Monetary Policy and Central Banking in the Wake of the World Financial Crisis

Měnová politika a centrální bankovnictví v podmínkách světové finanční krize

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Abstract

The article identifies causes of the world financial crisis and its impact on monetary policy and central banking. Under the pressure of crisis, the standard monetary policy of previous periods shifted to unconventional instruments of "quantitative easing". This change represents move away from technical monetary policy towards a more activist approach. Will this shift be only temporary and monetary policy will return to traditional standards as the crisis subsides? Or will its impact be of a more permanent character? The article examines the applied unconventional monetary policy measures, their consequences and risk involved. For the past decades central banking has been dominated by consensus which holds the view that central bankers´ prime task is to keep inflation low and stable. Learning the lesson from the current crisis the article discusses the arguments whether monetary policy should be and could be more oriented to the broader issues of financial stability, not just price stability.

Keywords

monetary policy, central banking, financial crisis, price stability, global imbalances, savings glut, liquidity glut, interest rates, quantitative easing, unconventional instruments balance sheets, asset market bubble, inflation expectations

Abstrakt

Stať identifikuje příčiny světové finanční krize a její vliv na měnovou politiku a centrální bankovnictví. Pod tlakem krize došlo k posunu od standardní měnové politiky předchozího období k nekonvenčním nástrojům "kvantitativného uvolňování". Tato změna představuje odklon od technické měnové politiky k více aktivistickému přístupu. Bude tento posun pouze dočasný a měnová politika se po odeznění krize vrátí k tradičním standardům? Nebo bude mít dopad krize trvalejší charakter? Stať analyzuje uplatněné nekonvenční nástroje měnové politiky, jejich důsledky a existující rizika. V uplynulých desetiletích dominoval v centrálním bankovnictví konsensus podle něhož je primárním úkolem centrálních bankéřů udržovat nízkou a stabilní inflaci. Zkušenosti ze současné finanční krize vyúsťují ve stati v diskusi argumentů zda by měnová politika měla být a mohla být více orientována na širší problematiku finanční stability, a nejen pouze cenové stability.

Klíčová slova
měnová politika, centrální bankovnictví, finanční krize, cenová stabilita, globální nerovnováhy, nadměrné úspory, nadměrná likvidita, úrokové míry, kvantitativní uvolňování, nekonvenční nástroje, bilance, bublina na trhu aktiv, inflační očekávání.

Introduction

The world financial crisis caused substantial changes in the policies and instruments of many central banks. In this article those changes are addressed and evaluated and the implied risk discussed. Questions are raised regarding the future consequences of central banks' reactions to the challenges of the financial crisis.

Under the pressure of crisis, the standard monetary policy of previous periods shifted to unconventional instruments of "quantitative easing". Will this shift be only temporary and monetary policy will return to traditional standards as the crisis subsides? Or will its impact be of a more permanent character?

In searching for the answers to those issues the article identifies causes of the current financial crisis. Their examination highlights the dominant role of the profound, systemic causes on the backdrop of changed environment in the world economy. Are unconventional monetary policy instruments introduced in response to the crisis capable to cope with those causes? The article points to their inherent risk and to lot of uncertainty how monetary policy works in a world of near-zero interest rates.

For the past decades central banking has been dominated by consensus which held the view that central bankers´ prime task is to keep inflation low and stable. Now, in the wake of the financial crisis, it seems to be commonplace to demand that central bankers must care about the health of the financial system, not just price stability.

Should monetary policy "lean against" asset bubbles and focus more on the broader financial stability? The article surveys "pros" and "cons" of alternative approaches and concludes with the challenges which monetary policy and central banking are likely to face given their broader domain and responsibility.

1 Central banks and monetary policy in the "golden" decade before the outbreak of the world financial crisis

From the macroeconomic point of view, the decade preceding the first signs of the financial crisis in 2007 and its massive spread in 2008 seemed an extremely favourable period in modern history of the world economy. Stable and relatively dynamic economic growth coexisted with low and non-volatile inflation.[1] The outbreak of the financial crisis brought that "golden decade"[2] to an end. With the benefit of hindsight it is clear, however, that the primary causes of the crisis were already built into the "golden" period. More precisely, the long-running successful macroeconomic situation fostered

1 Economists spoke of a "Great Moderation", i.e. a period in which the traditional cycle was largely dampened.

2 Referred to in the literature as the "Nice (Non-Inflationary Consistently Expansionary) Decade".

undue satisfaction with the existing trends and led to underestimation of the arising imbalances and implied risks. An environment prone to bubbles was thus created.

This period was simultaneously one of consolidation of changes in monetary policy orientation and in the concept of central banking in general. In that respect, profound changes had been taking place since the late 1970s and early 1980s. The key feature of those changes was an orientation towards **price stability** as the principal, if not exclusive, goal of monetary policy. The conviction gained ground that price level stability is the most important way in which central banks and monetary policy can contribute to economic development and sustainable growth.[3]

In this period, both central bankers and academic economists seemed to reach a consensus regarding the concept of modern monetary policy – the goal: price stability; the instrument: short-term interest rates. Although short-term interest rates alone have only a modest impact on economic activity, there is a standard assumption that their transmission affects medium- and long-term interest rates, which do have a substantial impact on the economy.

When trying to achieve price level stability, central banks follow a specific monetary policy strategy. Up to the 1990s, the monetary policy strategies applied led to price stability only indirectly, through the use of intermediate targets such as the targeted value of a monetary aggregate or exchange rate. In the last decade, however, an increasing number of central banks have switched to achieving price stability directly, i.e. without intermediate targets, under a monetary policy strategy of inflation targeting. This direct orientation of monetary policy on its final goal, price stability, can be considered a culmination of the growing role that price stability has been playing in the monetary policy of contemporary central banks.

A comparison of central banking and monetary policy during the recent "golden" decade with the 1960s and 1970s reveals that the changes that have taken place are profound indeed. The shift towards price stability as the dominant goal of monetary policy has been accompanied by substantial changes in the role, activities and monetary policy of central banks.

"Technical" versus "activist" monetary policy, rules versus discretion

Monetary policy in the 1960s and 1970s was viewed primarily as a means of stimulating economic activity and reducing unemployment. This approach was based on the assumption that monetary policy instruments can at least dampen, if not eliminate, the cycle. As a result, monetary policy at this time aimed at smoothing cyclical fluctuations was dubbed "**activist**" or "**fine-tuning**". This monetary policy orientation on the short term neither required, nor made possible, the use of fixed rules. On the contrary, the decision-making was of a discretionary character.

3 *Cf. Fischer S., Why Are Central Banks Pursuing Long-Run Price Stability, in: Achieving Price Stability, Jackson Hole, August 1996.*

With the shift in the orientation of monetary policy towards price stability, and with the lesson learned that monetary policy effects occur after a considerable and variable time lag, the arguments in favour of the adoption and use of **monetary policy rules** prevailed. Instead of the discretionary approaches aimed at fine-tuning to correct cyclical fluctuations which had characterised the monetary policy of the previous period, the substance of monetary policy-making became (putting it simply) setting one instrument (short-term interest rates) so as to achieve one goal (price stability). In this changed environment, monetary policy increasingly went into **technical mode**[4].

Central bank independence

The transformation of monetary policy into a technical issue was accompanied by increasing **independence of central banks.** Empirical studies proved a correlation between the degree of central bank independence from the government executive and the inflation figures achieved: as a rule, the higher the degree of central bank independence the lower the level of inflation. With the move to inflation targeting, central bank independence has increasingly been applied even in the formulation of monetary policy goals, and not only in the selection and setting of monetary policy instruments. This means not only "operational" or "instrumental" independence, but also "goal" independence[5].

Monetary policy transparency and predictability

Within the activist policy framework, monetary policy-making was veiled in secrecy. Central banks had to try to more or less "surprise" economic agents (a consequence of the time-inconsistency of monetary policy). By contrast, the reorientation of monetary policy towards the goal of price stability generated a need to influence and **stabilise the inflation expectations** of economic players. To that end, various types of nominal anchor are applied.[6] These include a money supply target, an exchange rate target, or an inflation target directly (usually in the form of a year-on-year increase in the consumer price index). As a result, monetary policy has become more **transparent and predictable.**

Central bank credibility

A comparison of inflation in the recent decade with that in the 1970s and 1980s leads to the conclusion that the world economy's "golden" growth decade was simultaneously an exceptionally successful period of central banking. Inflation was relatively low and stable worldwide. The maintenance of a low inflation environment amid relatively dy-

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4 Cf. King M., Challenges for Monetary Policy: New and Old, in: New Challenges for Monetary Policy, Jackson Hole, August 1999.

5 This „goal" independence means that central bankers themselves set a concrete target for monetary policy implementation in the given period. Within the regime of inflation targeting it does usually mean the numerical increase of consumer price index y/y. Such a concrete goal must be distinguished, however, from the "ultimate goal" which represents price level stability. "Ultimate goals" are imposed on central bankers, mostly through a legal act. In the case of the Czech National Bank the goal of price level stability is fixed in the National Constitution.

6 Cf. Key Issues in the Choice of Monetary Policy Framework, in: Mahadeva L., Stern G., eds. : Monetary Policy Frameworks in a Global Context, Routledge, London 2000.

namic economic growth and dampened cyclical fluctuations lent increasing **credibility** to the anti-inflationary monetary policy of central banks.

The outbreak of the world financial crisis: an unexpected discontinuity?

The outbreak of the financial crisis shook confidence in the existing schemes and policies. Despite the low and stable inflation and dampened cyclical fluctuations there was suddenly a worldwide financial crisis, a deep recession and an imminent risk of deflation, but with swollen inflation threatening in the longer run, implying the loss of the previously standard, i.e. low-inflation, environment.

With the benefit of hindsight it can be argued that undesirable (excessive) inflation (measured as the increase in the consumer price level) was not the main monetary policy challenge of the past decade. The "structural" risk was the imbalances that had grown under the veil of the success of exceptionally sustained and relatively dynamic economic growth in the world economy. It was proved that financial imbalances and various "bubbles" in the markets for financial and real assets (especially housing) can be generated even at a time of low and stable inflation. Their subsequent bursting or deflation tends to result in considerable losses, as the current financial crisis has shown.

2 The causes of the world financial crisis

Long before the outbreak of the world financial crisis in 2007 and 2008, a discussion on the risks and controversial issues of current developments and changes in the financial world had been developing. A whole range of proposals had been formulated to improve the international financial architecture. Nevertheless, the lesson that the collapse of the sub-prime mortgage market, i.e. a relatively limited segment of the financial market, could result in the deepest world financial crisis since the 1930s was entirely unexpected.

After the crisis erupted, the search for its underlying causes concentrated on individual, relatively immediate and visible weak points in the financial market itself. Apart from the massive spread of non-standard loans, mortgages in particular, the criticism concentrated on the low transparency of derivatives markets, on lapses in the regulatory framework and on the failures of rating agencies.

These specific factors no doubt played a negative role. Yet the nature and depth of the world financial crisis suggest the existence of **systemic, structural causes.** There is a strong argument that only given such fundamental causes could failures on the US sub-prime market have triggered a worldwide avalanche of crisis in most financial markets and, subsequently, in the real economy. Simplifying somewhat, it can be claimed that the collapse of the US sub-prime market turned out to be **the trigger of the financial crisis by chance.** In a different situation, another market segment might have played this role.

As for a more specific identification of the fundamental causes of the world financial crisis and their relative importance and implied causality (causes and effects) no clear

consensus has been reached as yet. The individual approaches and strands of argumentation in the literature differ significantly.

Allowing for some simplification, there are two alternative explanations of the fundamental causes of the financial crisis:

i) growth of global imbalances in the world economy
ii) profound changes in the character and activities of financial sector institutions

2.1 The financial crisis viewed as a consequence of global imbalances in the world economy

Though formulated in various ways, the unifying postulate of this approach is the impact of increasing global imbalances in the world economy. These imbalances manifested themselves in various bubbles in the markets for both financial and real assets, in particular housing. They gave rise to an environment that compromised and ultimately imperilled the very functioning of the financial system. In the identification of the specific causal factors, two different streams of opinion can be distinguished. The first one sees the problem in a "savings glut" and the other in a "liquidity glut" in the world economy.

2.2 "Savings glut"?[7]

According to this approach the primary causes of the imbalances were discontinuities and shock-like changes in the formation, distribution and use of savings in the individual regions of the world economy, particularly between the developing and developed countries, which resulted in deepening global imbalances.

Two parallel factors coincided:

- a number of developing countries, especially in Asia, generated big current account surpluses. After the painful lessons of the 1990s crisis in Latin America, Asia and Russia, these countries followed a policy of an undervalued exchange rate (with respect to USD in particular) and accumulated foreign exchange reserves as a "protective shield" against the re-appearance of balance of payments crises. In quantitative terms, the Chinese current account surplus was dominant. In 2007 it amounted to 11% of GDP and the official Chinese foreign exchange reserves climbed to USD 2 trillion. This was mirrored in the US current account deficit, which increased to 6% of GDP in 2006.
- the second source of the savings glut was the oil-exporting countries and – to a lesser extent – some other commodity exporters as well. The price of oil increased from USD 25 to USD 150 per barrel between 2000 and mid-2008. As a result, the

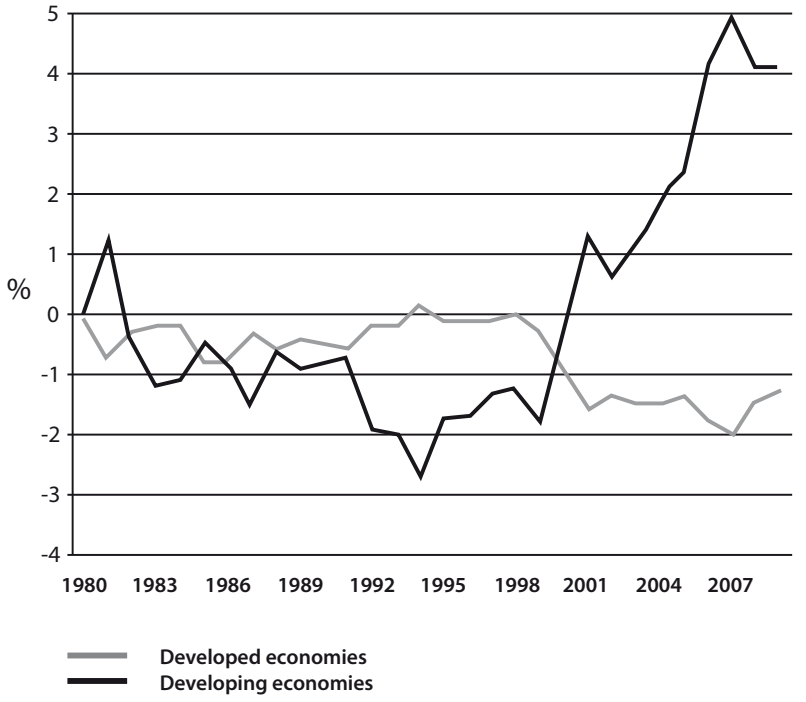
7 In the literature, the savings issue in the financial crisis is dubbed a "savings glut". The term was coined by the chairman of the Federal Reserve System, Ben Bernanke, in 2005 in his lecture "The Global Saving Glut and the U.S. Current Account Deficit" (see www.federalreserve.gov/boarddocs/speeches).

income of the oil-producing countries soared, and thanks to those "petrodollars" their foreign exchange reserves rose as well.

The internal economies and domestic capital markets of these developing countries were not able to absorb such a shock-like increase in disposable savings in the short run, i.e. to invest them within the national economy, in infrastructure, health care and education. Consequently, investment opportunities were sought for the accumulated savings on the markets of developed countries, especially the US.

These savings flows were reflected in a widening gap between the current account surpluses of the developing countries and their mirror counterparts in the form of increasing current account deficits in many developed economies (see Chart 1).

Chart 1: Current account to GDP ratios of selected developed and developing countries (in %)



Data: IMF.

The aforementioned direction of the savings flows contradicts the standard reasoning of economic theory.[8] According to it, the domestic savings of developing countries as

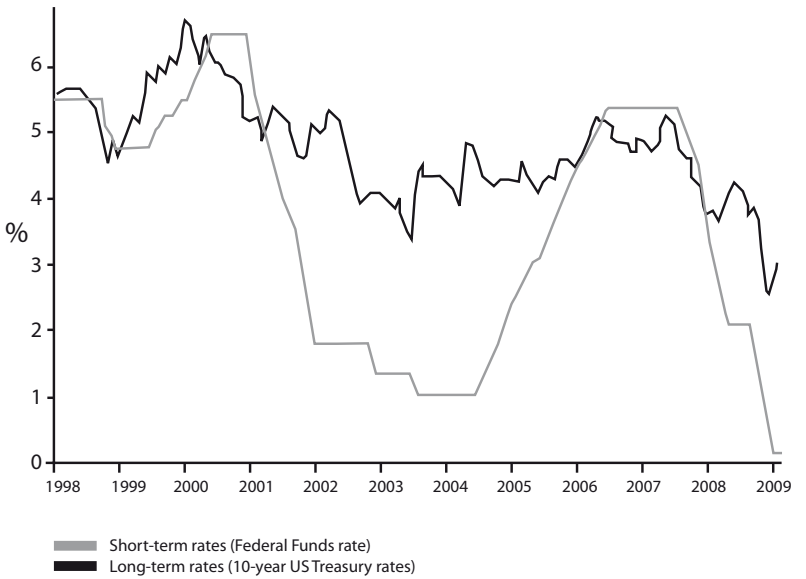
8 *This refers primarily to the dominant neoclassical model, which assumes a decreasing marginal yield of capital.*

a rule are not sufficient to cover the available investment opportunities, which – as confirmed by empirical data – provide higher yields on capital than in developed countries. As a result, developing countries are therefore usually importers of capital, which leads to deficits on their current accounts. The situation in developed economies should usually be just the opposite, with savings exceeding profitable investment opportunities.

When one compares the situation in the world economy before the outbreak of the financial crisis with these postulates of economic theory, the anomaly of the recent savings flows and their deviation from the "standard" seems obvious. Massive savings flows went from China and other developing countries to the developed countries, generating increasing demand for their financial assets, especially US government bonds (Treasuries).

These specific conditions and their consequences seem to explain the "conundrum"[9] of why long-term interest rates (and, consequently, real interest rates) remained low in the US economy despite a substantial hike in short-term monetary policy interest rates (Federal Funds rates) by the Fed from 1% to 5.25% between mid-2004 and 2006 (see Chart 2).

Chart 2: Short-term and long-term interest rates in the US economy



Data: Federal Reserve Board, Goldman Sachs.

9 The term "bond conundrum" was used in 2005 by the then chairman of the Federal Reserve System Alan Greenspan when discussing why long-term interest rates had deviated substantially from short-term rates (Federal Funds rates). See "Testimony of Chairman Alan Greenspan" (www.federalreserv.gov/boarddocs).

2.3 Higher risk aversion?

The postulate of excessive savings being the primary cause of the imbalances in the world economy has been further refined and tested in various guises. Analyses conducted by Goldman Sachs[10] suggest that, consistent with the savings glut hypothesis, there was a fall in yields on all debt securities, including government bonds, corporate bonds and securitised debt, but that the same does not apply for the return on physical capital, which conversely increased over the past decade.

This means there were two contrary trends: a rise in yields on risky (physical) capital and a concurrent decline in risk-free interest rates. If a savings glut did not lead to the decline in yields on all assets, what were the causes?
The hypothesis relevant to explaining these contrary trends is that a substantial rise in the importance of the developing economies[11] and their deeper integration into the global economy resulted in a sharp increase in the effective labour supply on a global scale. This shift boosted the growth rates achieved by the world economy in recent years and also fostered an increase in the return on physical capital. As a result, the consequences of the savings glut did not pass through to physical capital or were outweighed by shifts in the labour supply and faster economic growth.

According to finance theory, this means that there had to be a sharp rise in the global equity risk premium (i.e. the premium on risky capital).[12] What were the possible reasons for this shift? It seems to be linked with the fact that investors from developing countries (China, other Asian nations, oil producers and exporters) gained significantly in importance. As a result, major investors turned to be sovereign funds and central banks. One can speculate that they were generally more risk averse. Acting in parallel with this were various institutional and other constraints both on investors and on the recipients of investment. The available evidence suggests that in practice these constraints (formalised and implicit) primarily affected the investments of sovereign wealth funds and other public funds. These two factors together generated a strong preference for fixed-income products.

2.4 Too loose monetary policy, "liquidity glut"?

According to this line of argument, the monetary policy of certain major central banks in the recent period was too expansionary or remained too loose too long.[13] This misguided **monetary policy was the primary cause of the liquidity glut** and the subse-

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10 cf. "The Savings Glut, the Return on Capital and the Rise in Risk Aversion", Goldman Sachs, Global Economics Paper No. 185, May 2009.

11 This refers primarily to a group of four countries with high growth potential: Brazil, Russia, India, and China (the BRICs).

12 The relationship between equity yields and bond yields operates through the equity risk premium (ERP). The ERP is the additional return that investors expect over the risk free rate in return for investing in equities. A rise in equity yields together with a decline in real bond yields implies a sharp rise in the ERP.

13 For the role of monetary regime in the development of financial imbalances cf. Borio, C., White, W. (2004)„ It is hard to imagine that financial imbalances could build up without some form of monetary accommodation".

quent uncontrollable boom, bubbles and bust. According to this argument, too-easy monetary policy led to commodity and credit bubbles. Producer countries, particularly in Asia and the Middle East, were flooded with dollars as a result. Given the limited domestic consumption in these countries, these dollars were recycled into dollar-denominated assets, in particular Treasuries and real estate-related securities. In this way the Fed created a glut of dollar liquidity that pushed long-term rates down to low levels and for a long time neutralised the belated attempts to tighten monetary policy. According to this approach, other factors were less significant or were merely accompanying or derived phenomena.

This line of criticism has been directed mainly at the Fed. The aforementioned conclusions are shared by John Taylor[14] and other critics of Alan Greenspan's monetary policy. In Taylor's view, in 2002–2004 the Fed deviated from its previous rule, lowering rates further even though the rule was signalling a need for them to move in the opposite direction, i.e. to rise.[15]

The report of the de Larosière Group, which was tasked with identifying the lessons of the financial crisis for financial regulation and supervision in the EU, sees ample liquidity and low interest rates as the major underlying factor behind the crisis.[16]

Nevertheless, the hypothesis that a liquidity glut was the primary cause of the financial crisis raises a number of questions, in particular:

- Why, in an environment of excessive liquidity, did inflation (i.e. the change in the level of prices of consumer goods and services) remain under control at low levels?
- How come asset price growth was not seen across the board, as might have been expected in the case of too-easy monetary policy?

2.5 An alternative explanation: financial sector itself?

Unlike the aforementioned approaches, which identify deepening global imbalances – i.e. the macroeconomic dimension – as the fundamental cause of the financial crisis, this approach emphasises the area from where the crisis tendencies spread, i.e. the

14 John Taylor is the "father" of the widely applied Taylor rule of monetary policy. His answers to the questions what caused the financial crisis, what prolonged it, why did it worsen so dramatically more than a year after it began are exposed in his paper "The financial crisis and the policy responses: an empirical analysis of what went wrong", Working Paper 14631, National Bureau of Economic Research, January 2009.

15 Timothy Geithner, Treasury Secretary in the Obama administration and former president of the Federal Reserve Bank of New York, has also conceded that the monetary policy of the Fed (and in his view in the global economy generally) was too easy in the past. "I would say there were three types of broad errors of policy and policy both here and around the world. One was that monetary policy around the world was too loose too long. And that created this just huge boom in asset prices, money chasing risk. People trying to get a higher return." Quoted from Wall Street Journal, 13 May 2009.

16 cf. de Larosière Group, The Report, p. 7, 2009.

financial sector itself. According to this argumentation, it was primarily the changed dimensions and characteristics of the financial sector that led to the financial crisis.

Data show that in the past decade the financial sector broke loose from the real economy and its trends. Institutions of the shadow (parallel) financial system – investment funds, investment banks, hedge funds and special-purpose vehicles – gained in importance alongside traditional banking intermediation institutions. Growth in derivatives (particularly CDOs and CDSs)[17] far exceeded growth in their underlying assets. Under intense competitive pressure, financial institutions tried to compensate for the low interest rates and low returns by developing and distributing new structured products. Loans were thus converted into securities backed by mortgages and other assets and further packaged into structured products, namely CDOs. The path to higher returns – for both banks and investors – ran via growth in leverage[18] and investment in riskier products.

The process of **securitisation**[19] is in principle undoubtedly a major step forward in risk management. Before it was developed, loans and their associated risk remained solely in banks' balance sheets. By contrast, securitisation enables risk to be distributed across the wider financial system. This general advantage of securitisation, however, was largely undermined in the specific conditions of the past decade by non-transparency and by the virtual impossibility of identifying the size of the risk contained in individual products. It was unclear whether the risk had been truly distributed or just relocated to the less regulated, or "shadow", parallel financial system.

Securitisation enabled many financial institutions to create large positions in very risky assets, usually accompanied by growing leverage and thus reduced capital needs. It seemed a useful way for individual financial institutions to reduce their immediate risk and free up capital for lending. This, however, reduced the transparency of financial flows and complicated the process of monitoring them and overseeing the financial system as a whole. Combined with the failures of rating agencies and totally unrealistic evaluation (usually undervaluation) of the risks of financial innovation, it set the stage for extremely adverse consequences for the functioning of the financial system as a whole. In these specific conditions, financial innovation and securitisation, i.e. tools intended to help institutions in the financial market and in the real economy mitigate, distribute and manage their risks more effectively, conversely made the global financial system far more vulnerable and risky.

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17 A collateralised debt obligation, CDO, is a structured debt instrument derived from a portfolio of diversified securities, loans or CDSs. A credit default swap, CDS, is an instrument for transferring credit exposure between parties for fixed-income products. The buyer of the CDS acquires credit insurance, while the seller vouches for the credit product. The risk of default is thus transferred from the owner of the fixed-income security to the seller of the swap.

18 Leverage is the ratio of a company's debt financing to its equity, i.e. the part of its total capital owned by shareholders. A high degree of leverage means a high degree of reliance on debt financing. The higher is a company's leverage, the higher is the proportion of its total revenues absorbed by interest payments.

19 Securitisation is a process whereby new marketable securities backed by existing assets such as loans, mortgages and other assets are issued.

3 Did the world financial crisis erupt and spread in spite of, or because of, the exceptionally successful decade of macroeconomic development?

With the benefit of hindsight we can identify how the past decade differed from previous periods in macroeconomic terms:

- it was a relatively long period of uninterrupted and relatively dynamic economic growth;
- the cycle, at least in its traditional form, seemed to have been suppressed, as if modern capitalism had rid itself of large cyclical fluctuations;
- unlike in the past, the rapid growth pertained not just to some regions, but to practically the entire world economy;
- despite the rapid global growth, inflation was kept under control and a low-inflation environment prevailed.

3.1 What shaped the characteristics of the past decade?

It is clear that the world economic environment changed. New driving forces – in particular the processes of financial liberalisation and advancing globalisation – emerged. Globalisation expanded massively in both the financial and real sectors. China, India and other fast-growing developing economies were drawn into these processes and gave them new stimuli. As a result, production capacity and technological and productivity levels rose, as did supply on world markets and competition throughout the global economy. These shifts provided the extra impulse underlying the "golden decade". Not only did they create conditions for a longer-than-usual period of constant economic growth, but they also enabled the rapid growth to be accompanied by low inflation. This situation was aided by effective anti-inflationary central bank policies oriented towards stabilising inflation expectations. It seemed that central bankers had finally found and applied the right policies for taming inflation in the post Breton-Woods environment, i.e. in the environment lacking the rules of the gold standard.

All these factors acted in the same direction, creating an environment of optimism, success and risk neglect. This environment was therefore unprepared for a fundamental discontinuity and reversal. The fact is that even academic economists, with a few exceptions, failed to identify the growing problems and risks. And even when concerns were expressed[20], it was all too tempting and easy to ignore the signals in the midst of an outwardly smooth expansion.

Globalisation and financial liberalisation greatly increased the interdependence, integration and correlation of conditions in individual regions, economic sectors and financial market segments on a worldwide scale. The accumulation of savings and foreign exchange reserves in China and other countries was correlated with growth in the US current account deficit and a decline in the savings of US households into negative fig-

20 For example in a series of studies produced by the Bank for International Settlements (BIS) in Basel. Cf. e.g. White W. (2006).

ures. Despite the sustained low savings rate in the USA, foreign investors were willing to finance the US government and household consumption.

The massive expansion of globalisation, financial liberalisation and financial innovation, which on the one hand stimulated dynamic growth and development, simultaneously increased the global economy's sensitivity to negative factors, shocks and risks.

- The long-running growth, and expectations that it would continue, coupled with low interest rates and low rates of return on capital, motivated investors to seek higher returns and take on greater risks.
- The liquidity glut spilled over into a credit expansion, growth in prices of property and other assets, and underestimation and undervaluation of risk.
- Amid low inflation, low interest rates and a huge amount of free liquidity, there was growth in long-term financing using short cheap sources.
- There was an uncontrolled expansion in financial innovation and securitisation, yet it was not clear how much risk this actually contained and where it was specifically located.
- Thanks to the successful growth in the world economy, the property market, asset price and lending bubbles expanded, coalesced and complemented and fed each other.

The favourable macroeconomic situation thus in fact not only contained incipient imbalances, but also contributed to their inception and spread. Once again it was demonstrated that the causes and sources of crises emerge during growth phases, in good times.

3.2 The course of the world financial crisis and its interactions with the real sector

The current world crisis is dubbed a financial crisis because it started in the financial sector, specifically in the sub-prime mortgage segment, then spread to other segments of the financial markets and on into the real sector.

Unlike most crises in previous decades, which had arisen in less developed parts of the world economy, the current crisis erupted in the bastion of advanced capitalism, the USA, and chiefly affected the developed part of the world economy and its financial system.[21]

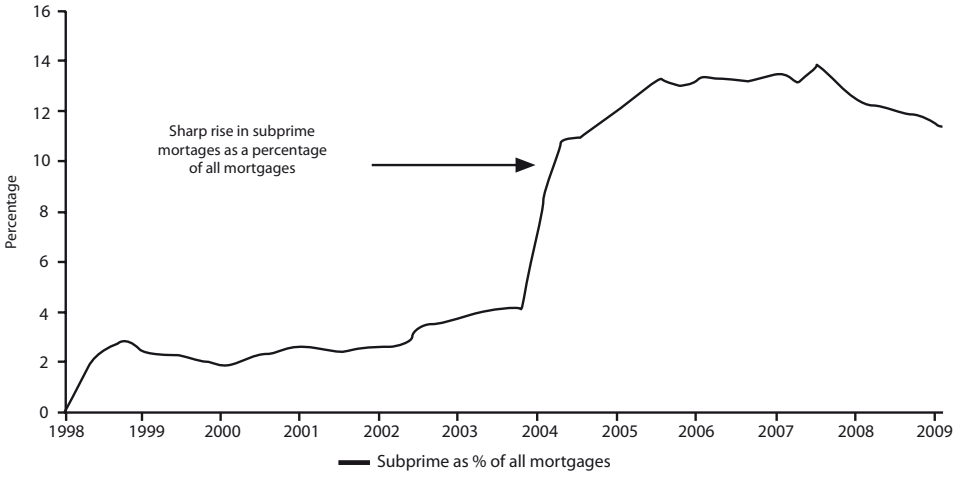
The first wave of serious signs of a crisis dates back to 2006 and 2007 and was set off by a slump in prices in the US real estate market. This was a reversal of the previous trend of soaring property prices not only in the USA, but also in the UK, Spain, Ireland

21 Although the financial crisis is a global one, mainly affecting the developed part of the world economy and its financial system, the fact is that some advanced countries and their financial institutions have been little affected by it. This is particularly noteworthy in the case of Canada, not only given its geographical location, but also in the light of its close links with the US economy in both the real and financial sectors.

and many other countries. Property prices had been far outpacing living standards in these countries.

This bubble was made possible by an environment of low interest rates and "unlimited" liquidity. But there were also institutional and political factors, for instance a previously declared intention to achieve the broadest possible home ownership. This led to a surge in the share of sub-prime mortgages in the overall mortgage market.[22] When the property market collapsed, it was from this segment that the crisis spread. Defaults on sub-prime mortgages led to defaults by mortgage institutions and to liquidity problems in other banks and financial institutions. Ratings fell, balance sheets deteriorated and assets had to be sold.

Chart 3: The percentage of subprime mortgages soared to record levels



Source: Global Markets Institute.

The next phase of the crisis was triggered by the collapse of investment bank Lehman Brothers. With the benefit of hindsight it is clear that this was indeed a milestone[23]. The bank's collapse sparked a crisis of confidence throughout the financial world. What had, until then, been quite a normal and limited crisis turned into an event threatening the

22 The share of sub-prime mortgages in total mortgages jumped from around 4% to 14% between 2004 and 2008.

23 While that conclusion seems to be generally accepted both within the financial community and media, the arguments have been raised that such an interpretation of the crisis evolvement was flawed. Those arguments run as follows: the Lehman failure was not an isolated event, the main risk indicators only took off after the announcement of TARP (Troubled Asset Relief Program) when concern turned to panic. cf. Cochrane, J. H., Zingales, L. "Lehman and the Financial Crisis" The Wall Street Journal, September 16, 2009.

very functioning of the financial system, not just regionally but on a global scale. Financial institutions were overwhelmed by uncertainty about where the next collapses would occur. Banks stopped lending to each other and, to a large extent, to the real economy as well. The liquidity glut had turned into a liquidity trap and a flight to cash. Liquid markets had suddenly turned illiquid.

The crisis spread from the financial sector to the real economy. With demand falling, sectors dependent on credit financing were forced to offload inventories and rein in production. World trade slowed sharply and the world economy fell into a deep recession.

The risk of the recession feeding back into the financial sector remains an open issue. How real this risk is depends not only on the depth of the recession, but also on its duration and the synchronisation/differentiation of economic developments in various parts of the world economy. The "green shoots" observed in mid-2009 suggest that the recession may not last as long as predicted a few months ago. Some parts of the world economy, specifically East Asia (China and India), are not really experiencing a recession and are assuming the role of drivers of demand. The hypothesis of decoupling from the US economy is thus proving to be true.

3.3 The causes of the crisis seen from the perspective of its phases

As well as recapitulating the individual phases of the world financial crisis, it is useful to return to the issue of its causal factors. How could the bursting of a bubble in the real estate and mortgage segment in the US economy have triggered such a deep global crisis?

Fed monetary policy was undoubtedly very easy in the run-up to the crisis, fostering a glut of liquidity. In this context, the monetary policy response to different shocks was asymmetric. The Fed tended to react to negative shocks with an immediate and aggressive monetary policy easing, but the same did not apply in the opposite situation. Interest rates were raised in response to expansionary shocks usually with a lag and to a limited extent. The hypothetical question, therefore, is: Had the Fed tightened monetary policy sooner and more sharply, could the property market bubble have been prevented or at least contained?

When considering this, one needs to take into account the environment in which Fed monetary policy developed. It was an environment of growing imbalances, with a persistently low and falling US household savings rate, massive inflows of foreign savings into the US capital markets, and corresponding growth in the US current account deficit to unsustainable proportions. Price stability in goods and services markets, however, remained the monetary policy objective. The consequences of the imbalances accumulated in asset prices, in particular property prices.

4 Motives to use unconventional monetary policy instruments

Before the world financial crisis erupted, conventional monetary policy methods – based on the regulation of short-term interest rates (prices of short-term money) – clearly dominated. By managing this price (short-term monetary policy rates), central banks affect the money market directly and prices of other assets indirectly in combination with other influences on the financial markets. In normal conditions, monetary policy rates are a "proxy" for the monetary policy settings in the pursuit of the primary goal of price stability.

Compared to this standard set-up, the approaches of many central banks and the structure of the instruments they use have seen major changes in the course of the world financial crisis. Besides widening the range of conventional instruments they apply, numerous central banks, including major ones such as the Federal Reserve System (Fed), the European Central Bank (ECB) and the Bank of England (BoE), have resorted to **quantitative easing.**[24]

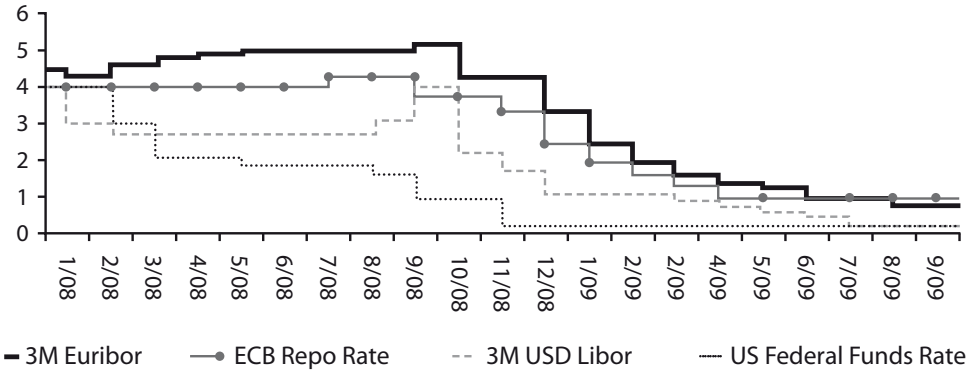
There are basically three kinds of situations where conventional monetary policy fails, or at least runs into significant barriers to effectiveness, and where scope and stimuli therefore arise for the application of unconventional instruments. They are **(i)** where interest rates can go no lower (zero rates), **(ii)** where the standard monetary policy transmission channels get "jammed", and **(iii)** where significant barriers to financing and lending to the real sector arise in financial and banking institutions. All three have occurred during the world financial crisis.

i) Zero-rate limit

The radical cuts in nominal monetary policy rates in response to the crisis have taken many central banks' rates down to unusually low – even zero – levels. Chart 4 demonstrates that development for the US economy and eurozone. Both monetary policy rates and money market rates decreased dramatically from autumn 2008 and converged to almost zero level.

24 *Quantitative easing can be regarded as the essence of unconventional monetary policy, i.e. the sort of monetary policy that pursues its goals not by setting monetary policy interest rates and conducting open market operations, but through other channels. The common feature of unconventional instruments is that they tend to result in growth in the central bank's balance sheet. Besides quantitative easing, they include (i) qualitative easing, i.e. the situation where the central bank's operations change its balance sheet structure towards a higher proportion of riskier and less liquid assets, and (ii) credit easing, where, in an effort to substitute for insufficient commercial bank lending, the central bank's operations cause an increase in the liquidity and a decrease in the riskiness of its assets in addition to growth in its balance sheet. In the text that follows, however, when referring to unconventional monetary policy we basically mean quantitative easing.*

Chart 4: Central Bank and Money market Rates



Source: ECB Monthly Bulletin, World Interest Rates Table.

The Bank of Japan's previously almost unique (albeit 10-year-long) episode of quantitative easing and near-zero rates – the "lost decade" – has thus become a more general tendency. The radical decline in monetary policy rates has occurred in parallel with various anti-crisis measures and domestic demand stimuli that have substantially increased individual economies' fiscal deficits.

Table 1: Monetary policy rates of selected central banks

Central bank	Interest rate	Most recent change
Federal Reserve	0.25%	16 Dec. 2008
European Central Bank	1.0%	7 May 2009
Bank of Canada	0.25%	21 Apr. 2009
Bank of England	0.5%	5 Mar. 2009
Bank of Japan	0.1%	19 Dec. 2008
Riksbank (Sweden)	0.25%	2 Jul. 2009
Swiss National Bank	0.25%	12 Mar. 2009
Czech National Bank	1.25%	6 Aug. 2009

Source: World Interest Rates Table.
As of 11 August 2009

ii) "Jamming" of monetary policy transmission channels

As the collapse of the sub-prime market in the USA spilled over into a world financial crisis, a crisis of confidence hit the banking and financial world, especially after the fall of Lehman Brothers in 2008. In a climate of distrust, banks stop lending to each other and to their clients in the real sector. Spreads between monetary policy rates and market rates widen extremely. Standard monetary policy transmission channels thus lose their effectiveness.

iii) Reduction in bank lending activity

A credit crunch arose after the financial crisis broke out, as a result of both supply- and demand-side factors. Unlike in the past, banks increasingly started reflecting and evaluating risk appropriately. Despite the very low monetary policy rates, rates on loans to the private sector remained relatively high and the availability of credit remained limited. There were parallel factors on the demand side: non-financial corporations mostly lost their incentives to undertake new investments. Consequently, the quantitative easing policy was implemented largely as a **credit easing.**

4.1 Kinds of unconventional response by central banks to the financial crisis

Alongside the "untraditional" willingness of central banks to lower interest rates to near-zero levels, a whole raft of unconventional monetary policy instruments were increasingly applied. These mainly took the form of exposure of central banks' balance sheets to interbank transactions on the money market. They included:

- expansion of credit channels and their maturities, collateral and counterparties,
- provision of liquidity and foreign exchange to banks essentially on request,
- direct lending to the private sector, investment banks and non-bank institutions,
- outright purchases of various types of public and private sector assets and government and corporate debt,
- the application of various forms of moral suasion by central banks.

Examples of the specific forms of response of individual central banks included:

- more frequent central bank operations – more specific types of fine-tuning used in addition to standard operations,
- provision of more favourable price and maturity conditions for standard lending facilities,
- a wider range of long-term funds in the form of discretionary operations,[25]
- a wider range of eligible collateral to improve access to and use of central bank funds,[26]
- extension of the list of eligible counterparties, again to improve access to and distribution of central bank funds,[27]
- the introduction/expansion of loans for securities to support the liquidity of the banking and financial system,
- increases in the reserve buffer to dampen swings in demand for reserves,
- the development of international cooperation to promote cross-border liquidity sharing.[28]

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25 For example, the ECB additionally performed 3-month operations and in April 2008 started to offer funds for 6 months as well.

26 In some cases this expansion also included crisis-hit securities (e.g. mortgage-backed securities).

27 The Fed extended the discount window – previously accessible only to commercial banks – to investment banks and non-bank institutions.

28 One example was the limited swap lines established between the Fed, the ECB and the Swiss central bank.

4.2 Shifts in the characteristics of central banks and monetary policy

Central banks used quantitative easing to try to overcome the barriers impeding standard approaches (near-zero monetary policy rates) and to push liquidity into the financial and banking system and into growth in loans in order to offset the decline in credit growth caused by banks' reduced willingness to lend and the lack of investment stimuli for non-financial corporations.

The trend towards unconventional monetary policy instruments implies a shift from standard "technical monetary policy" **to activist behaviour** by central banks.[29] If, in the past decade, monetary policy had been targeted at managing inflation, during the financial crisis many central banks started to focus more on maintaining financial stability and on real economic variables, and in particular on shoring up economic activity and employment.

Central banks were making decisions on individual credit auctions and – in a situation where banks were refusing to lend to each other and credit flows were drying up – changed from being lenders of last resort to being **lenders of first resort.** Direct lending to government, which had previously been viewed as a grave breach of modern central banking "etiquette"[30] and had been practised in various guises only in less developed economies, became to various extents an overt part of the operations of the central banks of some advanced nations.

Although changes were recorded in the operating frameworks and instruments of the majority of central banks under the pressure of the financial crisis, the extent and intensity of these changes differed substantially from one central bank to the next.

In the developed part of the world economy there was a striking difference between the Anglo-Saxon countries and continental Europe. As regards the major central banks, the extent and intensity of the switch to activist policy and to forms of quantitative easing was significantly higher in the Fed and the Bank of England than in the ECB.

What factors led to this differentiation and dividing line? One can argue that there were two differentiating factors acting in parallel.

The first was a clear difference in the scale of the problems and hence in the urgency to tackle the effects of the crisis. The intensity of the slump in economic activity and of the risks of the crisis, especially in its early phases, seemed far more acute in the US and UK economies than in continental Europe. There was a corresponding difference

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29 This has some parallels – albeit in different conditions and with a different aim – with the post-WWII activist policies of central banks typical of the 1960s and 1970s. At that time, monetary policy tried to be anti-cyclical by applying fine-tuning instruments. In the current financial crisis, unconventional monetary policy instruments are being directed at keeping the financial system functioning and maintaining financial stability and thereby preserving employment and economic activity. Like then, the present activist policy has faced calibration and timing problems (time inconsistency).

30 In the Czech Republic, the CNB is expressly forbidden to do so by law.

in economic policy responses. Figuratively speaking, the Anglo-Saxon world became strongly Keynesian again.

The second factor was a difference between the mainly "market" nature of the financial system in Anglo-Saxon countries and the still predominantly "banking" financial system in continental Europe. The Anglo-Saxon market system, dominated by financial institutions, investment banks and hedge and other funds, was far more sensitive to the shocks, uncertainty and loss of confidence that occurred. This gave rise not only to a more acute need for unconventional monetary policy instruments, but also to greater scope for applying them.[31]

5 A consequence of quantitative easing: extreme growth in central bank balance sheets

Quantitative monetary policy actions are supply-side measures. They affect the asset side of the central bank's balance sheet. By definition, a corresponding liability must be generated for every balance-sheet asset, in this case an increase in the monetary base (also known as central bank money, high-powered money, M0), which is made up of cash and banks' reserves (required and voluntary) with the central bank.

Between 2007 and 2008, the balance sheets of the central banks that made significant use of quantitative easing grew substantially – exceptionally so compared to the preceding period.

Table 2: Growth in central banks' balance sheets during the quantitative easing process*

Central bank	Balance sheet growth	Percentage of GDP	
		June 2009	Initially
Federal Reserve	1.5x	14.6%	October 2008 9.8%
European Central Bank	1.4x	21.9%	July 2008 15.5%
Bank of England	1.3x	15.4%	March 2009 11.6%
Swiss National Bank	1.2x	44.2%	March 2009 37.7%
Bank of Japan	5.0%	23.5%	July 2008 21.0%

** Growth in balance sheet between introduction of quantitative easing due to financial crisis and July 2009*
Source: Calculation based on Goldman Sachs, Global Economics Weekly, July 2009.

31 The existing operational framework also played a role. The ECB had already in the past permitted a comparatively wide range of eligible collateral, whereas the Fed's operational framework had been much more restrictive. Consequently, the Fed had greater scope for easing.

Central banks' balance sheets can grow for the following reasons:

i) the central bank supplies liquidity to the banking and financial sectorthis usually takes the form of open market operations (sales and purchases of short-term debt, especially government securities); other forms include direct loans to financial institutions and swap lines between central banks (used mainly to ensure smooth foreign exchange financing)

ii) the central bank provides short-term loans a central bank resorts to direct lending when commercial banks are reluctant to lend for various reasons even though they have sufficient liquidity. The usual reason is increased risk that loans will not be duly repaid, but the intention may also be to reduce leverage

iii) the central bank buys assets outright in the financial market[32] such assets are usually long-term government bonds, securities or derivatives of various underlying assets (e.g. CDOs)

Although unconventional quantitative-easing instruments lead to growth in central banks' balance sheets, that is not the point of them. The point is to bring lending rates down and ease the credit conditions. In this sense, even unconventional monetary policy is still targeted at the price aspects of credit activity. In contrast to the standard approach, i.e. influencing the credit conditions and their time structure via steering short-term interest rates, with unconventional policy central banks attempt to influence interest rates and the credit conditions using their balance sheets.

6 Risks of the changes in the nature of central banking and monetary policy

The pressure of the world financial crisis has brought about substantial changes in the competences of central banks and in the nature and instruments of monetary policy. The quantitative easing policy, the dramatic growth in central banks' balance sheets and the growth in their credit exposures, including to the non-banking sector, to previously unimaginable proportions represents a departure from standard central banking and monetary policy. A number of questions regarding the possible risks thus arise:

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32 Such asset purchases became a central part of Fed policy in particular. The Fed bought Treasuries and private sector bonds, while the Bank of England focused on government and corporate bonds and the Bank of Japan purchased government bonds and commercial paper. The ECB was more reticent in this regard and did not buy government bonds. Opinions on the right approach were not entirely unanimous. The Germans, primarily in statements made by the Bundesbank president Axel Weber, argued that the ECB should continue to operate primarily through banks, while the other alternatives, including outright purchases of private sector debt securities, should remain limited. On the other hand, some other members of the ECB's 22-person Governing Council said they supported outright purchases of assets, including corporate debt securities. In May 2009, under a programme to make credit more accessible, the ECB announced a plan to buy €60 billion in covered bonds (a relatively modest figure compared to Fed and Bank of England practice). From Wall Street Journal, June 3, 2009.

- The activist tendencies in central banks' policies may have positive effects in the short run, but is there not a risk they will reduce the pressure on the financial markets, with economic agents relying more on central bank operations than on the effectiveness of market mechanisms?
- Won't the efforts by central banks to manage the crisis and support economic activity generate inflation tendencies?
- Won't the large purchases of financial assets have an undesirable effect on the status and credibility of central banks, given that they are now exposed to credit and interest rate risk just like commercial banks?
- Will central banks be able to optimally time and manage the reduction in their balance sheets when the economy stabilises and the financial conditions return to normal, i.e. when it becomes desirable to offload the accumulated assets?

6.1 The risk of an inflation wave

The balance sheets and credit exposures of the major central banks and the size of the monetary base are significantly larger than before the crisis. Does this not imply the generation of an inflation wave in the world economy?

This risk has been limited to date (mid-2009) by the fact that the huge growth in the monetary base has not been accompanied by corresponding growth in the money supply and bank lending. The data show a steady decline in the money multiplier so far during the crisis.

The explanation for the trend illustrated above is that most of the liquidity central banks have pumped into the financial system has been deposited back with central banks as free reserves.

Table 3: Change in the money multiplier in selected countries between 2008 and 2009

USA	from 9.1 to 5.2
Euro area	from 10.4 to 7.8
Switzerland	from 13.8 to 8.2

Source: Goldman Sachs, Global Economics Weekly, No. 9, 2009.

A greater volume of disposable liquidity does not itself directly generate inflation. It has inflationary consequences if it leads to imbalances. Standard inflation, i.e. growth in prices of goods and services, generally occurs if disposable liquidity is effectively financing aggregate demand for goods and services to such an extent that it outpaces aggregate supply.

In the present phase of the financial crisis (2009), the aggregate data do not suggest any problem with excess demand in the world economy. The various estimates of the

output gap for the major economies are as high as 5–6%. It would seem, therefore, that central banks' "swollen" balance sheets do not pose inflation risks directly.

However, the expansion of the monetary base could become an inflation generator if commercial banks start using the free liquidity for new lending. Maintaining price stability is thus contingent on central banks correcting this expansion in time. As soon as the signs of recovery in the real sector gain in significance, central banks will have to reduce their swollen balance sheets to an appropriate size if price stability is to be maintained.

6.2 The problem of timing balance-sheet "exits"

The optimum timing of balance-sheet exits depends on the specific conditions in each economy. A premature exit would pose a risk of the stimulation not having the desired effect and of the economy sliding back into recession. A belated exit would pose a risk to price stability.

A key factor will be the extent to which the recovery proceeds **in parallel** in the various parts of the world economy. In this regard, the degree of decoupling of the Asian and European economies from the US economy is regarded as particularly important. Contrary to prevailing expectations, 2009 is already signalling that the large Asian economies in particular have largely decoupled from the US economy (thanks mainly to a rising share of domestic consumption) and their growth is by contrast being seen as an important driver of the upswing in consumption in the world economy.

The process of downsizing central banks' swollen balance sheets will also depend on the structure of those balance sheets. For the various types of short-term loans (liquidity swaps, short-term securities), the process should not be problematic, i.e. it should not have negative effects on the financial markets. Central banks can automatically stop rolling them over.
The situation seems more complicated for long-term assets such as corporate bonds. However, such bonds can be expected to become tradable on secondary markets as usual once things get back to normal. Alternatively, central banks will be able to issue and sell their own securities to correct markets´ liquidity or to implement such corrections through the fiscal area.

6.3 Intentional "cultivation" of inflation as a way out of the financial crisis?

Besides an inflation wave as a potential **side effect** of the emergency anti-crisis programmes implemented in the fiscal and monetary areas, thought has been given (in the banking sector and by some US economists) to intentionally leaving room for higher inflation (albeit temporarily) as **a way out of the financial crisis.** The argument runs as follows: higher inflation will reduce the real debt level and enable households and banks to reduce their reliance on debt financing more quickly and less painfully (i.e. deleveraging will occur).

Despite the potential short-term benefits, there are several negative consequences of this line of reasoning:

i) inflation is predetermined by inflation expectations; once the latter start going up it is difficult to bring them back down without implementing strongly restrictive policy. The potential short-term effect of reducing the debt level would thus be outweighed by longer-term losses in economic performance;

ii) inflation entails a transfer of wealth from creditors to debtors. Higher inflation would lead to redistribution of wealth and have adverse financial, economic and social consequences for the "losers" from inflation;

iii) in international terms, rising inflation implies bond market losses for creditor countries. In the present situation, this means a redistribution of wealth primarily from China, which owns large volumes of dollar-denominated US Treasury bonds, to the US economy. Intentionally tolerated higher inflation is likely to generate a risk of a massive exodus of global investors from the US bond market with a considerable knock-on effect on the dollar exchange rate. This would, in turn, mean a further increase in inflationary pressures.

6.4 The risk to the credibility and financial stability of central banks themselves

The switch to activist policy by many central banks and their considerable exposure to operations with financial institutions have generated a potential threat to the credibility and financial soundness of central banks themselves. The high costs of bailing out banks and other financial institutions, the acceptance of lower quality collateral, and the reduced quality of the assets in central banks' balance sheets are regarded as a risk. There is a related question of whether the potential large losses would force central banks to monetise debt. This could also arise in a situation of rising fiscal dominance amid political pressure to continue buying government bonds.
Despite the increase in central banks' exposures, the risk described above seems highly marginal and improbable, especially in the case of the developed countries' banks, because:

- central bank liabilities consist mainly of cash and banks' reserves deposited with the central bank, with cash representing a permanent loan for the central bank;
- banks' reserves are currently mostly remunerated, but at the discretion of the central bank. The rate of remuneration has gradually been falling and is generally relatively low, so the related costs for central banks are not all that high;
- central banks are still enjoying significant benefits from their asset holdings; quality collateral still predominates in their balances despite some shift in the structure of loans to the private sector.

7 Will central banking return to its pre-crisis form?

The shock caused by the financial crisis, its growth to global proportions, and the resulting economic recession of unusual depth has led to substantial changes in central banking and to efforts to apply anything that might help avert or at least mitigate its adverse effects. As a result, non-standard instruments and policies have been used, including some previously regarded as taboo.

This change raises a number of questions:

- Is it a one-off or a longer-term shift? Is it a **"blip"** due to extreme conditions, with central banking returning to its pre-crisis form as things return to normal? Or will the changes be **more permanent**, accompanied by a rethink of both the instruments and goals of monetary policy?
- Will the activist tendencies in monetary policy retreat again, with the latter returning to its previous "technical" mode?
- Doesn't the attainment of near-zero monetary policy rates (or convergence to this level) necessitate some upward revision of inflation targets?

The discussion of these questions is linked with the appraisal of the previous phase. Were the previous central banking concepts and monetary policy practices and instruments commensurate with the conditions and needs of that phase?

There is no doubt that unprecedented price stability was achieved in the case of goods and services. This positive outcome is particularly remarkable given that low inflation coexisted with high economic growth across most of the world economy. This positive aspect is particularly impressive compared to previous phases.

On the other hand, even the phenomenally and unambiguously successful monetary policy and low-inflation environment failed to prevent the re-emergence of asset market bubbles. The lesson learned is that their impacts can be more devastating than high inflation. The evidence is that few asset price bubbles have not been accompanied, if not preceded, by high growth in lending activity or the money supply.

In this regard, criticism can be levelled at monetary policy-making over the past "golden" decade and at the regulatory and supervisory practices applied in the banking and financial sectors:

- monetary policy-making was asymmetric: the easing of monetary policy to accommodate the consequences of bursting asset market bubbles was not suitably counterbalanced by restrictive policy when those bubbles formed and spread;
- the monetary policy of the Fed and other central banks was too easy, or was not adjusted upwards in sufficient time;
- credit and liquidity risks were significantly underestimated;
- in financial market supervision the micro-prudential approach unilaterally dominated the macro-prudential approach;

- the principles of financial market regulation and the incentive system applied were largely procyclical.

8 Is it possible to act more effectively ex ante against the spread of global imbalances and asset market bubbles?

Capitalism is a dynamic system with a built-in tendency to rise and fall in cycles. These fluctuations can be dampened but not eliminated. With growing liberalisation of the financial sector and deepening globalisation of the world economy, the tendency of imbalances and bubbles to form in financial markets has grown. This is a built-in cost of the unquestionable benefits of liberalisation and globalisation. The liberalisation of the global financial system has increased the competitive pressures in the financial services sector and thus also the incentives to take on greater risks. It is the interaction between the changing structure of the financial markets and the changing behaviour of financial market entities that is leading to greater and more frequent financial imbalances.

It is generally true that price stability and financial stability complement and support each other. Yet experience shows that financial crises and asset price bubbles have happened repeatedly in environments of low and stable inflation. So, low inflation does not guarantee financial stability. The current financial crisis and property market bubbles confirm this experience. In this context, new impetus has been given to the debate on the orientation of monetary policy, or more specifically on how it might contribute to stabilising asset markets. Is it the job of monetary policy to prevent such bubbles from forming?

8.1 Monetary policy and asset market bubbles

There used to be a consensus among central bankers that central banks should not try to "deflate" asset market bubbles. They should step in only after bubbles burst, as by

supplying the necessary liquidity they can subsequently mitigate the adverse effects on the macroeconomic situation[33].

The main arguments for this approach were the following:

- asset market bubbles are hard to identify before they burst;
- monetary policy deflation of such bubbles carries a risk of major negative effects on the economy;
- monetary policy instruments are too "coarse" for such operations;
- central banks should react to bubbles only if they pose a direct threat to price stability;

33 This is the principle of the Jackson Hole Consensus (named after the location of an annual conference of leading world bankers and economists), cf. Mishkin, F. "Will Monetary Policy Become More of a Science?" NBER Working Paper Series, No. 13566.

- in other cases they should react only after the bubble bursts and mitigate the consequences[34].

There are basically two approaches in the ongoing debate on what role asset prices and financial imbalances could and should play in monetary policy-making in the future. The first, in line with the aforementioned consensus, considers it rational for central banks to take into account information from asset price movements and the evolution of financial imbalances only insofar as they have a direct effect on inflation and the standard monetary policy goals.

The second approach assumes that central banks should react to such imbalances while they are still growing, even if the outlook for inflation (in the short run) and growth does not yet seem to be under threat. The main argument is that an asymmetric monetary policy approach, i.e. only subsequent accommodation of the consequences of bubbles and an orientation solely on subsequent mitigation of the risks of recession, leads to an environment where interest rates are too low. In that environment, banks and their customers are stimulated to take on excessive risk, with adverse consequences for financial stability. If growing imbalances are left uncorrected, they can expand and deepen until their consequences in the form of burst bubbles and crisis events become extremely costly to the real economy. Central banks' approach to such risks should therefore be more symmetric – not only should they deal with the effects of imbalances and bubbles ex post, but they should also slow and limit their growth ex ante[35].
The argumentation of this second approach thus leads to the concept of a central bank that leans **against the wind,** and is an expression of dissatisfaction at how financial imbalances are reflected in standard monetary policy and its basic models.

Although this approach has some justification, there is a whole range of open issues and barriers to its implementation. For such a monetary policy to work, **its time horizon would have to be extended.**[36] The standard horizon of the forecasts prepared as

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34 The above cited consensus seemed to prevail even after the outbreak of the world financial crisis. E.g. Fed´s Vice Chairman Donald L. Kohn addressing 26th Cato Institute´s Annual Monetary Policy Conference in November, 2008 underlined he was not convinced that "the current crisis demonstrate that central banks should switch to trying to check speculative activity through tighter monetary policy whenever they perceive a bubble forming" cf. Kohn D. L. "Monetary Policy and Asset Prices Revisited", Board of Governors of the Federal Reserve System, www.federalreserve.gov/newsevents/speech/kohn

35 Such a stance is held in the recent IMF´s World Economic Outlook. In its chapter 3 the authors argue that monetary policymakers should put more emphasis on macrofinancial risks. This would imply tightening monetary conditions earlier and more vigorously to try to prevent excesses from building up in asset and credit markets, even if inflation appears to be largely under control. Nevertheless, the authors are aware that taking a broader approach to monetary policy would be challenging as it is inherently difficult to distinguish between unsustainable and sustainable asset price movements. cf. World Economic Outlook, IMF Washington D.C., October 2009.

36 The aforementioned approaches are discussed in a series of papers produced by the Bank for International Settlements (BIS) in Basel. See Borio C., Lowe P. "Asset Prices, Monetary and Financial Stability: Exploring the Nexus", BIS Working Paper No. 114, July 2002, and White, W. "Is Price Stability Enough?", BIS Working Paper No. 205, 2006.

source materials for monetary policy-making in the inflation-targeting regime is usually two years at most. An even more forward-looking monetary policy would be faced with a substantially higher level of uncertainty and other complicating factors. These include the fact that timely identification of emerging financial imbalances is itself highly uncertain and distinguishing bubbles from natural price movements ex ante is equivocal. Besides this, the long time lag of the monetary policy transmission mechanism plays a role. The calibration of monetary policy interventions is also a tricky issue. In this regard, changes in interest rates seem to be too "coarse" an instrument – they can be totally ineffective, yet in the opposite case they can generate the situation they are supposed to be preventing.

In this context, Otmar Issing[37] regards it as an advantage that the ECB's monetary policy strategy includes a monetary pillar (a money supply criterion) based on relevant monetary aggregate analyses. He believes that focusing this criterion and these analyses on the medium to long term represents a type of "integrated risk management", since it leans "against the wind" symmetrically, i.e. against asset price declines and increases in equal measure.

8.2 Is financial market supervision a promising option for more effective bubble prevention?

If monetary policy is not the answer, can financial market regulation and supervision be an effective way of preventing financial imbalances and bubbles?

Financial market supervision has two dimensions – micro and macro. The micro-prudential approach focuses on the soundness of individual financial institutions, while the macro-prudential approach concentrates on the functioning and soundness of the financial system as a whole. The conclusions emanating from the micro and macro approaches may be not only different, but contradictory. For instance, a specific risk may be acceptable if undertaken by a single institution, but not if it becomes widespread. Likewise, credit limits may be desirable for specific institutions, but would be counterproductive in the macro-dimension.

The fact is that the micro-prudential approach has so far dominated supervisory practice. Experience meanwhile shows that financial crises occur neither as a result of problems in individual institutions nor because of the transmission of problems from one institution to another. They are usually caused by common risks and more widespread shocks. A greater accent on the macro approach to supervision compared to present practice therefore has some justification in terms of more effective prevention of imbalances and bubbles.[38]

That said the development and application of the functions of the macro-prudential approach to constrain and suppress bubbles and financial imbalances runs into the

37 cf. Issing, O. "In Search of Monetary Stability: The Evolution of Monetary Policy", BIS Working Paper No. 273, March 2009.

38 The proposals of the de Larosière Group for a European Systemic Risk Council (ESRC) reflect this thinking.

same barriers as monetary policy. The open issues include the difficulty of identifying bubbles as they form, the timing of corrections, and the choice of the criteria to use ex ante to determine the appropriate intensity of corrections.

Conclusion

The changes in central banking in response to the world financial crisis and the related move away from technical monetary policy towards a more activist policy represent a major turning point and departure from the conditions and tendencies of the past decade, albeit with varying intensities across central banks.

These changes occurred under the pressure of a crisis, in an environment where standard monetary policy approaches and instruments had failed or were far less effective. In the framework of this causal relationship, it can be argued that this shift will be only temporary and that we will return to traditional standards in the monetary arena as the crisis subsides.

At present, however, the fact is that neither successful monetary policy nor the attainment of a low-inflation environment in the past decade, however conducive to growth, prevented the onset of imbalances and high volatility in financial asset prices. One can even speak of a credibility and success paradox for the central bank: the more successful and credible it is, the longer the signs of growing imbalances remain hidden below the surface, and the more intense is the negative impact of bubbles when they burst.

It might have seemed for a while that the traditional cycle had largely been overcome, but the world financial crisis provided a strong reminder that this is not the case. Capitalism is a dynamic system with a built-in tendency towards swings and imbalances. With growing liberalisation and globalisation, the environment has become even more sensitive in this regard and the frequency of such swings has further increased. The lesson learned from crises, and especially from the current world financial crisis, is that large movements in financial asset prices can have more devastating impacts than standard goods and services inflation.

The question is, then, whether the world financial crisis will provide an impetus for central banking and monetary policy to find a framework and approaches that will help to limit the uncontrolled growth and spread of financial bubbles **simultaneously** with achieving price stability. In such case, the aforementioned discontinuity in the approaches and orientation of monetary policy caused by the financial crisis will have more lasting consequences. Some pointers in this direction are provided by the arguments for extending the monetary policy time horizon, for introducing greater monetary policy symmetry and focusing on the balance of risks, for developing types of "flexible" inflation targeting, and for including information from the financial markets in decision-making, at least in the form of expert adjustments.

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World Interest Rates Table

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