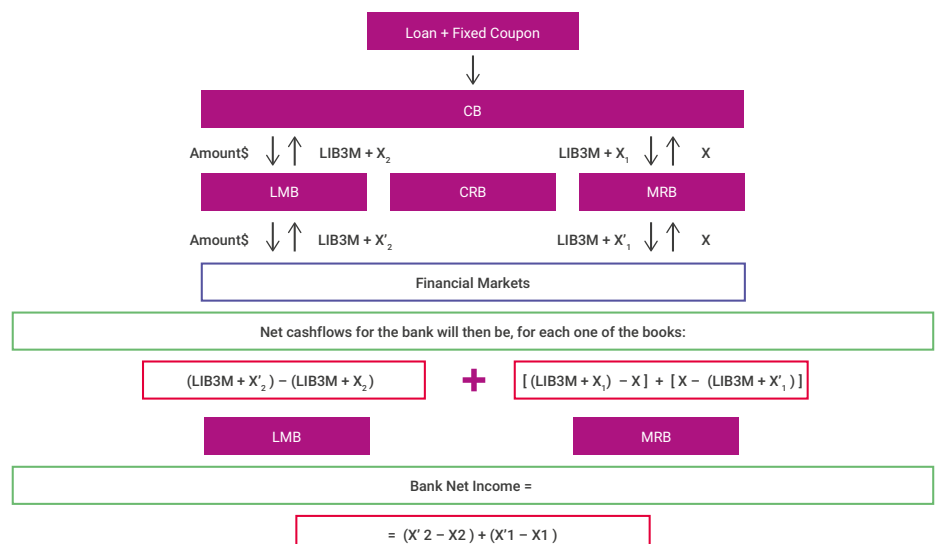


Figure 4: Micro-hedging a Deposit

The above section describes the loan process, and below shows the deposit process. Now taking the deposit, the micro-hedging is shown below:



### Transparency for the Bank

It is clear at this point that revenues are allocated to the books that run the separate risks of the loan and the deposits. Because these risks are ringfenced on the books, it is possible for management and risk professionals to assess the current and future profitability of the bank from:

- a. The Commercial Book – what is the net spread that the bank is earning per client, or the NPV of the spreads it is paying and receiving; the next cashflows of this book represent the commercial spread. The accrual of these spreads will represent the accrued commercial income of the bank while the NPV will be a representation of the performance of the commercial branch.
- b. The Liquidity Management Book – what are the liquidity gaps and how are these being managed; the results of this book, either on an accrual or MTM basis will represent the performance of managing the bank's liquidity for commercial loans.
- c. The Market Risk Book – what is the interest rate risk that the bank is running and what is the NPV of its flows; the results of this book show how well the bank manages market risk.
- d. The Credit Risk Book – what is the mark to market of the credit risk the firm is running? This book will show how the bank evaluates the credit it extends to clients.

The CB becomes the main negotiator of the deal by getting the prices from the LMB, the MRB and the CRB, building the price and adding the Commercial Margin that will have a direct impact on the profitability of the banks operations.

These examples show the strengths of internal deals as the operating model for Funds Transfer Pricing:

- A deal's commercial margin will be assessed when negotiating with the client and the payoffs of the loan and the deposit can be bespoke;
- The risks are properly priced and represented on the payoff of the loan or deposit;
- The contribution of each BU to the net margin of the bank can be clearly assessed using the standard tools for accrual accounting and mark to market accounting.

While in this example the credit risk book centralizes the credit risk that the bank extends, this book can be in the branches or in the commercial unit itself depending on the business strategy of the bank. For larger, more strategic clients, centralizing the management of the exposures might be a good idea, whereas for local, smaller loans, the management of the risk can be at branch level. It is, however, important to ringfence the commercial margin from the credit risk.

# CONCLUSION

**Transparency of risks and P&L of loans and deposits is fundamental for the successful risk management and profitability of a financial institution. While Funds Transfer Pricing is used by most banks, the policies that govern FTP have evolved from the traditional accrual methodologies and more often than not they lack transparency. There is currently no standard modern framework.**

By ringfencing the risks of the loans and deposits in books using internal transactions, one can easily calculate the risks and P&L, that being P&L on an accrual basis or mark to market. This approach is rather flexible as one can create other books and internal transactions to allocate further costs (e.g. capital requirements, CVA, etc.). Transparent risks allow the different books to decide on effective macro hedges, run the risk or do back to back transactions, while the bottom line is clearly reported.

Of course, this approach still has challenges. For example, a very large portfolio of loans would entail a large number of internal trades needing to be managed closely. Since these internal trades are not simple linear transactions, this may cause a challenge.

However, by linearizing the payoff of these portfolios and using cloud computing, these internal transaction and book calculation challenges can be overcome. A number of analytic libraries can be used on FusionFabric.cloud, allowing clients to easily manage this. FusionFabric.cloud, an open and collaborative API market place, allows for transparent and efficient calculations across business units and books, which can help streamline the FTP process.

In short, by adopting a clear and transparent methodology for FTP, banks and financial institutions can allocate risks and P&L to successfully run their business more efficiently. Finastra can provide this solution to financial institutions, helping to improve transparency in banking. The future of finance is open!

## ABOUT THE AUTHORS



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Jean Guillaume Hubert is a product owner at Finastra covering the ALM, Funds Transfer Pricing, and IFRS 9 solutions. Prior to Finastra, Jean spent ten years in the software industry (FinInfo, SIX Telekurs, and Misys), as well as nearly ten years in the banking industry (BNP/Société Générale). Jean specializes in risk management for retail banking activities, spending extensive time in the ALM, FTP and Basel regulation space. Jean holds a master's degree in Finance and Risk Management.

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Pedro Porfirio leads the global field and customer engagement with capital markets customers and prospects. Based in London, Pedro drives the growth of the company's entire capital markets business line spanning treasury, capital markets, and investment management. Pedro joined Finastra from Calypso Technology where he worked as Chief Product Officer, and brings over 25 years' experience in banking and technology. Pedro holds an aerospace engineering degree from ITA in Brazil and an MBA from University of Michigan.

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## About Finastra

Finastra unlocks the potential of people and businesses in finance, creating a platform for open innovation. Formed in 2017 by the combination of Misys and D+H, we provide the broadest portfolio of financial services software in the world today—spanning retail banking, transaction banking, lending, and treasury and capital markets. Our solutions enable customers to deploy mission critical technology on premises or in the cloud. Our scale and geographical reach means that we can serve customers effectively, regardless of their size or geographic location—from global financial institutions, to community banks and credit unions. Through our open, secure and reliable solutions, customers are empowered to accelerate growth, optimize cost, mitigate risk and continually evolve to meet the changing needs of their customers. 90 of the world's top 100 banks use Finastra technology. Please visit [finastra.com](https://finastra.com)

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