THE GENERAL ECONOMIC BACKGROUND TO THE CRISIS

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Paper for Session 1 on "How the global economy headed into crisis" at the
G20 Workshop on the Causes of the Crisis: Key Lessons

Mumbai, 24-26 May, 2009

1. Introduction

The financial crisis that broke in mid-2007 and intensified following the Lehman Brothers bankruptcy in September 2008 has triggered a world-wide economic downturn. Quite apart from its amplitude, many other features of the current cycle are unusual:

- The recession was not to any material extent caused by monetary policy tightening in response to rising inflation. Rather, the main driver was the unwinding of asset price hikes, financial leverage and risk appetite built up prior to the crisis.

- The economic crisis has affected developed and emerging economies alike. Indeed, the slowdown in growth between the second half of 2007 and end-2008 seems to have been of broadly similar magnitude in the two regions (Figure 1). Hence, earlier talk of "decoupling" has proved un-founded.

- Still, the economic crisis has not hit countries equally hard. The particular propagation pattern of the crisis appears, ironically, to have allowed some of the countries where asset prices and financial leverage increased the most to escape relatively lightly in terms of GDP loss. By contrast, countries with a heavy specialisation in durable goods and hi-tech manufacturing appear to have been badly affected.

Figure 1. The economic downturn is global

A main theme of the current paper is that the rapid process of globalisation over the past two decades can explain some of these features and has played a main role in both the run-up to and propagation of the current crisis. This is not to deny that other factors played important roles. As concerns the financial crisis, for example, ill-designed regulation and misguided incentives in financial markets were main factors contributing to excessive leverage and risk taking. However, that is not the focus of this workshop. Here, the focus will be on the broader macroeconomic environment leading up to the crises and its subsequent propagation. Specifically, the paper will deal with the benign inflation and growth environment over recent decades, sometimes referred to as "the great moderation"; the rise in world-wide saving; the role of monetary policy; and the role of global integration in propagating the crisis.

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* The author would like to thank a number of colleagues in the OECD Economics Department for providing assistance or comments, in particular Jonathan Coppel, Davide Furceri, Annabelle Mourougane, Jean-Luc Schneider and Lyn Urmston. Any mistakes remain mine. The paper does not necessarily reflect the position of the OECD.

2. The symptoms of a bubble

The origin of the crisis clearly lay in OECD countries. A number of developments in these countries over the past decade can, with the benefit of hindsight, be seen to have had a bubble character. In some cases, the potential bubble character of developments was even discussed and warned against in real time. However, as often, it proved hard to call a bubble. A number of developments are worth highlighting.

- Bond yields in many countries fell to unusually low levels in historical comparison, both in nominal and real terms (Figure 2). While a substantial part of the fall seems to have derived from expectations that short-term interest rates were to remain relatively low, some portion also represented a reduced term premium. Concern was expressed about the risk of a back-up in bond yields and its potential implications for financial institutions (*e.g.* Brook, 2003; Ahrend *et al.*, 2006). In the event, however, the onset of the crisis, monetary policy easing and the flight to safety have resulted in even lower government bond yields.

- Reflecting the low interest rate environment, real house prices shot up in most OECD countries (Figure 3). While expectations of permanently lower mortgage interest rates could justify some run-up in house prices, the development went well beyond what could be rationalised on this basis. Again, warnings of over-valuation were given and, in this case, proved accurate (*e.g.* OECD, 2005). Rising house prices in countries with liberal and competitive mortgage markets gave rise to mortgage equity withdrawal, fuelling consumption over and above any wealth-type effects. Financial innovation allowed the market for sub-prime loans to evolve, primarily in the United States, with many of the mortgage holders unable to service their debt unless house prices continued to increase.

- Against the background of rising house prices, and generally good economic conditions, housing construction also expanded rapidly to reach historical highs in terms of GDP in many countries (Figure 4).

- Low interest rates across the yield curve together with rapid development in financial innovation led to bank credit growing at rates more than usually in excess of GDP (Figure 5). Over and above this, and related to financial innovation and the general increase in leverage, liquidity creation outside the banking sector (principally through securities markets) proceeded rapidly (Ahrend *et al.*, 2008). Following the on-set of the crisis, and until central bank intervention re-established some activity, liquidity provision through securities markets came to a halt.

- Share prices in OECD countries increased from their troughs in early 2003, but at the peak were at most moderately above the levels reached during the dot-com bubble. As earnings had significantly expanded in the mean-time, price-earnings ratios were in most cases well below the peaks of the dot-com bubble and not out of line with historical averages (Figure 6). This does not exclude a bubble to the extent earnings themselves may have been flattered by bubble-related earnings in the financial sector and, in any event, share prices plummeted after the onset of financial crisis.

The following sections review a number of the factors that contributed to the outcomes described above. Basically, these are factors that led to real interest rates all along the yield curve being unusually low earlier in the current decade and boosted asset prices. Some part of the hikes in asset prices may have been warranted but some also represented over-shooting in conditions where incentives were skewed towards excessive risk taking and leverage.

3. Causes of the bubble

3.1. Benign growth and inflation conditions

It is well established that, prior to the current crisis, cyclical fluctuations in both activity and inflation had tended to trend down (*e.g.* Dalsgaard *et al.*, 2002). The greater stability is likely to have been one of the factors reducing risk premia in financial markets (Figure 7). The sense of reduced risk may have been strengthened as a number of potentially destabilising events (the Russia and South—East Asia crises; the LTCM collapse; Y2K; the bursting of the dot-com bubble; and the 11/9 attack) were overcome fairly rapidly. Lower perceived and observed risk is likely to have increased the appetite for leverage and risky investment in financial and other asset markets (including via mis-leading proxies for risk in models used to determine portfolio choices).

Figure 7. Bond market risk premia were low until the crisis

Among the factors generating greater stability of activity were:

- A shift of economic activity towards services and a correspondingly smaller role for the stockbuilding cycle. At the same time, better inventory management also contributed to reducing the destabilising influence of stocks (their contribution to the downturn at end-2008/early-2009 notwithstanding).

- Greater openness of economies and thereby greater international diffusion of idiosyncratic shocks.

- The smaller role of common shocks, notably oil shocks. Oil intensities of developed economies are much reduced compared with the early 1970s and at the same time, oil prices moved up in a fairly steady way until the second half of 2007.

- Less policy-induced instability in an environment where inflation seemed durably low and stable. More generally, economic policy in emerging economies became set to a much larger extent within a framework emphasising medium-term stability.

- Greater financial depth and competition diminishing the role of liquidity constraints and allowing households (and possibly firms) to better smooth demand. Thus, evidence suggests that depth of mortgage markets is associated with greater resilience to economic shocks (Duval *et al.*, 2007). This implies a positive feed-back between greater economic stability and financial depth (which has obviously gone into reverse after the financial crisis broke).

On the inflation side, a number of factors have also contributed to greater stability. Indeed, among developed countries it appeared that the link between activity and inflation had weakened almost to the point of insignificance (Figure 8). Main factors behind these outcomes included:

- Greater international competition is likely to have made enterprises more wary of raising their prices relative to those of competitors and, hence, more reluctant to grant wage increases against the background of local demand pressures.

- Internationalisation of production and more scope for delocalisation is likely to have made wage earners more reluctant to press for higher wage increases even at times of demand pressure. Thus, OECD evidence points to labour demand elasticities having increased in recent decades (Figure 9). The flipside of this development might have been thought to be a greater role for world-wide demand pressures in driving wage developments but the empirical evidence on this point is not strong (Pain *et al*., 2006).

- More independent and transparent monetary policy geared towards price stability is likely to have better anchored inflation expectations. Hence, deviations from price stability have become less likely to feed on themselves.

- A number of reforms in labour and product markets could also have weakened the ability of producers and wage earners to press for higher prices and wages. However, the evidence on the impact of such reforms on cyclical inflation patterns is limited.

- The absence (until mid-2007) of strong pressures in commodity markets also helped to preserve a stable level of inflation.

- In a number of OECD economies international migration increasingly acted as a cushion against local labour market over-heating.

Figure 8. The relationship between inflation and the unemployment gap has weakened

Figure 9. The wage elasticity of labour demand has increased

Over and above greater stability, benign developments on the supply side also implied that monetary policy, for a period, could stabilise inflation at lower policy interest rates than normal (see below under monetary policy).

3.2. Rising saving rates

Observed trends in saving are endogenous outcomes. Hence, based on observed data it is difficult to say to what extent ex ante saving developments contributed to lowering real interest rates and boosting asset prices. Nonetheless, it seems likely that positive shocks to saving contributed to these developments.

Emerging and developing economies as a group experienced rising saving rates over the past decade (Figure 10). With asset price and interest rate developments tending to put downward pressure on saving, it seems reasonable to treat this increase as a positive saving shock. While investment rates also increased, this did not happen to the same extent, as reflected in the combined current account position of this group of countries, and may at least partly have reflected an endogenous response. Part of the rise in saving in emerging and developing economies reflected fiscal consolidation (Figure 11). It may also be the case that some of the rise in saving reflected a slow catch-up of perceptions of permanent income to high growth rates. High saving in the enterprise sector in some countries may also raise questions about corporate governance (including for state-owned enterprises). Overall, it is likely that following the Asian crisis a number of countries deliberately pursued a policy of boosting current account surpluses to accumulate substantial exchange reserves.

Figure 10. Saving rates have diverged between advanced and emerging countries

Figure 11. The position of public finances in selected countries

Aggregate saving rates declined slightly in OECD countries. Given an environment of low interest rates and rising asset prices this could still have resulted from some ex ante increase in saving but this argument is somewhat tenuous. That said, fiscal balances were slightly worse in 2007 than a decade earlier (also on a cyclically-adjusted basis), mainly reflecting the deteriorating US budget position while Japan and the euro area saw significant improvements. Overall, then, aggregate OECD saving changes probably did not contribute much to interest rate and asset price changes over the past decade. US fiscal profligacy and low and declining household saving, while problematic developments in their own right including through this contribution to global imbalances, if anything must have provided an offset

An additional factor putting upward pressure on saving is likely to have been the shift in global income distribution away from low-saving (typically OECD) countries towards high-saving (typically emerging Asian and oil exporting countries). Part of this shift reflected changing shares in world output as between high-saving and low-saving countries (Figure 12). Another part of the shift was driven by the terms-of-trade improvements experienced by oil exporting countries given the run-up in oil prices.

Figure 12. Income has shifted from low saving to high-saving economies

It is very hard to translate the *ex ante* rise in saving to effects on interest rates and the cost of capital. As a possible benchmark, a recent review of the sensitivity of government bond yields to budget balances (OECD, 2009) suggests that a sustained government deficit of 1 per cent of GDP could push up bond yields by some 10-50 basis points. These estimates relate to effects within individual countries, where some of the interest rate effect may leak abroad. Nonetheless, using these numbers and assuming that they are representative of saving effects more generally, the impact of a 2-3 percentage point rise in the world saving rate could be in the order of ½-1 per cent on bond yields.

3.3. Easy monetary policy

Low actual and expected policy interest rates in some OECD countries also helped to boost asset prices and the search for yield. There were a number of reasons for policy interest rates being low, some of which were captured in Taylor-rule type relationships (Figure 13) while others may be seen as justifying deviations from such rules. The uncertainty associated with Taylor-type rules needs to be underlined but, nonetheless, they may provide a useful benchmark for discussion and, furthermore, analysis has suggested that a number of conclusions drawn on the basis of these rules are invariant to smaller changes in numerical assumptions (Ahrend *et al*., 2008)

Figure 13. Monetary policy has been accommodative

Since the mid-1990s, inflation outcomes in OECD countries have been importantly affected by globalisation. Lower prices of manufactured imports resulted both from falling export prices in emerging market producer countries and from greater penetration of producers with low cost bases (implying a shift in sourcing towards emerging market economies). OECD estimations suggest that during the first part of the current decade, these effects reduced annual inflation by some .2-.4 percentage points (Figure 14). Some offset came from the fact that rapid and commodity-intensive growth in emerging economies put upward pressure on commodity prices but the net result was still a dis-inflationary effect in OECD countries. Over and above these effects, greater competition in product markets and structural reform in labour markets may also have put some transient downward pressure on inflation. As a result, the policy interest rates required to achieve a given target inflation rate were reduced. While some degree of undershooting of inflation targets for some time could have been defended it would have been politically

difficult for central banks, in the prevailing regime, not to pass through this favourable supply shock in lower interest rates.

Figure 14. Without globalisation inflation would have been boosted

At the same time, two factors militated for interest rates below those predicted by Taylor rules. First, the bursting of the dot-com bubble led to lower share prices with negative wealth effects on growth, something which a Taylor rule does not pick up. This effect was compounded for a while by corporate scandals which temporarily increased risk premia. Second, and at least in the United States, deflation was seen as a relevant risk. Given the zero floor on interest rates, this was seen as implying an asymmetric distribution of risks and, hence, a separate reason for maintaining interest rates below Taylor-rule levels. Whatever the merit of these arguments on an ex ante basis, it is clear that rates seem to have been overly low when assessed on an ex post basis. Indeed, even on an ex ante basis rates may have been raised at too "measured" a pace during 2004-5. Cross-country evidence suggests that mortgage lending, housing investment, construction investment and house prices all are correlated with deviations from a Taylor rule (Figure 15) (Ahrend *et al*., 2008).

Figure 15. Housing and construction investment are correlated with low interest

3.4. Financial innovation

On a more speculative note, and at the margin of the remit of this paper, financial innovation may have played an independent role in the run-up to the crisis. In particular, financial instruments that allowed the emergence of the sub-prime market and which facilitated housing equity withdrawal, in some cases also encouraged through tax breaks for mortgage interest payments, may have boosted demand for housing and helped to drive up its price (especially in conditions of inflexible supply). While monetary policy was generally set so as to stabilise inflation, with the potential mistakes in this regard described above, financial innovation could have implied a higher level of housing prices for any level of interest rates. The impetus to housing prices coming from this channel could have been followed by some overshooting. Indeed, with housing supply more flexible in the long term than in the short term, some degree of overshooting is likely.

Financial innovation also implied greater, real and perceived, opportunities to transfer and thereby manage risk. Again, for given interest rates and given aversion to risk, this may have led to greater leverage and generally higher levels of risks before hedging.

4. Propagation of the financial crisis

The development that triggered the financial crisis was the turnaround in the US housing market. As the prospects of continued house price increases dimmed, defaults on sub-prime mortgages began to rise and the value of mortgage based, and often non-transparent, securities fell. This again led to losses among banks and other financial actors, concerns about their solvency in conditions of high leverage, runs on individual institutions, rising prices of insuring against default and a general seizing up of securities and interbank markets and a hardening of lending attitudes among banks.

OECD country consumers cut back on consumption in response to tighter financial conditions, wealth losses on shares and housing, prospects of higher unemployment and general uncertainty. Enterprises also reduced outlays in response to more difficult financing conditions, expectations of declining sales and higher uncertainty. They also reduced production drastically towards the end of 2008 but not sufficiently to avoid a run-up in inventories that is having to be worked off in 2009.

Given the nature of the set-back, OECD demand for durable goods has been hit particularly hard. With manufacturing sectors having undergone a substantial internationalisation of their value chain (Figure 16), world trade was hit hard (Figure 17). OECD estimations suggest that the tightening in financial conditions may have had an additional negative influence on trade growth, presumably reflecting difficulties with respect to trade finance. The decline in world trade was one of the essential transmission channels from countries directly affected by the financial crisis towards others, including emerging economies. In addition to this channel, emerging economies were also affected by a reversal of capital flows as lending and FDI flows were cut back and OECD financial and non-financial enterprises sought safety in highly liquid assets.

Figure 16. Production chains have become more international
Figure 17. World trade growth has collapsed

5. Conclusions and policy issues

The description above suggests that a number of developments that were in themselves desirable contributed to generating an environment of high asset prices, low risk premia and appetite for leverage. A number of questions suggest themselves against this background:

- Inflation targeting monetary policy may, in conditions of positive supply or saving shocks, lead to low interest rates which are likely to translate into higher asset prices. If the positive shocks turn out to be temporary or if an impetus to asset prices leads to over-shooting, a painful adjustment period may sometimes follow. This raises the question whether changes to the inflation targeting framework may allow better dealing with such developments (*e.g.* through longer time horizons and greater tolerance of short-term deviations from target); whether the objective of monetary policy needs modification (*e.g.* to include some target related to financial stability); or if additional instruments are required (*e.g.* macro-prudential regulation affecting lenders or borrowers)?

- At current levels of explicit or implicit inflation targets, a monetary policy that leans against a wind of higher asset prices might lead to unduly low current inflation rates. At the same time, experience following the bursting of the Japanese asset price bubble, the dot.com bubble and, now, the financial bubble have shown that bursting bubbles may entail a substantial risk of deflation. Once the current crisis is over, should this influence the objectives set for monetary policy? In particular, should inflation targets be higher or should a (rising) price-level target be set?

- During the recent bubble episode, fiscal policy at the level of the OECD countries at large did not contribute much to saving developments in either direction. It may also be argued that to the extent a tighter fiscal stance would have put downward pressure on bond yields, it could have contributed to an unsustainable asset price boom. By contrast, greater fiscal discipline would have provided a better starting point for addressing the fall-out from the bursting of the bubble. Are there any strong conclusions to be drawn as to the appropriate role of fiscal policy during asset price bubbles?

- The rise in saving in emerging economies may have reflected the interaction between rapid growth in income and the need to build-up precautionary saving in conditions where social safety nets, including health and pension systems, are weak and where access to financial markets is limited. While such recommendations would not be standard fare for developed economies, could liberalisation of financial markets and extensions of social safety nets in emerging economies

help avert unwarranted increases in domestic saving and associated international payments imbalances?

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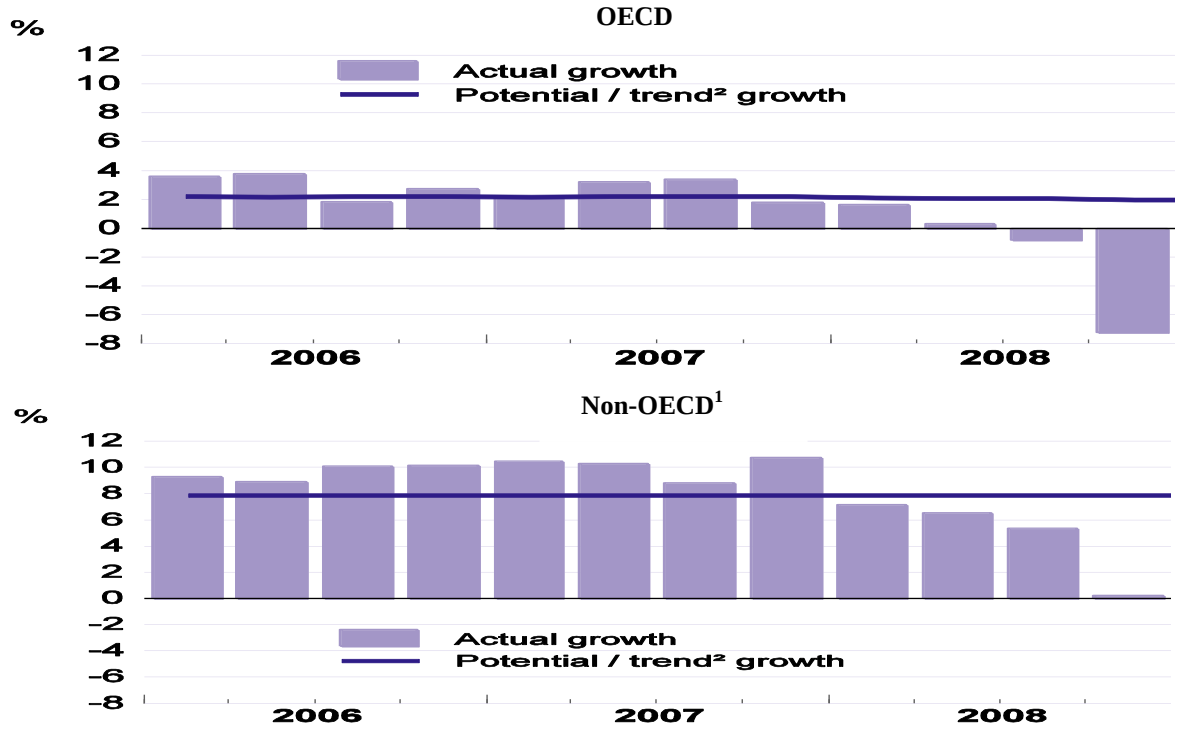
Figure 1. The economic downturn is global



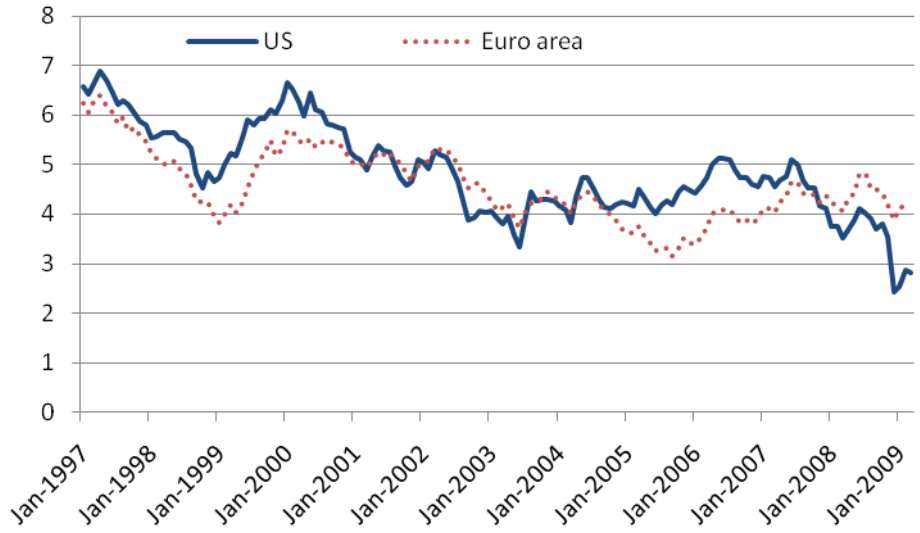
1. The non-OECD region is a weighted average, using 2000 GDP weights and PPPs, of Brazil, China, the Russian Federation and India, which together accounted for about half of non-OECD output in 2000.

2. Trend growth for the non-OECD region is the average over the period 2000-2007.

Source: OECD.

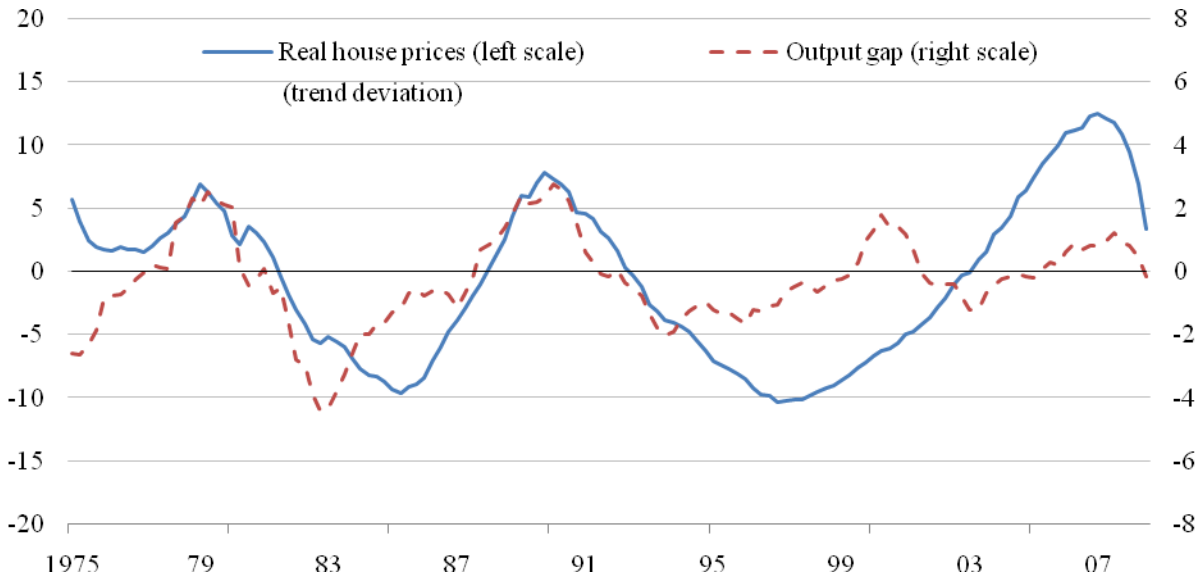
Figure 2. Government bond yields fell to low levels

(10-year maturity)



Source: OECD.

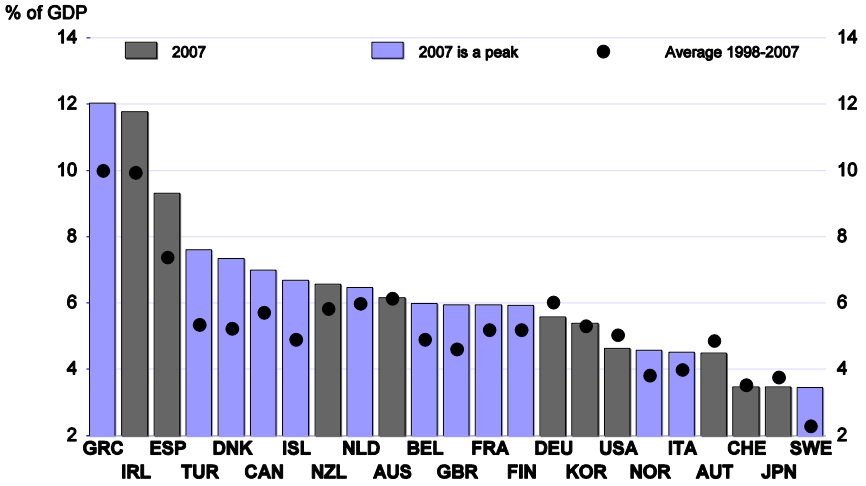
Figure 3. OECD house price and economic cycles became desynchronised



Note: Real house prices have been detrended using a linear trend. The OECD real house price index is an aggregate of the 17 countries for which time series start in the early 1970s. Computed using purchasing power parity-adjusted GDP weights.

Source: OECD.

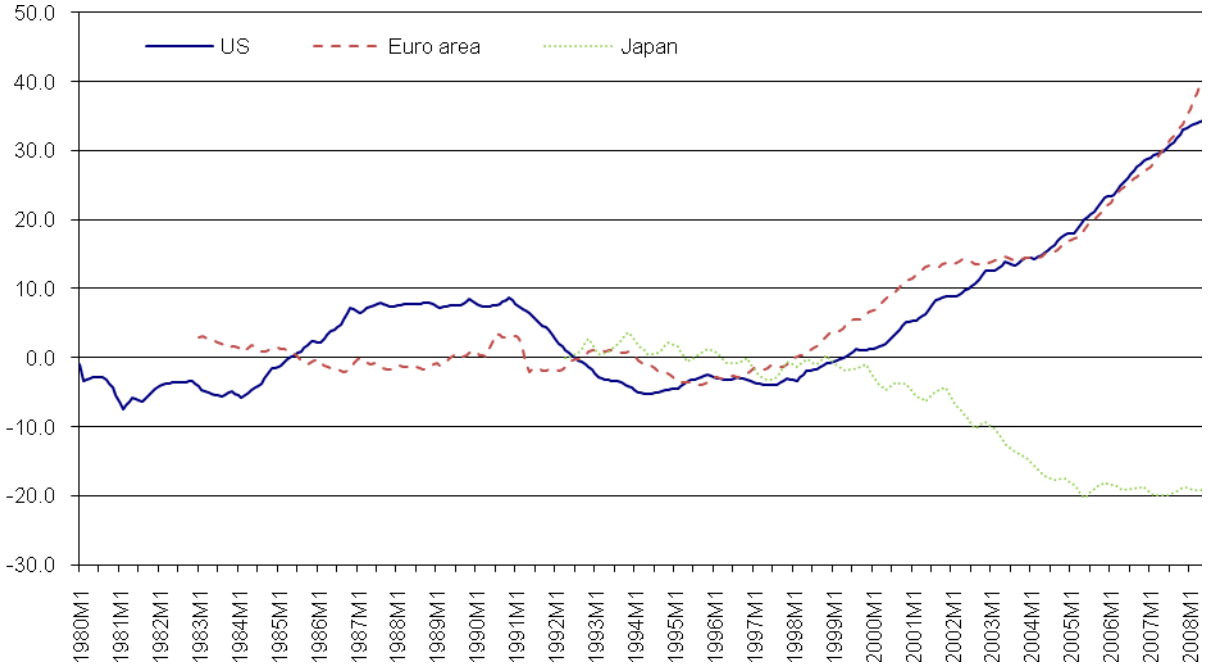
Figure 4. Housing investment reached high levels



Source: OECD Economic Outlook 82.

Figure 5. Credit increased above its trend in the US and euro area

(Excess credit level[1])

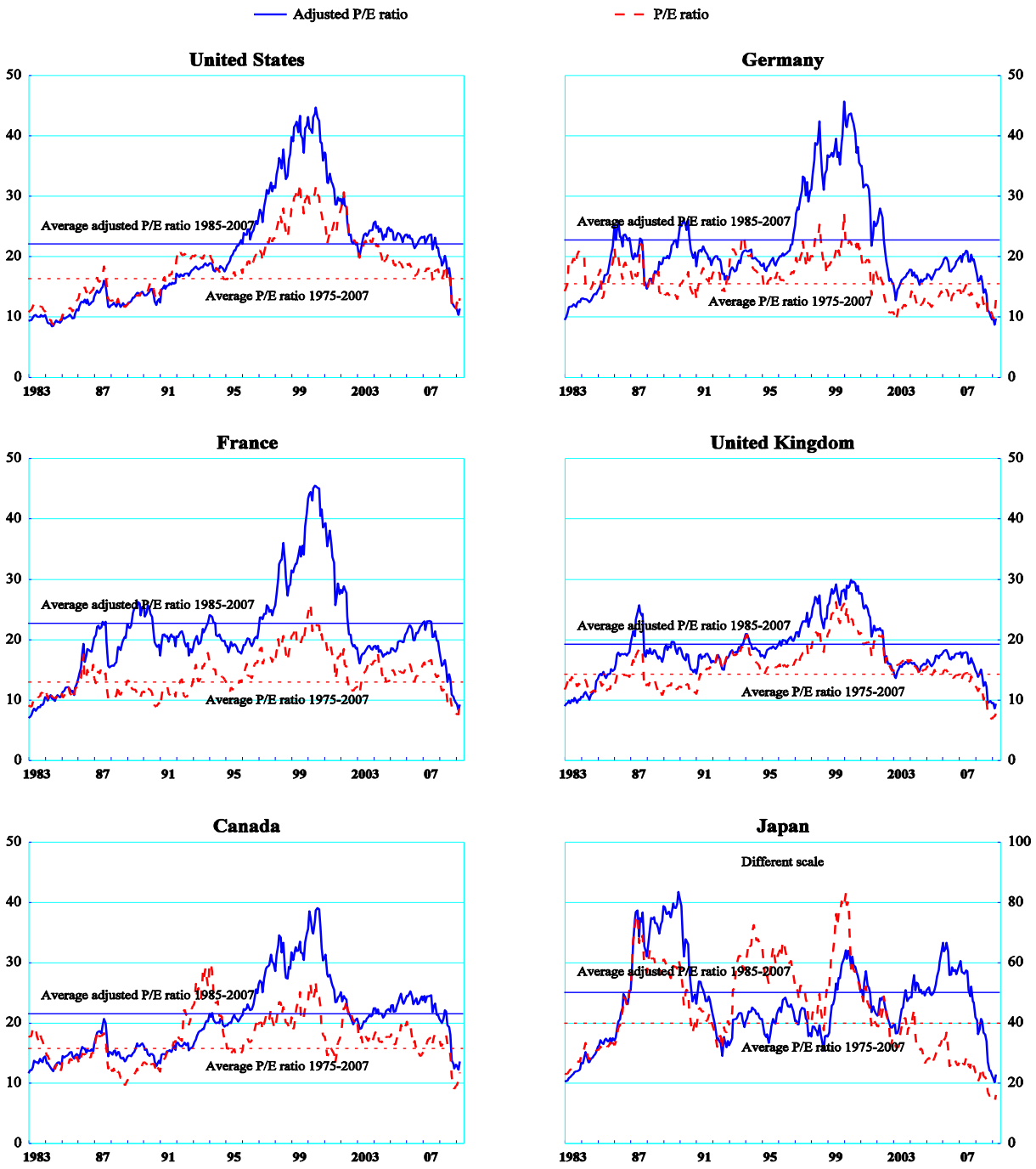


1. Deviation of domestic bank lending to the private non-financial sector as a share of GDP from long-term trend. 3-month moving average.

Source: OECD.

Figure 6. Price-to-earning ratios were below those of the dot-com years

Last observation: April 2009



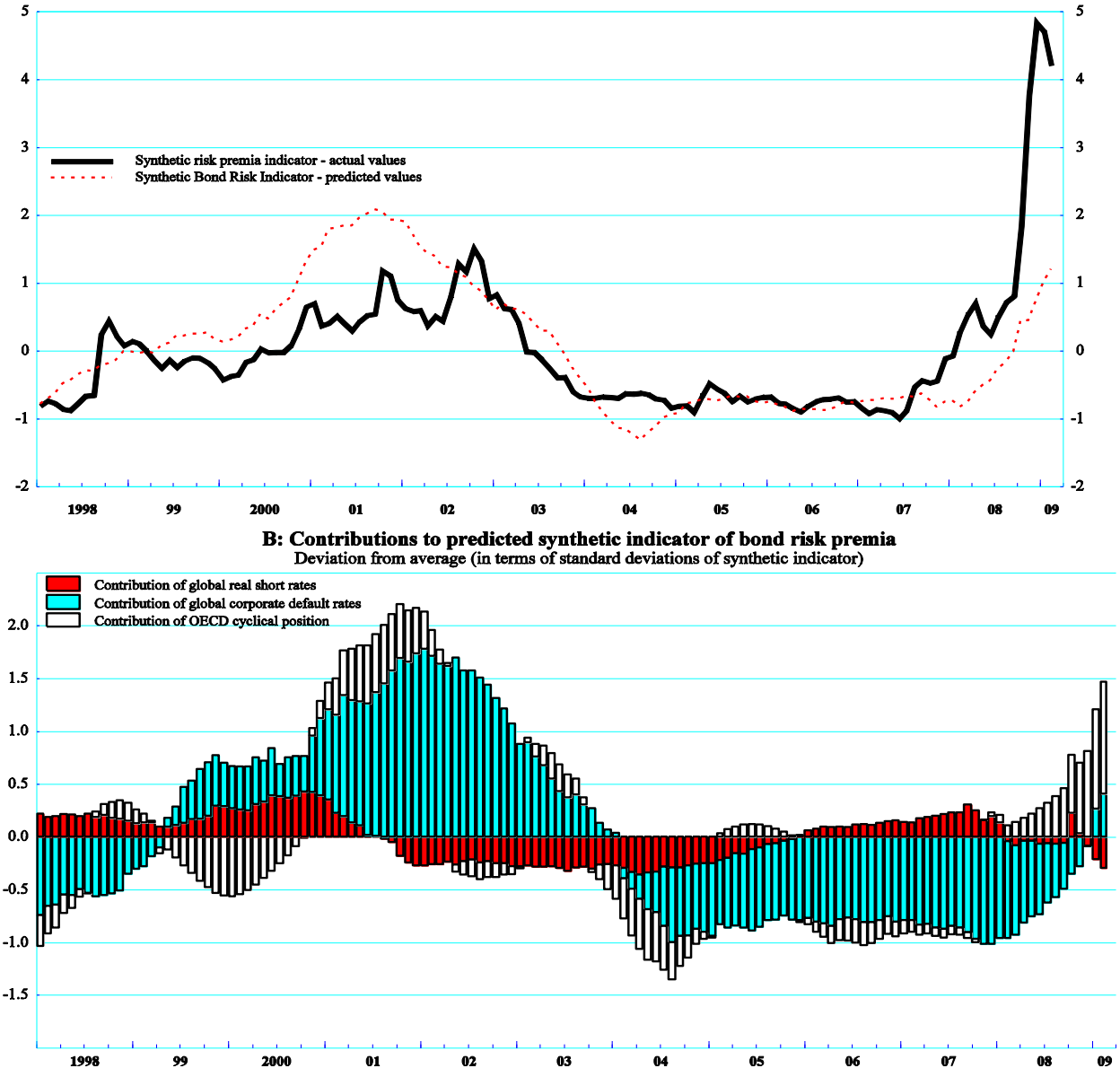
Note: Adjusted P/E ratios are calculated as the ratio of stock prices to the moving average of the previous 10 years' earnings, adjusted for nominal trend growth.

Source: Datastream, OECD calculations.

Figure 7: Bond market risk premia were low until the crisis

OECD synthetic indicator of bond risk, actual and predicted values

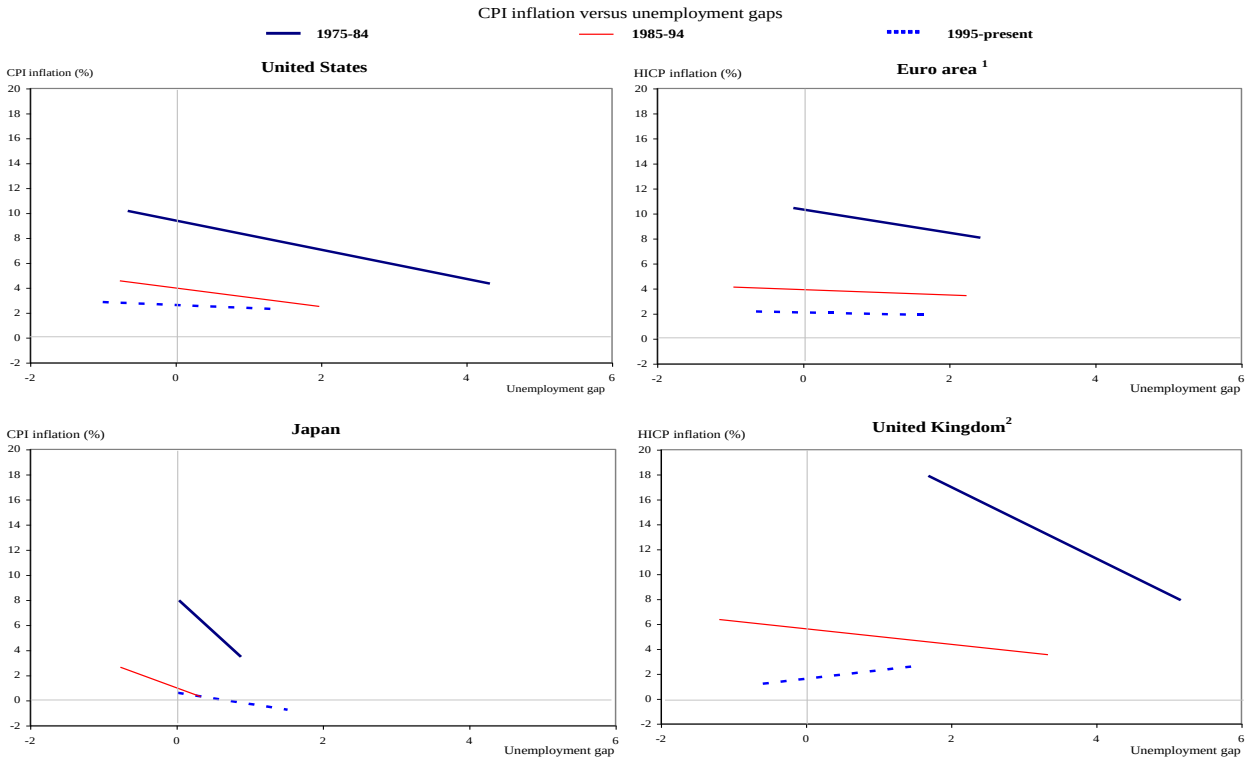
Deviation from average (in terms of standard deviations of synthetic indicator)



Note: The synthetic measure is derived from risk proxies of various securities, including corporate and emerging market bonds. In regression analysis it is well explained by global short-term interest rates and liquidity, corporate default rates and OECD's leading economic indicators, a proxy for expectations of the near-term outlook for the OECD cyclical position.

Source: OECD calculation.

Figure 8. The relationship between inflation and the unemployment gap has weakened



Note: The unemployment gap is the difference between the unemployment rate and the NAIRU (as estimated by the OECD). The chart shows regression lines over the periods in question.

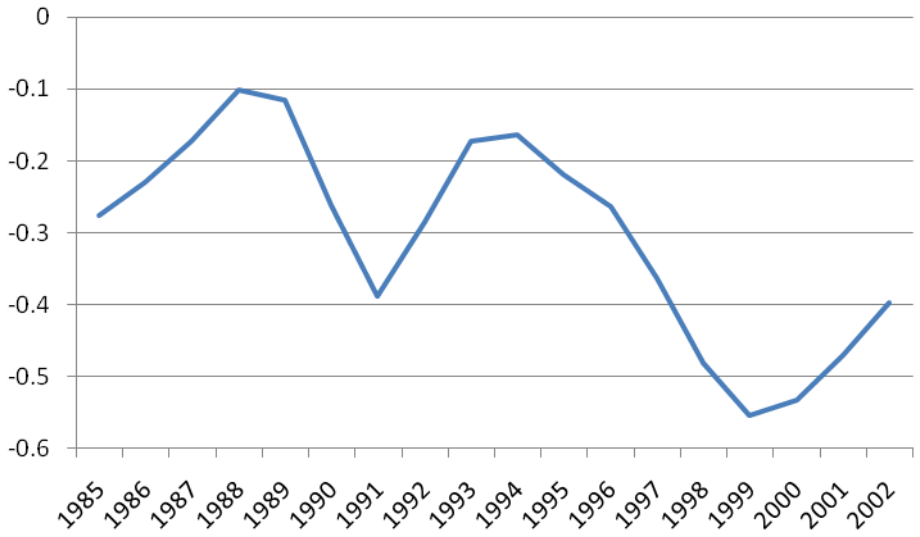
1. In calculating the euro area aggregate, Western Germany is used in place of unified Germany prior to 1991.

2. The slope of the trend line in the United Kingdom from 1995 to the present period should not be interpreted as indicating that more economic slack is associated with higher inflation. The granting of operational independence to the Bank of England in May 1997 has noticeably modified the relationship between UK inflation and unemployment. This change implies that the regression line on data covering the 1995-to-present period is biased.

Source: OECD.

Figure 9. The wage elasticity of labour demand has increased

(Rolling window estimates, 5-year span)

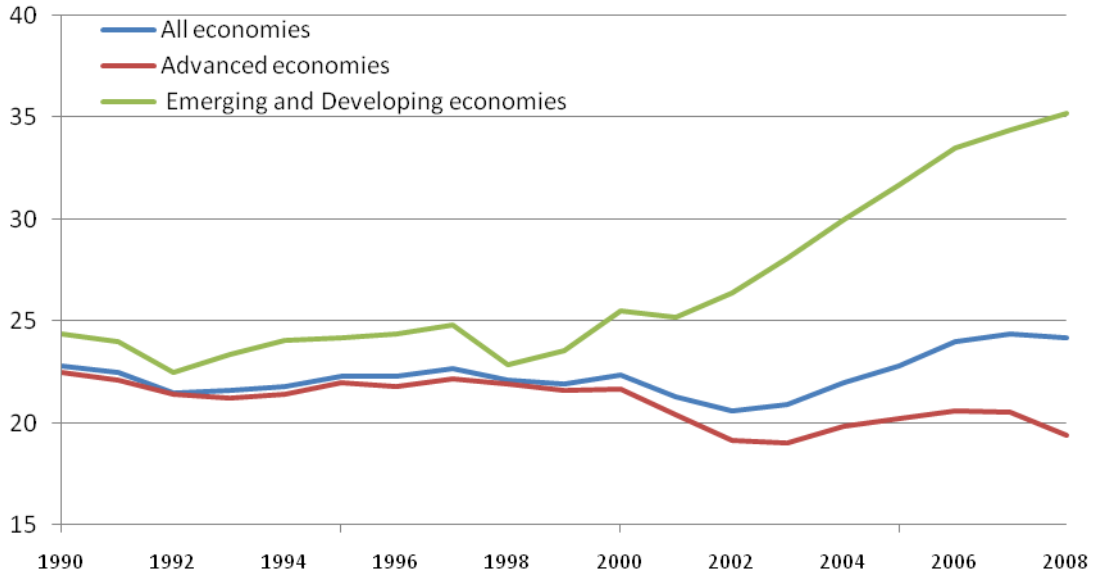


Note: Elasticities have been estimated from a static model of labour demand across countries and over rolling 5-year time periods.

Source: OECD, Employment Outlook 2007.

Figure 10. Saving rates have diverged between advanced and emerging economies

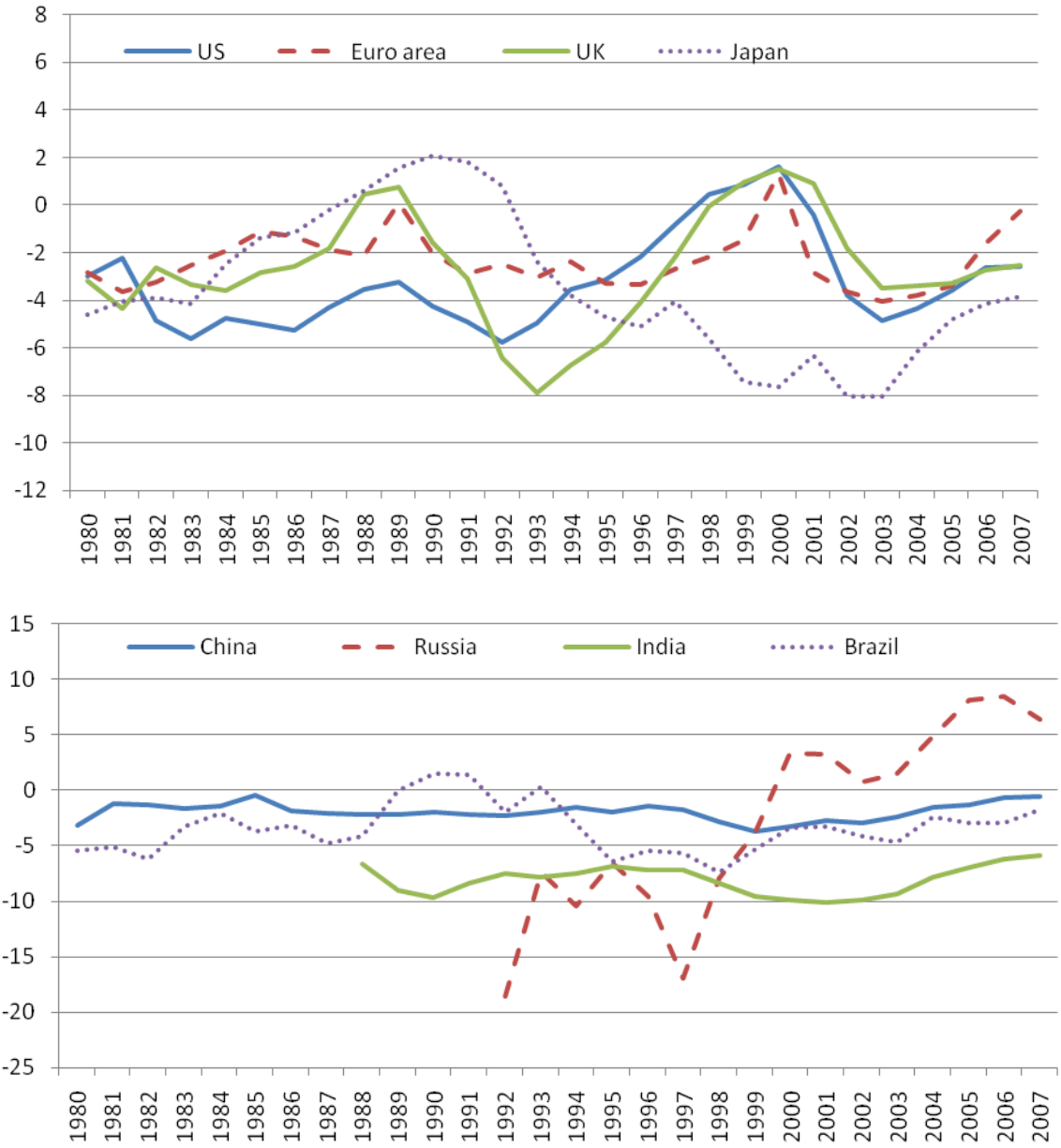
(Total economy, % of GDP)



Source: IMF, *World Economic Outlook*.

Figure 11. The position of public finances in selected countries

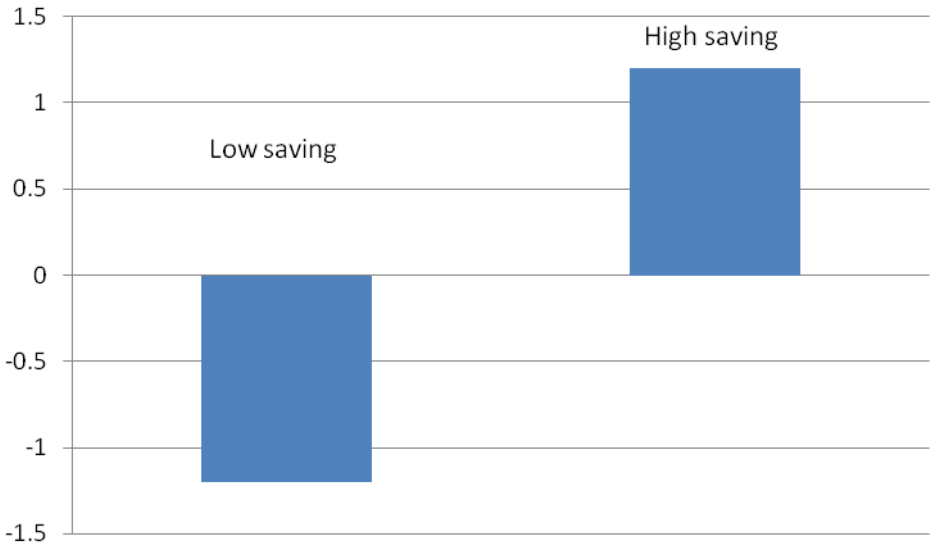
(General government net lending, % of GDP)



Source: IMF, *Government Financial Statistics*.

Figure 12. Income has shifted from low saving to high saving economies

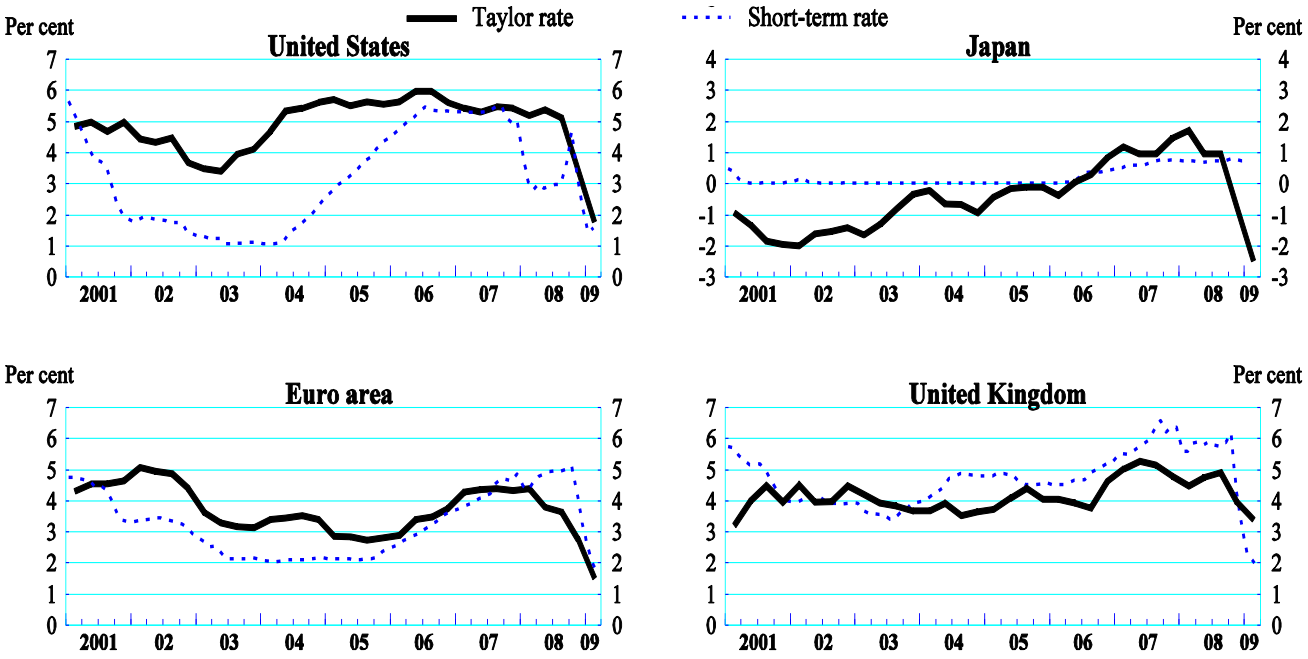
(Change in the share of world GDP over the period 2000 -2007, % points)



Note: Low saving countries are those with a saving rate lower than 30% in year 2000, and high saving countries are those with a saving rate higher or equal to 30%.

Source: World Bank, World Development Indicators.

Figure 13. Monetary policy has been accommodative

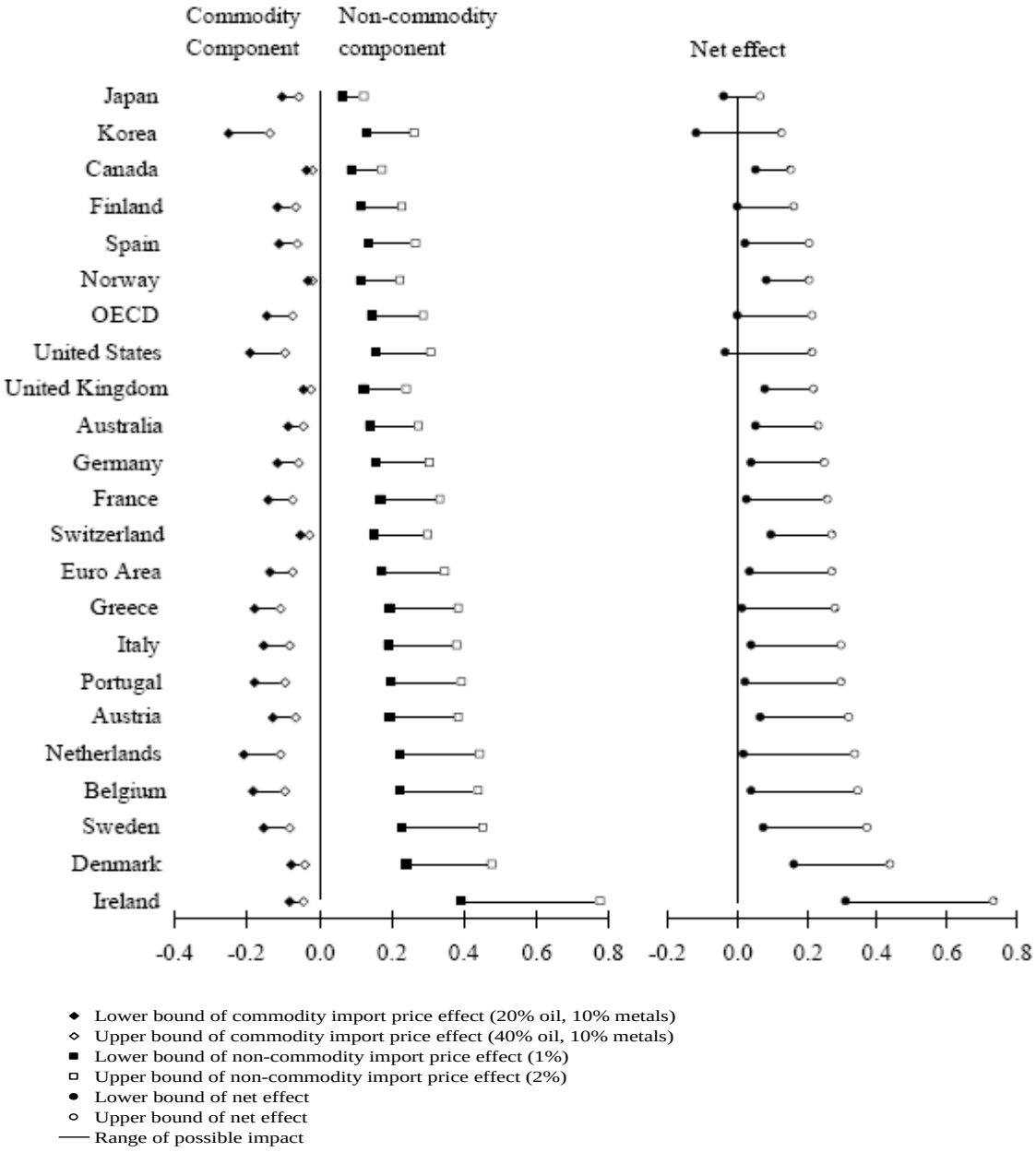


Note: The Taylor rule rate is a function of the equilibrium real interest rate (short term), the (implicit) inflation target, the average output gap and the gap between actual core inflation and the implicit inflation target. Equal weight is given to the inflation gap and the output gap. For the United States, the assumed price stability target is for inflation of 1.9% and the assumed equilibrium real interest rate is 2.85%. For Japan, the assumed price stability target is for inflation of 1.9% and the assumed equilibrium real interest rate is 2.1%. For the euro area, the assumed price stability target is for inflation of 1.9% and the assumed equilibrium real interest rate is 2.1%. For the United Kingdom, the assumed price stability target is for inflation of 2.0% and the assumed equilibrium real interest rate is 3.0%.

Source: OECD.

Figure 14. Without globalisation inflation would have been boosted

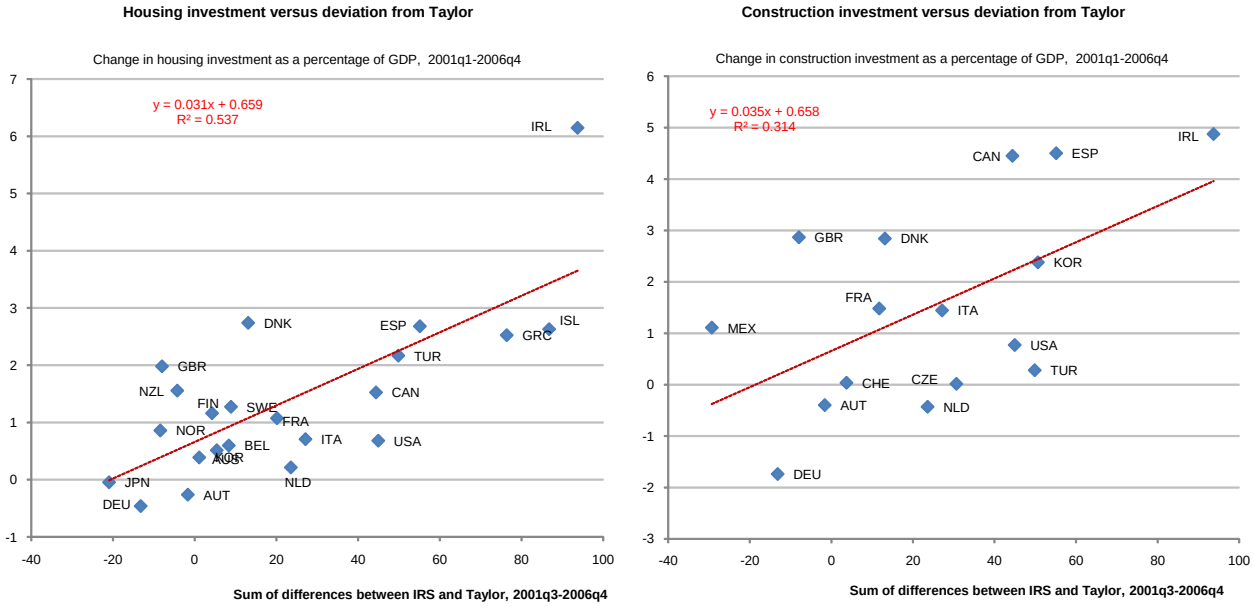
(Simulation inflation impacts of removing globalisation, average % point difference over 2000-05)



Note: Simulations are based on the estimated impact of globalisation on non-commodity and commodity price inflation in each country. The lower (upper) bound estimate of the impact of globalistion on non-commodity import price is 1% (2 %). The lower (upper) bound estimate of the impact of globalistion on oil price is 20% (40 %). The estimate of the impact of globalistion on metal is 10%.

Source: Pain *et al.* (2006).

Figure 15. Housing and construction investment are correlated with low interest rates

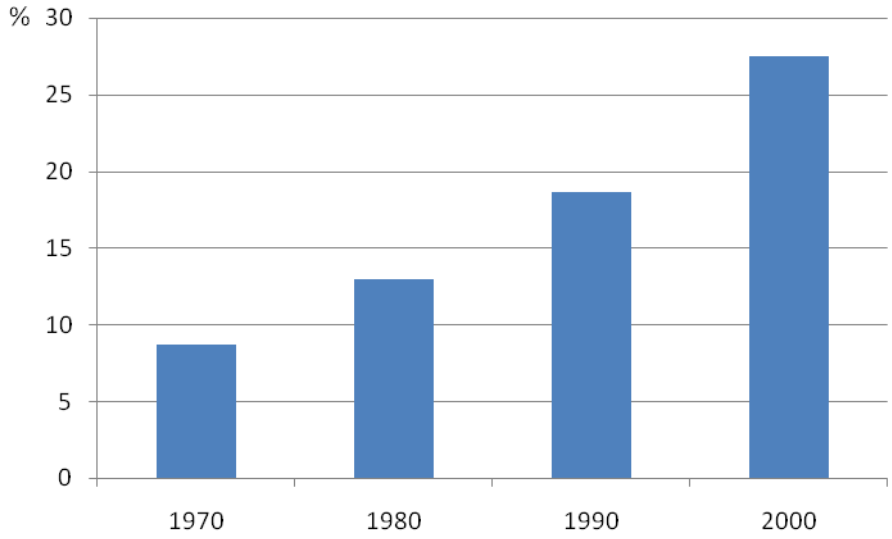


Note: The Taylor rule rate is a function of equilibrium real interest rate (short term), the (implicit) inflation target, the average output gap and the gap between actual core inflation and the implicit inflation target. Equal weight is given to the inflation gap and the output gap. For the United States, the assumed price stability target is for inflation of 1.9% and the assumed equilibrium real interest rate is 2.85%. For Japan, the assumed price stability target is for inflation of 1.9% and the assumed equilibrium real interest rate is 2.1%. For the euro area, the assumed price stability target is for inflation of 1.9% and the assumed equilibrium real interest rate is 2.1%. For the United Kingdom, the assumed price stability target is for inflation of 2.0% and the assumed equilibrium real interest rate is 3.0%.

Source: OECD.

Figure 16. Production chains have become more international

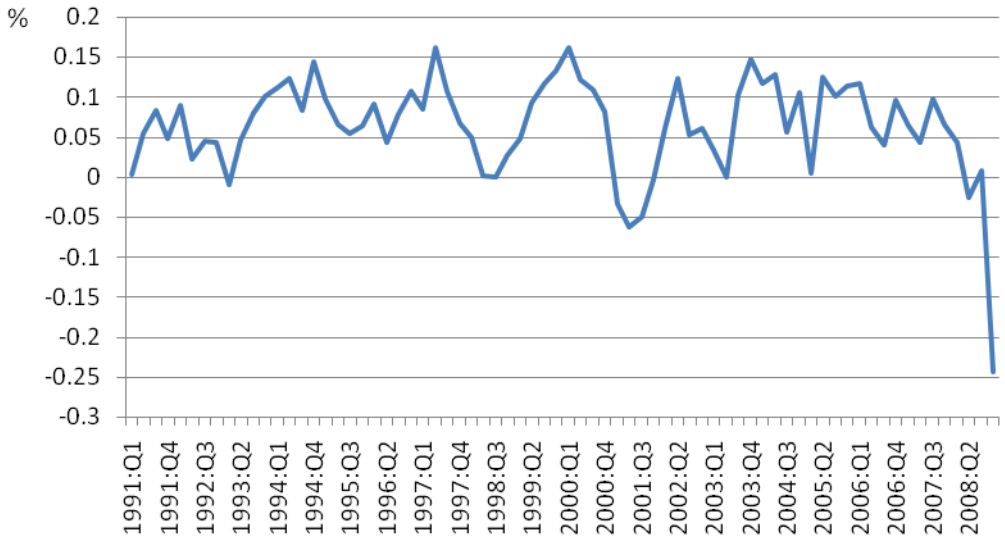
(Share of imported inputs in manufacturing production)



Source: OECD, Structural Analysis database.

Figure 17. World trade growth has collapsed

(Quarterly growth rates annualised)



Source: OECD.