NORGES BANK

What is a useful central bank?

Proceedings from Norges Bank's symposium
17-18 November 2010

Sigbjørn Atle Berg, Øyvind Eitrheim,
Jan F. Qvigstad and Marius Ryel (eds.)

NORGES BANKS SKRIFTSERIE / OCCASIONAL PAPERS NO. 42

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Oslo 2011

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Panel introductions:

Preface

In November 2010 Norges Bank organised an international symposium on the topic *What is a useful central bank?* which marked the occasion that Governor Svein Gjedrem by the end of 2010 had fully served the second of his two terms as governor of Norges Bank. This book contains the proceedings from the symposium. We are proud to present articles written by well known international experts and leading policy makers. The contributions to the symposium cover a broad range of issues. Governor Svein Gjedrem set the stage on Wednesday 17 November when he gave the speech *Making use of the central bank.* The speech was given in Norwegian but the English translation is included as Chapter 1 in this book. On Thursday 18 November five papers were presented on topics ranging from historical perspectives on central banking and lessons from the interwar years to current issues related to central banking in emerging economies, the interaction between fiscal policy and monetary policy and central bank governance. The final session of the symposium offered a two hour panel debate on *Where do central banks go from here?* The panel consisted of leading academic experts and central bank officials and was moderated by Professor Stefan Gerlach from the Institute of Monetary and Financial Stability at the University of Frankfurt. We are happy to include all panelists' introductions in the proceedings. Finally we thank Veronica Harrington and Helle Snellingen for efficient translation services for this volume and Hana Alm for excellent typesetting expertise.

Oslo, April 2011

Sigbjørn Atle Berg
Øyvind Eitrheim
Jan F. Qvigstad
Marius Ryel

Introduction

Jan F. Qvigstad[1]

It is a great pleasure for me to welcome you to this symposium. I would like to extend a special welcome to those of you who have travelled a long distance to be here today. November probably does not do justice to Oslo. To do that, we would have held the symposium in February or March, to show you the winter landscape, or in June or July, so that you might experience light summer nights.

But November it is, and not without reason. You all know that the Governor of Norges Bank, Svein Gjedrem, will soon have served his two terms. The governor will step down at the end of the year. The Governor has always believed that too much attention is paid to persons and there is too little focus on the position that the person holds. By organising this symposium on a theme of keen interest to the Governor, we have tried to combine the strictly academic with respect for the way the Governor has filled his role.

Our chosen theme is *"What is a useful central bank?"* But before we can answer that question, we need to answer the question, *"What is a central bank?"* This may sound like a naive question, especially coming from someone with twenty-five years' work experience at Norges Bank. In recent years, however, I have begun to reflect on the question of what a central bank *really* is. There are two reasons for this reflection.

First I naturally have an interest in the history of Norges Bank. If we look back in time, for example, to the establishment of Norges Bank in 1816, a central bank was something completely different from what it is today. History shows that over time, central banks' core tasks have changed. Or have they really?

[1] Words of welcome by Deputy Governor Jan F. Qvigstad, Norges Bank, at Norges Bank's symposium "What is a useful central bank?", 18 November 2010.

Second, recent years' events in financial markets have shined a spotlight on new central bank tasks. The handling of the financial crisis also demonstrates that the definition of a central bank varies across countries and regions. Or are these tasks really new?

Stefano Ugolini, a central bank historian at the Graduate Institute in Geneva, has taught me that central banks' balance sheets reveal a lot about what a central bank is. Who does the bank trade with? What instruments does it trade? With this as our starting point, I shall take you on a brief journey back in time.

What is a central bank?

After the Napoleonic Wars, Norway gained its independence following a five-hundred-year union with Denmark. The country got its own Constitution on 17 May 1814. According to the Constitution, the Norwegian parliament was "to supervise the monetary affairs".

When the major powers used force to implement the provision of the Treaty of Kiel uniting Norway with Sweden, the Constitution needed to be adapted to the new realpolitik. However, the parliament managed to insert a new article in the November version of the constitution. It established an independent central bank, ensuring that Norway would have its own independent monetary system.

The actual Norges Bank Act was not established until 1816. The first deposits were recorded in the books in 1817. At the time there were no functioning banks in Norway. However, there was manufacturing, consumption, barter, investment and trade. There was also a rudimentary credit market and monetary system. Commercial credit was available, savers met investors and bills of exchange were discounted. But these markets were rather inefficient: their margins were high, the supply of credit meagre and uncertainty high.

Most activities associated nowadays with a monetary system took place in the "unregulated markets," to use the current term. Accounts were kept, but not always in the numéraire we think of today. For example, this is described in the local history of Karlsøy and Helgøy, up in northern Norway, where at that

time accounts were sometimes kept in commodities such as cod liver oil, saithe or flour.

However, one of these unregulated markets functioned even more poorly than the others, namely the long-term credit market. For that reason, Norges Bank's initial activity was to enter this market. Norges Bank provided loans secured by real property. At its birth, the Bank was, to use current terminology again, *"market maker of last resort"*.

A private banking system gradually took shape. The first savings bank was founded in 1822 and the first commercial bank in 1848. In 1852 the first state mortgage bank was established. These developments allowed Norges Bank to withdraw from the mortgage market and concentrate instead on providing liquidity to the short-term money market. However, it was not until the 1860s that the Bank's predominant task was supplying short-term liquidity.

Much digging and research remains to answer the question of how Norges Bank dealt with the challenges during the 19th century. So far, scholars have not found that the Bank took emergency action when a financial crisis affected Norway in 1847. But when the crisis hit again ten years later, the Bank sent silver abroad to Hamburg, which was the financial centre of the Norwegian merchants. This support was important to enable Norwegian industry to carry out international payments and have their bills of exchange discounted.

In 1892 a new Act was passed whereby Norges Bank became the bankers' bank. As the Governor mentioned in his speech yesterday, this made Norges Bank a modern central bank in a legal sense.

In 1899, Kristiania (as Oslo was called at the time) experienced a dramatic fall in house prices. The financial bubble contained all the classical elements, such as surging credit growth and house price inflation. Norges Bank had to carry out several rescue operations to save banks that were in trouble. 1899 was probably the first year the Bank functioned as *"lender of last resort"*.

If you take a walk around the neighbourhood, you will see the physical aftermath of this bubble. You will find buildings from the 1890s and from the 1920s onward, but virtually nothing built in the intervening period.

The past years we have again been in troubled waters. In September 2008 the turbulence in financial markets developed into a full-blown global crisis. Money markets seized up. Confidence between banks vanished. Liquidity dried up, interest rates rose sharply and equity prices fell. The long-term lending market dried up.

International developments were also felt in Norway. Up until then we could almost take a well-functioning money market for granted in this country. But in the autumn of 2008 the money market stopped functioning and medium-term funding for banks was problematic. Just as in 1816, Norges Bank acted as *"market maker of last resort"*.

And so, the history of my own central bank, expanding the window from 25 years to 200 years, does not provide an unambiguous answer to the question of what defines a central bank.

But even if we look at central banks in other countries, there are no clear answers. The way the financial crisis was handled varied across countries. In many places, for instance, substantial portions of the crisis measures remain on the central bank's balance sheet. Here in Norway, the crisis measures relating to banks' medium-term funding are on the balance sheet of the Ministry of Finance.

The financial crisis also demonstrated the need for macroprudential policies. But who will have responsibility for these policies? The framework for macroprudential policies is likely to differ from one country to another. The Governor touched on these questions in yesterday's speech.

To sum up: Perhaps my question was not so naive after all. The examples above show that there is not an obvious answer to "what defines a central bank". Nevertheless, some key principles may apply, both historically and across national borders:

- As early as 1873 Walter Bagehot[2] formulated the well known general principles for the role of central banks. He said:

"To avert panic, central banks should lend early and freely (without limit), to solvent firms, against good collateral, and at "high rates."

The events in 2008 showed us that the lender of last resort function continues to be of the utmost relevance and importance.

- The financial crisis also illustrated that central banks have an important role in creating and providing liquidity.

- In addition, the establishment of Norges Bank in 1816 and the Bank's intervention in the money markets in 2008 show that central banks also have an important role as *"market maker of last resort"*.

Searching for answers

Even if we can provide some general answers to the question of what has characterised central banking activities, we must continue to search for answers to what central banks are and what makes them useful.

Norges Bank will celebrate its two hundred year anniversary in 2016. We plan to write three books: *The History of Norges Bank* will be written by historians, and *The Monetary History of Norway* will be written by economists. The third book from the project will offer an international, historical perspective on central banking, and has been given the working title *What is a useful central bank?* Norway will only be mentioned in this book if our experiences contribute to the international understanding of the question at hand.

This last question was also the topic of the Governor's speech yesterday and the theme of today's symposium. He pointed out that a useful central bank must have a clear mandate with relevant objectives and instruments. The central bank must also seek to reach these objectives in a manner that ensures confidence.

[2] Walter Bagehot (1873): Lombard Street: A description of the Money Market.

Arranging this symposium on a theme that interests the Governor is our way of honouring him after having served his two periods.

Today we begin with a historical perspective on central banking. Professor Bordo will offer some long-term perspectives, while professor Toniolo will discuss some experiences from central banks' challenges in the interwar period. Later, Governor Aziz will address current challenges for central banks in emerging market economies. After lunch Philip Turner from the BIS and Governor Ingves will share some of their insights from the theory and practice of central banking. The day will conclude with a panel discussion, chaired by professor Gerlach, on central banks' future challenges.

We are fortunate to have such prominent speakers here with us today. I hope they inspire our further research on the topic "*What is a useful central bank"?*

Chapter 1
Making use of the central bank
Svein Gjedrem[1]

In his first year as governor of Norges Bank in 1985, Hermod Skånland gave a speech entitled: "Making use of the central bank".[2]

Skånland compared the independence of the Bundesbank with Norges Bank's position in the government administration under the credit rationing policy of the time here in Norway. He said: "In Norway, where no great degree of power has been given to the central bank, it must develop other qualities." The Bank was to be efficient in its operations and function as a sound adviser for the government authorities.

But in the course of Skånland's years as governor, Norges Bank's role changed – the interest rate once again became an active monetary policy instrument.

The Norges Bank of today is a result of its own and the country's economic history. Although the Bank's role is influenced by central bank developments in other countries, we also have our own legal traditions and our own way of organising government administration. The tasks assigned to the Bank are also supported by modern economic theory.

A central bank is different from other public bodies in that it has its own balance sheet, independent budgetary authority and its own accounts. To build confidence in the Bank over time, the central bank must manage this form of autonomy in a sound manner. I have emphasised the importance of an efficiently run central bank that concentrates on core tasks.

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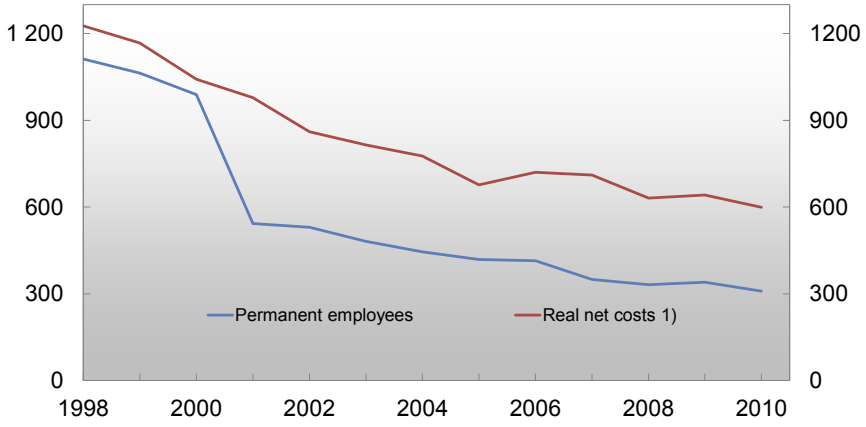
[1] Speech by Governor Svein Gjedrem, Norges Bank, at Norges Bank's symposium "What is a useful central bank?" 17 November 2010. Ragna Alstadheim, Amund Holmsen and Nina Langbraaten provided valuable assistance in preparing this speech.
[2] Lecture at Norwegian Polytechnic Society, Oslo 17 September 1985. Published in *Economic Bulletin* No. 3, 1985.

Chart 1 Developments in costs and permanent employees excluding Norges Bank Investment Management. In billions of NOK and number of permanent employees. 1998 - 2010



1) Deflated by price index for public expenditure
Source: Norges Bank

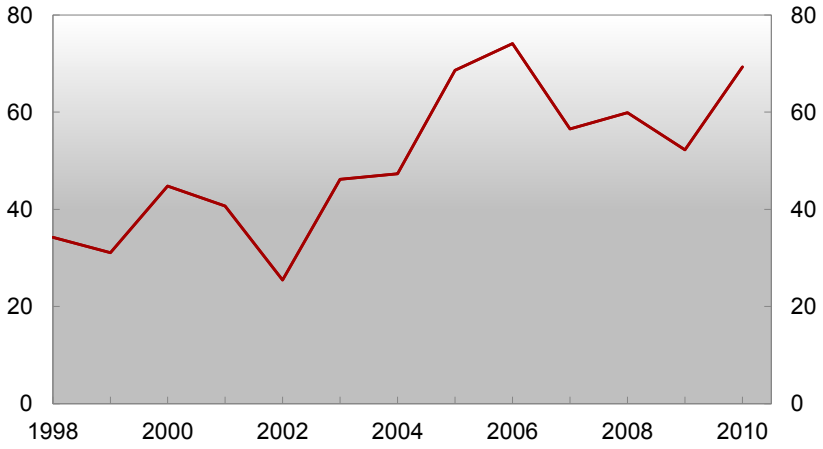
Over the past 10-12 years, the number of central banking staff in Norges Bank has been reduced from 1200 to 300 (see chart 1). This is an adequate staff level. We no longer produce statistics, and we are no longer a manufacturing enterprise. We issue the currency, but we do not print banknotes or mint coins. The distribution of money has been taken over by private business.

As a result, we have been able to reduce the Bank's operating costs by about NOK 600 million per year, measured at constant prices.

At the same time, the Bank's equity capital has increased more than twofold and now stands at close to NOK 70 billion (see chart 2). The central bank's formal independence must be supported by a solid capital base.[3]

[3] A. Cukierman (2008), "Central Bank Independence and Monetary Policymaking Institutions – Past, Present and Future", *European Journal of Political Economy*, 24 pp 722–36.

Chart 2 Norges Bank's equity
In billions of NOK. 1998 - 2010[1)]



1) Figures for 2010 are as at 31 October
Source: Norges Bank

The objectives pursued by the central bank are for the common good. The objective of monetary policy has always been determined by the government and the Storting (Norwegian parliament) and was for a long period set out in an Act. Norges Bank has issued notes and coin throughout its history, for the first hundred years based on the silver or gold standard.

However, Norges Bank's tasks have otherwise varied over time.

We manage the Norwegian oil fund, which was a natural step in light of Norges Bank's management of foreign exchange reserves. The fund will not, however, be one of the topics of my speech today.[4]

[4] For a discussion of the Government Pension Fund Global, see Gjedrem (2010): "Perspectives on managing the Government Pension Fund Global", lecture at the Norwegian Polytechnic Society, 2 November

The origins of Norges Bank

Norges Bank was established in 1816 as a limited liability company, privately owned but under the control of the Storting. It was Norway's first bank. The Napoleonic Wars had been costly for Denmark and eventually led to hyperinflation. In order to secure confidence in the new specie daler, Norges Bank had to be independent.[5] The intention was to make it difficult for the government and the Storting to influence the central bank. The Bank's headquarters were located in Trondheim, a 12-day journey from the capital.[6] The Bank's tasks were to issue Norwegian notes and coin with a stable value measured in silver, perform banking services for the government, provide loans and take deposits. Equity capital was procured by introducing a silver tax. The silver standard was replaced by the gold standard in 1874, and the following year saw Norway's entry into the Scandinavian Currency Union. The Norwegian krone became the new currency unit.

Norges Bank as the bankers' bank

Norges Bank became a more modern institution with the Act of 1892.[7] It became a bank for the banks that had emerged and a common national discount rate was introduced.

The note issuing rules were also changed to enable Norges Bank to meet bank demand for liquidity more easily. It was legally established that Norges Bank would be the government's treasurer.

The Bank remained legally independent of the government authorities in its use of instruments: the Act of 1892 reconfirmed that Norges Bank could not

[5] See also Carsten Smith (1980):"Bankrett og statsstyre" [Banking law and public governance], p. 39: *"Det klassiske system internasjonalt sett har vært å knytte penge- og kredittpolitikken til en selvstendig stillet sentralbank* [The classic system internationally has been to assign monetary and credit policy to an independent central bank]*."* Universitetsforlaget.
[6] Lars Fredrik Øksendal (2008): "Trondhjem som hovedsete for Norges Bank – noen faktiske og kontrafaktiske betraktninger" [Trondheim as Norges Bank's headquarters – some factual and counterfactual considerations], Staff Memo 2008/8, Norges Bank.
[7] See Oskar Jæger (1894): "Udsigt over de forandringer, som Norges banks virksomhet har undergaaet ved den nye banklov" [Changes in Norges Bank's operations as a result of the new Norges Bank Act]. *Statsøkonomisk tidsskrift*.

be given instructions by the government or the Storting and Bank decisions could not be reversed by other authorities. The contemporary ideal was an independent central bank.[8]

At the same time, a permanent chair and deputy chair were assigned to Norges Bank's board, both appointed by the government. The other board members were appointed by the Storting, as were the members of the Supervisory Council who were responsible for supervising the Bank. It would seem that the need to distinguish between different roles was not very firmly rooted: the first permanent chair of the board, director Karl Gether Bomhoff, was also a parliamentary representative.[9] He was, by the way, one of Henrik Ibsen's few friends.[10]

In 1897 the Storting had enough confidence in the independence of the central bank to relocate Norges Bank's head office to Kristiania (now Oslo). Payment by cheque was introduced in Norway in the same year, and from 1898 Norges Bank functioned as settlement bank for payments between private banks.[11]

The more flexible note issuing rules proved very useful during the Kristiania crisis in 1899. The crisis followed a housing and construction bubble in the capital. This was the first time the central bank acted as lender of last resort for the banks.

Boom, banking crisis and parity policy

The fairly stable years that then followed after the turn of the century came to an abrupt end with the outbreak of World War I.

Norges Bank's obligation to convert banknotes into gold was suspended, and the central bank provided funding for increased government activities and

[8] Gunhild Ecklund (2008): "Creating a new role for an old central bank: The Bank of Norway 1945-1954." Series of Dissertations 2/2008, BI Norwegian School of Management.
[9] There was one parliamentary representative on the board as late as 1983.
[10] Ivo de Figueiredo (2007): *Henrik Ibsen. Masken* [Henrik Ibsen. The Mask], Aschehoug.
[11] See Harald Haare (2007): "Clearing and settlement at Norges Bank – a historical review", *Economic Bulletin 4/2007*.

other purposes.[12] The gold standard ideal of an independent central bank was abandoned during the war. There was strong credit growth. The discount rate was kept low and there was a surge in government spending, while prices for our exports soared and foreign inflows of gold were substantial. The combination resulted in a boom period followed by a stock market crash, a banking crisis and a fall in monetary value.

Francis Sejersted wrote the following about the appointment of Nicolai Rygg as governor of Norges Bank in 1920: "When [Prime Minister] Gunnar Knudsen [in 1920] called Rygg to the position of chairman of Norges Bank's board, his aim was to secure the services of a strong and knowledgeable man. Gunnar Knudsen suspected an economic storm was brewing, and he suspected something that to a great extent was his own responsibility, namely that monetary policy had been neglected during the war. It is important to keep this in mind in any judgement of Rygg – that he took over an estate that had fallen into grave disrepair. The monetary and fiscal policy pursued during World War I had been lax to a degree that was completely unnecessary".[13]

Norges Bank now aimed to raise the value of the Norwegian krone and lower the price of gold by means of so-called "parity policy". This line of approach was followed by most advanced economies to restore pre-war exchange rates. A system of stable and convertible currencies was regarded as essential to growth in global trade.

Rygg moreover regarded restoring the value of the krone to its former gold parity as a moral obligation.[14] The Norwegian government held substantial

[12] For an overview of legislative amendments in connection with World War I, see Carsten Smith (1980): *Bankrett og statsstyre* [Banking law and public governance]

[13] Francis Sejersted (1973): *Ideal, teori og virkelighet. Nicolai Rygg og pengepolitikken i 1920-årene* [Ideals, theory and reality. Nicolai Rygg and monetary policy in the 1920s]. J.W. Cappelens forlag.

[14] In their book *Norsk økonomi i det 20. århundre* [The Norwegian economy in the 20th century], Fritz Hodne and Ola Honningdal Grytten refer to a lecture given by Gustav Cassel, a Swedish economist of international renown, at the Federation of Norwegian Industries on 23 November 1923, where Cassel argued that in Norway's case a devaluation might be an advantage. This offended Rygg, who reminded Cassel that Norway had trodden a difficult path before, and could do so again. Just before he took office, Rygg had written a book about the history of Norges Bank 1816-1916 and had the years 1822-1842 in mind, when 20 years of

debt in sterling and US dollars and he felt it was important to settle Norway's debts in money of the same value as previously. The same applied to small depositors – they were to feel secure that their money would keep its value over time.[15]

But the central bank also had a banking crisis to deal with. Funding was supplied, partly by Norges Bank and partly by the Treasury, to keep the banks afloat. It took time to restore confidence in the krone and for parity policy to be effective. It was not until May 1928 that the krone was pegged to gold at par.

The government and the Storting left much of the responsibility for economic policy to Norges Bank.[16] The recommendation by the Standing Committee on Finance and Economic Affairs in the central bank's annual report for 1924 reads as follows: *"The majority finds that it does not possess the necessary knowledge of all the interacting factors which under these difficult circumstances must affect Norges Bank's decisions to be able to perform a critical review of these decisions."*[17]

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deflation had been needed to bring the speciedaler back to its former gold parity. He wrote: "*The [monetary] regime is anchored in our legal system, which must be respected. Inherent therein is a moral obligation to restore the monetary system to its previous condition. I know the road ahead of us is long, but I would for my part emphasise that we will follow that road."* From the newspaper article: "Veien og viljen. Et spørsmaal, hvor nordmænd alene har ansvaret. Av direktør N. Ryggs svar til professor Cassel" [The way and the will. An issue for which Norwegians alone are responsible. On Director Rygg's response to Professor Cassel]. See also: Wilhelm Keilhau (1952): *Den norske pengehistorie,* [Norwegian monetary history] Aschehoug for a review of the discussion between Rygg and Cassel.

[15] At that time, small savings played a key welfare function in society. See Francis Sejersted (1973): *Ideal, teori og virkelighet. Nicolai Rygg og pengepolitikken i 1920-årene.* [Ideals, theory and reality. Nicolai Rygg and monetary policy in the 1920s]. J. W. Cappelens forlag

[16] In 1926, Minister of Finance Holmboe, of the centrist-liberal party Venstre, said: "It is however a well known fact that wherever governments have assumed authority over the national bank, the outcome has been unfavourable because vested interests have been so considerable and the temptation so strong that it was impossible to resist, and the government has helped itself to the national bank's cash…". In Francis Sejersted (1973): Ideal, teori og virkelighet. Nicolai Rygg og pengepolitikken i 1920-årene. [Ideals, theory and reality. Nicolai Rygg and monetary policy in the 1920s]. J. W. Cappelens forlag

[17] In Francis Sejersted (1973)

In Berge Furre's words, there was: "... general agreement on the goal – the gold krone – from the political right to the political left."[18]

After the value of the krone had been brought back to gold parity, the international crisis reached Norway. Starting in the US in 1929, it led to falling prices and wealth losses in all the western economies. The gold standard was an important channel of contagion. Uncertainty led to capital flight to countries with substantial gold reserves, such as the US. Countries with small reserves had to maintain a high interest rate to prevent substantial gold outflows. In September 1931, the UK decided to abandon the gold standard. Denmark, Sweden and Norway brought gold redemption to a halt in the same month.

Norges Bank was put to a severe test in the interwar period. Nicolai Rygg's lot was to resolve the problems left by the policy conducted during and just after the war. His approach was on a par with international practice at the time. [19] Although he had his critics, not all the criticism levelled against him would necessarily be regarded as equally well founded today.

The general view of Rygg has become more balanced.[20] But the perception of Rygg and Norges Bank in the interwar years, that subsequently became ingrained, had an impact on the tasks that were later assigned to the central

[18] Berge Furre (Norwegian historian, theologian and politician for the Socialist Left Party), (1999): "Norsk historie 1905–2000: Industrisamfunnet – frå vokstervisse til framtidstvil" [History of Norway 1905-2000: from confidence in growth to doubts about the future], Det Norske Samlaget.

[19] For a lively description of the personalities governing the large central banks in the 1920s, see Liaquat Ahamned (2009): *The Lords of Finance. The bankers who broke the world*. Penguin Books

[20] Hermod Skånland writes about the need to hold someone accountable for the hardships of the 1920s: "The government is usually a good target for criticism, but there is little appeal in firing shots at a government that is no longer in office, and through the 1920s there had been so many governments that no single government stood out as more responsible than others. On the other hand, there had been one central bank governor, who had also been a prominent figure. Nicolai Rygg became the obvious scapegoat, open to attack from both the masses and from historians, without any economists springing to his defence.
Thus, the myth became established that the economic difficulties of the 1920s were due to parity policy, and that Nicolai Rygg was responsible for them. From there, it was only a short step to a general scepticism towards monetary policy combined with a more specific distrust of central banks and central bank governors." Hermod Skånland (1998): "Mytedannelsen om paripolitikken" (Myth-making about parity policy), Aftenposten 30 May.

bank. The pendulum swung towards less independence for Norges Bank, since the Bank was held responsible for the recession. This impression prevailed for such a long time that it also came to influence the current Norges Bank Act.

The scepticism was clearly expressed by Kåre Willoch, who was prime minister when the new Act came into effect in 1985: "[Nicolai Rygg] was held primarily responsible – and virtually solely responsible – for a policy that became a crucial deterrent to central bank independence for generations of economists and politicians – myself included." [21]

The postwar period of coordination and regulatory optimism

Views on economic policy changed considerably from the end of the 1930s. The Bretton Woods system of fixed exchange rates against the US dollar was established, with the US dollar pegged to gold. Both John Maynard Keynes' theories and analytical tools developed by Norwegian economists such as Ragnar Frisch and Trygve Haavelmo generated regulatory optimism, which laid the basis for a new approach to economic planning, for example through the annual national budgets.

Fiscal policy – changes in public spending and taxes – was now regarded as the most important instrument for smoothing economic fluctuations. The use of direct regulation of the economy increased. The role of interest rate policy was toned down considerably.[22] Centralised planning gained ground, with the Ministry of Finance playing a prominent role. As a result, there was also a shift in Norges Bank's responsibilities, with the full agreement of the Bank. In his first annual address in 1946, Governor of Norges Bank Gunnar Jahn said: *"It goes without saying that a bank of issue cannot and should not conduct a*

[21] Kåre Willoch (1994): "Hvor uavhengig bør sentralbanken være?" [How independent should the central bank be?], in *Stabilitet og langsiktighet. Festskrift til Hermod Skånland* [Stability and long-termism. Festschrift to Herman Skånland], Aschehoug.

[22] For example, Governor Erik Brofoss later said: "… the impact of the interest rate, which was once virtually the only monetary policy instrument, is now far more limited in scope." In Erik Brofoss (1959): "Sentralbankens statsrettslige og forvaltningsrettslige stilling" (The central bank's position in relation to constitutional and administrative law]. Lecture given on 27 October. Published in *Statsøkonomisk tidskrift* 1960, pp. 1-31.

policy that is inconsistent with that determined by the Storting and the government."

Coordination with government policy was formally strengthened in 1949 when the government acquired all the shares in Norges Bank. In addition, the Bank's annual report was to be sent to the Ministry of Finance and no longer directly to the Storting.

Corporatist channels became important, providing some scope for a central bank in search of a mission.

Samarbeidsnemnda (the Cooperation Committee), a body established in 1951, comprised commercial and savings banks, insurance companies, the Ministry of Finance, the Banking Inspectorate and Norges Bank, with the central bank governor as chair.

Erik Brofoss, the head of Norges Bank from 1954, was enthusiastic:

"During discussions about monetary policy and other economic issues, Norges Bank has often found itself in the position of having to find intermediate solutions that could convey the positions adopted by the Ministry of Finance and by private financial institutions. The actual influence Norges Bank has had in this respect both vis-à-vis the Ministry and the private financial institutions extends far beyond its formal statutory authority."[23]

This line of thinking seems very remote to us today.

Regulatory optimism was the hallmark of the 1960s,[24] and with the Act authorising the regulation of monetary and credit conditions of 1965,[25] which was an enabling Act conferring authority on the government, Norges Bank

[23] Erik Brofoss (1959): "Sentralbankens statsrettslige og forvaltningsrettslige stilling" [The central bank's position in relation to constitutional and administrative law]. Lecture given on 27 October. Published in *Statsøkonomisk tidskrift* 1960, pp 1-31

[24] Tore Jørgen Hanisch, Espen Søilen and Gunhild Ecklund (1999): *Norsk økonomisk politikk i det 20. århundre. Verdivalg i en åpen økonomi* [Norwegian economic history in the 20th century. Ethical choices in an open economy] Høyskoleforlaget, Kristiansand.

[25] The 1965 Credit Act and the 1950 Act relating to currency control were not repealed in their entirety until 2003.

gradually drifted into an advisory role. Corporatist collaboration receded somewhat into the background and credit policy was integrated into the national budget.[26]

This was probably an all-time low for Norges Bank. The Bank was not allowed to act, while inflation gained momentum.

When Hermod Skånland began working in Norges Bank as deputy governor in 1971, he was warned by his colleagues at the Ministry of Finance. Later, he said: "*... they did not know how right they were to ask their questions. They [had no idea] how little there was to do of any interest in Norges Bank at that time. It had no instruments, no policy tasks and was wholly and exclusively a supervisory body – apart from the few occasions when it served as a consultative body. So I had placed myself on the sideline, but I compensated by offering to chair a number of public commissions."*[27]

Governor Knut Getz Wold wrote in 1972 that: "Norges Bank's position today in relation to the government authorities is not, however, defined by a formal right to make decisions on specific issues, but by its role as advisor …". He went on to say: "Norges Bank has limited direct power. This is as it should be. But it has, and should have, influence. If store is to be set by its word, it must keep abreast of developments at home and abroad. The Storting and the government have the final word. Having said that, Norges Bank will loyally and actively follow up their decisions."[28]

[26] The collaboration between the authorities and bankers' associations did not disappear completely. In the economic policy tightening of 1979 and 1980, the "konsumlånsforståelsen" (consumer loan understanding) played an important role. Banks undertook to reduce lending to households. This led to a marked rise in saving.

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[28] Knut Getz Wold (1972): "Norges Banks samarbeid med statsmaktene, bankene og utlandet," [Norges Bank's cooperation with government authorities, the banks and bodies abroad], Kristofer Lehmkuhl Lecture, Norges Handelshøyskole 20 September.

In 1973, the efforts to develop an economy under strong centralised coordination and control culminated in a proposal to establish an incomes policy council with regulation of wages.[29]

The proposal was logical. It was the last wall in the structure erected after the war. Coordination and regulation were important key words. Other elements were:

- Fiscal policy oriented towards full employment
- Credit regulation within limits specified in a separate credit budget
- Channelling of loans through state banks
- Regulation of capital movements
- Low nominal interest rates stipulated by the government authorities
- A fixed, though adjustable, krone exchange rate
- Use of price regulation
- An active business policy through state ownership and state grants and subsidies

The proposal to establish an incomes policy council did not receive support. Government regulation and coordinated wage regulation became excessive.[30]

Today's economic policy frameworks are partly a reflection of the experiences of the 1970s and 1980s, both in other countries and in Norway.

The Bretton Woods system collapsed when the US deficit-financed the Vietnam War and extensive welfare reforms, while interest rates were kept low. The gold standard had to be abandoned, inflation rose and an oil price shock

[29] See NOU [Official Norwegian Report] 1973:36. Om prisproblemene [On price problems]
[30] See NOU [Official Norwegian Report] 1973:36. Om prisproblemene [On price problems]

was triggered. A shortfall in production and unemployment followed in its wake.

Norway imported high inflation, and domestic inflation was also amplified by galloping wages and a series of krone devaluations.

High inflation undermined the regulation of the credit market. We had had a low nominal interest rate for a long period – several decades – but inflation had also been moderate. From the end of the 1960s, this changed. The real interest rate became highly negative. In addition, galloping wages drove incomes into higher tax brackets, resulting in higher marginal taxation, and the after-tax real interest rate became even more negative. The regulation of credit was not able to stem the tide of credit demand that ensued.

The Norwegian money market became more closely integrated with a growing Eurodollar market at that time. This was partly because oil companies had to exchange their US dollar revenues into NOK for tax payment purposes.

The regulatory regime was imploding.

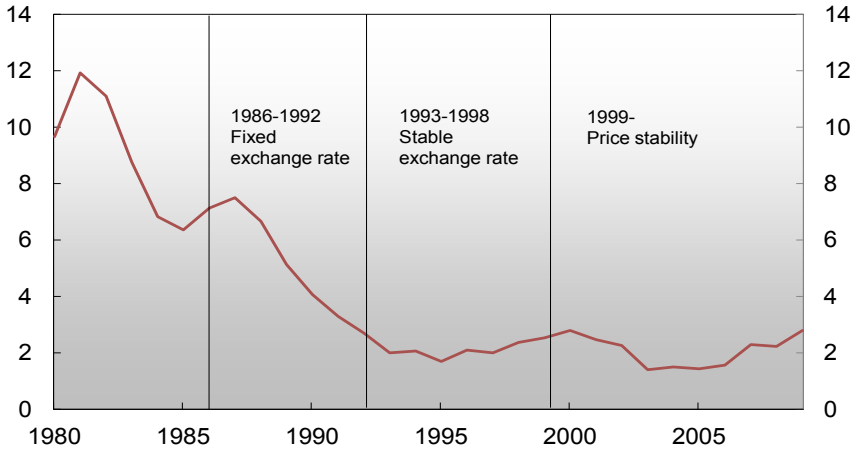
The interest rate regains its role as a policy instrument

After the drop in oil prices and the last devaluation of the krone in 1986, the interest rate had to be set to support our currency. The alternative was further devaluations, high inflation and economic instability. With a binding commitment to a fixed exchange rate policy from early summer 1986, interest rate setting was largely shifted to Norges Bank.[31]

High inflation is associated with substantial real economic costs. This came into evidence when we managed to bring inflation under control again in Norway at the end of the 1980s. The fixed exchange rate policy was crucial in this context (see chart 3).

[31] Hermod Skånland dates this to December 1986 (see Skånland (2005)): "Tilbakeblikk på 20 år med ny sentralbanklov" ["A 20 year retrospective on the new Norges Bank Act"], *Penger og Kreditt* 3/05 (Norwegian only). In my opinion, this shift occurred earlier.

Chart 3 Inflation. Centred 3-year average of CPI inflation. Per cent. 1980 – 2009[1)]



1) The projection in MPR 3/10 applied for 2010
Sources: Statistics Norway and Norges Bank

Perhaps we can say that the pendulum had swung back from the view that prevailed in the early years after the war. At that time, it was not Norges Bank, but on the contrary fiscal policy and the detailed regulatory system that had failed. Norges Bank had to be given a greater role again in promoting a well functioning economy.

Later, it would transpire that having brought inflation under control and a series of far-reaching structural reforms in the 1980s and early 1990s, would pave the way for two golden decades in the Norwegian economy.

Throughout the 1990s, the objective of monetary policy was to stabilise the krone and thereby make a contribution to low inflation. The central government budget was to smooth fluctuations in output and employment. This became increasingly demanding as favourable economic developments and oil revenues generated government surpluses. Both the interest rate and the government budget had then, in periods, the effect of amplifying, not dampening,

cyclical developments. This resulted in fluctuations in the krone exchange rate.[32]

Norges Bank was forced to recognise that it could not fine tune the exchange rate from day to day or month to month. Nor would the Bank knowingly contribute to fuelling inflation or deflationary downturns. Interest rate policy was then instead geared to keeping inflation in line with euro area countries. As from 1999, the Bank's policy was in practice oriented towards an inflation rate of around 2 per cent.[33] Keeping inflation low and stable is the best contribution monetary policy can make to economic stability and a stable krone exchange rate.

A formal inflation target – with a target of 2.5 per cent – was introduced in Norway in March 2001. The new monetary policy framework was introduced at the same time as the government drew up new fiscal policy guidelines that provided for a gradual, and sustainable, phasing in of oil revenues into the Norwegian economy.

[32] Kjell Storvik, Governor of Norges Bank from 1994 to1999, stated in a lecture at FOREX NORWAY on 28 August 1998: "I would point to the well-known fact that a lower krone exchange rate may contribute to fuelling inflation expectations and that such expectations may in turn generate expectations of a weakening of the krone exchange rate, thereby reinforcing depreciation pressures. Price expectations may thus prove to be a self-fulfilling prophecy. The interest rate level which has now been established should, in addition to directly contributing to stabilising the krone exchange rate, dampen price expectations."

[33] Svein Gedrem (1999) "Utfordringer i pengepolitikken" [Monetary policy challenges], Aftenposten, 4 May

Independence in the use of instruments – a premise for stability of the value of money

A number of considerations weigh in favour of setting objectives and delegating tasks to government institutions. This can ease the central authorities' workload. The central government can also seek to ensure that government agencies fulfil their responsibilities by giving them clear objectives and instruments. Furthermore, clear objectives and delegation of tasks may enhance predictability for other economic agents.

In economic policy it is commonly argued that certain long-term objectives can be achieved only if short-term considerations are not allowed to influence the use of policy instruments.[34] This is the case for monetary policy and inflation targeting.[35] There may be a desire to achieve higher, yet unsustainable, growth in output and employment through a low interest rate. But economic agents are aware of this temptation. If they cannot be confident that the key rate is set to ensure stable inflation, they will expect higher inflation over time. The long-term cost can be considerable and the short-term gains limited. Norway and other countries learned this in the 1970s and 1980s.

The British prime minister Harold Wilson once remarked, *"A week is a long time in politics."* This attitude also influenced economic policy in our country. The result was economic instability, with both high inflation and high unemployment. Just as Ulysses had himself tied to the mast to resist the Sirens'[36] temptations, the government authorities can prevent themselves from pursuing a policy that is harmful in the long run by setting objectives and delegating tasks.

[34] Kydland, Finn E. and Prescott, Edward C. (1977): "Rules Rather than Discretion: The Inconsistency of Optimal Plans."*Journal of Political Economy* No. 87, pp 473-492
[35] Barro, Robert J. and David B. Gordon (1983): "A Positive Theory of Monetary Policy in a Natural Rate Model", *Journal of Political Economy* No. 12 pp. 101-121
[36] Elster, Jon (1979): Ulysses and the Sirens. Studies in Rationality and Irrationality, University Press, Cambridge

A central bank should be independent in its use of policy instruments, though the objective of monetary policy should naturally be set out by the government and the Storting.[37]

The division of responsibility was clearly defined when the government presented its guidelines in 2001. Since the various elements of economic policy differ in their effects, they have different tasks:

- Monetary policy now steers inflation in the medium and long term and can in addition contribute to smoothing fluctuations in output and employment.
- The central government budget – growth in public expenditure, which must be sustainable in the long term – influences the krone and the size of the internationally exposed sector in the medium term.
- Wage formation and economic structures and incentives provide the basis for efficient use of our labour resources and other economic resources, and for economic growth.

There is also an interaction:

- In their budget resolutions, the government authorities will attach importance to the effects of the budget on the Norwegian economy and will therefore take account of the effect on the interest rate. In this way, they avoid a situation where growth in public expenditure and the interest rate push the economy in different directions.
- With a known monetary policy response pattern, the parties to the centralised income settlements can take into account interest rate effects when wage increases are agreed.
- Moreover, the parties to public sector negotiations can take into account that the higher the pay increases are, the fewer there are who can be remunerated over government budgets.

[37] Stanley Fischer introduced the difference between goal and instrument independence. See Fischer (1995): "Modern approaches to central banking", NBER Working Paper No. 5064.

Norges Bank Act of 1985 – a framework for today's monetary policy

The Norges Bank Act, passed in 1985, governs monetary policy.[38] The Act was drafted in the light of Norges Bank's role in the postwar government administration. Therefore, the new Executive Board, which replaced the board of directors under the 1892 Act, is now appointed by the Council of State.

Under the Act, Norges Bank is an executive and advisory body for monetary, credit and foreign exchange policy and shall monitor developments in the money, credit and foreign exchange markets.

The Act makes no reference to the objective of monetary policy. On the contrary, its formulations are completely open-ended.[39]

The Bank shall conduct its operations in accordance with the economic policy guidelines drawn up by the government authorities. How this was to be interpreted, was the subject of controversy in the first years. Today, in the light of both the text of the Act and of the preparatory works, the implications of this may also be unclear. This provision has not gained any further practical significance. Today, Norges Bank no longer looks for guidelines in public documents. The reason is that the inflation target, which is governed by regulation in pursuance of other provisions of the Act, provides the central bank with a suitable mandate.

The central bank is no longer a limited liability company as it was until 1985, but a separate legal entity owned by the state. The central bank shall submit

[38] The Act is discussed in Helge Syrstad (2003):" Sentralbankens uavhengighet" [Central bank independence], Fagbokforlaget. See also Per Christiansen (1987): Norsk pengerett. En fremstilling av de offentligrettslige regler om penger og pengesystemet" [Norwegian monetary law. A presentation of official regulations relating to money and the monetary system]. Universitetsforlaget, Oslo. 723 pages. ISBN 82-00-18373-4 (Doctoral dissertation).

[39] The following is stated on page 3 of the recommendation from the Standing Committee on Finance and Economic Affairs concerning the Act relating to Norges Bank and the Monetary System etc. (Recommendation No. 50 (1984-85) to the Odelsting: *"A new Norges Bank Act should be able to be adapted to various scenarios. In line with this, the Committee proposes a general clause for the Bank's activities and that the Council of State be authorised to lay down further guidelines in a number of areas.*"

matters of *special* importance to the Ministry of Finance before making a decision. Although this submission arrangement gives the Ministry of Finance an opportunity to state its views, and obliges Norges Bank to consider them, it does not relieve Norges Bank of the full responsibility for its decisions.

The text of the Act does not specify which matters are not only important, but of *special* importance. The preparatory works of the Act provide little guidance today. When the Act was under preparation, the interest rate was not a policy instrument, but had the nature of being an end in itself. It was rarely changed, and then only in critical situations for the Norwegian economy. In the period of exchange rate management in the 1990s, changes in the key rate were also linked to large currency inflows or outflows that might indicate substantial imbalances in our economy. In the past 10-12 years this has changed completely. Norges Bank operates a target set by the government authorities, and interest rate changes are nearly always small and rarely come as a surprise to economic agents. While these changes may appear to be important, it would be to inflate the wording to characterise them as matters of *special* importance.

When in more critical situations, such as autumn 2008, a need arises for more pronounced changes in interest rate and liquidity policy, the Bank has without a doubt an obligation to submit the matter to the Ministry.

There must always be a good flow of information from Norges Bank to the Ministry of Finance.

Norges Bank has a special position in public administration. This is expressed, for example, in the instructions section of the Norges Bank Act. While ministries in Norway, in contrast to Sweden for example, can easily issue instructions to their subordinate agencies, this provision sets strict formal requirements for instructing the Bank. This power cannot be delegated by the Council of State to the Ministry of Finance. The Bank shall be consulted in advance and the Storting shall forthwith be notified of the reason for the instruction. Former supreme court justice Carsten Smith has stressed that the Act must be

interpreted to mean that this must be set out in a separate report and under full transparency.[40]

In its consultation statement on the new Norges Bank bill, the Ministry of Justice through its Legislation Department expressed the view that the right to issue instructions should be in closer keeping with ordinary rules relating to government administration, adding: *"We note for the record our agreement that there are strong arguments for limitations on instructing Norges Bank on the exercise of its authority. From a legal standpoint, however, there should be no doubt that the power to do so exists and that this power should be formulated in a manner which does not make it virtually impossible to exercise it in practice".*

The views of the Legislation Department were not taken into account. The relevant section of the Act was worded in such a way as to make the power to instruct the Bank virtually impossible to exercise in practice. Nor has it ever been applied in individual cases, except when the inflation target was introduced in 2001 after consultations with Norges Bank. Norges Bank has, in Getz Wold's words from 1972, followed up the inflation target loyally and actively.

The instruction section does not prevent Norges Bank from setting the interest rate independently of pressures from the central government authorities. It is difficult to conceive today that this could change. There is therefore hardly a pressing need to remove it. It could still be argued that in international comparisons Norges Bank seem to be less independent than it actually is. On the other hand, it can be argued that Norway could be faced with a perilous situation, such as military conflict, for example, where the central bank itself finds that the government should use its power of instruction with regard to foreign exchange reserves and the central bank's management of monetary and liquidity policy.

In many ways the current Norges Bank Act is a product of 1960s and 1970s economic thinking, but certain adjustments have been made to the Act since 1985. Particularly important is the prohibition against the central bank grant-

[40] Carsten Smith (1992): *Rettstenkning i samtiden* [Contemporary legal thinking], p. 410. Universitetsforlaget.

ing credit to the central government. The practice for appointing members of the Executive Board has also changed. Where the political parties in the Storting once nominated relevant candidates, members are now evaluated independently of party background and appointed by the Council of State upon the recommendation of the Ministry of Finance.

One typical feature of recent central bank legislation in other countries is an objects provision that stipulates the central bank's primary objective as ensuring stability in monetary value. In Norway, this is set out in a statutory regulation and as an operational and more intermediate target. This is an essential difference.

Another feature of central bank legislation in other countries is legal independence, in the sense that the central bank's use of instruments, primarily the key interest rate, cannot be overruled, whether by instruction or reversal.

If the Norges Bank Act were being written today, it would probably include an objects section. As mentioned, much of the preparatory works is out of date so that the provisions of the Act of 1985 must be interpreted in the light of the current economic system. Moreover, Section 1 reads *"[t]he bank may implement any measures customarily or ordinarily taken by a central bank*", and this is something that changes, as we know. The Act is thus flexible enough to provide a suitable framework also for the conduct of monetary policy today. It specifies, moreover, that Norges Banks sets the interest rates on its loans and deposits.

Norges Bank's responsibilities are also now well established through practice.

The central bank is accountable

Norges Bank has two parallel governing bodies. In addition to an Executive Board, appointed by the Council of State, it has a Supervisory Council appointed by the Storting. This also shows the peculiar position of the Bank in the government administration. The direct link to the country's national assembly reflects that the Storting under Article 75 (c) of the Norwegian Constitution "shall supervise the monetary affairs of the Realm". The Supervisory Council continues to have a mix of administrative and supervisory duties, but

its tasks were delimited by the Act of 1985.[41] The Supervisory Council shall supervise the Bank's activities and ensure that the rules governing the Bank's operations are observed. The council has its own secretariat, adopts the annual accounts of Norges Bank and approves its budget.

The Bank continues in part to be the Storting's bank.

A substantial change has taken place over the past decade in that the Supervisory Council shall no long submit a report on its activities to the Ministry of Finance, but directly to the Storting. This is a partial reversal of the change to the Act that was made in 1949.

In my judgement, the tasks of the Supervisory Council could be broadened. Among other things, it should be able to play a greater role in appointments to the Executive Board and Bank management, for example, through a formal right to make recommendations.[42] This could give the Supervisory Council an even greater sense of ownership over the organisation and strengthen their sense of commitment.

In central banking circles it is easy to confuse independence, expertise and long-termism with infallibility.[43] Central bank independence in the use of instruments is contingent on central bank transparency and disclosure of the background for its decisions. This provides a basis for evaluating the Bank's decisions.

Moreover, the central bank is accountable.

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[41] Helge Syrstad (2003): *Sentralbankens uavhengighet* [Central bank independence], Fagbokforlaget

[42] In a different context, professor Eivind Smith states another view that may be of importance: "It can be conceivably argued that independence [..] is possible only if the authority to appoint persons to the 'independent' body is delegated to bodies other than those the appointees are supposed to be independent of. For example, a body whose members are appointed by the King would not be 'independent' of the King (or the ministry)." Source: "The constitutional power to delegate decision-making authority to 'independent' bodies". Appendix 5 to NOU [Official Norwegian Report] 1997:19: Better privacy protection.

[43] We can refer to Norges Bank's reputation survey. In an otherwise positive report, some respondents were of the view that Norges Bank is closed and somewhat unresponsive. See Press release 24 June 2010

In Norway, the Ministry of Finance performs an annual evaluation of the conduct of monetary policy in a separate report. Its assessment is partly based on a report by an independent expert group. The Governor of Norges Bank appears at a parliamentary hearing when the Standing Committee on Finance and Economic Affairs works on the report. The discussion concludes with a debate in the Storting.

Advisory role

With new and clearly defined economic policy tasks, Norges Bank stepped back somewhat as economic policy advisor. For example, the Bank has discontinued its annual assessment of fiscal policy in what was at the time labelled "budget letters", and we rarely express our views on official reports regarding economic issues.

Norges Bank is a consultative body for laws and regulations affecting the stability of the financial system.[44] Moreover, the Bank is obliged under the Act to inform the Ministry when in the opinion of the Bank, there is a need for measures related to monetary, credit or exchange rate policy to be taken by others than the Bank.

Financial stability

A challenge for the central bank is that there is a gap between the instruments at the Bank's disposal in the area of financial stability and the existing expectations that the Bank can ensure the stability of the financial system. If liquidity dries up among banks in Norway or abroad, they are certain to turn to the central bank. The central bank acts as lender of last resort, as it can always supply liquidity in Norwegian kroner. Moreover, the central bank holds foreign exchange reserves that can be made available to the banks in critical situations.

But we have no formal competence with regard to financial market regulation and prevention. What we can do is offer advice concerning regulation and set terms for banks' loans from the central bank.

[44] See Section 3 of the Norges Bank Act

In 1986, Norges Bank provided substantial loans to the banks – at the highest around NOK 80 billion – to prevent a rise in money market rates after large-scale NOK purchases had been made in support of the krone.[45] The loans, which were unsecured, were kept on Norges Bank's balance sheet when solvency problems at the banks began in 1987. Norges Bank was later criticised for providing these loans. Although the criticism was misdirected, the loans did make it more difficult for the government to manage the banking crisis.[46]

Today the Bank no longer provides unsecured loans and we have gradually tightened collateral requirements.

Many banks rely heavily on short-term funding in international and domestic money markets. The lesson from the most recent financial crisis is that a shortfall in foreign funding can weaken stability in the financial system in Norway, even if the banks' financial position is not in jeopardy at the outset. The next step will therefore be not only to require collateral, but also impose requirements on our clients – the banks – to improve their funding strategies. Banks must not be given the scope to take on substantial liquidity risk in the belief or with the certainty that Norges Bank will intervene should foreign funding seize up. A market functions poorly in the long term with such hidden support.

With large unsecured loans, Norges Bank ended up providing income support in one instance in the 1980s when a savings bank experienced solvency problems. The support included a soft loan and the write-down of a loan. The measures were part of a broader bank rescue package. The Ministry of Finance immediately submitted a report to the Storting (Report No. 24 (1989-90) where the Ministry of Finance wrote *"..The write-down of loans from the central bank may [...] represent an active use of central government funds that should be deliberated in the Storting in advance".* The Standing Committee on

[45] See Chart 1 in Karsten Gerdrup (2004): "Norges Bank's role in the event of liquidity crises in the financial sector." *Economic Bulletin no. 2/2005*

[46] For a discussion, see Tore Jørgen Hanisch, Espen Søilen and Gunhild Ecklund (1999):"Norsk økonomisk politikk i det 20. århundret. Verdivalg i en åpne økonomi". [Norwegian economic policy and politics in the 20th century. Ethical choices in an open economy], Høyskoleforlaget, and Fritz Hodne and Ola Honningdal Grytten (2002): "Norsk økonomi i det 20. århundret" [The Norwegian economy in the 20th century], Fagbokforlaget.

Finance and Economic Affairs endorsed this view and the resolution received final approval only after the Storting had deliberated the matter.

This delimitation of Norges Bank's tasks is important. Norges Bank shall not provide grants or capital to the banks. During the financial crisis in August 2008, the banks' short-term and medium-term funding seized up. Norges Bank provided short-term loans as is customary and natural for a central bank. At the same time, we took the initiative to put in place the swap arrangement, whereby banks could exchange covered bonds (OMFs) for government securities. This went through the government's balance sheet and not that of the central bank. The central bank did not provide long-term loans on a large scale.[47] This distinguishes the management of the financial crisis in Norway from a number of other countries in that we are of the view that it is appropriate for such medium-term financing – as in the case of solvency support – to be provided by the government and not Norges Bank, if the situation has reached a point where this is necessary.[48] The measure is given a broad democratic grounding through government and Storting deliberations. This approach also serves to counter the kind of criticism that was levelled at Norges Bank when it provided funding for banks in the mid-1980s.

Financial imbalances ordinarily build up over a long period before they trigger a crisis. Internationally, measures intended to prevent systemic risks in the financial sector are usually referred to as macroprudential policy.

The government authorities should primarily use structural measures to dampen self-intensifying forces behind credit growth and rising property prices. The most important measure will be to increase banks' capital requirements.

The international minimum standard for banking regulation will be strengthened under the forthcoming Basel III framework. However, we note that some

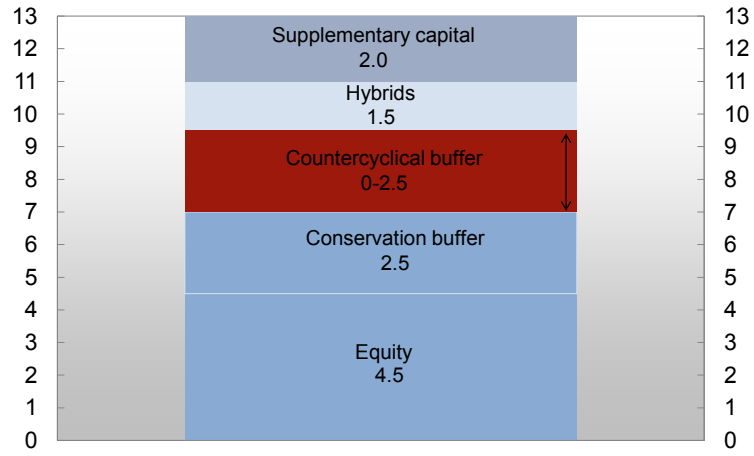
[47] As an extraordinary measure, in connection with the establishment of the swap facility, 2- and 3-year fixed-rate loans specially designed for small banks were allotted. This was extensively explained in the Storting documents.

[48] See also Peter Stella: "Minimizing Monetary Policy". Paper presented at the Annual General Meeting of the Bank for International Settlements in June 2009. http://www.bis.org/events/conf100624/stellapaper.pdf

countries do not wish to subject their banks to stringent standards. These countries' governments are more concerned that their banks have framework conditions at least as favourable as competitors from other countries. This attitude leads to a competition to weaken the requirements as far as possible. The minimum requirements will not be lower than the level all the major countries will agree to.

Given such minimum requirements, there is every reason to set stricter national rules. The Norwegian authorities have been doing this for a number of years, including requiring banks to hold more pure equity than most other countries have done.

Chart 4 New minimum capital adequacy requirements and new capital buffer requirements. Per cent of risk-weighted assets



Sources: Basel Committee and Norges Bank

Banks object that higher capital standards make it more expensive to operate and will make borrowing more expensive for households and enterprises, in addition to reducing the competitiveness of Norwegian banks. But that a bank should be at a competitive disadvantage if it is not allowed to be as financially weak as another bank is hard to take seriously. This line of thinking presupposes that the government will bail out the banks. But we should not accept

this supposition. Higher capital ratios will make banks less risky for shareholders, creditors and the government. Less risk means that banks' creditors will require a lower interest rate.[49]

In addition to higher permanent capital standards and other structural measures, it is also appropriate to use discretionary measures when systemic risk increases above normal.

Under Basel III, higher capital requirements for banks can be required in the event of rising lending growth and surging property prices (see chart 4). But other measures are also possible. Finanstilsynet (the Financial Supervisory Authority of Norway), for example, sets limits on the size of a single loan in relation to the collateral provided. Another possible measure is to set minimum requirements for the risk weights banks can use in their internal model-based approach to calculating capital adequacy.

In other countries the procedures are now being revised to allow central banks to participate when such discretionary measures are implemented.

In Norway, Finanstilsynet is highly competent in the oversight of individual institutions. However, Norges Bank has more competence in macroeconomic matters, given its tasks. The central bank also has an informational advantage as we are the bankers' bank and operate in foreign and domestic markets. The division of responsibility should be based on the advantages specific to each organisation. The Ministry of Finance should define the objective of macroprudential supervision and delegate its use. The Ministry must also assess whether the objective has been achieved.

One alternative is to delegate responsibility for implementing discretionary measures against systemic risk to Norges Bank. Another is procedural requirements for using Norges Bank's expertise appropriately. The Bank may, for example, have the right and a duty to issue an opinion. Finanstilsynet should in principle have to follow the advice provided by the Bank. If the advice is not followed, an explanation must be provided and made publicly available.

[49] The mechanism is known in economic theory, see the Modigliani-Miller theorem.

In order to ensure a disciplined decision-making process, the relationship to the other components of economic policy must be clear. Macroprudential supervision must seek to reduce systemic risk and take monetary policy and fiscal policy as a given.

The objective of monetary policy is low and stable inflation and to contribute to dampening fluctuations in output and employment. Monetary policy takes into account that pronounced movements in credit growth and house prices can feed through to inflation and output, but is not geared directly to stabilising the financial system.

Conclusion

Allow me to conclude.

Norges Bank is no longer in search of a role. We no longer take part in corporatist processes. Norges Bank now has a less prominent role as advisor.

We do not believe in economic fine-tuning, but we do have instruments that can ensure low and stable inflation over time.

Macroprudential supervision is now being moulded. Norges Bank must critically evaluate the funding structures of banks that have access to our lending facilities. We must develop instruments that can induce banks to limit their short-term borrowing in domestic and foreign markets.

There is a strong sense at Norges Bank that we are being put to effective use today.

Thank you for your attention.

Chapter 2

Long term perspectives on central banking

Michael D. Bordo[1]

1. Introduction

The recent global financial crisis and Great Recession has led to calls by some for a remaking of the model of central banking (Goodhart 2010). Instead of focusing primarily on maintaining price stability (anchored by credible rules), providing stability to the real economy and serving as a lender of last resort and protector of the payments system, central banks should now give greater importance to overall financial stability and to preventing asset bubbles. Others argue that central banks should stick to the successful model developed in the 1980s that led to the Great Moderation, and should attach ultimate importance to maintaining credibility for low inflation. Such a policy would also foster both real economic stability and financial stability. Financial stability concerns should be treated separately by a Financial Stability authority or, if based within the central bank by statute, should be managed by tools other than the policy interest rate (Svensson 2010, Taylor 2010).

This essay, taking a long-term historical perspective considers whether we need to rewrite the central banking rule book in the aftermath of the recent crisis. I argue that central banking evolved in the eighteenth and nineteenth centuries into a golden age of following credible rules to maintain price stability and serving as an effective lender of last resort to the money market. This occurred during the classical gold standard regime from 1870-1914. With the Great Depression, central banks then went into the dark ages , a fate which was created largely by their adherence to bad doctrine and to the flawed interwar gold exchange standard. The Depression was followed by several decades in which central banks in most countries became virtual adjuncts of the fiscal authorities. Central banks in many countries gradually recovered their independence in the 1950s to 1970s, but faced with new mandates and

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new doctrine generated the Great Inflation from 1965- 1980. The renaissance of central banking followed the Volcker/Thatcher disinflation shocks of 1979-1981 led to a new regime of a credible nominal anchor in a fiat money regime based on rules similar to the gold standard's convertibility rule. The following two and a half decades were characterized by low inflation and stable real growth (The Great Moderation).

The recent financial crisis which began in the United States and spread to the rest of the world can be related to failures of monetary policy in the U.S. by keeping policy rates too low in the early 2000s and stimulating a housing boom which burst with devastating consequences in 2006, but more likely to serious failures in U.S. government housing policies and failures of regulators to keep track of financial innovation.

Debate swirls over whether the new golden age rule based paradigm of the Great Moderation should be restored with some adjustments for financial stability or whether we need a new model. I conclude with the case for sticking to the tried and true rules for central banking that have evolved through history.

2. The Origins of Central Banking

The story of central banking goes back at least to the seventeenth century, to the founding of the first institution recognized as a central bank, the Swedish Riksbank. Established in 1668 as a joint stock, it was chartered to lend the government funds and to act as a clearing house for commerce.

A few decades later (1694), the most famous central bank of the era, the Bank of England, was founded also as a private institution with a government charter. Its original mandate was to purchase and help market government debt. Other central banks were set up later in Europe for similar purposes. Early central banks issued private notes which served as currency, and they often had a monopoly over such note issue.

While these early central banks helped fund the government's debt, they were also private entities that engaged in banking activities. Because they held the deposits of other banks they came to serve as banks for bankers, facilitating transactions between banks or providing other banking services. They became

the repository for most banks in the banking system because of their large reserves and extensive networks of correspondent banks. These factors eventually allowed them to become a lender of last resort in the face of a banking panic. In other words the central bank became willing to provide emergency cash to its correspondents in times of financial distress.

Monetary policy as we know it today began by central banks discounting the paper of other financial institutions, both government debt and commercial paper. The interest rate at which the bank would lend, based on this collateral was the discount rate. By altering this rate the central bank could influence credit conditions in the economy.

Central banking achieved its maturity in the period 1870-1914, the era of the classical gold standard. The gold standard evolved from the earlier bimetallic regime. Under the gold standard all countries would define their currencies in terms of a fixed weight of gold. The key rule for a central bank under the gold standard was to adhere to gold convertibility, i.e. to maintain convertibility of its notes into gold at the official fixed parity (except in wartime emergencies or serious financial crises when gold convertibility could be suspended and fiat money issued on the assumption that once the hostilities (crisis) ended, that deflationary policies needed to restore convertibility would be followed). The classical gold standard had two automatic mechanisms to maintain long-run price stability; the operation of the commodity theory of money and the price specie flow mechanism (Bordo 1992). Hence adhering to gold convertibility also meant adhering to a rule that produced price stability

Gold convertibility embodied a monetary rule or commitment mechanism to prevent monetary authorities from either pursuing otherwise time-inconsistent policies of creating surprise fiduciary money issues in order to capture seigniorage revenue or defaulting on outstanding government debt (Bordo and Kydland 1996). On this basis adherence to the gold standard rule before 1914 enabled many countries to avoid the problems of high inflation and stagflation that marked much of the late twentieth century.

Under the gold standard, central banks were also supposed to use their discount rates to speed up the adjustment to external shocks to the balance of payments, i.e. they were supposed to follow the "rules of the game" (Keynes 1930). In the case of a balance of payments deficit, gold would tend to flow

abroad and reduce a central bank's gold reserves. According to the rule, the central bank would raise its discount rate. This would serve to depress aggregate demand and offset the deficit. At the same time the rise in rates would stimulate a capital inflow. The opposite set of policies were to be followed in the case of a surplus.

During this period the Bank of England and other European central banks learned to serve as lenders of last resort. Although the early central banks had public charters they were privately owned and they had policy independence. A problem that plagued the Bank of England in its early years was that it placed primary weight on its commercial activities and on several occasions of financial distress was criticized for neglecting the public good. Walter Bagehot formulated the responsibility doctrine in 1873 according to which the Bank was to place primary importance on its role as lender of last resort. The Bank began to follow Bagehot's rule—in the face of an internal drain (banking panic) to lend freely on the basis of any sound collateral offered, in the face of an external drain (speculative attack) raise Bank rate, and in the face of both to lend freely at a high rate.

The Bank of England took many years to learn to become a successful LLR. In the middle of the nineteenth century, in an increasingly sophisticated financial system (Bignon, Flandreau and Ugolini 2009), the Bank dealt primarily with discount houses which acted as intermediaries between commercial banks and the Bank of England. When in need of liquid funds, commercial banks would turn to the discount houses to rediscount their paper, and the discount houses in turn would go to the Bank of England for accommodation. According to Capie (2002) the Bank lent anonymously to the money market. No banking panics occurred in England after 1866. Other European central banks followed suit in developing effective LLRs.

Successful lender of last resort policy and credible adherence to the gold standard were intertwined. In the absence of credibility, expansionary liquidity actions to stem a banking panic would lead to capital flight. With credibility, in the face of a crisis, capital would flow on the belief that the expansionary policy was temporary (Eichengreen 1985).

In the classical gold standard era, while central banks adhered to gold convertibility and hence ensured long-run price stability and also served as lenders of

last resort, they did not attach much importance to real economic stability and unemployment. This was because wages and prices were relatively flexible, labor was internationally mobile and labor unions and Labor parties were not yet important. However because major European central banks were credibly committed to maintaining gold convertibility they had some policy independence within the gold points to pursue domestic stabilization objectives (Bordo and MacDonald 2005).

3. In the Dark Ages

World War I ended the gold standard as the belligerents scrambled to convert their foreign investments into gold. Central banks were quickly converted into engines of inflation. After the war Great Britain and other countries alarmed by the postwar experience of inflation and exchange rate instability, were eager to return to the halcyon days of gold convertibility before the war. The system reestablished in 1925 was an attempt to restore the old regime but to economize on gold in the face of a perceived gold shortage. Based on principles developed at the Genoa conference in 1922, members were encouraged to adopt central bank statutes that substituted foreign exchange for gold reserves and discouraged gold holding by the private sector. The central banks of Britain, France and Germany joined with the recently created Federal Reserve System (1914) to coordinate their monetary policies to restore the gold standard (Ahamed 2009).

The new system lasted only six years, crumbling after Britain's departure from gold in 1931. The system failed because of several fatal flaws in its structure and because it did not embody a credible commitment mechanism.

The fatal flaws included the adjustment problem (asymmetric adjustment between deficit countries such as Britain and surplus countries such as France and the United States); the failure of countries to follow the rules of the game, e.g. the United States and France sterilized gold inflows; the liquidity problem (inadequate gold supplies, the wholesale substitution of key currencies for gold as international reserves, leading to a convertibility crisis; and the confidence problem leading to sudden shifts among key currencies and between key currencies and gold (Bordo 1993,).

The commitment mechanism of the gold exchange standard was much weaker than that of the classical gold standard. Pre-1914 the commitment to gold parity was believed to be paramount. In the face of a recession and a balance of payments deficit, central banks would tighten to protect their gold reserves and pay less attention to rising unemployment. After World War I with the rise of organized labor and Labor parties, preserving jobs became more important. The markets began to understand the slippage in credibility (Eichengreen 1992). Because monetary policy became politicized in many countries, the commitment to convertibility was not believed and hence invoking the contingency clause of the gold standard rule and altering parity in the face of a crisis would have led to destabilizing capital flows. Moreover central bank cooperation was ineffective. The system collapsed in the face of the shocks of the Great Depression.

The Great Depression was triggered by the failure of the Federal Reserve to follow its mandate and serve as lender of last resort in the face of a series of banking panics from 1930-33.The downturn of August 1929 was soon followed by the Wall Street Crash in late October. The background to the beginning of the downturn and the Crash was based on Fed tightening beginning in early 1928 to stem the stock market boom which had been underway for two years. The Fed followed the real bills doctrine which condemned bank lending to finance stock market speculation. The monetary tightening led to the start of the recession in August. The evidence is mixed on whether the Fed directly triggered the crash but, these experiences as well as the bursting of Japan's real estate and stock bubble in 1990, have made central banks reluctant to use monetary policy to deflate asset bubbles.

The Fed's failure in 1930-33 reflected its adherence to the real bills doctrine (Meltzer 2003), flaws in the structure of the Federal Reserve system (Friedman and Schwartz 1963), the inability of the framers of the Federal Reserve Act to adapt the successful European LLR model to the U.S. institutional environment (Bordo and Wheelock 2010). The Great Depression spread across the world via the fixed exchange rate gold standard. Moreover the central banks of many countries were prevented from attenuating banking panics and following expansionary monetary policy because of "golden fetters"—the fear that expansionary policy would force them to leave the gold standard. Begin-

ning with Britain in September 1931, countries were able to reflate their economies once they abandoned gold convertibility and adopted fiat money regimes.

The Great Depression was blamed on commercial banks for taking undue risks and central banks for restoring and maintaining a flawed gold standard. This led in every country to massive regulation of the financial system (inter alia interest rate ceilings and firewalls between commercial and Investment banking) and the subservience of the central banks to the Treasury. In the U.S. the Federal Reserve lost its independence and for almost two decades used its monetary policy tools passively to maintain a low interest rate peg set by the Treasury to both stimulate the economy and aid the Treasury in marketing its debt. This policy fueled inflation during and after World War II. Other countries had similar experiences.

Monetary policy was restored to the central banks beginning in the 1950s. In the U.S., the Federal Reserve Treasury Accord of 1951 again allowed the Fed to use its policy tools to stem inflation. In the 1950s and up to the mid 1960s, the Fed and other central banks successfully followed countercyclical monetary policy and maintained generally low inflation. This in part reflected their adherence to the Bretton Woods system which like the gold standard provided a modicum of price stability.

Under the Bretton Woods system established in 1944, which involved members pegging their exchange rates to the dollar, the dollar pegged to gold, monetary policy autonomy to maintain real economic stability, capital controls and the freedom of members to adjust their pegs in the face of major shocks, there followed a brief period of price stability and stable and rapid economic growth until the mid 1960s. The Bretton Woods system suffered from the same fatal flaws as the Gold Exchange Standard and it broke down beginning in the 1960s when the U.S. the key provider of international reserves, broke the rules of the gold dollar standard and began following, under the Chairmanship of William McChesney Martin, expansionary monetary policy to finance the Vietnam war and President Johnson's Great Society. The rest of the world did not want to absorb additional dollars that would lead to inflation. Another important source of strain in the system was the unworkability of the adjustable peg under increasing capital mobility. Speculation against a fixed parity

could not be stopped either by traditional policies or international rescue packages. The Americans' hands were forced by British and French decisions in the summer of 1971 to convert dollars into gold. The impasse was ended when President Nixon closed the gold window on August 15 1971 (Bordo 1993).

The advent of generalized floating in 1973 allowed each country more flexibility to conduct independent monetary policies. In the 1970s inflation accelerated as advanced countries attempted to use monetary policy to maintain full employment. However monetary policy could be used to target the level of unemployment only at the expense of accelerating inflation (Friedman 1968). In addition the U.S. and other countries also used monetary policy to accommodate oil price shocks in 1973 and 1979.

Finally between the 1940s and the 1970s , in the face of heavy regulation of the financial sector, the institution of deposit insurance and a financial safety in most countries, there were few bank failures and no banking crises. The lender of last resort function of central banks was in abeyance.

4. A Renewed Golden Age

The high inflation rates of the 1970s (the Great Inflation) led to a determined effort by monetary authorities in the U.S. and U.K. and other countries at the end of the decade to disinflate. Thus in the U.S. the Volcker shock of 1979-81 in which tight monetary policy led to double digit short-term interest rates which broke the back of inflation and inflationary expectations at the expense of a severe recession. By the mid 1980s inflation returned to levels not seen since before the Great Inflation began in 1965.

The 1980s witnessed renewed emphasis by central banks on low inflation as their primary (if not sole) objective. Although no formal monetary rule was established, a number of countries granted their central banks independence from the fiscal authority and also instituted mandates for low inflation or price stability. Formal inflation targeting was first instituted in New Zealand followed by Canada and the UK. The subsequent two decades came to be known as the Great Moderation with low inflation and a stable and growing real economy. In many respects the era reflected a return to a rule like the gold standard's convertibility principle and a fixed nominal anchor.

During this period financial stability once more became a problem for central banks as in the interwar period. In the face of inflation which made interest ceilings on deposits untenable, leading to disintermediation and financial innovation, and the subsequent deregulation of the financial system and the removal of capital controls, banking crises erupted in advanced countries. But unlike in the pre 1914 golden age, instead of following Bagehot's rules, the Federal Reserve and other authorities adopted the "Too Big to Fail" doctrine in the mid 1970s. This led to the growing problem of moral hazard.

Also during this period asset booms and busts reappeared as they had during the 1920s. Because of a fear of the 1929 stock market crash and its association with the Great Depression which many observers attributed to Fed tightening in 1928, and the bursting of the Japanese bubble in 1990, the Fed (and other central banks) expressed an unwillingness to use monetary policy to deflate bubbles.

5. The Crisis of 2007-2008: A Game Changer?

The subprime mortgage crisis of 2007-2008 originated in the U.S. and spread to the rest of the world. The key event leading to the crisis was the collapse of a major housing boom in 2006 which severely impacted the financial system.

Its causes include: U.S. government policies since the 1930s to extend homeownership, major changes in regulation, lax regulatory oversight, a relaxation of normal standards of prudent lending, and a period of abnormally low interest rates. The default on a significant fraction of subprime mortgages produced spillover effects around the world via the securitized mortgage derivatives into which these mortgages were bundled, to the balance sheet of investment banks, hedge funds, and conduits (which are bank owned but off their balance sheets) which intermediate between mortgage and other asset-backed commercial paper and long-term securities. The uncertainty about the value of the securities collateralized by these mortgages had the effect of spreading uncertainty about the soundness of loans for leveraged buy-outs through the financial system. All of this led to the freezing of the interbank lending market

in August 2007 and substantial liquidity injections by the Fed and other central banks.

The Fed then both extended and expanded its discount-window facilities and cut the federal funds rate by 300 basis points. The crisis worsened in March 2008 with the rescue of Bear Stearns, an investment bank, by J.P. Morgan, backstopped by funds from the Federal Reserve. The rescue was justified on the grounds that the exposure of Bear Stearns to counterparties was so extensive that a worse crisis would follow if it were not bailed out. The March crisis also led to the creation of a number of new discount-window facilities (credit policy) whereby investment banks could access the window and which broadened the collateral acceptable for discounting. The next major event was a Federal Reserve-Treasury bail-out and partial nationalization of the insolvent government-sponsored enterprises (GSEs), Fannie Mae and Freddie Mac, in July 2008, on the grounds that they were crucial to the functioning of the mortgage market.

Events took a turn for the worse in September 2008 when the Treasury and Fed allowed the investment bank Lehman Brothers to fail, in order to discourage the belief that all insolvent institutions would be saved, in an attempt to prevent moral hazard. It was argued that Lehman was both in worse shape and less exposed to counterparty risk than Bear Stearns. The next day the authorities bailed out and nationalized the insurance giant AIG, fearing the systemic consequences for collateralized default swaps (insurance contracts on securities) if it were allowed to fail. The fall-out from the Lehman bankruptcy then turned the liquidity crisis into a fully fledged global credit crunch and stock-market crash, as interbank lending effectively seized up on the fear that no banks were safe.

In the ensuing atmosphere of panic, along with Fed liquidity assistance to the commercial paper market and the extension of the safety net to money market mutual funds, the US Treasury sponsored its Troubled Asset Relief Plan (TARP), whereby $700 billion could be devoted to the purchase of heavily discounted mortgage-backed and other securities to remove them from the banks' balance sheets and restore bank lending. As it later turned out, most of the funds were used to recapitalize the banks.

In early October 2008 the crisis spread to Europe and to emerging-market countries as the global interbank market ceased functioning. The UK authorities responded by pumping equity into British banks, guaranteeing all interbank deposits and providing massive liquidity. The EU countries responded in kind. And on 13 October 2008 the US Treasury followed suit with a plan to inject $250 billion into the US banks, to provide insurance of senior interbank debt and unlimited deposit insurance for non-interest-bearing deposits. These actions ended the crisis. Expansionary Federal Reserve policy at the end of 2008, lowering the funds rate close to zero, followed by a policy of quantitative easing: the open-market purchases of long-term Treasury bonds and mortgage-backed securities finally attenuated the recession by the summer of 2009.

Unlike the liquidity panics of the Great Contraction, the deepest problem facing the financial system was insolvency. This was only recognized by the Fed after the September 2008 crisis. The problem stemmed from the difficulty of pricing securities backed by a pool of assets, whether mortgage loans, student loans, commercial paper issues, or credit card receivables. Pricing securities based on a pool of assets is difficult because the quality of individual components of the pool varies and, unless each component is individually examined and evaluated, no accurate price of the security can be determined.

As a result, the credit market, confronted by financial firms whose portfolios were filled with securities of uncertain value, derivatives that were so complex the art of pricing them had not been mastered, was plagued by the inability to determine which firms were solvent and which were not. Lenders were unwilling to extend loans when they could not be sure that a borrower was creditworthy. This was a serious shortcoming of the securitization process that was responsible for the paralysis of the credit market (Schwartz 2008).

Finally, another hallmark of the recent crisis was that the Fed and other US monetary authorities engaged in a series of bail-outs of the incipient and actual insolvent firms deemed too systemically connected to fail. These included Bear Stearns in March 2008, the GSEs in July, and AIG in September. Lehman Brothers had been allowed to fail in September on the grounds that it was both insolvent and not as systemically important as the others and, as was stated well after the event, that the Fed did not have the legal authority to bail it out. The extension of the 'too big to fail' doctrine, which had begun in 1984

with the bail-out of Continental Illinois bank, may be the source of future crises.

The Fed and other central banks were severely criticized for not preventing the crisis. The indictment included the following: that had the Fed not followed too expansionary monetary policies in the years immediately preceding the crisis that the housing boom would have been less frothy and the bust leading to the crisis would have been avoided (Taylor 2007); the Fed failed to use its monetary policies to stem the housing boom; the Fed and other central banks followed credit policies which favored some institutions and markets instead of others (Schwartz 2009); the Fed and other central banks gave up their independence and combined monetary with fiscal policy (Bordo 2010); the Fed (and other central banks) halted their expansionary policies which began in September 2007 too early in the first half of 2008 and thereby guaranteed a recession would follow (Hetzel 2009); the Fed first rescued Bear Stearns in March 2008 and later let Lehman Brothers fail leading to great uncertainty and panic (Meltzer 2009); the Fed (and the Treasury) vacillated on the nature of the TARP program also leading to uncertainty and panic (Taylor 2010); the Fed and other monetary authorities bailed out Bear Stearns, Fannie and Freddie, AIG and later major universal banks on the grounds that they were too big and or too interconnected to fail. Finally the Fed did not follow Bagehot's strictures to central banks to clearly state their lender of last resort policy in advance (Meltzer 2009).

These criticisms and more have led for calls for changes to the basic central bank model which is based on rules prescribing credibility for low inflation (as evidenced in explicit or implicit flexible inflation targeting (Svensson 2010) and central bank independence. Reforms suggested include: greatly increasing the central banks role in financial stability including using some monetary policy tools to lean against the wind of asset booms (bubbles) (Borio and White 2003); develop and administer macro prudential rules for commercial and investment banks (i.a. countercyclical capital requirements, liquidity ratios, leverage ratios); working more closely with the fiscal authorities (Goodhart 2010); and sticking to announced more transparent rules (Meltzer 2009) .

6. Sticking to the Rules

The history of central banking just surveyed teaches us that the first responsibility of a central bank is to maintain price stability. If the central bank is successful in maintaining a stable and credible nominal anchor then real economic stability should obtain although in the event of adverse shocks central banks should follow short-run stabilization policies consistent with their objective of price stability.

History also suggests that central banks should serve as lenders of last resort to the money market in the face of liquidity shocks. Lender of last resort policy involves temporarily expanding liquidity and then returning to the path consistent with price stability. The central bank should preferably do this by open market operations rather by discount window lending to individual banks, to let market forces chose the recipients of funds rather than relying on discretion (Goodfriend and King 1988). But if the discount window is to be used, loans should be made only to solvent institutions. Bailouts should be avoided.

The historical examples of 1929 and Japan suggests that the tools of monetary policy should not be used to head off asset price booms—following stable monetary policy should avoid bubbles. In the event of a bubble however, whose bursting would greatly impact the real economy, non monetary tools should be used to deflate it (Bordo and Jeanne 2002). The comparative advantage of the policy rate is to influence the money market and not asset prices (Bean et al 2010). Using the tools of monetary policy to achieve financial stability (other than LLR) would reduce the effectiveness of monetary policy for its primary role.

History also suggests that the central bank should protect the payments mechanism and be ready to provide liquidity assistance only to institutions which provide means of payment. The role of a central bank is not to protect non bank financial institutions which do not provide means of payment. The supervision and regulation of these institutions should be handled by other regulatory authorities. Finally the history of inflations past and the recent financial crisis teaches us that central banks should be independent of the fiscal authorities.

In sum the events of the recent crisis leads to the conclusion that central banks should stick to following the rules to maintain price stability. Flexible inflation targeting as practiced by the Norges Bank and by the Riksbank seems to be a reasonable way to go forward and should be adopted by other central banks. Flexible inflation targeting aims both at stabilizing inflation around the inflation target and resource utilization around a normal level. The central bank should then choose the policy rate and policy-rate path so the forecast inflation and resource utilization best stabilizes inflation and resource utilization. The central bank can incorporate financial conditions and other shocks into its forecasts (Svensson 2010). Finally, a lesson from the recent crisis is that financial regulation (by agencies other than the central bank) should be based on providing incentives for private financial agents to take prudent actions ("to have skin in the game"). Had this been the case the financial collapse would have been greatly attenuated.

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Chapter 3
What is a useful central bank? Lessons from the interwar years

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ABSTRACT

The paper reviews various aspects of central banking in the interwar years to try and see if any suggestion can be drawn for the current and future similar situations. Besides monetary policy, an issue on which rivers of ink have already flown, central bank cooperation, lending of last resort and central bank independence are discussed. The paper argues that three 'lessons' of the 1930s have been learned in 2008-9: (i) a major financial shock requires immediate reaction of adequate size, (ii) lending of last resort should use all available tools, and (iii) international cooperation is essential. Other "lessons" may provide guidance for the future: avoid the recurrent belief that - *this time* - the business cycle has been conquered for good, establish policy guidelines for future credit and asset booms, expect long 'exit' periods from oversized central bank balance sheets and unconventional assets, cooperate with the government while at the same time maintaining mutual independence.

History has the ability to administer a dose of humility

(Sandra Pianalto[2])

A fairly large consensus exists that monetary (and fiscal) policy played a decisive role in making the slump of 2008-09 just a "Great Recession" rather than a second "Great Depression". The clever, if simple, exercise conducted by Eichengreen and O'Rourke (2010) in comparing the behavior of key variables - such as industrial output, trade and monetary instruments - in the last three

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years with 1929-33 has been more effective than a host of academic papers in showing the risks facing the world economy in mid-2008 and the main reasons why the worst has been, so far, avoided. The benchmark for "the worst" remains the Great Depression of the early 1930s.

This paper takes up once again the issue of the "lessons of the interwar years" for which there has been no lack of soul searching ever since the Great Depression itself, from Nurkse (League of Nations 1944) to Minsky (1963), Kindleberger (1986), Bernanke (collected in Bernanke 2000), all the way to the enormous production of 2010 alone[3]. It does so in a symposium that goes under the title of *What is a useful central bank* and of a session devoted to the broad theme of *central banking*, rather than monetary policy, the subject matter of most of the recent discussions on "the lessons of the 1930s".

The interwar years changed the way central banking was carried out by its practitioners and perceived by both the government and the public. Monetary policy was given new responsibilities, beyond the maintenance of currency convertibility. Lending of last resort was conducted with a host of new instruments, many of which were hitherto believed to be utterly heterodox. As the result, central banks ended up performing tasks and providing services only loosely related to their core monetary functions. Deep changes took place in the government – central bank relations, and a new international dimension was added to the *art* of central banking. As the current Great Recession and its aftermath seem to highlight equally profound changes in the practice of central banking, this paper discusses the "lessons" of the interwar years not only for the monetary response to the current crisis but also for other less frequently discussed aspects of central banking.

1. "Useful" central banks in transition.

The interwar years fall within the long transition from a monetary system based on the convertible note (prevailing until 1914) to the universal adoption of fiat money after 1971-73 (Giannini 2004). Central banks were transformed

[3] In the relatively short period of time it took to write this paper, the flow of additional papers on the lessons of the Great Depression for the present situation has been so strong that only some of them could find their place in the references.

by the process. At the end of the 19th century they were private banks of issue entrusted by governments with the public function of maintaining currency convertibility - that is to keep the country on the metallic standard. By the 1950s most of them were, *de facto* or *de jure*, public institutions with a wide range of responsibilities, often including bank supervision, and close relations with the national governments.

Central banks were among the main actors in this long transition, at times leading the process, at other times lagging behind and being led by the executive and legislative powers. Their paramount "usefulness" can be assessed by their ability to deliver a payment system both efficient and stable. A system, in other words, characterized both by low transaction costs and by widespread trust about the future readily availability of means of payment (liquidity) at (almost) constant purchasing power and at the expected cost. This was not an easy task in the rapidly changing economic, political, and international circumstances of the interwar years, and central banks were not always successful in guaranteeing an efficient and stable monetary system. By this yardstick, one might argue e*x post* that in the interwar years these institutions were not always as "useful" as they were required to be. Nevertheless, the number of central banks in the world increased from 18 in 1900 to 59 in 1950, perhaps indicating that contemporaries appreciated the usefulness of central banks.

In the heydays of the gold standard (1870s - 1913) the debates both on rules versus discretion (currency versus banking schools) and on the very desirability of a central bank (as opposed to a free-banking system) had given way to an accepted "orthodoxy" that gave central banks the sole task of maintaining gold convertibility (Capie *et al* 1994: 2-15). As custodians of the gold standard, central banks enjoyed both prestige and a high degree of independence. Their "usefulness" was widely accepted. Even so, however, no one-size-fits-all model of central banking emerged. The textbook case (the Bank of England) was not replicable outside of the British Isles for, among other reasons, the uniqueness of the London discount market which allowed money supply (and gold price) to be set by frequent small adjustments of the rediscount rate (the Bank rate). Central Banks on the Continent, notably the Reichsbank and the Banca d'Italia and, to a lesser extent, also the Banque de France, resorted to a wider mix of instruments.

The financial crises of the 1890s and 1907 showed that the mere application of Bagehot's rule (lend freely in a banking crisis) was not enough to restore stability and trust. International agreements for gold-currency swaps, moral suasion to make commercial banks bail out illiquid competitors, discount of hitherto non-admissible paper and closer cooperation with governmental institutions were all brought to bear in the crises.

The "classical gold standard" was the first casualty of the First World War, even before it was officially declared. It was a system suited to the 19th century societies of the developed world. Its success rested on four pillars: (i) relatively competitive markets and therefore price flexibility, (ii) moderate or no trade-union market power and therefore wage flexibility, (iii) small government and therefore remote danger of fiscal deficit monetization and (iv) restricted franchise, with the cost of deflation falling largely on social classes barred from ballot participation. The War shook all four pillars. At the same time it enormously widened the range of central bank activity and increased the number of instruments available to it.

It is said that everything is permissible in love and war. Central banks were permitted, even required, to organize, supervise and sanction bank moratoria, to underwrite government bonds and cajole commercial banks to join in consortia to the same end, to manage the foreign exchange of the currency, to provide technical expertise in a wide array of matters including negotiating foreign loans, to finance compulsory requisitions of key commodities such as wheat, to advance money to government contractors and to back all this up by issuing paper (fiat) money for huge multiples of their metal and foreign exchange reserves.

The notion of a "useful" central bank and of what might be expected of it was considerably expanded by the conflict. The perimeter of their action was enlarged, either by *ad hoc* legislation or administrative measures, particularly as far as lending and discounting operations were concerned. More important still, central banks became aware that, to be "useful", at times of extreme emergency they need to possess as wide a panoply of instruments as possible.

After the war, the return to the gold standard was advocated by the Cunliffe Report, by the Brussels and Genoa International Conferences, and by influential segments of the society all over Europe. But the four pillars on which the

"classical" gold standard rested had all been damaged beyond repair. Oligopolistic product and labor markets set in, reducing price and wage flexibility. Domestic and international governments debts soared and with them the risk of monetization. Universal male suffrage and stronger trade unions changed the political landscape. The pre-war conditions for the viability of the classical gold standard had been wiped away but politics, ideology and mainstream economics made sure that only few people could see that the king was naked.

The new gold exchange standard was more difficult to manage than the classical pre-1914 version of the system. Central banks adapted to the new conditions and did their best to run the system. They regained much of the independence lost in the war. International cooperation increased. It took the form of syndicated stabilization loans, gold-currency swaps, payment services for sister central banks, and exchange of information.

With the collapse of the precarious interwar gold standard, between 1931 and 1936, the first golden age of central banking also came to an end.[4] Central banks found themselves treading unchartered land. The Great Depression triggered a wave of legislation on banks and central banking in almost every country. Credit-granting activity was regulated and supervised. Central banks got new by-laws. The role of governments was strengthened even when, as in the case of Italy, its supervisory activity was delegated to the technically better-equipped central bank. Stripped of the gold standard, central banks adapted slowly. In the autarkic environment of the 1930s they learned new tools such as the quantitative control of credit, the regulation of foreign exchange, and the management of clearing agreements. These technologies were used to the extreme of their possibilities during the Second World War, after which the adaptation to a new transition awaited the central banks.

[4] The hint here is to the title of a recent book (Gerlach et al. 2009) referring to the current Great Recession

2. The 1920s: "useful" central banks, monetary policy, and macro imbalances.

The monetary policy "lessons" of the 1920s must be discussed in three contexts: Europe, the United States and international macroeconomic imbalances.

In Europe, monetary policy was dictated by the political decision to reinstate the gold standard, if in a modified form. The decision on the stabilization rate (i.e. the gold content of each currency) involved crucial issues of political economy like Keynes' "euthanasia of the rentier". In this complex game, central banks were involved only as technical experts for their governments. Once the decision was taken, however, it fell upon central banks to make it operational. The adoption of the gold exchange standard required the negotiation of international loans, in which both the technical expertise of the central bank and its international credibility proved to be essential. Their "usefulness" was undisputed. Monetary policy was dictated first and foremost by the new gold parity. Deflation was the key word in the UK and, to a lesser extent, in Italy. France and Belgium were allowed a more expansionary monetary stance by stabilization rates close to or undervalued relative to the purchasing power parity. The obvious textbook lesson here is that fixed exchange rates dictate monetary policy: the trilemma cannot be evaded.

In the United States, the years immediately following the First World War were characterized by rapid growth in total factor productivity, due to the diffusion of the dynamo as "general purpose technology" which led to an investment boom (Gordon 2006). Consumer demand also grew rapidly. Bank credit fuelled demand both for investment (including real estate) and consumer goods. The equity market soared: as Irving Fisher (1930: 157) put it: "anything that increases the nation's productivity tends to be reflected in the bull market". Financial innovation was fast to catch up. If we substitute the information technology for electricity as general purpose technology, it is easy to see the similarities between the 1920s and the most recent decades.

Is there a "lesson" here for monetary policy in the expansionary phase that led up to both crises? Reflecting on the 1920s, Hawtrey (1933 80-81) wrote: "Much controversy has been aroused as to the proper functions of a central bank when faced with an inordinate Stock Exchange speculation. Apart from the condemnation of gambling as a vice (a matter which hardly concerns a

central bank) the central bank is only concerned with speculation as a possible cause of inflation". In Hawtrey's opinion, up to July 1929, "the Federal Reserve Banks can hardly be accused of having done more in the direction of preventing inflation than the circumstances required" (1933:81). Hawtrey's benign assessment of US monetary policy in the 1920s was not popular at the time. The Board of Governors was accused both of creating the stock market boom through an easy monetary policy from 1924 to 1927 and then of producing the crisis by abruptly raising its discount rate from 3.5% to 6% between May 1928 and August 1929 (Hetzel 2008: 16-17). The declared aim was to cool off the stock market speculation, a matter, according to Hawtrey, of no concern to a central bank. Is there a lesson here from the 1920s for a discussion of US monetary policy in the run up to the present Great Recession? The matter is beyond the scope of the present paper. It is enough here to notice that the question of whether central banks should also target asset prices (including real estate) was discussed both in the 1920s and in the most recent period (e.g. Vickers 1999 In both instances the conclusion by most economists and central bankers was that asset prices should not concern to central banks. It is possible, however, that by raising rates in 1928-29 the Fed also intended to deflate the bubble.

American monetary policy in the 1920s was partly dictated by international considerations. Low American interest rates were needed to keep England and Central European countries on the gold standard. In particular they allowed Germany to run a large current account deficit both to pay reparations and sustain domestic investment. In other words, American monetary policy was the key instrument by which the "transfer problem" (in today's language the international macroeconomic imbalance) was temporarily solved.

To conclude on this point, one parallel between then and now stands out. According to Meltzer (2003: 261), the US monetary policy of the 1920s, "was supposed to achieve three ends: mitigate business fluctuations, prevent inflation and restore the international gold standard […] The apparent success of postwar policies in achieving the three main objectives and preventing financial panics increased the credibility of policies and *the belief that a new and more stable era had begun* (italics mine). The rise in United States stock prices relative to earnings in 1926 supports this interpretation". A similar belief (or

illusion) that an era of "great moderation" had dawned was widespread among the public, the politicians and the economists in the decade or so prior to the Great Recession[5]. The lesson for both economists and 'useful' central banks is unequivocal: in the future a larger dose of humility will create a more favorable intellectual environment for policy making.

3. The monetary response to the great depression.

Great Depression of the 1930s was a defining moment in the history of the twentieth century; as such it has been the continuous focus of interest by economists, historians and policy makers.[6] Even a very brief review of the yet unresolved debate on the causes of the Great Depression is beyond the aim of this paper.[7] Nor is of particular interest here the discussion of what triggered the Depression (i.e. the straw that tipped the scale), another thorny issue in the literature. Regardless of where one stands on either the causes or the trigger, there is much broader consensus about the monetary policy "lessons". Both from a monetarist and Keynesian stance the monetary policy response to the onset of the slump, both in Europe and the United States, has long been regarded as a major blunder, if for different reasons.

As Hawtrey noted at the time, "the mistake of the Federal Reserve Banks was in their hesitation to lower interest rates and relax credit after the crisis of October had broken out. This was the moment when prompt action was needed to prevent pessimism getting hold of the vicious circle of deflation being joined." (Hawtrey 1933: 81). Whether this "mistake" actually caused the Depression, as argued by Friedman and Swartz (1963), or simply made it deeper and longer does not change the fact that it was a major policy blunder. This is the simple, loud and clear lesson that a large majority of economists and policy

[5] "Few disagree that monetary policy has played a large part in stabilizing inflation, and so the fact that output volatility has declined in parallel with inflation volatility, both in the United States and abroad, suggests that monetary policy may have helped moderate the variability of output as well" (Bernanke 2008).

[6] Perkins library (Duke University) holds 1,585 books with title containing the words "Great Depression"

[7] For a still useful survey of the debate see Eichengreen (1992b) and Kindleberger (2000).

makers brought home from the Great Depression. The lesson was learned and the "mistake" was repeated neither in 2000-1 nor in 2007-8.

Why did the Fed hesitate in vigorously responding to the first signs of the slump? The question is of interest because, according to Meltzer (2003: 272) the "Federal Reserve behaved as it had not behaved earlier and should not be expected to behave again". Friedman and Swartz (1963: 407 ff) argue that the Fed was either unwilling or unable to act because the death of Benjamin Strong in 1928 and his replacement with the less charismatic leadership of George Harrison deprived New York from its previous ability to lead the FOMC. A similar view is expressed by Wicker (1966): the Board lacked clarity in its interpretation of the events. Eichengreen (1992a) and Temin (1989) put the blame on the gold standard and on lack of international cooperation to ease its constraints and allow coordinated expansion. Bordo and Wheelock (2010) highlight the inadequacy of the Fed's discount window. Meltzer, however, argues that the problem with "these explanations is that the Federal Reserve was not entirely passive for the three and a half years of decline. More than once it purchased securities or lowered the rediscount rate [..] If the crisis was largely due to an absence of leadership, more effective action would have been taken later, when the System was reorganized [..] but in the middle and late thirties, the Federal Reserve did next to nothing to foster recovery" (Meltzer 2003: 273). For Meltzer, the cause of inaction is to be found in the Federal Reserve economic "model". Miller and others on the board "interpreted the Depression as the inevitable consequence of the preceding growth of bank credit and asset prices [..] because credit expansion had increased without equivalent purchases of real bills, this policy was inflationary. Deflationary policy should have followed [..] That mistake had to be corrected" (Meltzer 2003: 274). Strong's policy had violated the rules of the real bills doctrine, the pillar of the Federal Reserve monetary "model". If this is the case, then a further "lesson" emerges concerning a "useful central bank": it should not only possess an excellent team of economists (and perhaps also economic historians) but, much more important, an adequate economic 'model'.

If there is large (if not unanimous) consensus that an immediate monetary "stimulus" would have changed the course of the Depression, much less agreement exists on the related issues of the relative importance of monetary

versus fiscal policy and on how long easy money should have been maintained. Regardless of where one stands on the issue as far as the 1930s are concerned, we should be weary of mechanically drawing "lessons from history", given the difference between the two contexts. In particular, precisely due to the timing and magnitude of the "stimulus", the slump has now been much shorter than eighty years ago (if equally deep, in comparison with the first 12-15 months of the Great Depression). International conditions now are also very different from then: there is no gold standard (or fixed exchange rate regime) and, for the time being, protectionist reactions have been kept reasonably at bay.

Only with this *caveat* is it perhaps useful to recall the US monetary policy after 1935 as seen by the most important historian of the Federal Reserve. "[Eccles] was a strong proponent of government investment spending as a countercyclical policy and believed that the Federal Reserve should keep market rates low to facilitate private spending and government finance during the depression. Despite these strongly held views, Eccles and the Board became convinced after 1935 that the growing volume of reserves at the member banks posed threat of future inflation. The Board's principal policy action in these years increased reserve requirement ratios as a preemptive act against inflation. Between August 1936 and May 1937, the Board doubled those ratios, thereby contributing to a steep recession in 1937-38" (Meltzer 2003: 416).

4. Central bank cooperation

By the late 19th century some economists and policy makers had begun to stress the importance of central bank cooperation to produce stability in the international gold standard. The crisis of 1907 seemed to confirm the importance of cooperation. It was even argued that an "International Bank" should be created to avoid "monetary wars", i.e. a scramble for liquidity at times of crisis (Toniolo 2005: 20-23).

The war enhanced cooperation among allied central banks, in particular to coordinate efforts in currency pegging. The central bank governors of England and France even set up a direct telegraph line between their two offices for

regular, direct communication. It was during Strong's wartime visits to London that he developed the close personal relation with Norman that would shape central bank cooperation in the 1920s (Toniolo 2005: 16-17).

In the 1920s, cooperation among the main central banks focused on the restoration of the gold standard. In 1921, Norman issued a manifesto outlining four principles of central banking: independence, separation from commercial banking, bank supervision and international cooperation (Sayers 1976). Norman's view of cooperation was relatively narrow, it entailed exchanging information, mutual provision of financial services, provision of gold storage facilities and the discount of approved bills (Borio and Toniolo 2008: 33). Monetary policy coordination was not on Norman's agenda.

The most important area of central bank cooperation in the 1920s was the flotation of international "stabilization" loans, pioneered by the Dawes loan that sanctioned the end of hyperinflation and the adoption of the gold standard by Germany. It was followed by syndicated loans to the central bank of countries ready to reintroduce gold convertibility (Clarke 1967).

Cooperation was also needed to ease the "transfer problem" connected with the German Reparations (the man-made "macroeconomic imbalance" of the 1920s). The issue, however, was highly contentious and was one of the main reasons for the strained international economic relations of the 1920s and their impact on central bank cooperation, which could accomplish little in the absence of a favorable political and diplomatic environment. Eventually, the most important accomplishment in central bank cooperation, the creation of the Bank for International Settlements, was made possible because a window of opportunity opened in 1929 by the universal desire to put an end to the decade-long struggle over German reparations (Toniolo 2005).

International relations notwithstanding, in the 1920s cooperation among central banks was more explicit and continuous than it had been before 1914, probably for three reasons: a) the war-enhanced prestige of central banks, b) pressure from the markets seeking the "seal of approval" from the central bank community to resume sovereign lending, c) the excellent personal relations between Norman and Strong and their shared belief that conditions should be maintained for capital flows to finance Germany's current account deficit.

Whatever cooperation existed in the 1920s, it broke down during the Depression and its aftermath. There is large scholarly consensus that stubborn adherence to the gold standard was one of the main reasons for the international spread of the slump. Given the trilemma (a country cannot simultaneously have fixed exchange rates, free capital mobility and independent monetary policy), the gold standard fixed exchange rates and free capital mobility might have been maintained only by closely coordinated monetary reflation. The alternative solution - universal return to floating rates - also required coordination to avoid beggar-thy-neighbor competitive devaluations. In the absence of international policy coordination, Great Britain devalued and introduced a tariff, the countries who stayed on gold (most of them in a rather perfunctory way) resorted to controls on capital movements, tariffs and, eventually, clearing agreements. International macroeconomic imbalances were made more acute by the flight of gold to France and the United States (Feinstein, Temin, and Toniolo 2008).

In the fateful summer of 1931, central banks eventually put together, through the BIS, a "rescue package" for Germany. International lending, however, came late, was of insufficient size and was accompanied by the wrong conditionality: deflation was recommended to maintain gold convertibility. Eventually, as did the Asian countries in the wake of the crisis of the late 1990s, Germany learned to fend for herself: international cooperation was no longer an option.

It may be of some interest as a "lesson" for today to recall that Kindleberger (1986) argued that international economic cooperation suffered from the absence of a hegemonic power: the "no-longer London, not yet Washington" situation, in the long transition from 1914 to the 1940s. The question of whether we are again in a similar epoch of transition between two different equilibria in international relations can hardly be avoided.

The responsibility for the collapse of international economic cooperation during the 1930s can hardly be laid at the door of central banks. Not only were they, after all, relatively small players in the overall game of international relations, but also they had retained from the 1920s at least an aspiration for mutual assistance. In the divided and autarkic world of the 1930s, central bank governors still found it useful (and probably pleasant) to regularly meet,

month after month, at the Bank for International Settlements in Basel. Low key cooperation continued in such matters as gold storage and transfer, short term lending, technical support of clearing agreements, exchange of information (Toniolo 2005). What relevant cooperation took place, as in the case of the Tripartite Agreement of 1936, it was conducted at government level, and central banks only provided advice and expertise. Did low-key cooperation among central banks matter? Perhaps not much there and then, but it fostered personal understanding and kept communication channels open: both proved useful when the time for closer cooperation came in the 1950s.

5. Unorthodox lending of last resort

In Bagehot's view, lending of last resort is a rather clean affair: "Lend freely at high rates". Actual lending of last resort in major crises is never as simple and clean as Bagehot wanted it to be. His model, however, approximates the Bank of England's operations for a most of the 19th century. The game changed when, as in 1890, the illiquidity (or likely insolvency) of a single intermediary threatened the stability of the whole system. The Bank of England rushed to organize an international consortium of banks to set up a guarantee fund for the debts of the too-big-to-fail Baring Bank. Bail outs of this kind inevitably entail discretionary decisions about resource allocation and a departure from the rule about the liquidity of central bank assets. Moreover, bail outs of too-big-to-fail intermediaries almost inevitably require working in close contact both with the government and with private banks. The purest advocates of central bank independence might have raised an eyebrow.

In the interwar years, lending of last resort and bail outs were necessarily "messy", entailing the use of various unorthodox tools.

A brief review of methods and tools of lending of last resort may well begin with the Bank of England, at the time the self-styled custodian of central bank orthodoxy. In the late 1920s, the Old Lady was called upon not only to bail out Banks but also to directly support industrial companies in distress, no longer eligible for loans from private sources. The Bank's prestige and treasure came to be spent to bail out and reorganize industrial concerns.

Norman's preferred ways were those of "privacy, speed, determination, and reliance on a few good men", but sometimes direct financial intervention was needed, as in the case of the bail outs of the Williams Deacon's Bank, of the Banca Italo-Britannica and Anglo-South Bank which left the Bank of England with an indirect holding of bank equity (Sayers 1976: 263).

In 1928, the Bank of England stepped in to save from bankruptcy a Newcastle armament manufacturing firm, Vickers-Armstrong. The rescue entailed the Bank getting involved with the restructuring and management of the company as well as holding substantial interests in it (Sayers 1976: 314-322). The Bank's involvement with manufacturing companies increased when "the troubles of various industries came upon its doorstep" Governor Norman got personally more and more involved in an effort of "rationalizing the heavy industries of Britain […]" and came to regard this work "as his most effective contribution to the revival of industry and the reduction of unemployment" (Sayers 1976: 322). When the Mac Donald labor government came to power, Norman's efforts were increased by his commitment to exorcise "the specter of nationalization" (Sayers 1976: 324), seeking the "moral support" of Snowden, the new Chancellor. In 1929, to manage its increasingly important stakes in manufacturing, the Bank of England created a Securities Management Trust, a company with limited capital designed to be "the channel through which the Bank itself would provide funds for schemes supported by the Bank" (Sayers 1976: 325). When the Securities Management Trust had to be explained to the Macmillan Committee, Norman said that "he was a public servant who believed that the Bank should be the catalyst in bringing together the needs for industrial reconstruction and the financial resources the City would mobilize" (Sayers 1976: 325). As the result of the Bank's involvement with the manufacturing industry, Norman drew industrialists into the Court of Directors and hired a specialist in industrial affairs. The Governor "was conscious that since the departure from the gold standard the Bank's responsibilities in the narrowly monetary field had become more complex and more closely dependent on assessment of industrial and regional effects" (Sayers 1976: 551).

The Bank of England's involvement with manufacturing did not provide a major "stimulus" to the economy; nevertheless, the "exit strategy" was neither

easy nor quick. For most of the 1930s, the Bank's original idea to marshal support from the City to ailing manufacturing sectors soon proved to be a dead end, leaving the Old Lady to run the Securities Management Trust largely with her own resources. It was only immediately before and during the war that the Bank could take the lead in "bringing a wide circle of City institutions into some permanent and public link between finance and industry". Norman never regretted his deep involvement with industrial restructuring and believed that, in the operation, "not a bob seems to have been lost, notwithstanding the worldwide crisis through which we had to pass" (Sayers 1976: 551).

Lending of last resort in some continental countries – such as Austria, Germany and Italy – led to a deeper involvement of central banks with industry than in the case of Great Britain. There are many reasons for this, including the central banks' implicit mandate to sustain economic development besides monetary stability and their close links with governments. However, the main reason why bailing out banks also entailed bailing out industrial companies is to be found in the close links between commercial banks and industry.

During the 1920s Italian large commercial banks had gradually acquired an ever larger stake in manufacturing and utility companies. By the end of the decade they looked more like holding companies than commercial banks, while at the same time being deposit-taking institutions. In 1931, the three largest Italian banks had direct or indirect control of about one half of the companies listed in the Milan Stock Exchange. When, in the same year, the government required the Bank of Italy to provide a massive liquidity infusion to the three banks and taking industrial equity as collateral - thereby avoiding a major financial crisis - for a time the central bank found itself indirectly owing the majority stake in several of the country's largest industrial companies (Toniolo 1995).

Scholars are still debating whether in the summer of 1931 Germany was hit by banking or a currency crisis (Temin 2008). The debate need not interest us here. More interesting is the fact that the desperate state of the major banks took the Reichsbank and the government by surprise. Apparently, the authorities were ill informed both of the magnitude of long-term lending by the large banks to industry and of their vulnerability to withdrawals of short term deposits by foreign lenders (James 1985). Lack of information delayed central bank

action as lender of last resort until after the fall of the Danat Bank, heavily invested in the textile sector. The "lesson" from this episode is that a central bank is more "useful" when bank supervision is entrusted to it, and it is well organized for the task (including coordination with government authorities).

In Germany, as in Italy, last resort lending to 'universal banks' entailed accepting long term industrial paper as collateral, in violation of the central bank's statutes. The Golddiskontobank, a subsidiary of the Reichsbank, created during the monetary stabilization period and allowed to continue as a tool for foreign trade financing, was instrumental in providing guarantees for bank liabilities. The government also "arranged for an Akzept & Guarantee Bank to provide a third signature for papers to make it eligible for discount at the Reichsbank" (Kindleberger 1984: 377). The banking sector was reorganized and, eventually, as in Italy, the large Banks came under government control. "This was the price for substantial Reich support during reorganization: by 1932, 91% of Dresdner's capital was in public ownership, 70% of the Commerzbank and 35% of the Deutsche" (James 1985: 210). After 1931, the Reichsbank "became practically a dictator over the credit life of the nation. The increased importance of the Reichsbank came not only through its position of court of last resort for foreign exchange, money, and credit but also through actual ownership participation in the control of the Joint Stock banks and the central banking institutions" (Northorp 1938). Under Schacht's second tenure as President, the Reichsbank became a powerful tool of resource allocation under the Five Years Plan.

The American case stands out for the absence of lending of last resort by the central bank throughout the most acute phase of the Great Depression. The reasons why the Fed did not intervene to 'bail out' illiquid banks are partly the same that explain the timid monetary response to the slump (Bordo and Wheelock 2010). However, there is little reason to believe that all Federal Reserve Banks objected in principle to 'saving' individual banks and/or the lacked the experience in carrying swift and effective lending of last resort: in July 1929 the Atlanta Fed had been perfectly able to rapidly shift all the needed liquidity to a number of Florida banks hit by an exogenous shock to the economy (Carlson et al. 2010). It is nevertheless true that not all the Federal Reserve Banks were equally capable or inclined.

Support to ailing banks came from the Administration and Congress. In 1931, the National Credit Corporation (NCC) was set up to stem liquidity crises. Funding would come from the banks themselves, invited to join the NCC on a voluntary base. The initiative was met by lukewarm enthusiasm from the Fed and the banking community and turned out to be quite ineffective (Mitchener and Mason 2010). A new institution, the Reconstruction Finance Corporation (RFC), was created in 1932 to grant credit to banks that could not get it from the market. When the Emergency Banking Act was passed on 9 March 1933, the RFC was called upon to reorganize and support the banks that were declared solvent. In 1934, the RFC and Federal Reserve began lending directly to business and in due time the former came to have direct or indirect control of institutions, particularly banks, in which it was invested. It often used this position to "replace officers and significantly alter the business practices of the institution" (Mitchener and Mason 2010).

It is perhaps possible to see an analogy between the RFC and the Trouble Assets Relief Program (TARP) of 2008, in the close cooperation between the Treasury and the central bank, in the impact each program had on the asset side of the Fed's balance sheet and also in their costs turning out to be a small fraction of what was originally planned or feared. By early 1936 the amount of RFC exposure had fallen by 35 per cent of its end 1934 peak, bringing hefty revenue to the budget. The 1937 results were even more favorable to the administration. The 'lesson' here is that governments (and central banks, as their adviser and technical arm) should not be deterred from initiating support programs for ailing financial institutions by fears about their long-term fiscal impact: in due time, markets recovered and what in 1933 looked like a heavy burden on the federal budget, turned out to be of much lesser relevance by 1937. The subordinate 'lesson', of course, is that both patience in avoiding a fire sale of assets and the choice of the appropriate exit timing are of crucial importance.

One of the most relevant consequences of the massive lending of last resort that took place during the Great Depression was to convince legislators that bank supervision was essential to the pursuit of financial stability. In various countries public enquiries had shown that the balance sheets of the banks

were, if not utterly 'cooked', inflated by unrealistic valuations of assets and credits (Giannini 2004: 220).

Until the mid-1920s, of all central banks, only the US Fed was endowed with powers of bank supervision. Such powers were however shared with the Comptroller of the Currency. The banking crises of the early 1920s, with their huge bail out costs, resulted in supervisory authority being conferred on the Bank of Italy in 1926. Japan followed suit in 1928. During and after the Great Depression, provisions for bank supervision became a standard item in the legislation adopted by most countries to regulate the banking system (and, in many cases central banking). The US Emergency Banking Act of 1933 strengthened supervision and added supervisory powers to the newly-created Federal Deposit Insurance Corporation. Supervision was at the heart of bank legislation in Germany, France, Belgium, Switzerland, Italy. The main exception was the United Kingdom where the Treasury and the central banks preferred to issue "recommendations" to the commercial banks. (Giannini 2004: 221)

6. Central bank independence.

Economists look for simple, measurable indicators of central bank independence such as "the right to change the key operational instrument without consultation or challenge from the government" (Capie, Goodhart, Fisher and Schnadt 1994: 50). However, the use of simple categorizations "requires a fairly intimate knowledge of the structure, organization, and working practices of the institution, to say nothing of the personalities in both central bank and government" (Capie, Goodhart, Fisher and Schnadt 1994: 50). Economic history contributes to the understanding of actual (as opposed to legal) central bank independence.

During the interwar years, central bank independence ebbed and flowed. In 1914-18, everything – including central banks – was subordinated to military success. As mentioned above, central banks were important instruments in the war effort. They worked in close contact with and subordination to their respective governments.

Immediately after the war, the Bank of England sought to revive its freedom to determine the level of the short-term rates, but realized "that however it exer-

cised a nominal freedom to fix the key rate, it would remain effectively shackled as long as huge weekly maturities of Treasury Bills left the quantity of bank cash uncontrolled" (Sayers 1976: 112). Moreover, the debate on the Cunliffe Report highlighted the power of the Bank to affect the overall internal economic conditions, an issue - seldom raised before 1914 – with wide-ranging political implications.

In the post-war Europe, the high outstanding public debt, the central banks' involvement in industrial restructuring and the politicians' awareness of the impact of the Bank's action on the real economy complicated the search for central bank independence. Norman and Strong became the self-styled apostles of central bank independence on the international arena. They managed to have the principle of independence proclaimed at every economic conference and eventually engraved in the tables of the League of Nations.

Yet the two friends disagreed about the nature and limits of independence. Norman's view was radical to the point of arguing the Bank should have the right to rebuke the government in public and to be free to make decisions on several issues regardless of any political consideration. Strong, on the contrary, repeatedly told his friend that the Fed could never openly act against the government's interest (Giannini 2004: 260-1). The disagreement reflected differences in the institutional arrangements and in the practice of government in the two countries.

Keynes would agree with Strong's more realistic approach. Questioned on the issue of subordination or cooperation between the Bank of England and the Treasury in matters of monetary and exchange rate policies, Keynes observed that: "you can have the two bodies which maintain their respective spheres of responsibility and of power and yet necessarily always work together. It is the fundamental question of the relation between any central bank and any Treasury". He added that in theory acting together might require the subordination of one to the other but that "in *this country* (italics mine) the future of regulation would be that the Treasury and the Bank of England would be neither

subordinate to the other but would always be pursuing the same policy". (Keynes [1926] 1981:512, quoted in Bibow 2010)[8].

Things were different on the Continent. The Reichsbank's independence was imposed on Germany by the allied powers. It was not necessarily the optimal solution (imposed institutions seldom are). Schacht's defiant attitude during his first tenure at the Reichsbank contributed to destabilising the Weimar Republic. In France, the Bank's relations with the government had always been close, with the latter having the final say in case of dissent. However, Moreau stood firm against Poincaré's fixation on stabilizing the Franc at an unreasonably high parity. His prestige was such that the mere threat of resignation brought the Prime Minister to reason. Then as now personalities mattered both in shaping and using central bank independence.

The return to gold convertibility increased *de facto* central bank independence. As Norman remarked, only central banks possessed the experience and technical skills to manage the gold standard.

On the other hand, in the 1930s, central banks lost prestige and autonomy precisely because they remained too stubbornly independent in interpreting their role as custodians of gold convertibility. But the main reasons why, in the 1930s, formally or informally, governments increased their control over central banks are to be found in the neo-mercantilism of the era. Dictatorships came to control large segments of the economy through 'plans', price manipulation, and, indeed, credit allocation. Even democracies resorted to foreign trade management through the so-called clearing agreements and 'foreign exchange controls". Central banks possessed unique technical skills to conduct these operations but they remained subordinated to the policy choices of their governments.

The Italian and French Banking Laws of 1936, are examples of soft nationalization. The German law of 1937 brought the Bank formally under Hitler's control. In other European countries (such as the United Kingdom, France, the

[8] Sixty years later, Alec Cairncross wrote that "The British experience has been that there is no alternative to a close relationship (between the Government and the Bank) with each preserving its independence of judgment but with responsibility for major decisions resting inevitably on the government of the day" (Cairncross A. 1988: 71-2).

Netherlands and Belgium), formal nationalization came only after the war, it was largely – as Dalton, the British Chancellor of the Exchequer put it – "bringing the law into accord with the facts" (Toniolo 2005: 293). The same can be said of the United States where, according to Meltzer, the Fed took the backseat even before the Banking Act of 1935 (Meltzer 2003: chapter 6).

7. Interwar lessons for a "useful" central bank.

The current recession was potentially even more virulent than the crisis of 1929-33. The financial system was now larger compared with GDP, and more complex. Markets are now more interconnected than ever. Leverage was now greater and banks were made more vulnerable by heavy reliance on short term wholesale sources of funding. Technology allowed massive amounts of money to be moved by the click of a mouse: one didn't have to line up for hours on the sidewalk outside her bank to move her accounts. Yet the impact of the financial crisis on the real economy, massive as it is, was not on the scale of the 1930s. After a more pronounced plunge in 2008 than in 1930, output, trade and employment were stopped in their free fall. To economic historians, the rebound looked unexpectedly swift in most of the world (much less so in Western Europe and the United States). There are, and will be, many policy lessons to be drawn from these two episodes. This paper is confined to the "lessons" from the interwar years for a "useful" central bank. They can be divided into two categories: those that have already been learned and applied, and those on which attention should be paid over the next months and years.

Three main "lessons" of the Great Depression have already been learned by policy makers: (i) a major financial shock requires immediate reaction of adequate size, (ii) lending of last resort should use all available tools, and (iii) international cooperation is essential.

It is by now largely - if not universally (e.g. Taylor 2009) - accepted that disaster was avoided by swift monetary easing and fiscal expansion (e.g. Bernanke 2010, Crafts and Fearon 2010, Eichengreen 2010). Central banks used all the orthodox and heterodox ammunition available in lending of last resort, if necessary disregarding the nature of the collateral. Emergency lending followed national conditions, institutions and culture confirming the "lesson" that "it

works well if tailored on the environment" (Bordo and Weelcock 2010). "The world rose to the challenge, with a remarkable degree of international cooperation, despite very difficult conditions and compressed time frames" (Bernanke 2010:1). Since the end of the Second World War, central bank cooperation has increased over the years, reaching probably its highest level ever by the end of the century. It focuses not only on monetary policy but on several other issues as well, including bank regulation (Borio and Toniolo 2008). In the wake of the 2001 terrorist attacks on the twin towers, central banks immediately reacted at unison. Policy coordination was also high by historical standards in 2008. So, "while central banks alone cannot solve the economic problems of the world" (Bernanke 2010:2), they proved now to be more "useful" institutions than they had been in the 1930s. The analysis of the Great Depression by economic historians over the past decades has played an important role in highlighting the policy mistakes made at the time and inoculating against their repetition. Economic history is useful to a "useful" central bank.

Besides outlining these three major achievements of the late 2000s, the history of the interwar years briefly reviewed in this paper highlights other 'lessons' for the future which "useful" central banks should carefully consider.

The first of such lessons relates to the monetary policies of the 1920s. The jury is still out on whether the most appropriate policies were followed both then and in 2002-2007. Some issues however were discussed in the interwar years that resurfaced in the most recent period and need to be considered by central banks when confronted by future investment and credit booms. In particular: (i) Should central banks target asset prices, and if so how? (ii) Is there a way of knowing the appropriate moment for raising rates? (iii) How can central banks reconcile their domestic with their international responsibilities? It is not easy to answer these questions but the fact that they can be legitimately asked after eighty years points requires attention. One 'lesson' from the 1920s is already clear, a 'useful' central bank should dismiss the recurrent intellectual hubris of believing that - *this time* - the business cycle has been conquered for good.

The second "lesson" relates to what we now call exit strategy from monetary easing. In 1935, the Board of Governors' raised rates too early, thus precipitating a 'double dip'. France expanded in the 1920s but then kept high rates after

1933 prolonging the Depression (and running deadly political risks in doing so). Great Britain expanded after 1931 and enjoyed a swift recovery from the Depression. Germany and Italy avoided a "double dip" by expanding in the mid-1930s (if for not-so commendable reasons). The 1930s show that the legacy of a major depression is "a substantial increase in long-term unemployment and economic inactivity" and, thus, a lower level of potential output" (Crafts and Fearon 2010:37). Given this, the 'lesson' is that risk is probably minimized by erring on the expansionary rather than on the deflationary side.

The third 'lesson' from the 1930s for the coming months and years regards the winding up of central banks' entanglement with the financial sector resulting from emergency lending. As we have seen, for a long time after the Great Depression, many central banks retained a close involvement with financial and industrial companies. Both in Europe and in the United States, full exit from the *ad hoc* institutions created in the Great Depression did not occur until at least the 1950s (for the US, see Mitchener and Mason 2010)[9]. Placing industrial and financial assets on the market without a loss was difficult in the 1930s and impossible when the war came. Political and social considerations added to the difficulty of divesting. It was, nevertheless, undesirable for central banks to hold on indefinitely to industrial equity and illiquid bonds. Their involvement in financing - even managing - banks, companies, and *ad hoc* institutions violated the principle of allocative neutrality of monetary policy, exposed them to criticism from every quarter and contributed to their loss of independence. It is therefore desirable today that central banks return as soon as possible to "the type of lender of last resort transactions that fit within the Bagehot Standards" (Feldstein 2010:137), and to smaller and more liquid balance sheets. The "lesson" from the 1930s however is to expect difficulties and delays down the road. "Conditions on the ground" will determine the timing of the "exit strategy". Unwinding TARP has already proven to be a success story even though the initial time table has not been completely met.

[9] Even so, in the US, the Depression "left behind a legacy of stimulus institutions such as Fannie Mae, the FHA, and the Small Business Administration that, it can be argued, were never truly unwound (Mitchener and Mason 2010: 3)

Finally, are there lessons from the interwar years for central bank independence? In the 1930s central banks lost a great deal of their independence both because of prestige loss in managing the Depression and because, in the closely-managed economies of the 1930s, governments gained the control of most aspects of policy making while at the same time availing themselves of the technical expertise of central banks. Neither condition will represent itself in the future years. The Great Recession has been better managed than Great Depression: no similar reputational loss awaits central bankers. And there is no reason to expect a new wave of autarky, exchange controls, and state-managed credit allocation. The notion that a "useful" central bank must be independent in setting monetary instruments will not be challenged. The overall definition and practice of independence, however, might evolve. Managing the crisis entailed closer cooperation with the Treasuries which will continue during and beyond the "exit" period. Moreover, central banks from emerging-market countries will gain international weight and many of them are assigned, like the Fed, the dual targets of price stability and some measure of real-economy performance (growth, employment). Each of them interprets "independence" according to national tradition and institutions. The banal but important lesson is that in the future, as in the interwar years, a simple, one-size-fits-all, concept of independence will not apply to all "useful" central banks.

In the opening section, the interwar years were put in the context of a long transition from one to another payment technology. Central banks did not always rapidly adjust to changes. They dragged their feet before letting go of the gold standard and afterwards they "took the back seat". The period 1914 - 1950 was one of such tectonic movements that central banks were by no means the only ones to adjust slowly; their "usefulness" was nonetheless reduced in the process. The past two decades were, possibly, not as momentous as the interwar years but they certainly witnessed changes that again challenge central banks. The evolution of financial markets and intermediaries has been one step ahead of regulatory reform. Monetary policy is bound to operate in a context of higher uncertainty and in the little-explored territory of close-to-zero interest rates. Macroeconomic imbalances are of an order of magnitude never seen in economic history. Fiscal policy and monetary policy are bound to be closely interlocked. Adapting to the new environment is perhaps a challenge to "useful" central banks similar to that of the 1930s. Only history will

tell if "the golden years of central banking are over", as Gerlach et.al. (2009) put it. What can be said, taking a last "lesson" from the 1930s, is that now the necessary adaptation of central banks takes place with no reputational loss due to their conduct of policy during the Depression. It is more likely now than then that they will be able to adjust and retain their usefulness.

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Chapter 4
Role of central banks in emerging economies
Zeti Akhtar Aziz[1]

I. Introduction

1. Central Banks continue to be challenged with changing demands as the environment before us is rapidly being transformed. These fundamental and pronounced changes have prompted calls for a review of the role of Central Banks in the financial system and in the economy. Frequently, such calls have been precipitated during a financial crisis, as was the case during the Asian financial crisis and more recently during this current global financial crisis. However, such institutional reforms undertaken in periods of exceptional conditions risks influencing the nature and direction of the reforms. While the reforms following a crisis may address the immediate term demands, of equal importance is the medium and the longer term implications of the reforms. Perhaps, an important lesson for Central Banks is that such reinvention and modernisation should be undertaken during the good times so that we will not be subjected to such changes during the worst of times. In essence, in such a dynamic environment, Central Banks need to continue to adjust and evolve to remain relevant and, thus, useful.

2. It is my great honour to be invited to speak at the Norges Bank Colloquium held in honour of Governor Svein Gjedrem. Let me take this opportunity to congratulate Governor Gjedrem for the achievements of the Bank under this leadership during his twelve year terms in office. My remarks today will focus on the role of Central Banks from the perspective of emerging economies and more specifically in the context of Central Banking in Asia as we confront the challenges in this rapidly changing global economic and financial environment.

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II. Central Bank Mandates

3. While there is no unique blueprint for the design of the institutional arrangements for a Central Bank, of importance is that it needs to be relevant to our own circumstances. But of importance is that there is clarity on the mandate, the governance framework and the areas of accountability of the Central Bank. And that needs to be supported by the empowering legislation to ensure that the Central Bank has at its disposal the capabilities to deliver the mandate.

4. Central Banks in emerging economies generally have a broader mandate beyond the traditional mandates of monetary and financial stability. Even within these traditional mandates, the role of Central Banks have varied considerably. In the mandate of monetary stability, it has ranged from having the narrow mandate of price stability to the mandate where price stability is the primary role of the Central Bank while due consideration is also given to economic and employment objectives. While for some the mandates are clearly hierarchical, for others, the multiple mandates involve assessments of the trade-offs.

5. The Central Bank mandate of financial stability is less clearly defined particularly in circumstances in which the supervisory function does not reside in the Central Bank. The majority of Central Banks in emerging economies in Asia, however, has the responsibility of the supervisory function although for three of the region's major economies – Japan, China and Korea, this function resides in a separate agency. Even for Central Banks that has the responsibility of the supervisory function, the specific outcomes to be achieved are less clearly defined compared to the mandate for price stability. In Malaysia, our new Central Bank Act of 2009 has defined this mandate in terms of the risks to financial stability – that is, the risk of the disruption to financial intermediation, the risk of disruption to the orderly functioning of financial markets and the risk of loss of confidence in the financial system.

6. Common to most Central Banks in emerging economies is the mandate to develop the financial system. Given the stage of development of financial systems in emerging economies, this is an important mandate not only to en-

hance the financial intermediation process in the economy but also for the purposes of facilitating the mandate of monetary and financial stability. This mandate has involved institutional building, financial market development and the strengthening of the financial infrastructure including that of the payment systems and the legislative framework.

7. The decade of financial reforms and financial sector development that followed the Asia financial crisis have resulted in more developed and resilient financial systems that is now better able to intermediate the more volatile financial flows and to withstand shocks to the system. During the recent global financial crisis, most emerging economies in Asia did not experience any disruptions to the financial intermediation process and credit flows continued uninterrupted providing important support to economic activity. It also allowed the financial markets to facilitate the transmission of policies to support the economic recovery.

8. This developmental role is also significant in contributing towards preserving financial stability. The development of the domestic financial markets and the development of a more diversified financial system has reduced the risk of over concentration on the banking system, a feature that was prevalent during the Asian financial crisis. The introduction of new institutional arrangements has also been aimed at keeping abreast with innovation, the advancement in technology and the intensification of globalisation. It has also allowed for the adoption of a more balanced approach towards regulation in which it is complemented by the newly developed mechanisms for surveillance including across borders, strengthened supervisory oversight and institutional arrangements for resolution.

III. Central Banks and Financial Markets

9. A more recently much discussed mandate is the role of the Central Bank in ensuring the orderly functioning of financial markets. Orderly functioning financial markets are vital not only for the efficient allocation of financial resources in the economy but it is also essential for the transmission of the monetary policy and for preserving financial stability. While competitive forces are expected to result in efficient and optimal outcomes, Central Banks

in emerging economies have had the important role of balancing between the market forces and intervention with the objective of ensuring the orderly functioning of the financial markets. It needs to be recognised that several important preconditions need to be in place to generate equilibrium prices that reflect the underlying fundamentals. This includes the institutional and market infrastructure, the incentive structure, the rules of the game and the level of financial literacy that recognise and understand the market signals. When these elements are still yet to be fully developed in many emerging economies, it increases the risk to instability. Thus, as a result of the stage of development of such markets, or its size or prevailing market imperfections, emerging economies have tended to be more vulnerable to greater volatility and circumstances in which markets do not self-equilibrate. The recent global financial crisis has shown that such dislocations have occurred even in developed financial systems. Institutional structures and rules that become deficient and less relevant heighten the risk for such unstable market conditions. Experience has also shown that such market dislocations have severe and far reaching adverse implications on the overall economy.

10. For the effectiveness of such interventions, however, there needs to be clarity in the objectives to be achieved by such Central Bank presence and the results that are expected to be delivered. Of importance, there needs to be the recognition of the temporary nature of such interventions and the challenge of efficiently unwinding such presence when the objectives are achieved. There is also the need to manage the risks of unintended consequences of such direct Central Bank interventions. Such risks could include the potential for circumvention, or the gravitation to other markets not protected by such intervention. There could also be potential costs associated with such interventions, not only the current costs, but also the cost to future generations.

11. While the pace of deregulation and liberalisation may differ across emerging economies, there is a discernable distinct shift to greater market orientation in this recent decade. These reform efforts have been reinforced by efforts to develop the financial markets and financial infrastructure. Within this framework, the nature of intervention has been in the form of direct presence in the financial markets, the setting of rules and regulation, and in the

resolution of problem financial institutions. Such interventions were evident during the Asian financial crisis in the late 1990s to restore stability in the financial markets. This in turn created conditions for the resumption of the financial intermediation process. While the efficient functioning of the financial system was vital for the economic recovery in Asia, more important was the comprehensive set of policies that produced the recovery. Within a year of the introduction of the pro-growth measures, most of the crisis affected economies experienced a strong recovery.

12. More recently, the global financial crisis has seen several rounds of wide ranging direct market interventions to restore the smooth functioning of these markets. Described as actions taken in the most extraordinary and exceptional circumstances, it demonstrates that this phenomenon of severe market dislocations has the potential to occur even in the most developed of the financial systems. As these massive interventions continue, primarily in the public and private securities markets, the concern is on its potential consequences on other parts of the world, in particular, to the emerging world. In the now more interconnected and interdependent world, these actions are already creating significant shifts in capital flows. Important for the emerging world is the ability to intermediate such surges in capital flows and to manage the risks associated with such liquidity inflows and its potential to undermine the current recovery.

13. A further element that has frequently been underestimated is the role of behaviour which has had a major influence on the dynamics of the financial markets. Extreme forms of such behaviour are evident in asset and foreign exchange markets. While the former is prone to boom and bust, the latter is prone to overshooting. While several emerging economies have successfully relied on macro prudential measures to contain the formation of such asset bubbles, the foreign exchange market is not like any other market. With a daily transaction amounting to USD4 trillion, it is the most liquid and dynamic market in the world. The role of sentiment and expectations has resulted in a market that is frequently prone to excessive movements and overshooting. As highly open economies, disruptions and disequilibrium in the foreign exchange market have far reaching consequences in the real economy. Interven-

tion operations to maintain orderly market conditions reinforced by sterilisation operations have aimed at ensuring liquidity in the market and at ensuring that the market conditions reflect the underlying economic fundamentals. Similar to the presence in other financial markets, this is to ensure the sustainability of the efficient functioning of the market.

IV. Central Banks and Crisis Containment and Management

14. The world going forward is likely to continue to be affected by financial crisis. History has shown that there have been more than a hundred distinct banking crises in this recent two decades. The prospect of surviving such a crisis is not only about building resilience but also having the capacity to manage it. Central Banks have a critical role in crisis containment and management, in particular, to provide liquidity, to restore the efficient functioning of financial markets, to lead resolution programmes and to restore confidence to the financial system.

15. Given that the Central Bank is the lender of the last resort, the Central Bank is in the front line of actions to restore stability. Regardless of the institutional arrangements for the supervision function, of whether it is based on an integrated model or a model that is organised along sectoral lines, effective coordination is vital to effectively safeguard financial stability. Established arrangement for coordination avoids a piecemeal approach by any individual agency in the system and ensures a comprehensive response to the crisis. Greater coordination across agencies also allows for prompt actions to be taken.

16. Elements for crisis management have largely been put in place in several of the emerging economies in Asia. This has included a framework for rigorous surveillance for the early detection of risks and vulnerabilities, the range of policy instruments to address the build-up of risks, the governance and accountability framework as well as the coordination framework. Regardless of whether the supervisory responsibility resides at the Central Bank, the role of the Central Bank in surveillance for macroeconomic management, and its direct contact with the financial markets in its money market and reserve management operations can be leveraged upon to support the financial stabili-

ty mandate. This allows for a more comprehensive response in containing and managing the crisis.

17. In Asia, as regional financial integration intensifies, there has been greater regional cooperation and collaboration. During the Asian financial crisis, the management of the crisis was by the individual economies. As the challenges become more complex, standalone actions may not achieve the desired outcomes. Moreover, the perceived best solution for one country may have unintended consequences for collective stability. Asia has, thus, come together collectively to conduct regional surveillance with concrete steps to establish financial support networks, to develop regional financial markets and payment systems. Such collaboration also provides a collective voice and representation and the potential to be heard in the sphere of global policy formulation.

V. Modernisation of the Central Bank

18. As central banks advance forward into the future of great uncertainty, the challenge of the new environment demands new institutional capability for the central banks to remain effective in delivering our mandates. Central Banks also need to undertake its own transformation and modernization. Such institutional capability enhancement may involve changes in the institutional arrangements, organizational and governance structures and practices, the empowering legislation and the talent required. Such organisational development would thus require continual reinvention to adjust to the new realities of the changing environment.

19. In most emerging economies, the largest concentration of talent resides in the Central Bank. In this new environment, this talent needs to have new capabilities to deal with complex issues from different perspectives that are no longer based on functional boundaries. While this involves horizontal collaboration across the organization, it also requires management of relationships including with the government while retaining the independence of the organization. This would require institutionalizing the channels for information flows, governance structures and clarity of accountabilities as well as the mechanisms for dealing with disputes. Cumulatively, this would provide for a

constructive relationship while preserving the independence of the Central Bank.

20. An essential element in Central Banking that is paramount in an environment of great uncertainty is having a well-developed communication strategy. Unlike the mature evolution of communication strategy in the conduct of monetary policy, Central Banks' communication with respect to financial stability is still very much in its early stage of development. Indeed, the recent crisis has clearly surfaced the need for Central Banks and policy makers to design communication strategy that balances the objective of providing information to the market and the public, while achieving an optimal outcome of enhanced financial stability.

VI. Conclusion

21. Allow me to conclude. The rapidly changing global economic and financial environment will continue to exert much demands on the Central Banks. While extensive modernization and transformation of Central Banks can be implemented at the national level, the increasingly interconnected and interdependent world demands a greater emphasis on global perspectives and considerations. The greater interface at the international level has involved enhanced engagement to concrete collaborative actions. The common objective is surely for an inclusive participation in the international financial system that will facilitate the common agenda for a self-sustaining global growth and development. Thank you for your attention.

Chapter 5

Fiscal dominance, the long-term interest rate and central banks

Philip Turner[1]

Introduction

In the post-crisis debate, much has been made of the macroeconomic or financial system effects of central bank decisions on their policy rate. Yet a more fundamental challenge, and one with many imponderables (theoretical, empirical and political), may well be the greater importance for central bank policies of the interest rate on long-term government bonds, the benchmark risk-free rate for maturity transformation. This may raise some radical questions both about the virtually exclusive focus on the very short-term policy rate as a policy objective and the use of short-term paper as the vehicle of market operations.

The main reason for renewed interest in long-term debt markets is that governments need to finance very large debts and will do all they can to keep borrowing costs low. "Fiscal dominance" is a convenient catch-word – but large government debts are not necessarily inflationary. What large debts will do, however, is to bring to centre stage the macroeconomic and financial consequences of government debt management policies. As Goodhart (2010) argues, these policies will no longer be regarded as the exclusive domain of debt

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managers constrained by technical benchmarks largely unrelated to macroeconomic circumstances. The problem for central banks is that there is no simple way to draw the line between government debt management policies that respond to macroeconomic developments and central bank purchases of long-term government bonds in the guise of balance-sheet-augmented monetary policy. If central banks were to refuse to conduct such operations, governments could achieve the exact equivalent by issuing short-term bills and retiring long-term bonds.

But several major central banks over the past few years have indeed demonstrated their skill and ability in lowering long-term rates. The crisis led them into balance-sheet-augmented monetary policy. Faced with near-zero policy rates, and an impaired transmission mechanism, they could no longer concentrate policy action only on guiding the overnight rate.[2] Several central banks have bought government bonds with the explicit aim of bringing down long-term interest rates (and in some cases narrowing credit spreads on private sector paper).[3] Central bank operations in long-term markets are not new. The central bank's influence on long-term rates (usually the yield on government bonds) was a prominent element in earlier debates about what central banks should do and how monetary policy works. For Keynes, Meade, Tobin and many others, the long-term rate was much more important than the Treasury bill rate.

The general point is that central banks can operate in many markets other than that for short-term bills – the foreign exchange market, the government bond

[2] Many of these operations were limited to short-term interbank markets, and were designed to counter money market dysfunctions – not the subject of this paper. Nor does this paper address the important issue of how these policies change the balance sheet of the banking system and so influence their lending decisions.

[3] The main exception to this has been the European Central Bank which does not have a single government in front of it. Pisani-Ferry and Posen (2010) argue that this institutional fact will create increased transatlantic monetary policy divergence. The absence of a central fiscal authority and the very different budgetary positions of the members of the euro area limits how far the ECB can purchase government bonds even in the secondary market. Its asset purchase programmes (covered bonds in 2009 and sovereign bonds in 2010) were limited in size and sterilised so as to have no impact on the money supply. In addition, many members regard the central bank purchase of government bonds as inherently compromising the independence of monetary policy: the ECB acts as a guarantor against fiscal dominance.

market, the equity markets, derivatives markets etc. Hence monetary impulses can in principle take many forms.[4] The choice of impulse will depend on circumstances, and the policy challenge will be to assess and contain unintended consequences of "unorthodox" interventions.

Among possible unintended consequences central banks will have to be aware of possible implications for financial stability. The long-term interest rate on government bonds – indeed the risk-free yield curve more generally – defines the terms of maturity transformation in an economy. It can influence risk exposures taken by the financial industry. And it is long-term rates – not short-term rates – that help determine asset prices.

In short, the high level of government debt in major countries will have implications for monetary policy, debt management policy and financial stability policies. The links between these policies are many and complex. They are also likely to take quite different forms as a direct result of huge government debt. This is what Graph 1 represents. The thesis is that a long period of high government debt and the associated uncertainty about interest rates could call into question three widely-held assumptions about economic policy:

- Central banks should not operate in markets for long-dated government debt, but should limit their operations to the bills market.
- Government debt management policies should be guided by cost-minimisation mandates and not by macroeconomic developments.
- The private sector can be relied upon to provide the right pricing for maturity transformation.

These assumptions had much to recommend them in normal times of low official debt and moderate inflation. They simplified the lives of policymakers in central banks, in debt management offices and in financial regulation. They allowed different institutions to be held accountable for distinct mandates. And

[4] As Meltzer (1995) concluded in the *Journal of Economic Perspectives* symposium 15 years ago, the monetary insight is that "monetary impulses set off a transmission process that changes many relative prices and real variables until neutrality is (eventually) restored".

they provided some insulation from short-term political pressures. Yet countries with huge budget deficits are not in normal times.

It must be acknowledged at the start that there is no well-defined anchor for any policy attempt to influence the long-term interest rate. In principle, the "normal" level of long-term interest rates is determined by fundamental saving and investment propensities. In practice, however, we lack a reliable benchmark. Klovland (2004) suggests that the answer for Norway is a real long-term interest rate of a little over 4%. Hicks (1958) found that over 200 years the yield on consols tended to settle in the 3–3½ range. But we do not know how the rise of rapidly-growing and high-saving countries has altered this equilibrium. Until the early 2000s, the real long-term interest rate – as measured by index-linked securities – remained close to these historical norms (see the green line in Graph 2). But from 2003 it began to fall, and Federal Reserve increases in the policy rate from 2005 to 2007 did not stop this. Current real yields for 10-year bonds are around 1%. This could be just a temporary blip. But the fact that even the 5-year five-years forward rate is at around 1½% suggests the market expects that interest rates could be extremely low for many years. We just do not know.

The plan of the paper is as follows. Section 1 argues that very high government debt/GDP ratios will make the short-term/long-term mix of government debt an instrument of macroeconomic policy. Section 2 argues that this will also have implications for financial stability policy because the long-term interest rate on government bonds is fundamental for maturity transformation. It defines a convenient discount rate to apply to the earnings of all assets, and so influences all asset prices. But official influence on the long-term rate has grown in so many ways that it cannot be regarded as a pure market rate. Section 3 explains the lack of any simple logical demarcation between government debt management policies and monetary policy. A simple and exclusive central bank focus on the overnight rate, with operations only in short-term markets, conveniently created in recent years a practical demarcation of operational responsibilities. Yet in the not-so-distant past a focus on central bank purchases or sales of government bonds (or the equivalent debt management operations) to influence long-term interest rates had been seen as important tools of policy in many different situations. In the United Kingdom, for in-

stance, Keynes argued in favour of large-scale purchases in the 1930s. Official finance in the postwar period incorporated an almost-explicit target for the long-term rate. The Radcliffe Report in the late 1950s argued that central banks could make a policy of monetary restriction more effective more quickly by selling government bonds. The monetary-aggregate-centred policies in the late 1970s required substantial sales of long-term government debt. Section 4 argues that the mandates of government debt managers usually mean that their actions are endogenous to macroeconomic and monetary developments. Large public debts will refocus thinking on the general question of monetary transmission mechanisms related to the supply and demand for assets other than short-term bills. Section 5 considers the transmission channels of policies to change the duration of government debt in the hands of the public. Section 6 examines recent Quantitative Easing (QE) from the perspective of the consolidated balance sheet of government and central bank. The current direction of US Treasury issuance runs counter to the policy intention of QE – as it did in the similar Operation Twist operation in the 1960s.

1. New fiscal dominance?

Large and persistent budget deficits in the advanced economies have led to a substantial increase in government debt. According to BIS estimates, government bonds outstanding amounted to over $37 trillion at June 2010, compared with $14.4 trillion at the start of the 2000s (Table 1).

There is huge uncertainty about future fiscal prospects. Economists disagree about how quickly deficits should be reduced: some would stress deflation risks and others inflation risks. Even if economists were to agree, there would still be great uncertainty about political choices on budgetary policy. We just do not know how quickly governments will cut deficits.

It is nevertheless certain that government debt/GDP ratios in major countries will continue to rise over the next few years. Even the optimistic G20 pronouncements do not envisage debt/GDP ratios in the advanced countries stabilising before 2016. Graph 3 shows projections for the United Kingdom: according to estimates prepared before the recent election, the debt will rise to about 100% of GDP by 2013. This is well below the post-WW II peak but still

represents a major shift. And the future fiscal costs of interest payments are likely to be large.

In a simple world of full Ricardian Equivalence, households increase their savings by the present value of future taxes needed to repay government debt. Their desired bond holdings thus rise by the exact increase in government debt issuance. Private consumption declines to offset the increase in public expenditure, leaving GDP unchanged. The long-term interest rate therefore remains constant. But this paper assumes a non-Ricardian world so that changes in debt/GDP ratios can have major macroeconomic consequences.[5]

The specific question of how far high government debt could constrain the ability of the central banks to set the policy rate to control inflation has been much debated. One extreme is the "fiscal dominance" view. Heavily debted governments force the central bank to accept inflation in order to reduce the real value of their debt. In the case of the United Kingdom, the unexpectedly sharp rise in inflation in the late 1960s and early 1970s reduced debt/GDP ratios significantly. The other extreme is "monetary dominance". Central banks raise interest rates to avoid the inflationary effects of excessive budget deficits. Interest rates rise across the maturity spectrum and the prospect of higher-and-higher debt service costs then forces governments to reduce their primary deficits. This seems to fit the UK story in the late 1980s and early 1990s when tighter macroeconomic policies (monetary and fiscal) brought down inflation. But it took some time for this policy stance to earn credibility and reduce long-term interest rates.

Many crises in developing countries in earlier decades support the fiscal dominance story. This was mainly because governments in such countries did not have the option of financing budget deficits with long-term bonds issued in local currencies and sold to the non-bank domestic private sector. They could not borrow long term because their macroeconomic policy frameworks lacked credibility. They had little option but to borrow from the banking system or from abroad. These borrowing constraints made the monetary accommodation

[5] See Woodford (2000). He argues that a Ricardian government – which he defines as one that reduces its deficit in response to a rise in the debt/GDP ratio – can limit the impact on long-term rates of large government debt.

of significant fiscal deficits almost inevitable. The interaction of domestic bank credit expansion with devaluation spirals served to reinforce fiscal dominance.[6]

In advanced economies, however, governments have many ways to finance large deficits in non-monetary ways. Issuing marketable government debt of various maturities to the private sector is the textbook financing choice. Hence any fiscal dominance story is more complex than in developing countries. Any analysis of how far very high government debt will constrain monetary policy choices will therefore have to address the debt financing choices of government and their consequences.

There is no simple link between government debt/GDP ratios and the long-term interest rate on government bonds. Other things equal, higher debt ratios coming from increased structural fiscal deficits (ie beyond the cyclical element) should imply higher real long-term rates as governments bid up the cost of borrowing.[7]

The qualification "going beyond the cyclical element" is important. Fiscal deficits arising from allowing the automatic stabilisers to work should have no influence on long-term interest rates. Furthermore, the policy choice of increasing structural budget deficits for a specific period as a deliberate response to weak private investment demand need not raise long-term rates. Indeed current borrowing demands of the private sector (companies and households) have been greatly weakened by the crisis. Because the credit-creating capacity of the banking system will be constrained by the needs for banks to deleverage and because households need to repair their own balance sheets, near-term prospects for private investment demand are not strong. Inflation expectations are well contained. Hence real long-term yields on government debt in major countries are at present very low.

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[6] One classic reference is Rodriguez (1978). BIS (2003) shows how fiscal dominance was reduced in many EMEs by major reforms. See also Buiter (2010) for an application to the recent euro area crisis.

[7] At least in a closed economy. A small country whose credit standing is not in question will be able to borrow abroad at the risk-free international rate. In such circumstances, the relevant variable is not its own debt ratio but some measure of the global fiscal position.

A second, and more fundamental, qualification is that long-term interest rates depend on market expectations of future debt/GDP ratios and of future monetary policy – and not directly on current policy settings. If the commitments of government to limit the rise of debt/GDP ratios and of central banks to prevent inflation are fully credible, long-term interest rates need not rise.

Current market expectations of future fiscal policies are probably still conditioned by the credibility governments in most advanced countries earnt from successful fiscal consolidation during the 1980s and the 1990s. Those policies took many years to convince markets and bring down long-term interest rates (see panel C of Graph 3). The commitment to lower budget deficits and to adopt a tighter monetary policy regime were not fully credible for some time. Nominal long-term interest rates on government debt therefore remained high for many years.[8] Even if mean inflation expectations remain low, uncertainty about fiscal prospects may itself widen the risk premium in long-term rates.

Because of extreme monetary ease, short-term interest rates have been close to zero for some time and markets expect rates to remain low. The yield curve is (as of late 2010) still quite steep. This interest rate configuration has major consequences for financial intermediaries. An upward sloping yield curve provides an attractive running yield for banks which typically borrow short and lend long. At the same time, those who have invested in government bonds face interest rate risks that increase with the lower yields. The sharp decline in Japanese government bonds in 2003 illustrates just how suddenly such risks can materialise (Box 1).

[8] King (1995) called this mechanism "some unpleasant fiscal arithmetic". Monetary policy restraint for a time actually increases government borrowing costs: a successful policy of disinflation does not reduce nominal long-term rates immediately because expected inflation declines much more slowly than actual inflation.

Box 1

The 2003 crisis in Japanese government bonds

The market dynamics behind the sharp jump in yields on JGBs in mid-2003 provides an interesting illustration. From late-2002 to mid-2003, regular investments by banks and institutional investors in JGBs led to a steady decline in yields, with the 10-year interest rate reaching about ½% in June (see Graph 4). Regulatory requirements forcing banks to reduce their holdings of equities and weak lending demand also reinforced banks' demand for JGBs.

According to Nakayama et al (2004), the BoJ's QE commitment in March 2001 to keep policy rates very low until the CPI had registered a year-on-year rise in the CPI led market participants to expect low rates to be maintained for an extended period. The yield curve therefore flattened and bond market volatility declined. With risk tolerance levels given (and the risk measured by volatility observed in the recent past), lower volatility allowed banks to increase their holdings of JGBs. Thus the decline in market volatility reinforced downward pressures on the yield.

The long-term rate overshot in a downward direction. Once concerns about deflation risks abated, expected future short-term rates rose. As markets began to expect an earlier end to monetary policy easing, volatility rose. This rise in the volatility of interest rates served to further reduce the demand for bonds and thus magnify the rise in the interest rate. Because the banks were all using the same historical volatilities to assess risks, they were all led to try to reduce their interest rate exposures at the same time. The net result was a sharp rise in yields which imposed significant losses on the banks.

The direct fiscal effects of changes in budget deficits (ie flow effects on income) have a quick but temporary impact on aggregate demand – at least according to the standard income-expenditure models. But the financial and monetary effects of the increased stock of government debt that results from these deficits (ie stock effects from changes in balance sheets) are permanent. Public debt affects both the size and the composition of private sector balance

sheets. Expectations of how such effects will work can bring forward the ultimate impact. And volatile expectations about these effects can themselves be a source of instability. Such effects have many dimensions.[9]

The dimension that is most relevant for this paper is the macroeconomic consequences of the short-term/long-term mix of outstanding debt. This depends on whether investors regard short-term and long-term paper as close substitutes. In a world of perfect certainty about future short-term rates, the maturity mix of debt would have no consequences because debt of different terms would be perfect substitutes for one another. A high degree of asset substitutability would also support the pre-crisis monetary policy orthodoxy that control of the overnight interest rate is sufficient for central banks to shape macroeconomic developments. Changes in the overnight rate (and expected future overnight rates) feed through quickly to at least the near end of the yield curve. Transmission of policy rate changes to the whole structure of interest rates is thus effective.

In practice, however, uncertainty about the path of future interest rates (and differences in investor preferences) will make debt securities of different maturities imperfect substitutes. Because of this, changes in the mix of short-term and long-term bonds offered by the government will change relative prices and thus influence the shape of the yield curve. At the same time, monetary policy based on setting the policy rate becomes less effective: the lower the degree of asset substitutability, the weaker the transmission of changes in the overnight rate to other interest rates. Hence debt management policies (or balance-sheet-augmented monetary policy) become more effective in conditions when classic monetary policy works less well.

Furthermore, debt management policies can be all the more effective in the special case of the zero lower bound (ZLB). This is because policies aimed at shortening the duration of debt held by the public (ie selling Treasury bills and

[9] One dimension is size effects. Whether higher government debt increases perceived private sector wealth depends on how far the private sector regards the wealth it holds in government bonds as diminished by the present value of the future taxes that are required to service the debt (the Ricardian equivalence point). Another dimension is the asset side of government balance sheets: funding growth-promoting investment is quite different from financing current consumption.

buying government bonds) may lower long-term yields without raising short-term yields, which are glued close to zero at the ZLB. But note that the corollary of the ZLB argument on its own is a policy asymmetry. Central banks may need to buy government bonds when at the ZLB if they want to stimulate demand. But they have no need to sell government bonds when they want policy to be restrictive – because all they have to do is raise the policy rate.

However, the conclusion about the effectiveness of debt management policies based on asset substitutability is much broader and more symmetric than the special ZLB case. Even in normal circumstances, when the policy rate is above zero, policy can be made to work more surely and more rapidly by acting in longer-dated markets. It therefore applies to policies of monetary restriction as much as to policies of monetary ease. The fall in bond yields in the early phase of Federal Reserve tightening in 2004–05 (the famous "conundrum" of Greenspan[10]), which weakened the restrictive impact of higher policy rates, could have been countered by longer duration debt issuance or by Federal Reserve sales of long-term bonds. How effective this would have been depends on the degree of asset substitutability.[11] It could be argued that a prevailing sense of interest rate predictability at that time and a banking system willing to take huge duration exposures would have made such a policy ineffective. This remains an open question. (As it was, the 2000–4 period was one when the maturity of US Federal debt shortened significantly adding further stimulus – see below).

There is no reason to expect the degree of substitutability between assets of different maturities to be constant over time.[12] In addition to uncertainty about

[10] See chapter 20 of Greenspan (2007) for an account of this. He says that low long-term interest rates reflected real economy saving and investment propensities globally. He does not address the question whether Federal Reserve sales of government bonds could have driven long-term yields higher.

[11] Hamilton and Wu (2010) consider a converse operation. They estimate that if the Federal Reserve had, in December 2006, sold all its holdings of short-term Treasury bills ($400 billion at that time) and used the proceeds to buy long-term bonds, this might have resulted in a 14 basis point drop in the 10-year yield and an 11 basis point increase in the six month rate.

[12] Agell and Persson (1992) argue that asset substitutabilities and the associated risk premia reflect the subjective risk perceptions of investors and so will not be stable over time. Historical return-covariance matrices miss "news" affecting market fundamentals. Their empirical

future interest rates, the ability of financial intermediaries to take duration exposures will also be an important determinant.[13] Both determinants are likely to change over the cycle. In a crisis, in particular, asset substitutability will fall not only because uncertainty about future interest rates rises but also because banks and others will be less able to undertake interest rate arbitrage operations. Indeed, impaired bank arbitrage capacity was one important justification for the exceptional balance sheet policies central banks followed in this crisis. Large fiscal deficits will also increase interest rate uncertainty, and therefore lower the substitutability between short- and long-dated debt securities.

A further complication is that Goodhart's Law will eventually apply to debt operations.[14] The central bank may virtually fix the yield of its target bond. But if central bank action is known to have concentrated on a particular maturity, then its information content is compromised. Investors may judge that such paper is overpriced relative to paper of other maturities, and therefore avoid buying it. In time, private sector contracts might avoid referencing an interest rate regarded as manipulated by the authorities.

Nor is there any reason to suppose that the degree of asset substitutability will be constant across countries. In particular, it is likely to be lower in smaller or less developed financial markets. Hence the central bank in such countries is more likely to intervene directly in several market segments.[15]

Changes in the yield curve will affect spending decisions. Holders of long-term debt will have capital gains or losses. In addition, increased holdings of

work supports these concerns: they are therefore very sceptical about the scope for debt management policy to affect yields in a predictable way.

[13] Other important determinants are: initial conditions (eg closeness of the long-term rate to its lower bound); the mandates given asset managers (eg value preservation versus fixing future income streams); accounting rules; and the regulation of financial firms. Changes in yields will also influence income flows to bond holders and lead to capital gains or losses. How banks, pension funds and other investors respond to such incoming effects will also be important – and very difficult to foresee. None of these elements is well understood.

[14] Goodhart's Law is "Any observed statistical regularity will tend to collapse once pressure is placed upon it for control purposes".

[15] On this see Filardo and Genberg (2010) and chapter H of BIS (2009). Actions to stabilise government debt markets (eg sharp shortening of duration of new debt issuance, facilities to allow bond holders to swap long-term fixed interest rates with short-term variable rates, relaxation of mark-to-market accounting rules) were prominent in several EMEs during the 2008 crisis.

government debt by banks can influence credit creation mechanisms and so have different implications for aggregate demand (and for the economy's response to financial shocks) than if such debt were held outside the banking system. It will also influence interest rate exposures in private sector portfolios. The exposures of financial intermediaries could have implications for systemic financial stability and are thus of potential interest to central banks.

2. Maturity transformation and financial stability

Michael Bordo and Lars Svensson argued persuasively in this conference that the short-term interest rate is important for macroeconomic stability but is not a central element in financial stability.[16] The long-term interest rate on government bonds, however, must be of significance for systemic stability because it defines the shape of the yield curve and serves as a fundamental benchmark for the pricing of assets generally. And the "search for yield" story is more plausible when long, rather than short, rates are very low. There are thus strong grounds for supposing that the yield curve on government paper could have implications for macroprudential policies – now the responsibility of central banks in many countries. The difficulty is that it is not clear which elements are likely to be most important in practice. Nor is it clear how these elements may interact.

There are at least three reasons why the shape of the risk-free yield curve (almost always that based on government paper) plays a key role in determining the risk exposures taken by the financial industry.

The steepness of the yield curve determines current returns (ie ignoring capital gains and losses) from borrowing short and lending long. It also affects the incentives of banks to lengthen the duration of their liabilities.

The level of long-term rates influences all asset prices by providing the discount rate to value the expected earnings of such assets. Other things equal, a reduction in the long-term rate, would tend to raise house prices, equity prices

[16] During the decade before the financial crisis there is no evidence that lower policy rates lead to increased risk-taking in the financial industry. Indeed, credit spreads were lowest after the Federal Reserve had raised the Federal funds rate to 5½%. See Graph 2, page 22 in BIS (2010).

and so on.[17] Hence the level of long-term rates is central to any analysis of asset prices.

The long-term rate provides the risk-free benchmark for financial firms such as pension funds to fund future long-term liabilities. When long-term rates fall, steady-state pensions decline.[18] Funds that cannot cut the pensions they pay may build-up hidden losses. Or they may invest in higher-risk, high return assets. Either way risk exposures could rise.

The conclusion is that the oversight of the financial system stability must weigh several, distinct implications for aggregate financial exposures of the long-term interest rate.

There are, however, no well-established methods of analysis for assessing – or even defining – the aggregate interest rate exposures of the financial industry. Maturity transformation is the core business of the financial industry. Yet there is no easy way to determine the optimal degree of maturity transformation in an economy. Nor is it clear how much of this banks should do.[19]

Notwithstanding this theoretical gap, one of the lessons many have taken from the financial crisis was that the banks were doing too much maturity transformation. In those countries where bank regulators had virtually abandoned statutory liquidity ratios, investment by banks in long-term and illiquid assets became too dependent on short-term borrowing. Once the crisis struck, it was governments and central banks which rescued banks with illiquid balance sheets. Hence the post-crisis policy prescription is that bank regulators should impose more demanding liquidity rules, with the aim of getting banks to lengthen the maturity of their liabilities (or shorten the duration of their assets) and pay greater attention to liquidity risks. Lowering the rate of interest on government bonds helps banks to issue long-term debt.

[17] At least in the short-run. In general equilibrium, factors such as Tobin's q, the rental/price ratio and so on would play an equilibrating role as asset prices diverge from their steady-state values.

[18] They will benefit from a one-time rise in the market value of their financial assets – but normally the present discounted value of their liabilities (which typically have a longer duration) would rise more.

[19] Tirole (2008) explains lucidly why current economic models which assume perfect capital markets do not address the question of liquidity satisfactorily.

Maturity transformation by other financial intermediaries, however, also plays an important role. Quite the opposite of banks, intermediaries such as pension funds and insurance companies have (uncertain) long-term liabilities (and assets of a shorter maturity). The analysis of Tirole (2008) sheds very useful light on this. In the presence of macroeconomic shocks that affect everybody simultaneously, he argues, private sector assets are not useful. Instead what is needed is an external risk-free store of value such as government bonds.[20] A prolonged period of low rates of interest on government bonds can make some pension products offered by such firms unviable. Tirole therefore argues that:

"liquidity premia [on] risk-free assets [is] a useful guide for the issuing of government securities both [in total] and in structure (choice of maturities) … a very low long rate signals social gains to issuing long-term Treasury securities. A case in point is the issuing by HM Treasury of long-term bonds in reaction to the low rates triggered by the 2005 reform of pension funds requirements."

As will be discussed below, Keynes also advocated "accommodating the preferences of the public for different maturities". It was, he argued, socially desirable that widows, orphans, university endowments and other worthy causes should get some minimum, safe return on their capital – so that the long-term rate of interest should not go to zero. (Nowadays, the argument would be in terms of pension and insurance fund assets.)

The question is how to translate the theoretical arguments of Keynes and Tirole into practical policy on government debt issuance. Keynes's prescription seems to have been that the government should gear its issuance policy in part to defining an upward-sloping floor for the risk-free yield curve. How to do this in present-day terms? To provide the required insulation from inflation shocks, inflation-linked debt would be best. One possible anchor, then, could be an elastic supply (tap) of inflation-linked papers of different dates (eg 5-year, 10-year, consols) with fixed interest rate coupons that rise with the paper's original maturity.

[20] Echoing Keynes, he writes, "risk-free securities are held not so much for their return, but rather because they deliver cash when firms need it: they are liquid in the macroeconomic sense."

The issue of how far the public sector should go in defining the terms of maturity transformation is extremely controversial.[21] But the fact is that government policies dominate the terms of maturity transformation in modern economies. Very large government debt defines the yield curve. Regulations have a pervasive effect. Many supervisory rules for financial firms in effect create a near-captive demand of regulated entities for government paper. In some countries, near-mandatory holdings by regulated financial firms are so large as to impair the information content of so-called "market" prices. Recent regulatory proposals (eg Basel III) aimed at encouraging banks to reduce liquidity risks are tantamount, in most countries, to getting banks to hold more government debt – simply because such debt is traded in liquid markets, is of low credit risk, and (unlike credit exposures to the private sector) holds its value during cyclical downturns.[22] The influence of government policies is also felt in many other ways. The terms of mortgage finance are heavily conditioned by state financing arrangements. Taxation practices are another potent element. The fact is that the role of government is in fact already very large, and has grown with the crisis. But this role is quite unconscious. The cumulative impact of the many official policies on the long-term interest rate needs much more analysis.

When bank holdings of government debt are very large, even monetary policy choices could be constrained. Substantial holdings of short-term bills could make banks less responsive to monetary control.[23] Holdings of long-term

[21] In earlier periods, the term structure of interest rates was regulated. In countries where interest rates on bank deposits were controlled, the regulations usually enforced (irrespective of the cyclical position of the economy) an upward sloping interest rate curve. This rewarded savers who are prepared to give up liquidity and place their funds at longer terms, which made the banks safer.

[22] Note, however, that the liquidity rules prevailing up until the mid-1970s generally enjoined banks to hold short-dated paper. For instance, UK banks were required to hold only short-dated government bills to meet their liquid asset ratios … long-dated government bonds did not meet the liquid asset rules.

[23] This applies in particular to those forms of monetary control that rely on liquid asset ratios. The UK authorities in the post-war authorities kept liquid asset ratios imposed on banks very high because of the large volume of short-term government debt held by banks. Forcing banks to remain very liquid also made them safer – and so served financial stability objectives. On the UK's experience, see Dow (1965), Chapter IX.

bonds expose them to the risk of capital losses. On this latter point, Eichengreen and Garber (1990) quote the Federal Reserve in 1945:

"A major consequence … of … increasing the general level of interest rates would be a fall in the market values of outstanding Government [bonds] … which could have highly unfavourable repercussions on the functioning of financial institutions and … might even weaken public confidence in such institutions."

They point out that operations had to be undertaken in the immediate post-war period to reduce the interest rate exposures of banks *before* the Federal Reserve could feel comfortable raising policy rates.

The current macroeconomic configuration is conducive to sizeable interest rate exposures in the financial industry. Prolonged monetary ease and structural fiscal deficits imply low short-term interest rates and upward sloping yield curves. Graph 5 charts the term spread in US dollar markets: there is currently a maturity spread of about 300 basis points (an attractive "carry"). Volatility in the bond market has been rather low. This means that backward-looking measures the banks use (based on volatility) suggest that the risk of holding bonds is low. The so-called carry-to-risk ratio is therefore high. This creates incentives for banks and investors to increase maturity exposures. As just noted, the market incentives created by a steep yield curve (which in turn reflects macroeconomic policy choices) run directly counter to recent microprudential policies aimed at getting banks to lengthen the maturity of their borrowing and hold more liquid assets.

Because virtually all firms are tempted to take the same risks ("herding"), there is also a very important macroprudential dimension. All firms will not be able to get out when expectations of future rates change – leading to "overshooting" in market interest rates or even illiquidity in interest rate hedging markets.

A final financial stability dimension is that the ability of banks and other financial firms to issue long-term paper is likely to be a major issue in the years ahead. Before the crisis, yields on bonds issued by financial firms tracked those on government bonds, with a spread of 100 to 150 basis points (Graph 6). A loss of confidence in banks as a result of the crisis led to a dramatic rise

in spreads. These came down gradually during 2009 only because of government guarantees. At present, bank yields are around 4½ % while short-term funding costs less than 1% – in other words the yield curves facing bank borrowers are much steeper than those facing governments. Recent issuance trends of financial firms are not encouraging. Financial institutions' long-term debt issuance in 2009 about one half what it had been from 2003 to 2008 – despite government guarantees. Net issuance was actually negative in the first half of 2010 (Table 2).

3. Central banks and debt management policies: a brief history

How governments decide to manage the financing of much-increased government debt will have major monetary and financial implications. There is no simple logical demarcation between such decisions and monetary policy.

Central banks in effect issue the shortest duration official debt in their operations to implement monetary policy. Government issuance of short-term debt is like monetary expansion.[24] Tobin (1963) puts this point well:

"There is no neat way to distinguish monetary policy from debt management, [both] the Federal Reserve and the Treasury … are engaged in debt management in the broadest sense, and both have powers to influence the whole spectrum of debt. But monetary policy refers particularly to determination of the supply of demand debt, and debt management to determination of the amounts in the long and nonmarketable categories. In between, the quantity of short debt is determined as a residuum."[25]

He went on to argue for the use of debt management (ie shifting between short-dated and long-dated paper) as a countercyclical policy to influence private capital formation, and thus real output. His conclusion was that:

[24] Rolph (1957) put it this way: "If short-term obligations possess stronger money characteristics than long-term public debt … shortening the average maturity of government debt becomes an inflationary measure."
[25] King (2004) makes a similar point that central bank purchase of bonds and the government shortening the maturity of issuance are virtually the same.

"The Federal Reserve cannot make rational decisions of monetary policy without knowing what kind of debt the Treasury intends to issue. The Treasury cannot rationally determine the maturity structure of the interest-bearing debt without knowing how much debt the Federal Reserve intends to monetise".[26]

The active use of central bank balance sheet policies has given new life to this very old issue. One aspect Tobin did not address might be noted: a central bank of a monetary area of several countries faces a special challenge because there is only one central bank but many different governments that decide debt management policy.

There is little new in the theory behind balance-sheet-augmented monetary policy. Open market operations in long-term government debt were central to Keynes's analysis in his *Treatise on Money* of how central banks could combat slumps. He argued for what he called "open market operations to the point of saturation":

"My remedy in the event of the obstinate persistence of a slump would consist, therefore, in the purchase of securities by the central bank until the long-term market rate of interest has been brought down to the limiting point."[27]

He felt that central banks had "always been too nervous hitherto" about such policies, perhaps because under the "influence of crude versions of the quantity theory [of money]."[28] He repeated this analysis in *The General Theory*:

"The monetary authority often tends in practice to concentrate upon short-term debts and to leave the price of long-term debts to be influenced by

[26] His suggestion was that full responsibility for Federal government debt management be assigned to the Federal Reserve, not the US Treasury.

[27] Keynes (1930), pp 331–2. One constraint he saw was that a central bank acting alone would simply induce capital outflows: he felt the newly established BIS could encourage internationally coordinated central bank efforts to reduce long-term interest rates. Per Jacobsson, Economic Adviser at the BIS at the time, also strongly supported policies aimed at reducing long-term rates.

[28] As Congdon (2007) notes, Keynes maintained this emphasis in *The General Theory:* "There are dozens of statements in *The General Theory* and other works by Keynes in which he criticised an exclusive focus on the short-term rate in the money market and urged the much greater importance of the long-term rates set in the bond market".

belated and imperfect reactions from the price of short-term debts – though … there is no reason why they need do so."[29]

He went on to suggest that the "most important practical improvement which can be made in technique of monetary management" would be to replace "the single Bank rate for short-term bills" by "a complex offer by the central bank to buy and sell at stated prices gilt-edged bonds of all maturities".[30] It is important to remember that Keynes was writing in the 1930s – when budget deficits were small and governments (obsessively!) Ricardian.

United Kingdom

There was a massive conversion of government debt to a lower coupon in 1932, which Keynes regarded as a "great achievement" for the Treasury and the Bank of England. Short-term rates were cut sharply. But his more general advice for aggressive central bank purchases of debt (or the equivalent change in issuance) went unheeded. Government debt remained long term: in the mid-1930s, only 3% of bonds had a maturity of less than five years and 86% of bonds had a maturity in excess of 15 years.[31] Nevertheless, thanks largely to debt conversion, long-term rates during the 1930s declined from 4½% to below 3%.

During World War II, low interest rates then became a key ingredient of wartime finance. In the closing months of World War II, with the UK facing huge government debts, Keynes, an influential member (with Meade and Robbins) in the UK Treasury's National Debt Enquiry (NDE), argued against the "dogma" of financing debt at long maturities. Governments should not "fetter themselves … to a counter-liquidity preference" but should accommodate the preferences of the public for different maturities. He recommended that:

"Interest rates [at] different maturities should … pay attention primarily to (a) social considerations in a wide sense; (b) the effects of Government policy on the market for borrowing by the private sector and the problem of controlling

[29] Keynes (1936), pp 206.
[30] Congdon (2010) draws attention to this discussion.
[31] Quoted from the Radcliffe Report by Capie (2010), pp 304. Other figures cited below are also from Capie.

the desired rate of investment; and (c) to the burden of interest charges on the Exchequer."[32]

The upshot of the NDE was that the policy of "cheap money", which began in the 1930s depression, would be reinforced post-war. Money market rates were reduced to ½% and a target of 2½% was set for the long-term rate. The reservations of the Bank of England were discretely muffled.[33] Meade dismissed the argument that this monetary policy would lead to excessive liquidity:

"… I tried hard to persuade Lucius Thomson-McCausland of the Bank of England that the correct criterion for an expansionist or restrictionist monetary policy was whether the total national expenditure was showing signs of declining or rising too rapidly. Beneath a general stability of the total national expenditure one could let private enterprise go ahead on its own … even though particular firms … would from time to time burn their fingers. But Lucius persists in thinking in terms of pools of what he calls 'flabby' money which rushes from commodity to commodity causing speculative booms and slumps, undermining confidence and thus leading to a general slump. He wishes to drain away such stagnant pools, keeping money what he calls 'taut'. But the danger is, of course, that the general process of keeping money 'taut' will maintain the rate of interest at an unduly high level so that there is a more or less permanent deficiency of total national expenditure."[34]

It is striking how well all this conversation over lunch in May 1945 foreshadows later discussions about monetary policy and speculative bubbles.

According to Meade (1990), Keynes argued in the committee that it was "socially desirable" that rentiers should get some return on their capital – and so

[32] Keynes (1945), pp 396–7. James Meade's diary provides an entertaining account of Keynes's dealings with Permanent Secretaries during the meetings of the National Debt Enquiry: "perverse, brilliant and wayward" Keynes, "who on the rate of interest was revolutionary in thought but very cautious in policy".

[33] See Fforde (1992) pp 335–337. Niemeyer's criticism of the Report of the National Debt Enquiry in 1945 was that "… [it] has not looked at all at the actual structure and market standing of existing medium and long-term debt … the argument that continuous borrowing gives the borrower command of the market can only be true if the borrower is able and willing to inflate."

[34] Meade (1990), pp 74.

the long-term interest rate should not go to zero.[35] Note that he listed controlling investment *before* limiting government debt serving charges.

In the years that followed the immediate post-war period, the policy objective became one of holding long-term interest rates down even as growth and investment strengthened. This shift in emphasis impeded effective monetary control. By 1952, the percentage of bonds with a maturity of 15 years or more had fallen to 63%. During the 1950s, this proportion was to fall further, prompting the Radcliffe Report to describe the huge supply of short-dated bonds as "a constant source of embarrassment to the authorities". The aim of maintaining stability in the bond market – not macroeconomic control – had become paramount for the central bank. HM Treasury, in its evidence to Radcliffe, was quite clear:

"No attempt is made to use official purchases and sales in the market for the specific purpose of raising or lowering the level of medium and long-term interest rates. The suggestion has been made that sales of longer-dated securities would be increased if they were offered at prices below the market. In theory, this might be possible for a time. In practice, such operations would create market uncertainty and so impair the prospects of continuing official sales of securities … Such operations would involve a serious risk of damage to confidence and to the Government's credit."[36]

Many of the economists who gave evidence to Radcliffe disagreed with this view. Several argued that a main effect of monetary policy on aggregate demand worked through the long-term interest rate. Richard Kahn (1960) reiterated the view that both Keynes and Meade had expressed in the NDE, namely that the:

"authorities … including the Bank of England … and those responsible for managing the national debt … are capable, within very broad limits, of achiev-

[35] Meade, who believed that investment was more interest rate sensitive than Keynes did, disagreed. His view was that the long-term rate of interest could be reduced to near zero to counter depression but should rise to meet any inflationary threat. His diary entry for 26 February 1945 reads: "in my mind the real social revolution is to be brought about by the most radical reduction in interest rates which is necessary to prevent general deflation". See Meade (1990), pp 46.

[36] Radcliffe (1960) *Memoranda of Evidence*, pp 107–8.

ing any desired structure of interest rates … provided they are not worried about the quantity of money."[37]

Paish provided very interesting graphical evidence that between 1919 and 1958 there was a clear inverse relationship between the bank deposits/national income ratio (ie the sensitive part of "money") and the long-term interest rate[38]: Paish thus argued that "money" influenced aggregate demand via the long-term interest rate. Harry Johnson argued that the Bank of England's technique of monetary control based on Bank rate implemented by open market operations in bills was not very effective. He therefore suggested that open market operations in bonds, not bills, should become the main weapon of monetary policy.

The key conclusion of the Radcliffe Report was that "the structure of interest rates rather than the supply of money [was] the centre piece of the monetary mechanism." In this, government debt management was to play a central role. The Report concluded with five main points. Among them a clear – and all-too-often overlooked – statement of the importance of the long-term interest rate as an objective of monetary policy.

"There is no doubt that … monetary policy … can … influence the structure of interest rates through the management of the National Debt which, if burdensome to the financial authorities in other respects [ie increasing debt servicing costs], affords in this respect an instrument of single potency. In our view debt management has become the fundamental domestic task of the central bank. It is not open to the monetary authorities to be neutral in their handling of this task. They must have and must consciously exercise a positive policy about interest rates, long as well as short.[39]

The Report argued that policy reliance on short-rates alone had proved ineffective. It noted that, in one tightening phase in the early 1950s, higher short rates

[37] Radcliffe (1960), *Minutes of Evidence*, pp 743. Papers submitted by Paish, Johnson, Kahn and Robbins are particularly interesting on this issue.
[38] Notes in circulation showed no such relationship. See Paish (1960), chart I. Laidler (1989), who described the Radcliffe Report as representing the high tide of Keynesian influence on monetary theory and policy in Britain, points out that Paish did not commit himself as to the stability of this relationship (and so not a monetarist in the modern sense of the term).
[39] Radcliffe Report (1959), pp 337.

were followed by higher long rates only after a long lag. This lag made the eventual movement in long rates procyclical, rising when the downturn was already beginning. It would have been better to have directly encouraged the rise in long rates right at the beginning of the tightening phase.[40] Moving all rates up improves the chances of timing countercyclical policy correctly.

The Report explicitly countered the Treasury view on the need to support by bond market by arguing that greater efforts "to foster greater understanding outside official circles … of the intentions of the authorities would reduce the risk of perverse reactions in the market [from bond sales]".[41] How well this advice foreshadows the modern emphasis on effective communication!

Their recommendation for greater activism in moving long-term rates, however, seems to have fallen on deaf ears. With government debt around 130% of GDP, it is perhaps not surprising the authorities were reluctant to countenance any rise in debt servicing costs. In any event, the Bank of England in the 1960s had little time for bond sales aimed at driving up long-term rates.[42] What is worse the authorities in later years actually resisted upward movements in market long-term rates caused by higher inflation or wider budget deficits.

Only the successive crises of the late 1960s and early 1970s put an end to such policy laxity. Monetary aggregates eventually became the centre of policy. Meeting broad money targets from the mid-1970s required not only massive increases in short-term rates but also substantial and regular sales of bonds at higher long-term rates (see Graph 3). A policy of overfunding budget deficits had the express purpose of driving long-term rates higher. The yield on consols rose to a peak of 17% (in November 1974), and did not fall to 10% before the early 1980s.

Whatever the pros and cons of broad *versus* narrow money to guide monetary policy, the broad aggregate at least focused official attention on the link between the financing of budget deficits and financial developments. With a

[40] Radcliffe Report (1959), pp 174–7.
[41] Radcliffe Report (1959), pp 209.
[42] Capie (2010) notes that the Chief Cashier (Fforde) in 1968 had "little time for Radcliffe-style sales of gilts far below the market level. To offer new stock at 7½ or 8% yield when the market rate was 7% was complete nonsense." The words underlined are those of Fforde (pp 471).

given fiscal deficit, controlling M3 by selling or buying government bonds was seen as practically the dual of a target for the long-term rate. Very high nominal bond yields prompted the government to issue index-linked bonds – a move that successfully saved the government paying an unjustified (ex post!) inflation risk premium.[43] (The introduction of inflation-linked bonds had also been proposed by the Radcliffe Report but this too was resisted.)[44]

Subsequent monetary policy was dominated by a major shift in fiscal policy. Debt management was progressively reformed. In 1990, HM Treasury explicitly committed itself a strong "no monetisation" or "full funding" rule for fiscal deficits:

"The authorities will seek to fund the net total of maturing debt, the Public Sector Borrowing Requirement and any underlying increase in the foreign exchange reserves by sales of debt outside the banking and building society sectors".[45]

Treasury bills (ie with a maturity of six months or less) were specifically excluded from counting as funding debt sales. In 1998 responsibility for government debt management was transferred from the central bank to a Debt Management Office.

United States

McCauley and Ueda (2009) have shown that a similar "bills versus bonds" debate took place in the United States during the 1930s. The monetarist criticism is that the Federal Reserve should have countered the depression by buying more Treasury securities (bills or bonds) to push short-term rates to zero and to provide the banks with excess reserves. The Keynesian view was taken

[43] This innovation was ordered in 1981 by Margaret Thatcher, who was enraged "at the Bank of England's judgement that the market would require a yield of nearly 16% on conventional 20-year bonds." See "The lessons from the indexed decade." *Financial Times*, 29 April 1991.
[44] In 1998, Barro constructed a model showing that issuing inflation-linked bonds would smooth tax rates in the face of GNP cycles. He also argued that persistent inflation shocks would make long-term nominal bonds more volatile than short-term ones. Hence the government would shift to short-term issues as the volatility of inflation rises. Missale takes a similar perspective: see the references in Missale (1999). Tax revenues rise with cyclical increases in income (real and inflation). Short-term interest rates are also procyclical. Hence short-term debt ensures tax revenue and interest payments move together.
[45] Enoch and Peters (1992), pp 266.

by the President of the Federal Reserve of New York who argued that purchasing bonds could "lower long-term rates, increase loans to foreigners and thus stimulate exports". As in the United Kingdom, this policy advice was not followed in the 1930s.

Wartime finance followed similar lines as those in the United Kingdom. The Federal Reserve's wartime mandate to keep long-term rates low and stable (at 2½% for 25-year Treasuries) ended only in 1951. In fact, an informal commitment prevailed for many years. Given a positively sloped yield curve, the objective of lowering interest payments has generally involved shortening the average maturity of debt or relying on floating-rate debt. The United States continued to rely to a significant extent on short-term debt for much of the 1950s and 1960s. Only from the mid-1970s, did the US Treasury begin a policy of gradually increasing the average maturity of debt. By 1980 the average remaining maturity of US government debt was less than four years (compared with more than 12 years in the United Kingdom).

The 30-year bond was first issued in 1977 and came to fund a significant proportion of Federal government borrowing. By the early 1990s, however, the US government was again arguing that shortening the duration of debt would produce significant savings on interest costs.[46] But the most notable phase of debt duration shortening was between 2000 and 2004 when monetary policy also turned more accommodative.[47] In October 2001, the US Treasury announced it would no longer issue the 30-year bond. This decision was criticised by bond market investors because it deprived them of a long-term, risk-free product that was a useful benchmark for corporate bonds. Against this, it was argued that flight-to-quality considerations (largely arising in the rest of the world) and dwindling supply had already undermined the usefulness

[46] See Campbell (1995). At present, the US Treasury aims to lengthen the maturity of its debt: see United States Treasury (2010).

[47] But there is no evidence for the period 1991 to 2009 as a whole that debt maturity reduction (Δ MAT) was closely related to changes in the Federal funds rate (Δ R):

$$\Delta \text{MAT} = 0.085 + 0.074\ \Delta \text{R}$$
$$(1.3) \quad (1.8)$$

A scatter plot shows that maturity tends to lengthen when the nominal Federal funds rate is rising. But the coefficient on ΔR is not significant at the 5% level. Further research would be useful on this question.

of Treasury bond yields in providing a benchmark for the pricing of other securities (Cecchetti, 2000). In any event, the average maturity of Federal government debt was reduced from 6 years, 2 months to just under 5 years in 2004. 30-year bonds were then reissued in 2005. By 2009, annual issuance had reached $140 billion, far greater than in the past (Graph 8).

4. The macroeconomic policy focus of debt managers

Decisions about the management of public debt have a pervasive impact on the economy.[48] The mandate assigned to the government debt manager could be defined in a way that makes it exogenous to macroeconomic and monetary developments.[49] The debt manager could be told, for instance, to ensure that the average duration of outstanding debt should always be round *x* years, subject to some (narrow) operational leeway. The efficient markets view of the world might condone such a mandate: debt management offices could not know better than the markets.[50] They would be told to do this irrespective of the current market configuration of interest rates.

In practice, however, the debt manager is usually given some discretion to minimise debt servicing costs in some way. In this case, its actions become endogenous to macroeconomic and monetary developments. And its discretionary actions would have macroeconomic consequences.

Debt managers could simply think of minimising average debt costs over a given horizon. If investing long is a wise investment strategy for a long-term

[48] The theoretical idea that households can neutralise government borrowing choices (ie saving more when the government dissaves) depends on strong assumptions that are unlikely to be satisfied. There is a Modigliani-Miller-type argument that the maturity of government debt is of no macroeconomic consequence. It is indeed more plausible to argue that the no-bankruptcy and perfect capital market assumptions (key to the MM result) are more likely to apply to governments than to private corporations. If the government can raise non-distortionary taxes and households have perfect foresight, the Modigliani-Miller theorem in a closed economy is that government debt management policy has no effects on the real economy – if the government can cover the losses it makes on taking the wrong decision by lump-sum taxes on the profits bond holders make from that decision.

[49] In recent years, responsibility for debt management has increasingly been assigned to independent managers: the Annex summarises this trend.

[50] On this, see Blommestein (2009).

investor (because of the term premium), then equally issuing short-term debt should in theory save the governments debt manager this term premium. Indeed, Piga (2001) reports that government do believe they can reduce the average cost of debt by shortening the duration of their debt. As noted in the Annex, this could be efficiently implemented with interest rate swaps (perhaps maintaining the appearance of long-dated issuance).

A more complex strategy would be to exploit historical interest rate patterns to decide in a discretionary way on duration.[51] This will not be easy: yields on bonds have shown wide long-term swings that are not well understood. But some patterns have been detected. For example, one important – and apparently robust – result quoted by Goodhart (1989) is that:

"With short rates moving down … the long rate on balance has tended to fall when the yield curve is upwards sloping … so that there are excess returns to be made by investing long when the yield curve is upwards sloping … the term structure [completely fails] to predict the future short-term path of interest rates …".

Conversely, the debt manager in such circumstances should – on this logic – issue short. A similar reasoning applies if market expectations about inflation or growth adjust too slowly to deteriorating economic conditions. (Auerbach and Obstfeld (2005) argue along these lines for central bank purchases of bonds in conditions of a liquidity trap.)

So far nothing has been said of the variance of expanded financing costs. Shortening the duration of debt in order to minimise the average cost of borrowing could increase the variability of interest payments in future years. Taking account of the variance of expected financing costs favours longer-term issuance. The variance of costs depends on the time horizon chosen. To put the point at its simplest: the variance of expected financing costs is minimised over a horizon of x years by issuing a bond with a maturity of x years. In addition, the creditworthiness of the borrower could deteriorate and increase refinancing risks.

[51] Hoogduin et al (2010) show that, in the euro area, a steepening in the yield curve leads national debt managers to shorten the duration of their issuance.

Such considerations worry a private sector borrower who cannot count on access to perfect capital markets in all circumstances. Moral hazard and adverse selection stemming from information asymmetries mean that even solvent private firms could face greater barriers to getting credit during a downturn. But governments do not face the same refinancing risks because of their sovereign power to tax and central banks can issue money.[52] As Keynes put it, a "counter-liquidity preference has more meaning for the private borrower than for the Exchequer." Woodford (2000) says that markets – irrespective of the logic of an intertemporal budget constraint for governments (which is debatable) – treat government debt differently from private sector debt because government debt "is just a promise to deliver more of its own liabilities … [cash being] simply government liabilities that happen to be non-interest-earning."[53] No private firm can do this.

Nevertheless, excessive dependence on short-term debt could have several drawbacks. It could complicate at least the communication of fiscal policy. It would make government debt service expenditure more sensitive to changes in short-term rates. In conditions of large debts to refinance, the budget deficit would thus become more volatile and uncertain – and this uncertainty could make it difficult for a government to communicate its fiscal strategy.[54] This problem would be exacerbated if markets were to see a higher risk of sovereign default as a result of increased interest rates.[55]

A second, and related, drawback applies to monetary policy. The prospect of increased debt servicing costs could lead to government pressure on the central

[52] This is an argument for *short-term* recourse to taxation or money expansion to forestall a refinancing crisis – it is NOT an argument about medium-term fiscal choices. In addition, the argument obviously only applies to local currency denominated debt. It would not be true where such sovereign powers are not strong enough to avert the risk of default on foreign currency debt.

[53] Equally it should be noted that calculations of short-term financing requirements of countries become very visible in the financial press during times of crisis – suggesting bond investors do focus on how refinancing risks differ from country to country.

[54] If debt levels are low, however, there is an argument that an increased dependence on short-term debt could offset cyclical movements in tax revenue – and thus stabilise the budget deficit. See footnote 43 above.

[55] In this case, the premium required to hold domestic government debt would rise. Blanchard (2004) points out that in this case, higher policy rates could perversely lead to currency depreciation and higher inflation.

bank not to increase policy rates. It may even weaken the effectiveness of changes in policy rates as an instrument to stabilise aggregate demand. This is because higher rates increase the net interest income of the private sector which holds the bonds. This stimulates private domestic demand but does not restrain government spending. In extreme circumstances, changes in the policy rate could have perverse effects, with higher interest rates actually stimulating aggregate demand. This was an important issue in some industrial countries in the late 1980s and early 1990s.[56] Many developing countries have faced a situation of monetary policy having perverse effects.

Severe or tail-risk adverse shocks could well aggravate these fiscal and monetary complications. The exceptional shock to global demand in the 2007 financial crisis is one example. A loss of confidence could lead to a sharp rise in borrowing costs that could require a huge adjustment to either taxes or non-interest spending. Massive monetary easing would be required to offset deflationary forces. But it would be hard to know in advance how large "massive" would be – so the central bank could make a policy mistake. Governments may wish to avoid such outcomes. (Another, more political, aspect is that the electoral cycle could lead governments to take short-sighted financing decisions which generate immediate budgetary savings but create longer-term exposures. In some instances, a heavy refinancing burden could await an incoming government.)

The third, and perhaps decisive, argument applies to financial stability. As Keynes argued, the government acts as a stabiliser when it adapts to the (shifting) liquidity preference of the public. Market participants need a risk-free yield curve to manage their own maturity transformation risks. Pension funds and life insurance companies, for instance, need very long-term bonds to hedge long-term liabilities. Concentrating issuance at the short end, or driving long-term rates to near zero, would sacrifice this stabilising function.

[56] Italy faced this situation in the late 1980s. A BIS report of a meeting in 1991 noted that this was a real issue. "Appropriate degrees of monetary tightness might lead to undesirable increases in the budgetary costs of debt service. This could obviously work against budgetary consolidation and fiscal sustainability; in the extreme it might even mean that the net aggregate demand effects of monetary tightening could become perverse." See BIS (1992).

These macroeconomic considerations suggest that a long duration portfolio of debt in normal times is therefore desirable. But this does not weaken the case for adjusting duration in response to exceptional cyclical developments. Indeed a government with long duration debt at the onset of a crisis is better placed to conduct countercyclical duration shortening than one which enters a recession with short duration debt. Exactly as budget surplus in good times increases the room for fiscal manoeuvre in bad times!

5. Transmission channels[57]

(i) Long-term interest rate

The traditional macroeconomic view is that lowering the average maturity of government debt has the effect of reducing long-term interest rates facing private borrowers. This works through the portfolio rebalancing channel – which, as argued above, depends on the imperfect substitutability of assets of different maturity. It also depends on the willingness of banks to do interest rate arbitrage. Higher asset prices have wealth effects and, by making some financial assets more reliable for posting as collateral, may ease borrowing constraints. The policy entails monetary expansion. Again, these are very old questions. Several empirical studies conducted before 1960 formulated this issue in terms of the question: how much must the volume of money increase in order to reduce the bond yield by one percentage point? A J Brown's answer in 1939, based on pre-war UK data, was 20%. A M Khusro's answer in 1952 was a range of between 10 and 30%. R Turvey's 1960 study based on US data found that it took a 10% increase in money to lower the bond yield by one percentage point.[58]

Lower long-term rates increases asset prices and aggregate demand (Tobin, 1963). But there has, over the years, been little consensus about the magnitude of these effects. Most early estimates of term structure equations, for instance, found it hard to detect any significant impact of changes in the relative sup-

[57] A reminder: this paper does not seek to address the implications for banks of central bank actions in short-term interbank markets.
[58] As reported in Dow (1965), pp 307, which contains the full references to the papers cited.

plies of short-term or long-term government bonds – perhaps because of too little variation in asset supplies.[59]

Simulations with large scale econometric models, however, suggest that such effects could be of practical significance. One of the earliest studies is that of Ben Friedman (1992). He used a combination of the MPS (MIT-Penn-SSRC) quarterly econometric model of the US and a model representing the determination of interest rates in four separate maturity submarkets for US government securities. He shows that:

"… a shift to short-term government debt lowers yields on long-term assets … and in the short run stimulates output and spending … the stimulus being concentrated on fixed investment."

The transmission mechanism (in his paper) worked through the corporate bond yield: lower bond yields stimulated business investment, reduced mortgage interest rates and the dividend-price yield. He found that a $1 billion per quarter shift from long-dated to short-dated debt would reduce the long-term government bond yield by 55 basis points. Note that this amounted to a reduction of one-fourth in the outstanding quantity of long-term Treasuries at that time – an operation that would today require many billions of purchases. This would increase real residential investment by almost 7% and investment in equipment by 2.5%: real GDP would rise by 1%. Corporate profits rise by 5%, and equity prices increase by 4%.[60] These results provide a quantification of Tobin's earlier theoretical argument that shortening the duration of government debt would stimulate capital formation and growth.

[59] Some recent studies seem to find significant supply effects: see Krishnamvrthy and Vissing-Jorgensen (2010).

[60] See Table 13.1 of Friedman (1992). Note that the assumption about monetary policy in his simulation differs from recent studies of the impact of Quantitative Easing in the US and the UK: he assumes the growth rate of M1 is fixed so that the Treasury bill rate rises as short-dated paper replaces long-dated paper. The yield curve flattening is therefore larger. The Treasury bill rate rises by 67 basis points. Hence the yield curve flattens by more than a full percentage point.

(ii) Exchange rates[61]

Domestic official purchases to lower long-term yields should shift portfolio demands from domestic to foreign assets. The resultant capital flows into higher-yielding foreign assets will tend to limit the decline in local yields. This should induce currency depreciation, which would reinforce the impact on aggregate demand noted in (i) above. In a small country with a tightly managed exchange rate link to a large country, long-term yields would change little. In the case of US policies aimed at lowering US yields, Neely (2010) finds evidence that, following US quantitative easing, yields on non-US bonds also fell by 45 basis points (compared with the estimated 90 basis points for US Treasuries) and the dollar depreciated by 5%. Hence a country acting alone gets some additional stimulus from currency depreciation. But if other countries also adopt more expansionary policies – perhaps in order to limit currency appreciation – it benefits from increased exports.

Large-scale foreign official purchases of US Treasuries also drive down long-term yields, reinforcing the impact of the Federal Reserve's QE. But the impact on the exchange rate would have the opposite sign – at least to the extent that the alternative for foreign official purchasers would be increased purchases of non-US debt securities (eg bunds or gilts). The dollar would tend to appreciate as foreigners buy US bonds. Hence the combined impact of both foreign official and Federal Reserve purchases of US Treasuries on the exchange of the dollar is of uncertain sign. Relative magnitudes may provide some guide. At end-2009, the Federal Reserve held under $800 billion of US Treasuries; the reported direct holdings of foreign official institutions were $2.7 trillion.

The governments of countries that share a common monetary area (eg the euro area) may take advantage of their independence in debt management policies to offset their lack of monetary policy independence. Hoogduin et al (2010) draw attention to a coordination problem that is specific to the euro area. They find evidence that a steep yield curve prompts debt managers in individual

[61] This section does not address the wider issue of the impact of fiscal deficits on the real exchange rate. In the short run a fiscal deficit may lead to real appreciation but a rise in the debt-dependent risk premium suggests real depreciation in the long run. See Kugler (1998).

countries to shorten the maturity of their debts. A government in a small country might not see this as increasing its own refinancing risks.[62] But if several countries act in this way it does increase refinancing requirements for the euro area as a whole. This will serve to increase the speed of transmission of shocks in one country (Greece recently) to other countries seen as sharing similar exposures. They conclude on "the need for coordination … to limit the use of short-term debt". This was not covered in the Maastricht Treaty.

6. More activist debt management policies …

The main conclusion of the last section was that debt management policies could well be adjusted to serve fiscal, monetary and financial stability objectives. It would be quite wrong to conclude, a priori, that such adjustments necessarily amount to policy laxity. Fiscal policy goals could be made more ambitious. Stimulating demand by shortening the maturity of government debt could increase the room for cutting non-interest expenditures. This would permit a faster reduction in budget deficits. Financial stability policy objectives could also be furthered. Debt management operations could encourage banks to borrow in capital markets at longer duration – reducing their exposures to maturity risks. But financial stability could also be undermined if long-term rates are pushed too low (the Keynes/Tirole arguments, overvalued asset prices etc).

Altering the long/short mix of government debt issuance on macroeconomic or prudential (as well as cost-effectiveness) grounds would require significant changes to the rules – on limits, on timings of changes etc – that govern debt management policies. At present, such policies in most countries seem to have a narrower, more technical focus – although, as argued above, they still respond endogenously to macroeconomic developments. How a broader focus that is attractive in theory would work in practice is difficult to judge. Difficult or not, governments faced with financing such massive debts will ask this question.

[62] A private corporation would, however, be more cautious about refinancing risks. And investors in government bonds do worry about refinancing risks.

One central empirical question is unresolved: how far would changing the pattern of issuance (eg increasing short-term portion and lowering the long-term portion) help to flatten yield curves? It all depends on the strength of portfolio-balancing effects because, as noted above, short-term and long-term debts are imperfect substitutes. For the reasons discussed above, substitutability will not be uniform either across countries or over time. The experience of one country will not necessarily be a good guide to what would happen in another country. What works in one episode will not necessarily work in another. In times of crisis, in particular, asset substitutability may well fall (because of greater underlying uncertainty and banks less able to take interest rate risks) so that stronger price movements could help policymakers.

Policy implications will differ accordingly. If the impact on yield curves is very small, then the short-run fiscal dividend can be significant because the potential impact on government interest payments of replacing higher-yield long-dated paper by low-yield short-dated paper will be large. If the impact on long-term rates is very great, then the government's action will be partly self-defeating in that it will shift the yield curve in a direction that limits the impact on government interest payments.

But a big effect on the yield curve might serve the other public policy purposes. A successful attempt to bring long-term rates down would stimulate aggregate demand and might help financial stability. Even the announcement of such a policy could influence market interest rates by signalling the future financing intentions of the government. This could happen well before the structure of outstanding debt actually changes very much.

… or central bank balance sheet policies

All this of course sounds very like QE by the central bank. Operations in debt markets work by changing the size or composition of official sector debt held by the private sector. The purchase of long-term government paper by the central bank which issues short-term debt is fundamentally equivalent to the government shifting from long-term to short-term issuance. Internal Treasury/central bank book-keeping operations do not alter this.

Recent studies measuring the impact of QE are summarised in Table 3. The impacts estimated by various studies seem to vary significantly. Gagnon

(2009) notes that recent empirical studies of the impact of Federal Reserve purchasing of long-term assets produce estimates of a similar size to earlier studies of comparable changes in Treasury debt issuance.[63] Bean et al (2010) note that UK asset purchases did not affect the expected path of the Bank of England's policy rate – hence the primary effects must have been through the portfolio re-balancing channel (as Tobin, Friedman and others argued in their early analysis) and not through the signalling of future policy rate intentions.[64]

What matters is how radically changes in central bank purchases (or Treasury issuance) alter private sector portfolios. Buying very short-term Treasury securities has little effect because such paper is a close substitute for money. Buying long-term government debt, which is less close as a substitute, will disturb private sector portfolios more fundamentally. Hence the portfolio rebalancing effects will be larger when longer-dated paper is purchased.

Are there any qualifications to the fundamental equivalence of Treasury and central bank action? Some worry that central bank losses from declines in the market value of government bonds could weaken the central bank. In principle, central banks need not worry about a subsequent market value loss of government bonds they purchase because it is exactly offset by a reduction for the government in the market value of its debt. The net effect for the official sector as a whole is nil.

Another qualification would be if book-keeping operations were to actually influence behaviour. It is not difficult to conceive of such circumstances. For instance, central bank purchases could encourage governments to believe they could finance larger budget deficits. The market's judgement of a central bank's ability to act – and thus its credibility – could be constrained by its balance sheet. And political economy considerations could be important. Ueda (2003) stresses the political constraints on government that are not captured by the consolidated balance sheet of the central bank and government. Because of the diversity and complexity of interests which come into play in the govern-

[63] He finds that $1 trillion of purchases drives down long-term yields by 39 basis points and that such effects appear to be long lasting.
[64] They cite Joyce et al (2010). They also discuss other UK studies: Meier (2009) finds that the Bank of England's £125 billion purchase of long-term bonds reduced longer-term bond yields by between 40 and 100 basis points.

ment budgetary process, the Treasury prefers the transfer of a stable stream of profits from the central bank.[65]

A second qualification is that operations with banks conducted by the central bank and those with the non-bank public conducted by the Treasury may have different effects. Such differences, however, depend on how the non-bank public changes its bank balances in response to Treasury sales.[66] If it simply reduces its bank deposits then the effects are similar as operations vis-à-vis banks. This merits further research, however.

A third qualification, and perhaps of most significance, is that the Treasury/central bank signalling effects might be different. Central bank action sends a signal about future policy rates. Much recent research has focused on this. But debt management decisions also send a signal about the nature of future Treasury financing. Both could trigger powerful expectation effects. But there may be another difference in signalling. The financial press may give inordinate coverage to central bank actions (as with the Federal Reserve's QE in November 2010) – but overlook the equally important but less visible actions of debt management offices.

Which institution should take the lead in activist debt management policies?[67] The case for the central bank doing so is that such operations have effects that are similar to those of monetary policy. Quick decision-taking is essential to ensure correct timing with respect to the cycle – otherwise such measures could be destabilising. This also suggests the central bank. A central bank's technical capacity in market operations points to a similar conclusion. Indeed, Goodhart (2010) argued that a review of central banking through the years

[65] Ueda (2003) writes: "The single year budgeting principle and the diversity and complexity of interests within the government give rise to huge inter- and intra-ministry negotiation costs when reshuffling is required between different categories of expenditure and revenue … Compensating for any shortfall [in transfers from the central bank] with other revenue items would inevitably entail adjustment costs … More seriously, the government may take advantage of the opportunity of capital injection to the central bank to influence monetary policy." Klüh and Stella (2008) provide cross-country evidence that a strong central bank balance sheet helps the achievement of lower inflation.

[66] See Congdon (2010) and Box 1 in McCauley and Ueda (2009).

[67] It is interesting that Milton Friedman, in commenting on an earlier version of Congdon (2010), did not say this was a fiscal responsibility, but instead said that the central bank could perform such operations.

suggests that the essence of a central bank is not setting official rates. It is instead its ability to lend via open market operations. Exactly which assets it should buy and sell is controversial and has in practice changed radically over time.

The case against the central bank taking the lead is that the independence of monetary policy could be undermined by perceptions that the central bank is supporting the price of government debt. A second argument is that debt management choices can have distributional consequences – and so are the responsibility of an elected government. (But monetary policy also has distributional consequences.) Whether activist debt management policies make a profit or a loss should not influence the allocation of responsibility because any capital gain the central bank earns from QE can be transferred to the government.

It was noted above that, when debt management practices were constrained by benchmarks, rules could be devised to alleviate the problem of coordination with monetary policies. But activism in both debt management policies by the Treasury (or DMO) and central bank balance sheet policies would create coordination problems. A central bank could not take optimal decisions in response to macroeconomic developments if it did not take account of how the Treasury would respond. It would also pose a major governance issue about responsibilities and accountabilities. As Truman (2005) has argued, the two agencies managing a common balance sheet must work closely together.

On this logic, cooperation between the central bank and the Treasury should not be constrained by rather arbitrary rules of thumb.[68] The debate turns on the practical question whether such rules, given political or institutional constraints, could serve to forestall short-sighted policies that weaken accountability mechanisms that hold specific institutions to their mandates. This important practical question is beyond the scope of this paper.

[68] His trenchant words, pre-dating recent central bank balance sheet activism, are worth quoting: "The proposition that a central bank should limit its purchases of long-dated government debt because not to do so would impair its balance sheet and de facto independence [is incorrect] … as long as the central bank purchases long-dated government obligations in the open market, and has no obligation to roll them over, the central bank should have no legislated or self-imposed limit on the amount of such obligations it may purchase." But see the counter-argument of Ueda (2003), cited in footnote 64 above.

Without coordination, QE operations decided by the central banks could well be contradicted by Treasury financing decisions. According to a report issued in August 2010, however, the US Treasury has been lengthening the average maturity of its outstanding debt (after steady declines from 2002 to 2007) – which is difficult to square with the objectives of QE.[69] When the Federal Reserve used open market operations to flatten the yield curve by shortening the average maturity of Treasury debt in the 1960s (Operation Twist), the US Treasury in effect worked against this policy by lengthening the maturity of issuance.

Both the adoption of, and exit from, QE would require coordination with the Treasury. If the aim is to stimulate aggregate demand, government debt management policies should not cancel out the effect of QE operations. If the aim is to adjust the central bank's balance sheet without weakening aggregate demand (eg as might be the case for exit from QE), then debt management policies could well offset central bank sales or purchases of government bonds.

It is therefore essential to examine recent QE in conjunction with government debt management policies. Some historical perspective is also illuminating. Because measures recently adopted have taken so many diverse forms (reflecting the specific features of this crisis), it is not possible to do this with any precision. Nevertheless, updating the first table in Tobin's 1963 paper – which summarised the structure of Federal government debt in the hands of the public – provides an illuminating bird's-eye view. See Table 4. At the end of World War II, US government debt was mainly long-term: in 1945, the mean maturity of the marketable debt was just short of 10 years. But for the 30 years following the war, the US Treasury relied on short-term borrowing. In 1955, 45% of the debt was financed by currency, central bank obligations and short-term government debt – often dubbed "monetary financing".[70] By the end of

[69] See US Treasury (2010a). See Friedman (1992). Congdon (2010) argues that the Japanese Ministry of Finance also continued to sell vast quantities of long-dated paper during the quantitative easing period 2001 to 2005. See also McCauley and Ueda (2009).

[70] Hoogduin et al (2010), for instance, describe the case of the Netherlands: "In the 1980s, government debt finance was an explicit part of the monetary analysis of De Nederlandsche Bank … when the government financed part of its debt in the money market, it was considered monetary financing, which would increase the amount of liquidity in the economy."

the 1960s, monetary financing has risen to 65%. From 1976 until 1990, however, greater reliance began to be put on issuing long-term debt.[71]

With the adoption of QE after the crisis, however, reliance on short-term debt and Federal Reserve obligations has been increased. Between the end of FY2007 and the end of FY2009, currency and Federal Reserve obligations rose by $946 billion; short-term marketable securities outstanding increased by about $1,031 billion. This clearly represents a very significant easing of policy. The degree of monetary financing in the first two years of the crisis went from 34% to 42.9%. But note that the degree of monetary financing – as measured in these simplistic terms – is much less than in 1969. The longer duration of debt at the beginning of the crisis gave the authorities greater scope to pursue an ambitious QE policy. In addition, the calculation suggests that the degree of monetary financing declined from 42.9% at end-September 2009 and to 35.8% at end-September 2010. This reflects an underlying shift in Treasury issuance away from short-term paper and towards long-dated paper, thus the maturity of Treasury debt issuance policy, then, changed in a restrictive direction in the third year of the crisis.

On 3 November 2010, the Federal Reserve announced a special programme to buy between $850 and $900 billion longer-term Treasury securities. The announcement was remarkable for the detail provided to the markets in the interest of transparency: see Box 2. This number sounds very large. It is, however, not possible to assess the impact of this without considering changes in Treasury issuance policy. This is not straightforward. There is a wide array of maturities (not just short versus long) and this makes it difficult to construct a detailed consolidation of central bank and Treasury balance sheets.

[71] The post-war minimum in average maturity was reached in January 1976 when it reached just 28 months. See Friedman (1992) pp 111–2.

Box 2

QE 2 by the Federal Reserve

The FRBNY announced on 3 November that it expects to purchase $850 to $900 billion of longer-term Treasury securities before the end of June 2011. It expects that the assets purchased will have an average duration of five to six years. The 35% limit on Federal Reserve holding of specific issues, under which the Open Market Trading Desk had been operating, would be relaxed.

The press announcement said that the Desk plans to distribute purchases across maturity ranges according to the approximate weights below:

5%: 1½ - 2½ years

20%: 2½ - 4 years

20%: 4 - 5½ years

23%: 5½ - 7 years

23%: 7 - 10 years

2%: 10 - 17 years

4%: 17 - 30 years

3%: TIPS

Purchasing mechanisms were spelt out in a very transparent way. The results of each operation will be published on the FRBNY's website shortly after each purchase operation has concluded. The Desk will also begin to publish information on the prices paid in individual operations at the end of each monthly calendar period, coinciding with the release of the next period's schedule.

From September 2007 to September 2008, US Treasury bills held by the public had risen from $1.2 trillion to $2 trillion – a significant monetary expansion. The average duration of debt fell from 4 years 10 months to just over 4 years. But from mid-2009, debt issuance policy changed in a restrictive direction. Short-dated bills declined and long-dated bonds expanded, with the

average duration of total marketable debt rising to almost 5 years (Table 5). Bonds in the hands of the public rose from $4.6 trillion at end-June 2009 to $6.7 trillion at end-September 2010. The percentage of US Treasury debt maturing in the next 12- and 24-month periods has fallen to historic lows. The $850–900 billion Federal Reserve purchases has to be considered in this context. It must be measured against the composition of the expansion in Treasury bond issuance (and of bill issuance) over the period up to June 2011 needed to finance a large budget deficit. At present, this is unknown.

However, the minutes of the latest meeting of the Treasury Borrowing Advisory Committee (which met on 2 November 2010) noted:

"Overall, the Committee was comfortable with continuing to extend the average maturity of the debt … The question arose regarding whether the Fed and the Treasury were working at cross purposes … It was pointed out by members of the Committee that the Fed and the Treasury are independent institutions, with two different mandates that might sometimes appear to be in conflict. Members agreed that Treasury should adhere to its mandate of assuring the lowest cost of borrowing over time, regardless of the Fed's monetary policy. A couple members noted that the Fed was essentially a "large investor" in Treasuries and that the Fed's behavior was probably transitory. As a result, Treasury should not modify its regular and predictable issuance paradigm to accommodate a single large investor."[72]

Almost all recent press commentary on QE ignores this critical point about the need to take account of Treasury issuance policy. A temporary change to the yield curve induced by central bank action may lead the debt manager to alter its issuance policy to take advantage of what it might view as a temporary interest rate "distortion". Ironically, part of the discussion in the Treasury Committee centred on whether further shrinkage of bills issuance, at a time when private issuance of short-term debt securities had declined, could lead to difficulties of market functioning.

[72] See US Treasury (2010b).

7. Conclusion

Public sector debts in the advanced countries are going to be very large for several years. This could have big implications for how central banks set monetary policy. The issue is not fiscal dominance in the simplistic sense of "inflating away the debt". But there is a more subtle dominance that comes from increased uncertainty about the equilibrium long-term interest rate on government debt.

Economists do not agree on the magnitude of the impact of structural budget deficits on long-term interest rates. In addition, there is an important political issue. The desire to save debt servicing costs is likely to prompt a major re-examination of policy frameworks that guide government debt management policies. More activist debt management policies aimed at keeping long-term interest rates low during a period of weak or uncertain growth could well be warranted on macroeconomic grounds. Indeed, Keynes argued strongly for such policies at the start of the 1930s.

Economists throughout the post-war period have periodically argued for lengthening the duration of bonds in the hands of the public (ie not the central bank) in order to raise long-term rates to combat inflation. The *Radcliffe Report* was quite explicit that the central bank should push up the whole yield curve when it wanted to tighten monetary policy. Tobin argued in the 1960s that shortening the maturity of government debt would increase private capital formation, a result confirmed by Ben Friedman's simulations in the early 1990s. Combining fiscal consolidation with significant reductions in the duration of government debt may well be an attractive strategy for governments struggling to reduce large budget deficits without killing the private capital formation on which future growth prospects depend.

The case for central bank transactions in long-term debt markets, rather than an acting only in the short-term bills market, is that a rise in investor uncertainty about the path of future short-term rates will reduce the substitutability between short-dated and long-dated paper. In such circumstances, central banks may more efficiently guide markets if they act across the maturity spectrum. This case for such action, which is broader than the special case of the ZLB, applies symmetrically to monetary restriction and to monetary expansion.

Central banks will also have to weigh the consequences for financial stability. A policy orientation aimed at keeping long-term interest rates low for a prolonged period of time is going to increase aggregate interest rate risks in the financial industry. How to analyse the financial stability risks that such exposures entail is unclear. But such exposures seem likely to have financial stability consequences that will directly impinge on the new, broader mandate of central banks. In theory, it is possible that central banks can adjust regulatory policies ("macroprudential") that limit the maturity exposures that low interest rates encourage. In practice, however, regulatory action partly geared to macroeconomic conditions will be difficult to calibrate and to implement – and may even weaken the responsibility of financial firms for managing their own exposures.

By putting balance sheet policies at the centre of their operations in the current low-interest-rate environment, many central banks – not all of course – have implicitly accepted the logic of Keynes's position. The recent evidence suggests that balance-sheet-augmented monetary policy has been effective. But most studies fail to take account of changes to government debt management policies which are equivalent to central bank transactions in government debt. In addition, there are reasons for thinking that the size of such effects, depending as they do on the cyclically sensitive degree of asset substitutability, are likely to be unpredictable. In addition, an upward sloping yield curve can increase the banking system's demand for government bonds – but this effect, highly dependent on expectations, is also hard to predict.

The appetite of large forex reserves holders in Asia and other EMEs for low-risk dollar debt has also put downward pressure on long-term yields. This heavy weight of official investors may also have reduced the price sensitivity of the demand for such bonds in the short run.[73] Because many central banks accumulating reserves have not followed strict "no monetisation" rules (cf the UK Treasury's full funding rule cited above), this intervention has entailed monetary expansion. The controversy concerns just how much monetary ex-

[73] Noting that foreign official bodies are the registered holders of almost 40% of US Treasuries, Krishnamurthy and Vissing-Jorgensen (2010) find evidence that official investors are less price sensitive than private investors. However, foreign official holders did move from short-term bills to 10-year Treasuries as short rates fell from September 2008.

pansion reserves accumulation has entailed since there is no widely agreed way of measuring "monetisation". In addition, low long-term rates at the centre of international monetary system in turn influence the pricing of debt (and asset prices generally) in the EMEs, leading to local policy reactions.

Measuring the joint impact of these two, quite distinct policy orientations is, for all these reasons, impossible. Hervé Hannoun (2009) suggests, as a rough-and-ready calculation, adding central bank assets in advanced economies (panel A in Graph 9) to foreign exchange reserves of the major EMEs (panel B). On this calculation, what he terms "global official liquidity" has risen from about $7 trillion in mid-2007 to around $12 trillion by mid-2010.[74]

Official support on this scale is not sustainable. The intention of central banks in the advanced economies to shrink their balance sheets to more normal levels once circumstances permit has been well advertised.

Yet the reassuring argument that only once-in-a-century circumstances led central banks to such policies is unconvincing. Monetary history is full of periods when investors become unusually uncertain about the path of future short-term rates. A very large rise in government debt accentuates such uncertainty. Financial stability considerations point to the same conclusion: the sizeable interest rate exposures of systemically important financial intermediaries may also be used as an argument for resisting sudden upward movements in the long-term interest rate during the exit from QE – so that central banks may simultaneously be raising the policy rate and yet still be active in supporting the market for government bonds. Even when the current policies have been reversed, future periods of macroeconomic weakness may well lead to pressure for their reinstatement. Balance-sheet-augmented monetary policy once billed as exceptional may instead come to define a new starting point … or, to be more accurate, to return to some earlier paradigms of monetary policy.

There is, therefore, a need to develop a policy framework for official actions motivated by macroeconomic considerations that affect the maturity structure

[74] Hannoun warns strongly against a "new permanent accommodative monetary policy regime in which central banks would be able and willing to control the entire length of yield curves as well as credit spreads and mortgages rates".

of government debt. Without such a framework, even rational policies that economic theory suggests will work may just deepen uncertainty. Markets need to understand what governments or central banks are trying to do.[75]

How should the objectives of such policies be formulated? The target could be specified in terms of quantities or of prices. Operations could be spread across the maturity spectrum (to minimise distortions along the yield curve) or could focus on specific maturities. Operations could concentrate on medium-term paper (so that the bonds automatically run off the central bank's balance sheet earlier) or very long-term paper. It might be necessary to indicate in some way the conditions that would trigger the adoption (and the reversal) of such policies. The "real intention" of policy may be quite complex, and a central bank might find itself having to communicate simple if not fully accurate messages. Should such policies be symmetric, to be used to achieve or to accelerate macroeconomic policy tightening as well as easing? Historically there has been strong official resistance to central banks selling bonds when governments have heavy debts to refinance: governments often want to keep debt service costs down at all costs. What is the division of responsibility between the Debt Management Office (or Treasury) and the central bank? Should Debt Management Offices be more transparent, for example revealing how changes in their derivatives positions have altered their interest rate exposures? It is not difficult to think of many other questions. The problem with all policy innovations (particularly those decided in the heat of a crisis) is that they can create additional uncertainty for the private sector.

The lack of a well-articulated policy framework could be particularly dangerous if very large structural budget deficits were to weaken the policy credibility of governments and central banks on all fronts. Long-term rates are all dependent on expectations – about future fiscal deficits and debt levels, about their financing and about the anti-inflation commitment/efficacy of monetary policy. Greater and asymmetric activism to address immediate difficulties could ultimately destabilise countries with weak macroeconomic credibility (fundamentals or history). When monetary tightening is needed to resist infla-

[75] Blommestein et al (2010) note that discussions in April 2010 at the OECD-WBG-IMF's Global Bond Market Forum underlined the importance in current circumstances of massive government bond issuance of "managing investor uncertainty".

tionary pressures, central banks may in some circumstances wish to reinforce increases in the policy rate with sales of government bonds so that long-term rates also rise. Deciding on the volume and the timing of such sales will be difficult. Coordination with government debt management policies that are not in the hands of the central bank will create challenges not only in the implementation but also in the communication of policies affecting the consolidated balance sheet of government and central bank.

This paper has tried to show that this issue is in fact a very old and controversial one that economists and policymakers have grappled with for years. It is an intricate issue that has multiple ramifications. It calls into question three widely-held assumptions about economic policy listed at the beginning of the paper. There are no simple answers. Such complications could perhaps be ignored when fiscal positions were stronger. But when government debt/GDP ratios are very high, they cannot be ignored. To answer the question of this Symposium, a useful central bank will be one that addresses these complexities.

Annex

Responsibilities for government debt management

Until the mid-1990s, it was central banks which generally had responsibility for managing the day-to-day operations in government debt securities. There were very good rationales for this. Their daily operations in financial markets normally give central banks deeper market intelligence than Treasuries. Government debt operations affect money market conditions in which central banks operate for monetary policy purposes. These operations also influence the balance sheets of banks, and thus can affect changes in aggregate credit, another traditional focus of central bank monetary policy.[76]

The problem of course is that any mandate for keeping yields down (or limiting volatility) can conflict with the monetary policy need to adjust interest rates in the light of changing economic conditions. Even if the central bank resists such a temptation, market perceptions of such a conflict could affect inflation expectations. Another conflict of interest is that advanced knowledge of its interest rate decisions could induce a central bank to bring forward bond issuance ahead of raising interest rates. For this reason, the market may "read" future monetary policy decisions from debt issuance practices. To avoid such conflicts, the central bank responsibility for managing day-to-day operations were often subject to certain limitations.[77] But these often became theoretical when very large budget deficits had to be financed.

[76] A related issue, not the subject of this paper, concerns foreign exchange reserves. In many EMEs in recent years, central banks have come to manage larger and larger portfolios of foreign assets. In some cases, other bodies were responsible for managing foreign liabilities, giving rise to coordination issues.

[77] The Chief Cashier at the Bank of England (Kenneth Peppiatt) in 1952 put the classic central bank case. He explained how its actions in the government bond market, confined to the short-term smoothing of technical difficulties, did not attempt to stabilise the market. "As the Central Bank we have a duty to control the volume of credit … but no such duty to control the price of Government securities. It would be difficult … to achieve both objectives at the same time because, when we are restricting credit, securities tend to fall … and if we were to seek to reverse this movement by pumping large sums of money into the market, [we would] defeat our primary purpose." See Fforde (1992), pp 648–49. Capie (2010) notes the irony that the excessive official intervention in the government bond market from the late 1950s, which Fforde criticised in his Bank of England history, "reached its peak in the late 1960s when Fforde himself was Chief Cashier."

The authorities have over the years applied various rules of thumb to transactions or balance sheets to delineate the responsibility of the central bank from other various government agents. Examples of such rules of thumb include: ceilings to central bank holdings or even limits to transactions in government bonds;[78] rules to limit government issuance of short-term paper.

In the late 1980s and early 1990s, a growing appreciation of the dangers of policy confusion created by unclear mandates led to an international consensus that government debt management policy deserved specific attention in its own right. The debt management function in many countries was made less discretionary. Clear objectives were designed (usually to minimise expected costs subject to pre-defined risk tolerance limits). Issuance calendars were pre-announced. There was the widespread adoption of portfolio benchmarks, often supported by mechanisms to hold portfolio managers accountable and to allow external managers to compete with in-house managers. This was often associated with the objective of lengthening the maturity of government debt.

Predictable policy frameworks were seen as important because they helped to stabilise expectations. The whole process was put on a firmer empirical footing.[79] In many countries, this realignment of policy frameworks went together with the independence of central banks with clear inflation mandates. And the operational responsibility of managing government debt was in several countries removed from the central bank. Many countries established independent Debt Management Offices that were often required to report directly to Parliament (not the Treasury). Few seem to have established mechanisms to formally coordinate Treasury, central bank or debt office policies.

Reforms also meant that the staff in specialised debt management offices often have greater financial market expertise than those who managed government debt in earlier decades. The use by many debt managers (but not those of

[78] Inoue (2010) cites the Bank of Japan's "Banknote Rule" (the rule that stocks of JGBs were not to exceed the outstanding amount of bank notes). McCauley (2008) cites Ritter (1980), which recounts the "bills only" view of the Federal Reserve Board in Washington (opposed by the Federal Reserve Board of New York), which argued for concentrating operations on short-term government securities and so limited operations in the bond market.

[79] An excellent account of this progress is Wheeler (2004). See also OECD (2005). BIS (2000) examines changes in policies in the emerging market economies.

the United States) of derivatives has grown. It has become so widespread that a recent undergraduate textbook on money and banks explains how government debt managers use interest rate swaps.[80] They issue long-term debt for pension funds etc to hold but then swap the stream of interest payments due for the (lower) interest payments they would have paid had they issued short-term debt.

Piga (2001) provides an excellent analysis of how government debt managers have used derivatives. It is cheaper to take speculative positions in swaps than in cash markets, and some governments have used swaps to benefit from expected movements in exchange rate and interest rates (ie speculation, not hedging). Swaps can also be used to defer interest payments to future years so that the current budget deficit can be understated. (Piga analyses a particular instance in some depth.) Derivatives can in short make both government debt exposures and budget balances more opaque.

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[80] Cecchetti and Schoenholtz (2011), pp 221–2.

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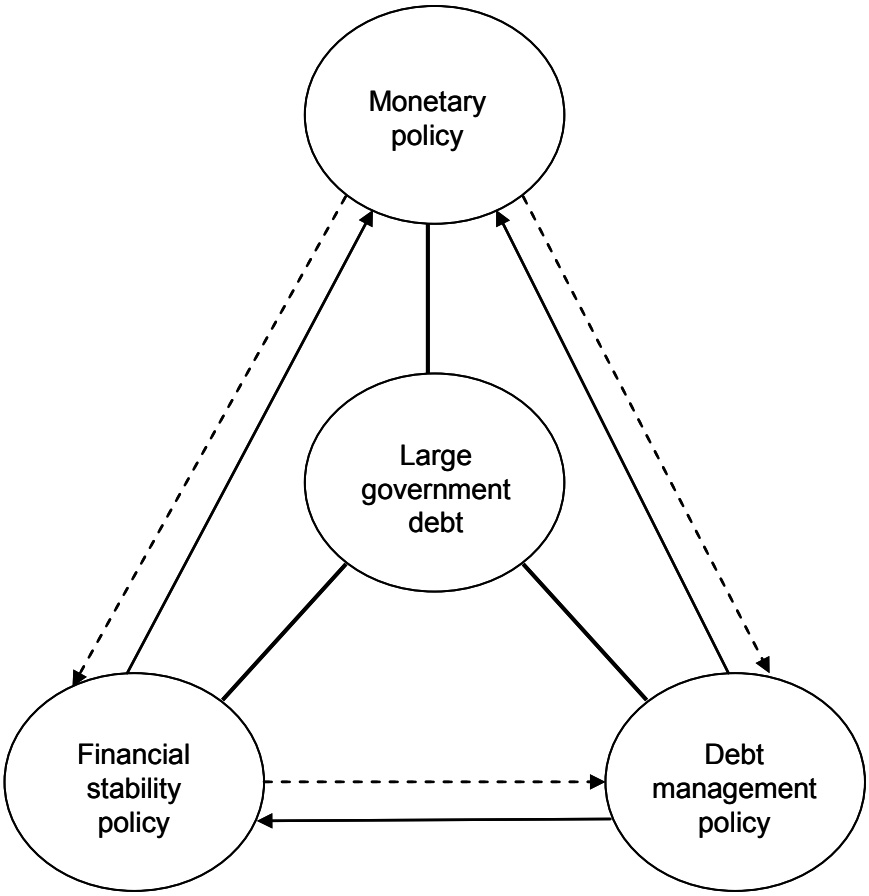
Graphs and tables

Graph 1

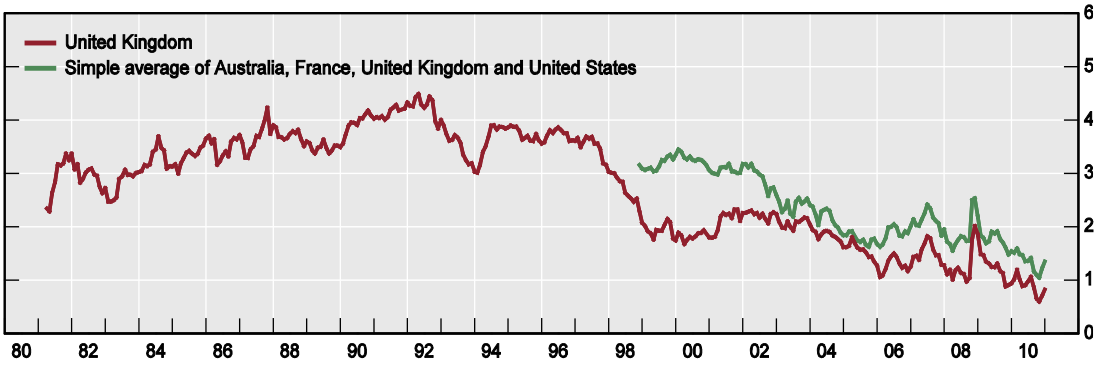
The many sides of fiscal dominance



Graph 2

The real long-term interest rate[1]

In per cent



[1] 10-year inflation-indexed yields; for Australia, 20-year; for the United Kingdom, constructed from long-term inflation-linked bonds issued since 1996.

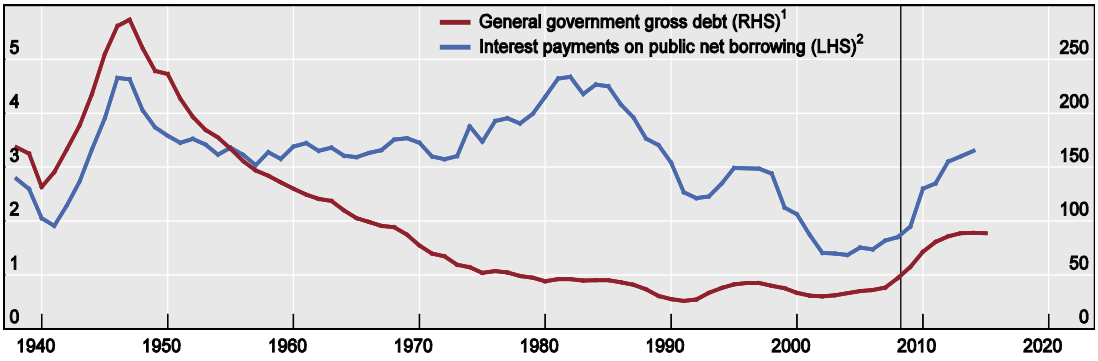
Sources: National data; BIS calculations.

Graph 3

Government debt and interest rates in the UK

A. Fiscal indicators

As a percentage of GDP

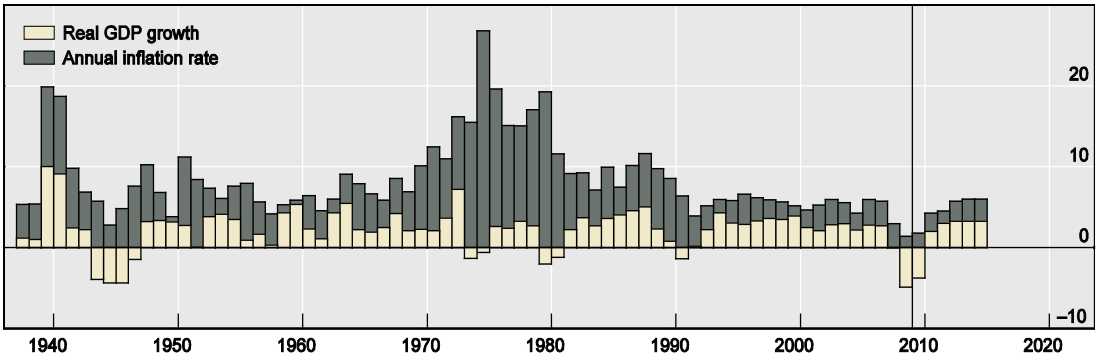


[1] On a Maastricht treaty basis; March 2010 HMT Budget forecasts. 2 March 2010 HMT Budget forecasts.

Sources: HM Treasury (HMT); B Mitchell, *British historical statistics*; Cambridge University Press; OECD; UK Office for National Statistics; *Economic Trends Annual Supplement*; national data.

B. Nominal GDP growth[1]

In per cent

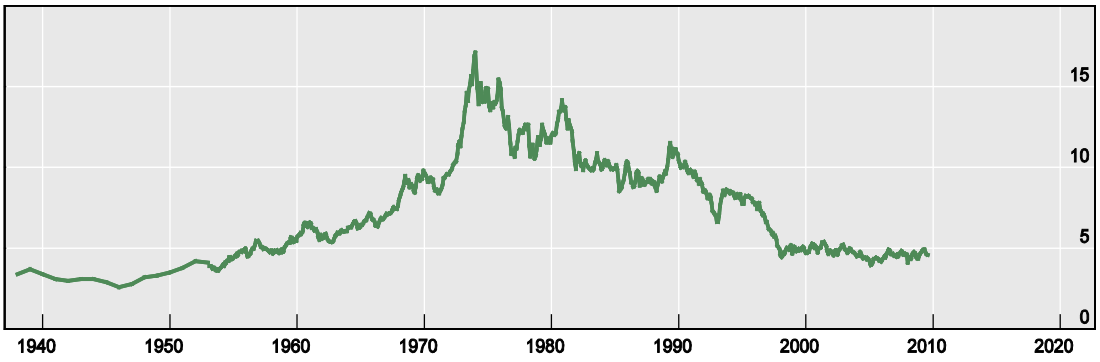


[1] After 2009, March 2010 HMT Budget forecasts.

Sources: HM Treasury (HMT); B Mitchell, *British historical statistics*; Cambridge University Press; UK Office for National Statistics; national data.

C. Gross interest yield on 2.5% consol

In per cent

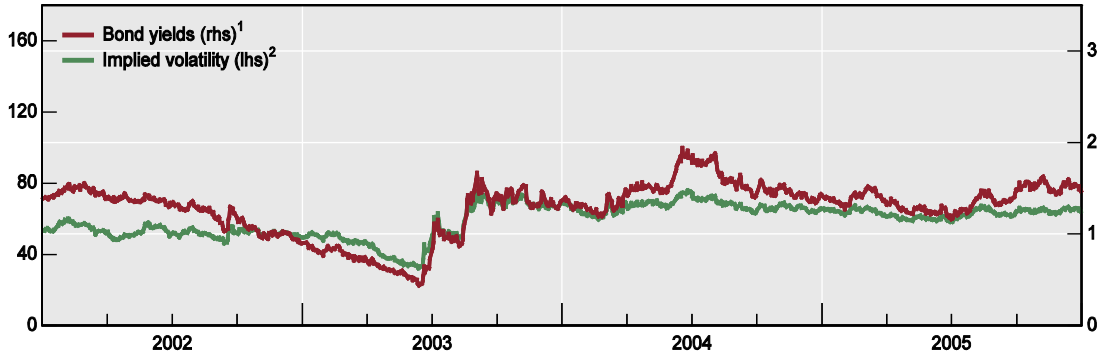


Source: B Mitchell, *British historical statistics*; *Economic Trends Annual Supplement*; Datastream.

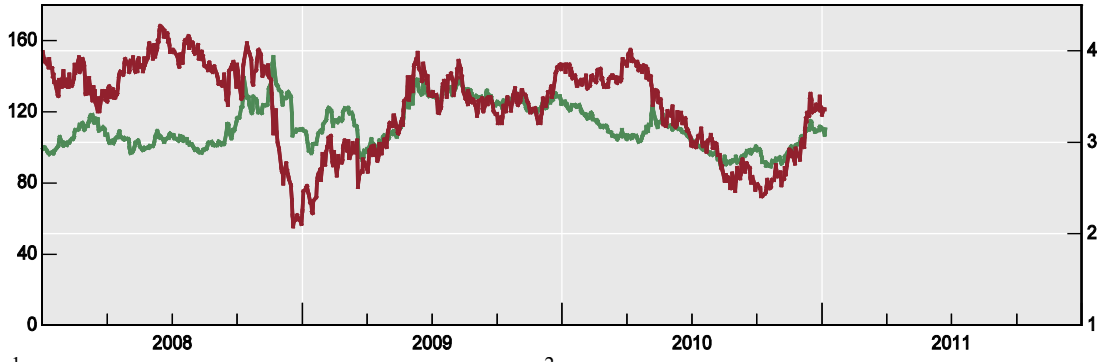
Graph 4

Bond yields and swaption implied volatility

Japan: 2002 - 2005



United States: 2008 - 2010



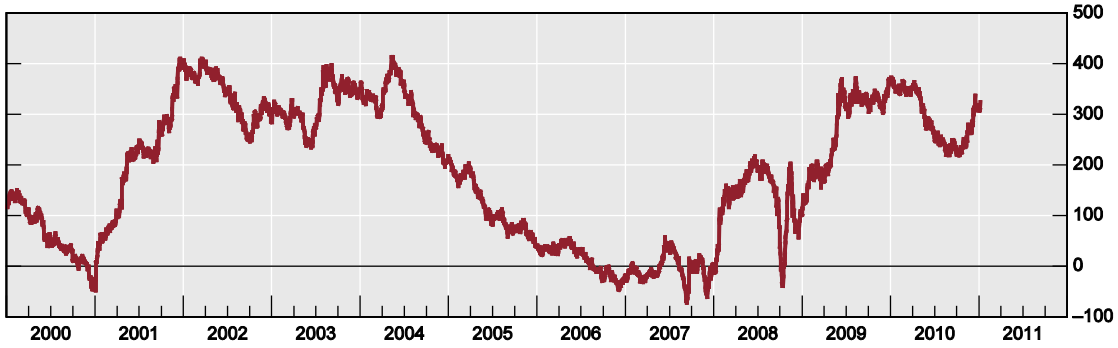
[1] Ten-year government bonds; in per cent. [2] Implied swaptions, in annualised basis points.

Sources: Bloomberg (Deutsche Bank ticker DVX and DVXCJPY); national data.

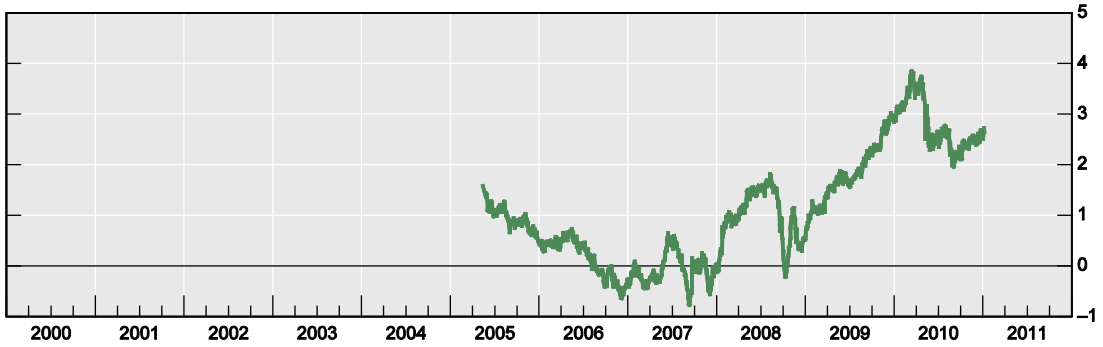
Graph 5

Dollar term spread and interest rate carry-to-risk ratio

Term spread[1]



Carry-to-risk ratio[2]



[1] Ten-year swap rate minus three-month money market rate, in basis points.
[2] Defined as the differential between 10-year swap rate and three-month money market rate divided by the three-month/10-year swaption implied volatility.

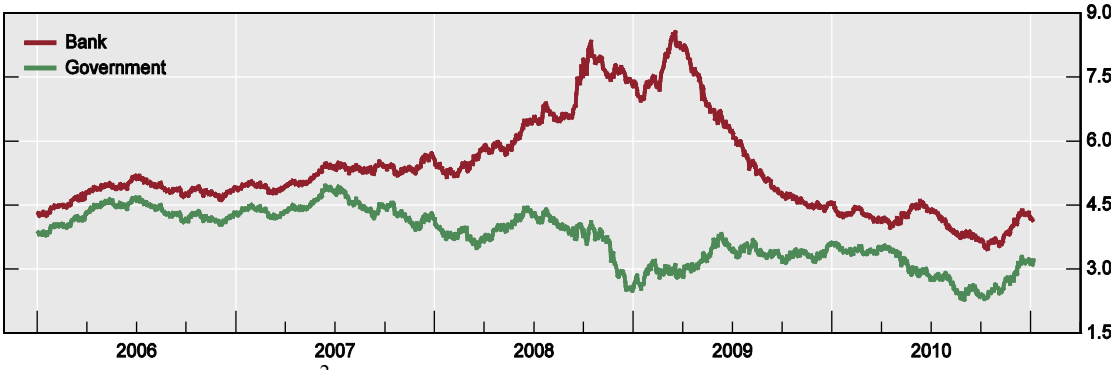
Sources: Bloomberg; BIS calculations.

Graph 6

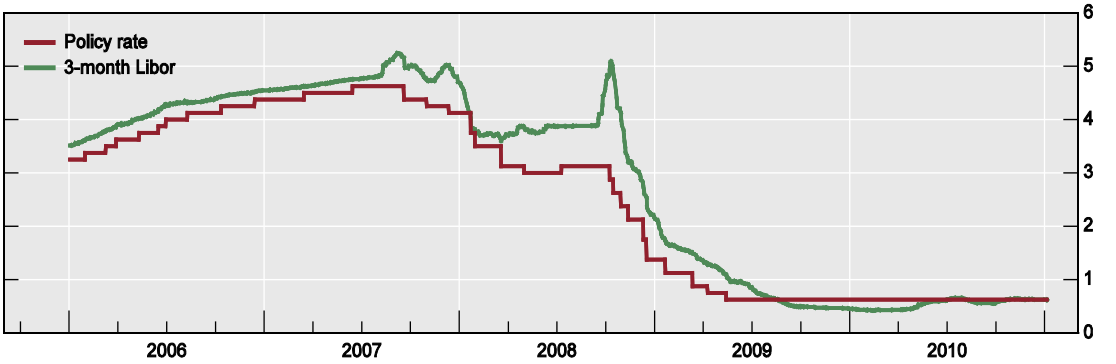
Indicators of long- and short-term funding costs

In per cent

Bank bond and government bond yields[1]



Policy and interbank rates[2]



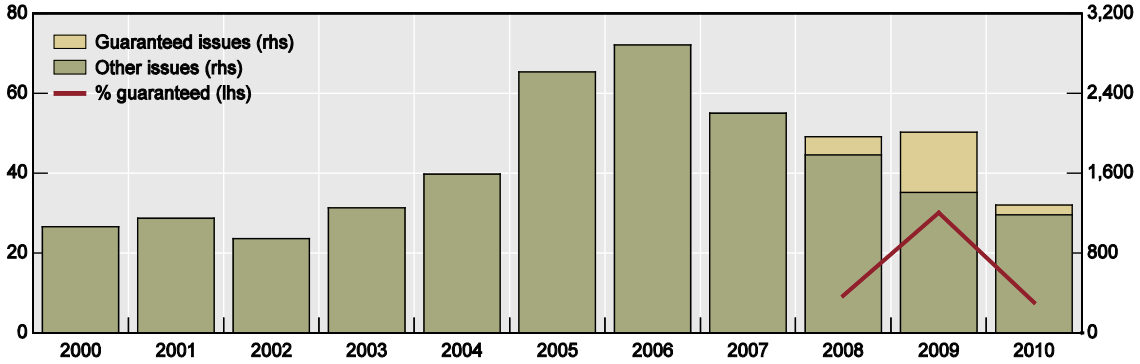
[1] Simple average of bonds with remaining maturity of 7 to 9 years for the United States and 4 to 6 years for the euro area; for government bonds, 10-year.
[2] Simple average of the euro area and the United States.

Sources: Bloomberg; Merrill Lynch; national data.

Graph 7

Global issuance of syndicated debt securities by banks[1]

In billions of US dollars



[1] Announced issuance placed in domestic and international markets; by ultimate sector; excluding preferred shares, ABS, MBS and covered issues. For 2010, January to September data.

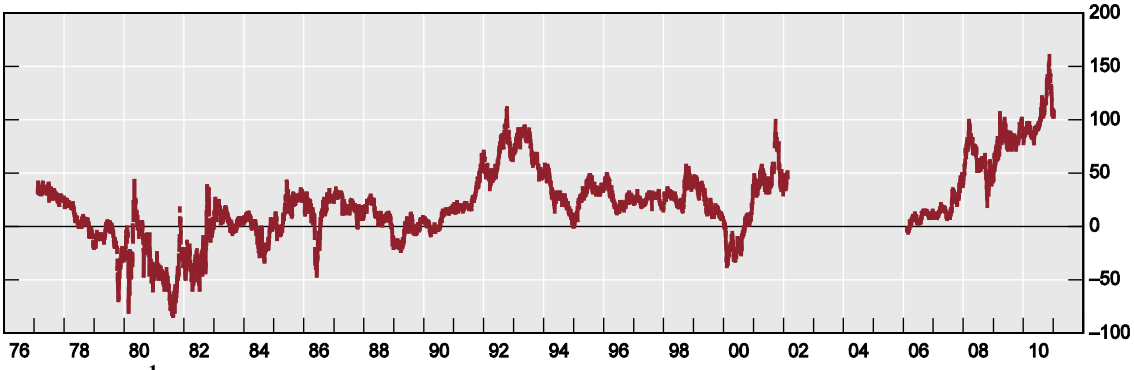
Sources: Dealogic; BIS.

Graph 8

30-year US Treasury bonds

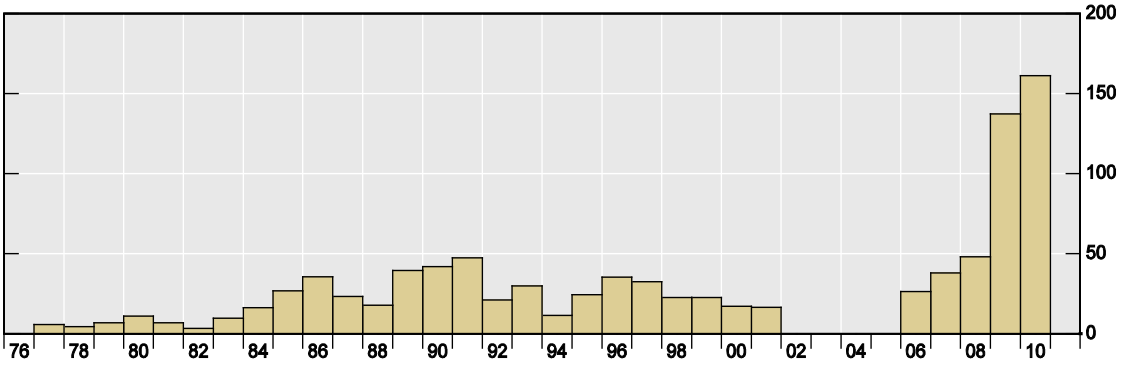
A. Spread over 10-year US Treasuries

In basis points



B. Issuance[1]

In billions of US dollars



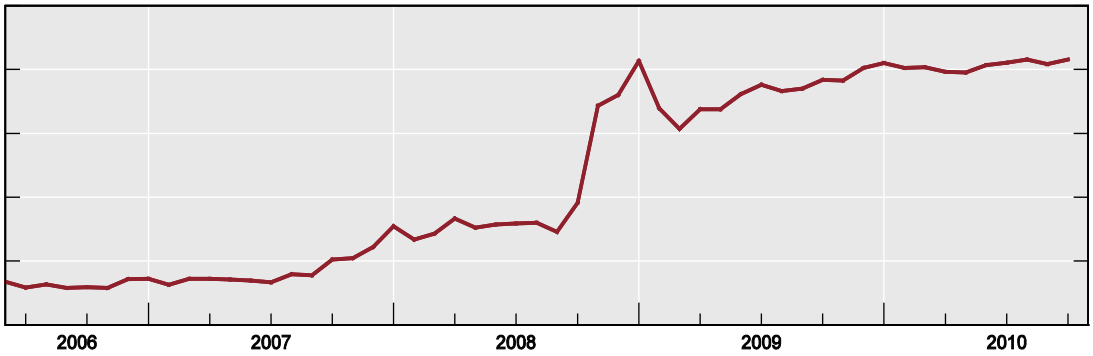
[1] Remaining maturity of about 30 years at end-December. Only marketable bonds issued between January and December of a particular year are used for that particular year's debt issuance calculation.

Sources: Treasury Direct; national data; BIS calculations.

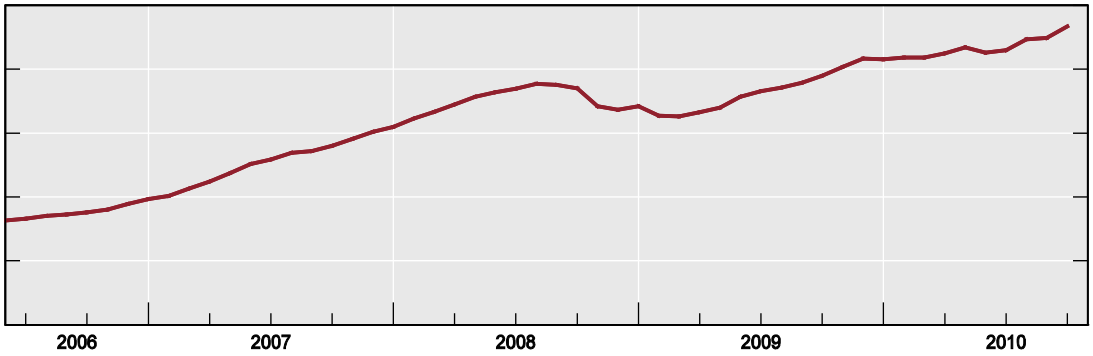
Graph 9

Global official liquidity (in trillions of US dollars)

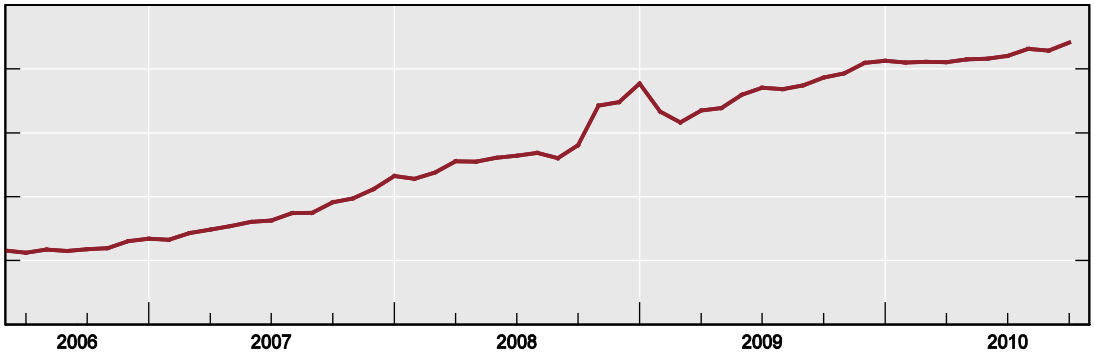
A. Central bank assets in advanced economies[1]



B. Foreign reserves of major EMEs[2]



C. Global official liquidity (A + B)



[1] Total for the United States, the euro area, Japan, Canada, Sweden, Switzerland and the United Kingdom.

[2] Total of major emerging market economies (Brazil, China, Chinese Taipei, Hong Kong SAR, India, Korea, Malaysia, Mexico, Russia, Singapore, Thailand and Turkey).

Sources: Datastream; national data.

Table 1

Debt securities outstanding[1]

In billions of US dollars

	Dec 89	Dec 99	Dec 06	Dec 09	June 10
Governments	**7,201**	**14,407**	**25,444**	**36,403**	**37,584**
United States	2,839	4,408	6,236	9,479	10,338
Japan	1,306	3,670	6,750	9,657	10,538
Germany	250	622	1,479	1,850	1,651
Other euro area	1,474	2,832	4,796	6,715	6,033
United Kingdom	226	473	841	1,239	1,300
Financial institutions	**5,873**	**15,550**	**34,654**	**44,109**	**40,906**
United States	2,656	7,979	16,014	17,464	16,687
Japan	928	1,662	1,079	1,204	1,237
Germany	482	1,531	2,399	2,649	2,242
Other euro area	959	1,898	7,720	12,124	10,669
United Kingdom	151	712	2,604	3,763	3,444

[1] Domestic plus international.

Note: The BIS endeavours to eliminate any overlap between its international and domestic debt securities statistics as far as possible. However, as two different collection systems are used (security by security collection system for IDS and collection of aggregated data for DDS) as well as two different approaches and definitions (market definitions for the IDS and statistical definitions in the DDS), some overlap and inconsistencies might remain by a margin which differs from country to country.

Source: Dealogic; Euroclear; Thomson Reuters; Xtrakter Ltd; national authorities; BIS.

Table 2

Debt securities, changes in stocks[1]

In billions of US dollars

	2003–2006[2]	2007	2008	2009	June 2010[2]
Governments	1,771	1,195	2,651	4,226	4,745
remaining maturity < 1 year	346	–52	1,500	318	416
longer remaining maturity	1,425	1,247	1,150	3,908	4,329
Financial institutions	3,084	4,928	2,602	520	–1,187
remaining maturity < 1 year	588	808	–56	–902	–523
longer remaining maturity	2,497	4,120	2,658	1,422	–664
World GDP	43,479	55,392	61,221	57,937	59,859

[1] Domestic plus international issues. Exchange rate adjusted. [2] Annualised.

Note: The BIS endeavours to eliminate any overlap between its international and domestic debt securities statistics as far as possible. However, as two different collection systems are used (security by security collection system for IDS and collection of aggregated data for DDS) as well as two different approaches and definitions (market definitions for the IDS and statistical definitions in the DDS), some overlap and inconsistencies might remain by a margin which differs from country to country.

Source: Dealogic; Euroclear; Thomson Reuters; Xtrakter Ltd; national authorities; IMF; BIS.

Table 3

Estimates of recent quantitative easing in the UK and US

	Impact on	
	Long-term rates	**Exchange rate (or foreign impact)**
United States		
Prakken (2010)		50 bp fall in 10-year bond yield lowers the dollar by 2%
Neely (2010)	US 10-year Treasury yields fell by a total of 107bp during the 5 Large-Scale Asset Purchase buy windows ($1.75 trillion dollar total debt purchase)	Foreign 10-year government bond yields (Australia, Canada, Germany, Japan, UK) fell by a total of on average 53bp during the 5 Large-Scale Asset Purchase buy windows The US dollar exchange rate against the AUD, CAD, EUR, JPY, £ depreciated by a total of on average 6.6% during the 5 Large-Scale Asset Purchase buy windows
Gagnon et al (2010)	US Large-Scale Asset Purchases ($1.75 trillion dollar total debt purchase) lowered 10-year Treasury yield by 90 bp	
D'Amico and King (2010)	US purchase of $300 billion of US Treasury coupon securities lowered 10 to 15 Treasury yields by up to 50bp	
Meyer and Bomfim (2010)	Fed communication about Large-Scale Asset Purchases ($1.75 trillion dollar total debt purchase) reduced 10-year Treasury yield by 50 to 60 bp	

Table 3 (cont'd)

Estimates of recent quantitative easing in the UK and US

	Impact on	
	Long-term rates	**Long-term rates**
United Kingdom		
Meier (2009)	£125 billion purchases reduce longer-term gilt yields by between 40 and 100 bp	
Joyce et al (2010)	Total impact of £200 billion of purchases (most of which gilts) lowered long-term gilt yields on average by 100 bp, with reactions ranging between 55 and 120 bp across the 5-25 year segment of the yield curve	Sterling ERI depreciated by 4%

Table 4

Composition of marketable US Federal government debt held by the public

$ billion

End of fiscal year (Sept)	Marketable securities		Currency & Federal Reserve obligations	Total	Money, Federal Reserve obligations and short-term debt
	(<or = 1 year)	(> 1 year)			
	(a)	(b)	(c)	(d)	= (a+c) % d
1955	43	113	51	207	45%
1969	80	82	73	235	65%
1990	527	1668	306	2501	33.3%
2001	735	2180	638	3553	38.6%
2007	955	3474	834	5263	34%
2008	1484	3726	1087	6297	40.8%
2009	1986	5002	1780	8768	42.9%
2010[1]	1784	6692	1943	10419	35.8%

[1] Using Monthly Statement of the Public Debt of the United States; Federal Reserve Table H.4.1.

Sources: This is an update of that in Tobin (1963) using US Treasury Bulletin; Federal Reserve Flow-of-Funds.

Table 5

US Treasury securities held by the public

$ billion

	Total	Bills	Bonds[2]	Memorandum: average residual maturity
2009[1]				
June	6592	2000	4592	3 years 11 months
August	6918	2062	4850	4 years 0 months
Dec	7250	1788	5462	4 years 4 months
2010				
June	8079	1777	6302	4 years 7 months
Sept	8476	1784	6692	4 years 11 months

[1] End of month. [2] Notes, bonds and TIPS.

Sources: US *Treasury Bulletin* and Treasury Borrowing Advisory Committee.

Chapter 6
What is a useful central bank?
Stefan Ingves[1]

Thank you for inviting me to this event in honour of my colleague of many years, Mr Svein Gjedrem. The programme of the symposium raises several highly-relevant issues for central bankers. In my presentation, I would like to talk about crisis as a momentum for change, both in what we do and how we do it. I will start by discussing the Swedish banking crisis of the 1990s and its implications for the development of the Riksbank. I will then proceed by looking at the present situation and what conclusions we and other central banks may need to draw from the recent global financial crisis. My focus will be on the nexus between monetary policy, financial stability and macro-prudential regulation.

In common with all leaders, central bank managers face the fundamental issues of ”Where are we going?” and ”How do we get there?” As in most other sectors, central banking experience changes over time and, also as in other sectors, the momentum for change is never stronger than in the aftermath of a crisis. Today, I would like to illustrate this by describing the Riksbank's thinking after our previous crisis, the changes this led to, and how we should use the current momentum for change (that is following the latest global crisis) to create a useful central bank in the period ahead. This refers to our organisation as well as to the main substantive issues in monetary policy, regulation and the supervision of financial stability.

Prior to the crisis of the 1990s, Sveriges Riksbank was an organisation in which operational tasks, and to a certain extent regulation, predominated. The flagship of our organisation was the trading room, which had the task of maintaining a stable exchange rate, but most of our employees worked with the manufacture and distribution of cash. As long as the regulations governing the credit markets and currency flows remained in place, the Riksbank had scores of employees working with these regulations too.

[1] Stefan Ingves is chairman of the Executive Board and Governor of Sveriges Riksbank.

What are the tasks of the central bank?

The crisis of the 1990s forced us to reconsider all this. The forced change of currency regime from fixed to floating implied a failure, although in reality the Riksbank could not have succeeded. We had two main goals: maintaining low interest rates and maintaining the fixed exchange rate, but we had only one instrument, namely monetary policy. Instead we became an early adopter of what was then the relatively new concept of inflation targeting, at the same time as the exchange rate was allowed to float. Sweden had also been hit by a severe bank crisis and we saw that the central bank should play an important role in the effort to prevent anything like this happening again. These became our two main tasks, just as they have become in many other countries. Maintaining price stability and preventing financial crises – monetary policy and financial stability.

Both of these tasks required three things that in combination with each other make great demands of an organisation – accountability, openness and confidence. These prerequisites are required not least in the field of financial stability, where we were not given any operational tools to use in peacetime; we were expected to be able to influence behaviour through our analyses and communication – moral suasion.

How should these tasks be achieved?

So, my example of how to define a useful central bank begins with the question WHAT, that is what tasks should we perform? Obviously, however, we must also ask ourselves HOW we should perform these tasks. Regarding the HOW, I will focus on two issues: The staffing and competencies of the internal organization and the governance structure. The journey that we have travelled since the 1990s has entailed building up know-how and expertise for our main tasks and focusing our operations on these tasks. In order to fund this costly investment in competence and communication and to focus the organisation on the main tasks, all of the other operations of the Riksbank have been reviewed and made more efficient. A clear illustration of this renewal and redirection of competence at the Riksbank is that the number of employees has

fallen significantly in this period from 1 100-1 200 including companies, or 750 excluding companies, to the current level of 350, while personnel costs are at approximately the same level as previously. Today, more than 70 per cent of our employees have an academic degree and around 50 of them hold a PhD. I am sure that the same tendencies can be seen in other central banks.

The concrete effects of this in our case are that we have reduced our involvement in cash management to a minimum, subcontracted the production of statistics, rationalised our administration and so on. In other words, we simply decided to perform only those tasks that we had the potential to perform better than anyone else. Only around 5 per cent of the Riksbank's employees worked directly with monetary policy and financial stability when we began this journey (even fewer if we include all those who worked with the manufacture of cash in our companies); today, more than one third of our employees work in these policy fields. Traditional operational duties for a central bank like cash management, the payment system, asset management and statistics still occupy a significant share of our workforce, but they do not dominate the organization like they used to.

As managers of independent and self-financed institutions, we must find ways to constantly apply pressure to improve efficiency on the organisation ourselves. We do not have the "time-to-market" pressure that private companies have. This raises questions that in my opinion have appeared far too seldom on our agendas; questions about management, about setting objectives and managing resources, about internal control and, not least, questions about governance. How should we lead the operations of a central bank?

Generally, a central bank may learn from any type of successful organisation, we are not that different. But we face a special challenge. Our governance model has often been created to arrive at a well-founded monetary-policy decision. Such a decision benefits from a careful process with a wide-ranging discussion of different scenarios that finally results in a collective decision-making discussion in (in our case) a group of six. This is a structure that has worked well for our policy decisions, but few organisations voluntarily choose a collective of six individuals for the operational management of its activities.

Our challenge has thus been to draw a clear line between the structure for making policy decisions and that for other decisions. At the Riksbank, this has

entailed relieving the Executive Board of responsibility for day-to-day management and transferring this responsibility to a lower level in the line organisation. This has been – and still is – easier said than done and requires constant attention. It also demands discipline on the part of those at the top of the organisational chart. Nevertheless, this has been important in not burdening those at the top with micro-management tasks and in ensuring that no decision-maker has an information advantage ahead of a policy decision.

A final reflection regarding internal matters (following the perspectives of WHAT we should do and HOW we should do it) is in fact WHERE? Our playing field is increasingly stretching beyond national borders, above all in the case of stability work in an open economy with cross-border banking operations. In the central bank of the past, international work was something that was conducted by experts in this "craft" (whatever this craft may be). Today, the international arena is a necessary playing field for us in the performance of our ongoing tasks and we must create an organisation that is capable of working effectively and in a coordinated way in several different arenas at the same time. International work must become an integral part of our day-to-day work on the issues, not least since the outcome of international negotiations will affect us in the form of EU legislation or peer pressure from the BIS, IMF or other bodies.

Lessons from the recent financial crisis

So far, I have discussed how the Riksbank's organisation has developed on the basis of the experience gained during the previous crisis. What lessons should we now learn from the latest global crisis? What are the greatest challenges and what form should a useful central bank take in the future? I will now go on to speak about some conceivable changes in the work on monetary policy, financial regulation and financial stability and – not least – the interaction between them. In addition to new thinking on policy and other issues, we also need to adapt our organisations and our governance to achieve optimum efficiency.

The recent financial crisis provided additional input into the discussion on how the work on financial stability can become more effective and what instruments are appropriate in achieving this goal. Furthermore, having clearly proved that there are close links between monetary policy and financial stability, the financial crisis has revitalised the debate on whether central banks need to consider not only price stability but also financial stability when setting interest rates. Just a couple of years back, the common view was that since it was difficult to predict a crisis, a central bank should try to do no more than react forcefully when the crisis was already a fact. The main explanation of this reassessment is probably that the costs of a financial crisis – and hence the potential benefits of preventing a crisis – may turn out to be much greater than previously thought.

In my view, regulation and supervision remain the first line of defence in preventing unsound developments in financial markets. The financial crisis has clearly shown that there is an urgent need to reassess the regulation of the financial sector, in addition to strengthening the macro-prudential framework. But even with stricter regulation and supervision in place, this will not necessarily exclude monetary policy from having some role to play in the prevention of a financial crisis. Both instruments have their own advantages and disadvantages. I believe that one of the challenges for the future is to find an appropriate mix between monetary policy on the one hand, and regulation and supervision combined with macro-prudential surveillance on the other. Let me elaborate on these points.

Monetary policy may naturally play some role in the prevention of financial crisis. After all, the policy rate affects the cost of credit, as regulation does. Simply put, the banks' lending rates can be described as a function of the central bank's policy rate plus an interest rate margin or spread. The interest rate margin is a function of the compensation charged by the banks for administrative costs and capital costs, risk premiums and the banks' profit margins. More stringent regulations will entail increased costs for the banks, and the interest rate margin and the lending rate will thus increase, as it will when the policy rate is increased.

In this sense, monetary policy and financial regulation are clearly intertwined. Thus, a central banker must always keep in mind that the increased use of

regulatory tools will inevitably affect monetary policy in different ways. Regulations will affect the interest rates that firms and households meet and this is something that the central bank needs to take into consideration when setting the policy rate – in much the same way as monetary policy has to take into account changes in interest-rate spreads due to changes in financial conditions.

Regulation versus policy rate

Even if regulation and supervision are the first lines of defence, I do believe that the policy rate can also be used to counteract the build-up of imbalances in financial markets. When facing an excessive and rapid increase in property prices and credit volumes, central banks should "lean against the wind", that is keep interest rates higher than would otherwise be the case.

This is by no means in contradiction with monetary policy's goal of stabilising inflation and the real economy. The reason is that by "leaning against the wind", the development of property prices and credit volumes becomes more balanced, and then the real economy and inflation become more stable as well. However, trying to integrate this thinking into the conventional forecasting framework involves complications. It is, for example, not entirely easy to incorporate the risks that may be associated with the rapid increase of property prices and credit volumes into the normal work of forecasting and analysis. At present, efforts are being made to better include financial variables in the central banks' forecasting models. A related problem is that property prices and borrowing are occasionally driven by psychological factors. These factors are difficult to capture in economic models, as these models are often based on the assumption that participants will act in a rational manner. Thus, central banks are often forced to think outside the box and also rely on judgement.

There are other challenges associated with "leaning". Firstly, the imbalances must be identified at a sufficiently early stage. Because of monetary policy lags, reacting too late can be counterproductive. Of course, one must also be sufficiently certain that unsustainable leverage is building up, so that the upturn is not being driven by fundamental factors. Otherwise, a higher interest rate would hinder growth unnecessarily. Furthermore, the policy rate is a blunt instrument in so far as it impacts all lending in the economy. If imbalances in

financial markets require a significant tightening of monetary policy, this could have severe negative effects on the rest of the economy. It can require decision-makers to make difficult choices and it is a tough challenge to communicate.

In this sense, regulations have the advantage that they can be applied in a more focussed manner, which can mean that they can be applied more flexibly than leaning against the wind. At the same time, the very bluntness of the policy rate is one of its strengths compared with regulations. As the policy rate impacts the cost situation in the economy in general, it is difficult to circumvent it. Consequently, applying the policy rate or regulatory tools as the situation requires may be the most practical path.

Let me now shift the focus from monetary policy to the work on financial stability, although the issue will still to a large extent be how to achieve a balance between financial stability and monetary policy.

Challenges for regulatory design

Not only the regulations but also the whole area of macro-prudential surveillance aiming at financial-system stability have become highly topical issues in the aftermath of the latest crisis. Prior to the crisis, financial regulation was excessively focused upon individual institutions under the erroneous assumption that the system would remain stable as long as the individual institutions were stable. Consequently, processes that created risks at the system level were ignored. I certainly welcome the current international discussion regarding the inclusion of more explicit systemic-risk preventive regulations, or macro-prudential regulation, in the regulatory framework.

An important challenge for the design of a new regulatory framework will lie in finding an appropriate balance: On the one hand, the regulations will need to be tight enough to effectively reduce the risk of financial crisis; on the other hand they should not be so stringent as to impose unnecessary costs on the financial sector. It is a matter of finding the right level of regulation. In this context it is very illuminating to read the so-called MAG and LEI reports, which attempt to translate various levels of Basel III-regulation into estimated higher interest costs for the end-borrower. For example, it is estimated that

each percentage point increase in capital will increase interest costs by 15 basis points.

Proposals regarding time-varying regulations, such as time-varying capital requirements, are particularly interesting. Their more apparent connection with risk build-up may make them less costly than the alternative of introducing a constant higher minimum requirement. Time-varying regulations might also be structured so as to form a sharper instrument than monetary policy, which also varies with time. For instance, reducing the LTV threshold ratio for maximum lending against real estate may be more effective in mitigating a housing bubble than general interest rate increases. Along the same line of thought, another possibility is to introduce differentiated regulations. After all, the credit market is not entirely homogenous and it is, for example, possible to make a distinction between a household market and a corporate market. Making some regulations sector specific is also a viable way of reducing the regulatory costs.

There is also a debate regarding the role that central banks should play in matters of supervision and the application of rules. Various institutional arrangements can be imagined. One possibility would be for the central bank to determine the policy rate and for the supervisory authority to determine regulations. Time-varying regulations also raise the issue of what would be an appropriate form of institutional organisation. In this context, one possibility would be for the central bank to not only determine the policy rate but also determine the time-varying regulations, while the implementation of non-time variable regulations would be the responsibility of the supervisory authority. Does it make sense to merge the central bank with the supervisory agency? Obviously, the financial-stability analysis, and to some extent also the monetary-policy analysis, must be informed by the micro-prudential analysis, and vice versa. Countries have chosen different approaches to this, often based on country-specific characteristics such as legislation or even tradition. I have an open mind about this and do not believe in a one-size-fits-all solution. The important aspects are that you ensure an open exchange of information and close cooperation between the functions, as well as adequate resources.

On governance we must also take into account what is called "political economics". The most efficient theoretical solution may not be achieved if it contradicts interests of power and influence.

How should we structure the decision-making process in order to take account of the nexus between monetary policy and financial stability? Central banks have adopted different approaches: Some have a separate Board for monetary policy, others also have a separate Board for financial stability. Most central banks have the same Board for both, but may have separate Deputy Governors responsible for each of the two strands.

What matters, as I see it, is that "the buck stops somewhere". There must be a decision at some high managerial level which balances the interests of monetary policy and financial stability as well as other central bank responsibilities. The organisation and processes of the central bank must also be structured so that they facilitate the analysis preceding the decision leading to a balanced view, based on both monetary and financial stability considerations. For instance, there should be inter-departmental working groups.

Financial stability lies within the Riksbank's mandate

The importance of having a well-structured framework for monitoring overarching financial-system stability and identifying potential weaknesses is relatively new compared to the structures for conducting monetary policy. In Sweden (probably also in Norway), it started as a result of the banking crisis in the early 1990s.

The Riksbank sees system stability as being within our remit. The Riksbank Act states that we shall "promote a safe and efficient payment system" and we interpret "payment system" in a broad sense including not only the narrow payment infrastructure but also major banks and other institutions and markets that are necessary for the intermediation of payments.

Should the responsibility for financial stability rest with the central bank? Yes, I think so. The supervisory agencies are structured to focus on the microprudential aspects, but the central banks are organised and staffed for macroprudential analysis, which is also needed for the conduct of monetary policy. The supervisory work needs to take the overall systemic situation into account, but

the macro analysis required could well be performed elsewhere and shared with the supervisors.

The next question is what kind of mandate the central bank needs for its financial stability work. This is a tricky issue. An inflation-targeted monetary policy is relatively straight-forward, but how does one define "financial stability"? A seemingly precise definition, without matching tools, could lead to failures and reduced confidence in the central bank, and also in its monetary policy. On the other hand, if the definition is too general it will be impossible for Parliament and others to evaluate how the central bank manages the task. Maybe, there could be a hierarchy of targets – a broad one in the legislation and a narrower one, which may be adapted to the actual situation, which is then communicated by the central bank to the general public on a regular basis. This is similar to monetary policy practices.

A related issue is that of central bank independence. Our present independence refers to the conduct of monetary policy. Do we need an extension so that it also covers our work on financial stability? This question has not been fully analysed yet, but I think that the politicians would hesitate to transfer such powers unless central bankers can find really strong arguments.

There are several arguments for conducting financial stability work in the central bank. These include:

- There is a clear link to monetary policy;
- Central banks usually run the large value payments system, which is an important nexus in the financial system;
- Central banks may provide exceptional liquidity assistance – ELA - to problem banks, but must then understand the implications for the system as such.

Much of the stability work is crisis-oriented – both the precautionary work and that dealing with actual crisis situations. The Riksbank participates in many international forums that promote stronger frameworks to prevent or at least to manage crises. The recent global crisis led to a number of conclusions showing that we need a broader framework in which to analyse financial stability and deal with problem situations.

For instance:

- Not only banks will destabilise the system;
- Systemically-important institutions pose even greater challenges than we thought;
- Liquidity developments must be closely monitored;
- There are clear links between submarkets and also between jurisdictions.

The experience gained during the crisis leads to some specific challenges for central banks:

- Central banks must maintain sufficient capacity to provide liquidity to meet sudden needs, but at the same time we must maintain strong incentives to discourage the banks and markets from relying on central bank funding rather than approaching their normal channels;
- We must review our framework for extending ELA;
- Our analysis needs to focus more than before on liquidity developments in major cross-border banking groups. Where such groups exist, the home country of the parent bank is vulnerable to threats to financial stability in other countries, both where the funding markets are located and those where the group has subsidiaries or branches. For Sweden, this situation is accentuated since our banking system is four times larger than our GDP, and since our major banking groups are highly dependent on funding in international markets. Our financial stability analysis will have to expand to identify threats early on and to deal with them. We must be alert to potential contagion between unsustainable monetary and fiscal policies in other countries and their potential repercussions on the stability of our own country's financial groups.
- The crisis demonstrated the need for clear roles and mandates for the authorities involved in crisis management, in particular for resolving problem banks. The Riksbank, the Financial Supervisory Authority, the National Debt Office and the Ministry of Finance had frequent contacts

throughout the crisis and coordinated their actions. That said, the division of responsibilities is not clear in all situations and the Riksbank has asked Parliament to clarify the legislation on this and a number of other crisis-related issues.

Matching goals with tools

The Riksbank has a fairly well-developed structure for macro-prudential analysis. But if we do identify deficiencies, how can we implement the necessary changes? Winston Churchill once pleaded, in a famous World War II speech, to President Roosevelt: "Give us the tools, and we will finish the job!"

So far, the Riksbank has lacked specific “hard” tools for financial stability. We have relied on communication and moral suasion, hoping that our arguments will convince financial system actors to change their behaviour. Our experience is mixed. Before the crisis, our banks reduced their credit expansion to the Baltic countries, warned by us, but they did too little and too late. One conclusion is that we must be even clearer and more forceful in our communication. The Riksbank is presently analysing its tool kit with the aim of arriving at a proposal in the near future.

I do not think it is necessary that the tools should be vested with the central bank. For instance, there could be a rule implying that if the central bank sends a recommendation to the supervisory authority, the authority must then “act or explain”. The supervisors could then use micro-prudential tools such as increasing bank capital requirements for certain activities or jurisdictions, or reducing the maximum level of loan-to-value ratios.

As in my previous discussion on monetary policy versus regulation, I believe that monetary policy and promoting financial stability are mutually interdependent. During the recent financial crisis, we observed the difficulties of conducting monetary policy in a non-stable financial environment. Interest rate signals from the central banks were sometimes neutralised by contradictory events in the markets. Conversely, financial stability is dependent on a smooth and predictable monetary policy. Hence, in the long run, the interests of monetary policy and financial stability coincide. However, in the short term we may need new tools, which are better focussed on the specific situation.

To sum up: Central banks need to adapt their work processes, organisation and governance to achieve an optimal balance between monetary policy, financial stability and micro-prudential goals. There is not yet any internationally-agreed best practice on these issues but the debate is lively. Everybody realises that these issues must be resolved before there is another system-wide crisis.

External evaluation of financial stability work too

Before ending, I would like to mention the present external analysis of the Riksbank on the lessons from the financial crisis in relation to our monetary policy and financial stability work. This will reveal if we are – indeed – a useful central bank.

Each year, since the Riksbank was granted autonomous status in 1999, the Committee on Finance has carried out its own evaluation of monetary policy. In 2006, the Committee commissioned an external independent evaluation of Swedish monetary policy covering the period 2000-2005. In 2007, a year after the first external independent evaluation was published, the Committee on Finance decided to repeat this exercise every four years. In the spring of this year, the Committee appointed professors Charles Goodhart and Jean-Charles Rochet to carry out the second external independent evaluation, which is to be completed by the autumn of 2011.

This time, the evaluators are to review Swedish monetary policy in 2005-2010 and in particular to analyse the lessons to be learned from the financial crisis. The evaluation will not only cover monetary policy but also the Riksbank's work with financial stability and the results of this work, with emphasis on the analysis done and the measures taken before and during the financial crisis. Among other things, the terms of reference of the evaluation also stipulate the need to examine whether the remit of promoting a safe and effective payment system in the Riksbank Act is formulated in such a way as to ensure that the Riksbank can effectively work for financial stability. Furthermore, the evaluators are to investigate whether the Riksbank has the instruments and competencies required to maintain financial stability.

Final words

To end where I started: I foresee that current trends on staffing will continue. The portion of the Riksbank not working with core activities will be further reduced, but the level of competence will become even higher. Governance issues will be high on our agenda, not least the attempt to find suitable solutions for monetary policy and financial stability and the interdependence between them.

All of these issues are very much in line with my thoughts on what has to be done to create a truly useful central bank – to allude to the theme of this Symposium. Thank you for listening.

Panel introduction
Looking forward from the crisis of 2007-08
Michael D. Bordo[1]

A Historical Perspective on the Crisis

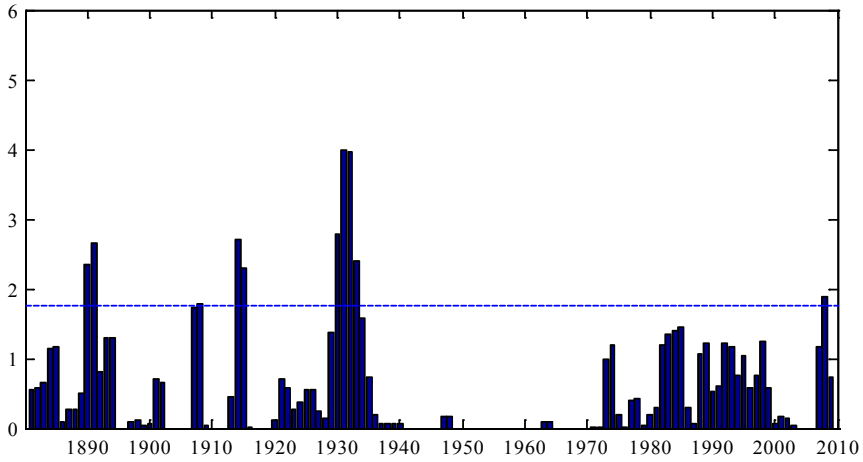
The recent global financial crisis/recession/slow recovery in many advanced countries leads to the important question for central banks. Do they need to change the plot? Before jumping to that question we need to put the recent crisis experience in an historical context. How does the recent global financial crisis compare to earlier ones? The recent financial crisis was global in the sense that it affected many countries in several geographical regions. My research with John Landon Lane (2010) shows that the world has had five global financial crises since 1880 (1890-91, 1907-08, 1913-14, 1930-33 and 2007-2008). See Figure 1.

These conclusions come from cluster analysis of several banking crises chronologies. We defined a global banking crisis as involving two or more regions. We measured both crisis incidence and real output losses in the recessions associated with the crises. Crisis incidence was weighted by real GDP relative to the U.S. Our results show that the recent crisis is definitely not the worst in the past century. In terms of both global incidence and lost output it was fourth in ranking comparable to the crisis of 1907-08. Compared to the Great Depression it was only a shadow of that event.

One of the hallmarks of the analysis of global financial crises is that in every case the U.S. was involved. This is important. It reflects two facts: the U.S. is big and interconnected with the rest of the world; the U.S. has always had a crisis prone banking/financial system going back to the early nineteenth century.

[1] Michael D. Bordo is Professor of Economics and Director of the Center for Monetary and Financial History at Rutgers University, New Brunswick, New Jersey.

Figure 1: Weighted 2-period Moving Sum of Banking Crisis Frequencies: 1880-2009



In sum the historical perspective tells us that the crisis was bad but could have been worse. Reasons why it was not so bad include: 1) monetary authorities around the world learned to act as lenders of last resort; 2) we left the gold standard; 3) the presence of automatic stabilizers and social safety nets.

Where should we go from here?

Given the historical background the question is where should central banking be going in the future? Based on the history of central banking which is a story of learning how to provide a credible nominal anchor and to act as an LLR, described in my paper delivered earlier in the conference (Bordo 2010), my recommendation for central banks is to stick to the tried and true—to provide a credible nominal anchor to the monetary system by following rules for price stability. Also central banks should stay independent of the fiscal authorities. The recent crisis has weakened central bank independence and returning to the pre-crisis regime as soon as possible would be desirable.

If the central bank is successful in maintaining a stable and credible nominal anchor then real macro stability should obtain. But in the face of real shocks central banks also need to follow short-run stabilization policies consistent with long-run price stability. The flexible inflation targeting approach fol-

lowed by the Norges Bank seems to be a good model that other central banks should follow. Moreover if all countries follow similar credible inflation targets (or better still price level targets) then international monetary stability would be maintained. The benefits of the classical gold standard could be adopted without going back to the gold standard has been advocated recently.

A central bank should also serve as a lender of last resort to the money market. Lender of last resort policy involves temporarily expanding liquidity and then returning to the price path consistent with price stability. The central bank should preferably do this by open market operations rather than by discount window lending to individual banks, to let market forces choose the recipients of funds rather than relying on discretion. But if the discount window is to be used, loans should be made only to solvent institutions. Bailouts should be avoided.

The history of central banking also suggests that the central bank should protect the payments mechanism and be ready to provide liquidity assistance only to institutions which provide means of payment. The role of a central bank is not to protect non-bank financial institutions which do not provide means of payment. The supervision and regulation of these institutions should be handled by other authorities.

The historical examples of the Wall Street crash of 1929 and the bursting of the Japanese bubble in 1990 suggests that the tools of monetary policy should not be used to head off asset price booms. Following stable monetary policy should avoid creating bubbles. In the event of a bubble however, whose bursting would greatly impact the real economy, nonmonetary tools should be used to deflate it. Using the tools of monetary policy to achieve financial stability (other than LLR) weakens the effectiveness of monetary policies for its primary role to maintain price stability.

Thus a strong case can be made for separating monetary policy from financial stability policy. The two should be separate authorities. However if the institutional structure doesn't allow this separation and requires FSA to be housed inside the central bank then it should use tools other than the tools of monetary

policy (the policy rate) to deal with financial stability concerns. The experience of countries like Canada, Australia and New Zealand which largely avoided the recent crisis, shows that some countries got the mix between monetary and financial stability policy right. It also shows that universal banks can work and do need to be broken up as some have argued.

Finally a lesson from the recent crisis is that financial regulation (preferably by agencies other than the central bank) should be based on providing incentives for private financial agents to take prudent actions ("to have skin in the game"). History suggests that holding sufficient capital was important for financial stability. In the era before World War I in the U.S. commercial banks held much higher capital ratios than subsequently. It was a private sector attempt to provide financial stability.

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Panel introduction

Where do central banks go from here?

Stanley Fischer[1]

The global financial crisis and the great recession have led many central banks to do things they had not thought they would ever do, and has led to a reappraisal of many aspects of what in the last two decades had increasingly become the accepted wisdom among central bankers and monetary economists.

I will discuss four topics that bear on the future role of the central bank:

- The inflation targeting approach and the dual mandate;
- The financial stability role of the central bank and the central bank's role in financial supervision;
- Capital flows and small open economies;
- Central bank independence in a new era.

I. The inflation targeting approach and the dual mandate.

The simplest definition of the inflation targeting approach is that the central bank has a target rate of inflation, which it is committed to try to achieve, with various elements of flexibility. The inflation target may be set by the government or the central bank itself. The law may provide incentives to encourage the central bank to achieve the target: mostly, though, the prime motivator of the central bank is to build up or maintain its reputation.

Typically modern central bank laws give priority to attainment of the inflation target, for example by describing it as the primary or main goal of monetary

[1] Stanley Fischer is Governor of Bank of Israel.

policy, and by specifying that the central bank can direct policy to other goals (generally employment or growth) only if doing so does not conflict with the attainment of the inflation goal.

Nonetheless, it is difficult for any central bank to hit its inflation target exactly all the time, and it is thus necessary to provide some element of flexibility around the target. Typically that is done by allowing the central bank to aim to return gradually to the inflation target. This is the *flexible inflation targeting* approach. To do otherwise – to try to hit the inflation target precisely in every period – would increase the variability of output and of inflation. In other versions of a flexible inflation targeting approach, the central bank is required to maintain a given average rate of inflation over periods longer than a year, for example, in the case of Australia, over the course of the cycle.

In essence, the flexible inflation targeting approach allows the central bank to take into account the short-run inflation-output tradeoff – the short-run Phillips curve – in making its interest rate decision.

There then arises the question of the relationship between the flexible inflation targeting approach, which characterizes most modern central banks, and the dual mandate approach of the Fed, which gives equal weight to the inflation and output goals of monetary policy. *There appears to be very little difference between the two approaches*, particularly as there is nothing that prevents a central bank with a dual mandate from in effect setting a soft inflation target by fixing the π^* in the standard output and inflation central bank utility function – as the Fed appears to be in the process of doing.

Indeed, it is unlikely that one could identify purely from time series data on output and inflation whether a central bank has a dual mandate or is a flexible inflation targeter.

Despite the fact that all central banks with inflation targets are in effect flexible inflation targeters, some central banks find it convenient to claim that they are pure inflation targeters, and that they do not take output or unemployment into account when setting the interest rate, other than through their implica-

tions for the inflation rate. It is likely as we develop and digest the lessons of this crisis, that we will find fewer central banks making this claim, or trying to act accordingly.

Indeed, we appear to be moving to an approach in which central banks will have a mandate with three main goals: price stability, output stability at close to full employment, and financial stability – with an emphasis on price stability as the central or primary target.

II. The Financial Stability Goal and Role

Modern central bank laws typically require the central bank to contribute to or support financial stability. Looking ahead, the most lasting effect of the financial crisis on central banking will likely be found in an increased emphasis on the central bank's financial stability role.

Central banks have traditionally been involved in dealing with financial crises, for the simple reason that they control the supply of credit in the economy. In particular, the central bank's ability to act as lender of last resort means that it is bound to be involved in the management of a financial crisis. Similarly, those central banks who are also the bank supervisor – as is the case in Israel – have an obvious reason to be involved in seeking to ensure financial stability.

Further, the understanding that has developed during this most recent crisis that the central bank can also play a valuable stabilizing role in a severe crisis by acting as *market maker of last resort* increases the likelihood that central banks will be called on to take an even more active role in future financial crises than they have in the past.

Given that the profits of the central bank are generally sooner or later transferred to the government, almost every financial action that the central bank takes has fiscal implications for the government. This is particularly so when the central bank is involved in actions to support financial stability, such as providing emergency liquidity to specific banks or to the financial system as a

whole. While the government sector has often made a profit out of crisis rescue operations, this cannot be relied on as a general rule.

The central bank and the government have to cooperate during the management of a serious financial crisis, not only because of the potential costs to the treasury of financial rescue operations, but more importantly because a major financial crisis is a national problem with far-reaching economic and social consequences.

In principle the distinction between a liquidity problem and a solvency problem should guide the actions of the central bank and the government in a crisis. For instance, in Israel, the law provides that the central bank can intervene on its own to deal with a liquidity problem but needs the authorization of the Treasury and the government to take over an insolvent financial institution. However in practice the distinction between a liquidity crisis and a solvency problem is rarely clearcut during a crisis, and what initially appears to be a liquidity crisis can very rapidly become an insolvency crisis**.**

Against this background, I will discuss two issues: macroprudential supervision and policy; and the location of supervision.

The development of the notion of macroprudential policy is likely to leave a permanent mark on the development of central banking. There is not yet an accepted definition of macroprudential policy or supervision, but the notion involves two elements: that the supervision relates to the entire financial system; and that it involves systemic interactions. Both elements were evident in the global financial crisis, with analyses of the crisis frequently emphasizing the role of the shadow banking system and of the global effects of the Lehman bankruptcy.

Thus we are talking about regulation of the financial system at a very broad level, going beyond the banking system. We are thus also going beyond bank supervision in considering macroprudential policy instruments – and we are therefore also discussing an issue that requires coordination among different regulators.

No-one who has read Bagehot on panics can think that this is a new problem, but its importance has been reinforced by the dynamics of the most recent global financial crisis, in which a problem initially regarded as manageable – the subprime crisis – gradually developed into the worst financial crisis since the Great Depression, involving financial instruments built on mortgages, and after the Lehman bankruptcy.

What macroprudential policy tools do central banks have? In the first place they have their analytic capacities and their capacity to raise policymakers' and the public's awareness of critical issues. These are reflected in the financial stability reports that some central banks have been producing for over a decade.

What about other macroprudential policy tools? Central banks have been engaged in a search for them since the financial crisis, but the search has not been especially fruitful. Some have defined countercyclical capital requirements[2] as a macroprudential policy tool, presumably because they reflect a macroeconomic assessment and because they apply to the entire banking system. Nonetheless they are not particularly aimed at moderating systemic interactions, and thus it is not clear that they are the archetypical macroprudential policy tool.

More generally, it seems that there are few specifically macroprudential policy tools, and that the main tools that central banks and financial supervisors will be able to deploy to deal with systemic interactions will be their standard microprudential instruments or adaptations thereof.

Like other economies that did not suffer from a domestic financial crisis during the global crisis, Israel has had to deal with the threat of a housing price bubble in the wake of the global crisis. Housing prices, after falling gradually for over a decade, grew by around 40 percent in the last two years. The Bank's housing sector model suggested that while prices in the middle of 2010 were

[2] Although these capital requirements would vary procyclically, the intent is to be anticyclical in terms of their effects on the economy. Hence they are usually defined as countercyclical.

not far above their long-run equilibrium level, a continuation of the rapid rate of increase would definitely put them well above the equilibrium level. Further, the atmosphere in the housing market was becoming increasingly bubble-like, with much discussion of the need to buy before prices rose even further.

Because the exchange rate had been appreciating rapidly, the Bank preferred if possible not to raise the central bank interest rate too often. Since bank supervision is within the Bank of Israel, the supervisor was able to undertake measures that in effect increased mortgage interest rates, without affecting other interest rates. These, together with tax and other measures undertaken by the government, along with measures to increase the supply of land for building, appear to have dampened the rate of increase of housing prices – though it is too early yet to declare the situation definitively stabilized.

In announcing the new measures, the Bank of Israel emphasized that they were macroprudential, and that our aim was to ensure financial stability. In speeches we noted that our measures operated on the demand for housing, and that it would be better to undertake measures that would increase the supply – as some of the measures undertaken by the government soon afterwards were designed to do.

In this case the central bank was in the fortunate position of having at its disposal policy measures that enabled it to deal directly with the potential source of financial instability. Further, the banks are the main source of housing finance, so that our measures were unlikely to be circumvented by the responses of other institutions not supervised by the central bank. Even so, we knew there were better ways of dealing with the price rises, and that it was necessary to cooperate with the government to that end.

Even within a central bank that is also the banking supervisor, questions arise about how best to coordinate macroprudential policy. In the case of the Bank of Israel, which still operates under the single decision maker model (but will shortly cease to do so as a new central bank law goes into effect), it was relatively easy to coordinate, since it was possible to include the bank supervisor

in the non-statutory internal monetary policy advisory committee, and to use the enlarged committee as the advisory body on macroprudential decisions.

More generally macroprudential supervision could require actions by two or more supervisory agencies, and there then arises the issue of how best to coordinate their actions. A simple model that would appeal to those who have not worked in bureaucracies would be to require the supervisors to cooperate and in each case to develop a strategy to deal with whatever problems arise. However, cooperation between equals in such an environment is difficult, all the more so in a crisis.

It is thus necessary to establish mechanisms to ensure that decisions on macroprudential policy are made sufficiently rapidly and in a way that takes systemic interactions into account. The issue of the optimal structure of supervision was discussed well before the recent crisis, with the FSA in the UK being seen as the prototype of a unitary regulator outside the central bank, the twin peaks Dutch model as another prototype, and various models of coordination and non-coordination among multiple regulators providing additional potential models.

The issue of the optimal structure of supervision came into much sharper focus in the wake of the financial crisis, with the perceived failure of the FSA during the crisis having a critical impact on the debate. Major reforms have now been legislated in the United States, Europe, and the United Kingdom. In the Dodd-Frank bill, the responsibility for coordination is placed in a committee of regulators chaired by the secretary of the treasury. In the UK, the responsibility for virtually all financial supervision is being transferred to the Bank of England, and the responsibility will be placed with a Financial Stability Committee, chaired by the Governor. The structure and operation of the new Committee will draw on the experience of the Monetary Policy Committee, but there are likely to be important differences between the ways in which the committees will work. In other countries, including France and Australia, the coordination of financial supervision is undertaken in a committee chaired by the Governor.

At this stage it is clear that there will be many different institutional structures for coordinating systemic supervision, and that we will have to learn from experience which arrangements work and which don't – and that the results will very likely be country dependent.

It is also very likely that the central bank will play a central role in financial sector supervision, particularly in its macroprudential aspects, and that there will likely be transfers of responsibility to the central bank in many countries.

III. Capital Flows in a Small Open Economy

The crisis has thrown up several other issues that will affect central banking in the future. I will very briefly take up two of them: the issue of capital flows; and that of central bank independence.

For small open economies, the issue of exchange rate management has come to the fore, as interest rate gaps have contributed to capital flows on a major scale, sufficient to produce very large appreciations that threaten the continuation of growth. This has led many central banks, including the Bank of Israel, to intervene in the foreign exchange market for the first time in many years, and to an increase in the use of capital inflow controls.

It is clear that the international financial system has to develop rules of permissible exchange market intervention and acceptable methods of controlling unwanted short-term hot money capital flows. The IMF is beginning to study these issues – of what works and what doesn't, of what is acceptable and what isn't – and it is to be hoped that their work and that of others will lead to a better understanding of these issues, that are important particularly to small open economies.

IV. Central Bank Independence

Yet another issue that arises from the crisis and from the extension of the responsibilities of central banks is how to protect central bank independence. It is absolutely clear that the central bank needs to be independent of political

pressures in making its monetary policy decisions. It is also clear that macro-prudential supervision is bound to involve the government, and that structures need to be found to combine needed central bank independence in monetary policy decisions with the need for coordination of supervision of the financial system.

In summary, there is much work still to be done.

Panel introduction
What is useful central banking?
Philipp M. Hildebrand[1]

Dear Svein,

Let me first of all thank you for inviting me to this splendid farewell conference. I am honored and very pleased to be here. This symposium has asked us to reflect on the question of "what is useful central banking?" Needless to say, one can easily imagine a number of long-winded answers to this simple question. Alternatively, I can imagine an exceedingly simple answer, namely: pretty much what Svein and his colleagues at Norges Bank are doing.

Seriously, Svein, let me commend you and your colleagues for a job extremely well done. Much like we do in Switzerland, you have conducted monetary policy for a small country with a highly competitive economy and a currency subject to the sometimes volatile and excessive pressures of the global market place. Given these similarities, it should not surprise you that Switzerland looks to Norway for inspiration. Svein, I have tremendously enjoyed the privilege of being your colleague and wish you much success and satisfaction in the years to come. I am confident that our paths will cross again in the not too distant future.

Now, our panel is meant to address the question of where central banking will go from here. Therefore, allow me to focus my comments on one important challenge that will likely face many of us in the aftermath of the Great Financial Crisis, namely how to reposition our central banks going forward to address adequately the seemingly inevitable macro-prudential policy challenges.

It seems to me that proliferating and in-depth reflections about macro-prudential policies are not just a passing phenomenon. They reflect the fact that one of the key lessons of the Great Financial Crisis is that policy makers

[1] Philipp M. Hildebrand is Chairman of the Governing Board of the Swiss National Bank.

in the Atlantic world have not paid sufficient attention to the macro-prudential character of their financial stability activities. By the latter I mean activities that focus on the system as a whole and take individual banks or financial institutions into account only to the extent that they are systemically relevant.[2]

We clearly have lots to learn about how best to deploy macro-prudential policies. The challenges are vast: excesses in our economies, in our banking systems and in our financial asset markets will first have to be correctly identified.

We will then have to decide what instruments might be appropriate to deal with such perceived excesses or imbalances. Moreover, we will have to face the difficult task of determining the appropriate timing and the right dosage in the deployment of macro-prudential tools. Finally, we will have to be extremely mindful of the interaction between macro-prudential policies with anti-cyclical character and the transmission channel of traditional monetary policy.

In other words, a huge amount remains to be done and we must do it right. Learning is a key element in this process. Today's symposium provides such an opportunity to learn. The starting process will be different from one central bank to another, depending on the histories, the respective experiences during the crisis and the legal and operational set ups and mandates. There is unlikely to be one answer that fits all. Yet I suspect in ten years time, looking back at this moment, there will have been considerable conversion around some general principles. Let me spend a few minutes on how our own broader thinking about macro-prudential policies is evolving at the Swiss National Bank and how we plan to move forward in this area.

* * *

For background, it is important to keep in mind that since the introduction of our new central bank law in 2004, the SNB has a legal mandate to contribute to financial stability. In contrast, we currently have no formal competence in the area of banking supervision.

[2] Essentially SNB definition but compatible with BIS in BIS Quarterly Review, March 2009.

Clearly, this model was put to a severe test during the financial crisis. What is striking about our crisis experience is that our legal mandate was sufficiently broad to allow us to do play a key role in a far-reaching set of measures together with the government and FINMA, the Swiss supervisory agency, to rescue UBS and stabilize the Swiss financial system.

At the same time, a clear and unequivocal lesson has crystallized. There is obviously a large gap between the role the SNB was forced and legally able to play in its real-life crisis management and the absence of any specific formal competence in matters of crises prevention. Very broadly speaking: from this experience and going forward, we see the need for two areas of reform:

First, we believe our financial stability arsenal needs to be enhanced. It should be geared towards augmenting the resilience of the banking system and moderate its pro-cyclical behavior. In other words, given the inevitable role as lender of last resort the SNB will play during a severe crisis and given the fact that the legal mandate clearly provides the SNB with the authority to play that role, it seems self-evident that the SNB must also play a role in reducing the probability of crises emerging in the first place. Macro-prudential supervision which is at the interface between micro-prudential supervision and monetary policy has a key role to play here.

Second, after careful deliberation, it is our sense that in order to be able to play that role, the formal legal competences of the SNB in the area of prevention need to be enhanced carefully. Accordingly and in line with reflection on this topic at the international level, we will work towards achieving that objective. Let me add here that the BIS has been an important intellectual catalyst in this area.

We believe these enhanced competences should be built on two pillars:

First, going forward the SNB should be in a position independently to have access to bank data that is essential to conducting ongoing and adequate financial stability evaluations. Clearly, the fact that the SNB does not have the authority independently to collect data from the systemically relevant banks was a key weakness in our ability to work preemptively in the run-up to the peak of the crisis.

Second, the SNB should have a more formal role to play in proposing or deciding on regulation that clearly impact financial stability (e.g. capital surcharges - in particular Basle III countercyclical buffer, TBTF, interbank-exposures, LTVs). This should be particularly true in the case of regulatory initiatives that aim to reduce the potential pro-cyclicality of the banking sector as these have specific links to monetary policy.

I should add that it is our conviction that we should seek these changes going forward without modifying the formal monetary policy mandate of the SNB. As Governor Zeti has mentioned, safeguarding price stability must remain the key objective of the SNB's monetary policy mandate.

We also see no need at this stage to seek a fundamental overhaul of the model of separation between the SNB and FINMA (since 2007, the SNB and FINMA already operate under a Memorandum of Understanding). I see three reasons to steer away from this discussion. First, I am convinced we should have no illusions about there being a perfect model. Second, it seems to me the risk of an integrated model surely must be that, over time, the independence of monetary policy can be undermined. Third, from a purely pragmatic point of view the task of integrating supervisory and monetary policy functions is a huge task. At least potentially, such a task could prove to be a significant distraction at an inopportune moment for monetary policy.

To conclude, it is profoundly in the interest of the SNB to have a strong and effective regulator who is focused on effective, intrusive and far-reaching micro-prudential supervision. However, such micro-prudential supervision is not enough. Someone must keep an eye on and assess the risks at the systemic level. By design, by experience and by trial and error, central banks are best equipped to do so. But if central banks are to play that role effectively, they must be equipped – both in terms of mandate and tool box – to do it properly. The worst combination would be an implicit or explicit expectation that the central bank fulfills that role but is deprived of the appropriate mandate and the necessary instruments to do so. That is an outcome, central banks all over the world must avoid at all cost.

Panel introduction

Where do central banks go from here?

Lars E. O. Svensson[1]

It is a great privilege to participate in this symposium and to celebrate the achievements of Governor Svein Gjedrem. I have had the benefit of having very good contacts with Norges Bank since the mid 1990s. Under the leadership of Svein and his colleagues and co-workers, I have seen Norges Bank set up its monetary policy in a way that has made it a model for the rest of the world. Norges Bank truly deserves the admiration that it receives from central bankers and academics all over the world. In particular, Svein deserves credit for the novel interpretation – immediately upon his appointment in 1999 – of the instruction from the Ministry of Finance to stabilize the exchange rate, namely that the best way to do this in the longer run was to orient the Bank's monetary policy towards an inflation target. This would enable the Bank to make the best contribution to economic stability and a stable krone exchange rate.

As a background to my comments on the topic of this panel, "Where do central banks go from here?", let me note that, as the world economy recovers from the recent financial crisis and the Great Recession that followed, a debate is underway regarding the causes of the crisis and how to reduce the risk of future crises. The role of monetary policy and its relation to financial stability are also under debate. Some blame the Federal Reserve, saying that its monetary policy was too expansionary after 2001 and that this laid the foundations for the crisis. The lesson to be drawn, they argue is that there is a need to modify the framework of flexible inflation targeting and give a greater role to financial-stability considerations.

[1] Lars E. O. Svensson is Deputy Governor of Sveriges Riksbank. The opinions expressed here are those of the author and are not necessarily shared by other members of the Riksbank's executive Board or staff. Gabriela Guibourg has contributed to this speech.

In my view, the crisis was largely caused by factors that had very little to do with monetary policy. Instead, it was mainly caused by regulatory and supervisory failures in combination with some special circumstances, such as low real interest rates around the world and housing policy in the United States. Neither do I share the view that there is a need to fundamentally modify the framework of flexible inflation targeting. Ultimately, my main conclusion for monetary policy is that flexible inflation targeting - applied in the right way and in particular using all the information about financial conditions that is relevant for the forecast of inflation and resource utilisation at any horizon - remains the best-practice monetary policy before, during, and after the financial crisis.

A conclusion that should be drawn from the crisis is that neither price stability nor interest-rate policy is sufficient to achieve financial stability. Instead, a separate financial-stability policy is needed. In particular, monetary policy and financial-stability policy need to be conceptually distinguished, since they have different objectives and different appropriate instruments, even in cases where the central bank has responsibility for both.[2] Financial stability as an objective of *monetary policy* makes little sense, but it does makes sense as an objective of the *central bank*, if the central bank has the instruments required to fulfil this responsibility.

Let me elaborate on these issues.

Monetary policy after the crisis

Is there any reason to fundamentally modify the framework of flexible inflation targeting given the experience of the financial crisis? I think not. Flexible inflation targeting has worked and continues to work well – before, during and after the crisis. Flexible inflation targeting implies that the central bank aims at stabilizing both inflation around an inflation target and resource utilization around a normal level. This implies choosing a policy-rate path such that the corresponding *forecasts* of inflation and resource utilisation best stabilise inflation and resource utilisation. If the central bank uses all relevant informa-

[2] For a more detailed discussion of these issues, see Svensson (2010, section 5.2).

tion in constructing these forecasts , including the impact of changes in financial conditions on inflation and resource utilisation at any horizon, monetary policy will automatically respond in the best possible way to changing financial conditions (Woodford 2007, 2010a).

One lesson from the financial crisis is that financial conditions may in times of crisis have a strong and deteriorating effect on the transmission mechanism, making standard interest-rate policy less effective. This motivates more research on how to incorporate financial conditions and financial intermediation into the standard models of the transmission mechanism used by central banks. Much progress has already been made in understanding these effects (see Adrian and Shin 2010a, Gertler and Kiyotaki 2010 and Woodford 2010a).

The relation between monetary policy and financial-stability policy

As mentioned, an important conclusion from the financial crisis is that neither price stability nor interest-rate policy are enough to achieve financial stability (Carney 2009, White 2006). Good flexible inflation targeting by itself does not achieve financial stability. Furthermore, the policy rate is an ineffective instrument for influencing financial stability, and policy rates high enough to have a noticeable effect on credit growth and house prices will have a strong negative effect on inflation and resource utilisation, even in sectors that are not experiencing any speculative activity. Specific policies and instruments are needed to ensure financial stability. A good financial-stability policy framework is necessary to ensure financial stability. Monetary policy cannot serve as a substitute.

In general, it is helpful to conceptually distinguish financial-stability policy from monetary policy. Different economic policies, such as fiscal policy, monetary policy and labour market policy can be distinguished according to their objectives, the policy instruments that are suitable for achieving the relevant objectives, and the authority or authorities who control the instruments and are responsible for achieving the objectives. From this point of view, it is clear that monetary policy and financial-stability policy are very different, and understanding this distinction is important.

Monetary policy, in the form of flexible inflation targeting, has the objective of stabilising inflation around the inflation target as well as resource utilisation around a normal level. Under normal circumstances, the suitable instruments are the policy rate and communication. In times of crisis, as we have seen during the current crisis, other more unconventional methods can be used, such as lending at a fixed interest rate at longer maturities, quantitative easing, and so on.

Financial-stability policy has the objective of maintaining and promoting financial stability. Financial stability can be defined as a situation in which the financial system can fulfil its main functions of submitting payments, channelling saving into investment, and providing risk sharing without disruptions that have significant social costs. The available instruments are, under normal circumstances, supervision, regulation, and financial-stability reports with analyses and leading indicators that may provide early warnings of stability threats. In times of crisis, authorities may use instruments such as lending of last resort, variable-rate lending at longer maturities (credit policy, credit easing), special resolution regimes for financial firms in trouble, government lending guarantees, government capital injections, and so forth.

My point here is that this has to be taken into account when considering the lessons of the financial crisis for monetary policy. The interest rate is a blunt and unsuitable instrument for achieving financial stability and it thus makes little sense to assign the objective of financial stability to *monetary policy*. However, it may make sense to assign the objective of financial stability to the *central bank*, if the central bank is given control of the appropriate supervisory and regulatory instruments.

The fact that financial-stability policy and monetary policy are different does not mean that there is no interaction between them. This interaction need to be considered. Monetary policy affects asset prices and balance sheets and can thereby affect financial stability. Financial-stability policy directly affects financial conditions, which affect the transmission mechanism of monetary policy. This means that monetary policy should normally be conducted taking financial-stability policy into account, and financial-stability policy should be conducted taking monetary policy into account. This is similar to how fiscal

policy is conducted taking monetary policy into account, and monetary policy is conducted taking fiscal policy into account. Importantly, under normal conditions, financial stability is handled by financial-stability policy, not by monetary policy.

However, let us suppose that the appropriate and effective instruments for ensuring financial stability are not available, for instance because of serious problems with the regulatory and supervisory framework that cannot be remedied in the short run. In such a second-best situation, if there is a threat to financial stability, one may argue that, to the extent that policy rates do have an impact on financial stability, this impact should be taken into consideration when choosing the policy-rate path to best stabilise inflation and resource utilisation. Such considerations could result in a lower or higher policy-rate path than otherwise, in order to trade off less effective stabilisation of inflation and resource utilisation for more financial stability.[3] To the best of my knowledge, the evidence so far indicates that in normal times such a trade-off is very unfavourable, in the sense that the impact of policy rates on financial stability is quite small and the impact on inflation and resource utilisation is significantly greater. Then, in normal times an optimal trade-off would still result in policy rates directed towards stabilizing inflation and resource utilization with little impact on financial stability.

In particular, it seems clear that monetary policy should not be used to target housing prices. A considerable amount of research has concluded that policy rates have a modest impact on housing prices but a substantial impact on output, implying high real costs for using the policy rate for this purpose (Assenmacher-Wesche and Gerlach 2010). If housing prices are considered a prob-

[3] Such considerations could include evidence of the "risk-taking channel" as in Borio and Zhu (2008). Adrian and Shin (2010a, b) argue, in a model with such a risk-taking channel, that short interest-rate movements may have considerable effects on the leverage of securities broker-dealers in the market-based financial sector outside the commercial-banking sector. If we assume that the risk of a financial crisis increases as this leverage increases, and that policy rates affect leverage, then policy rates would affect the risk of a financial crisis (Woodford 2010b). However, new regulation is likely to limit excess leverage and limit the magnitude of these affects. The size of the market-based financial sector may end up being smaller after the crisis. In Europe, Canada and the Nordic countries, commercial banks dominate the financial sector.

lem, instruments such as loan-to-value restrictions, amortization requirements, a property tax, or restrictions on the tax deductibility of mortgage rates are examples of instruments that have much lower real costs and hence a considerable comparative advantage compared to the policy rate in affecting housing prices (Svensson 2010b).

Flexible inflation targeting with mean square gaps (MSGs) – another step towards increased transparency

The adoption of numerical inflation targets has entailed great progress for practical monetary policy and made it possible to measure and evaluate the target fulfilment of monetary policy in a much more efficient manner than before. However, the fact that monetary policy is not just directed towards stabilising inflation, but also towards stabilising resource utilisation has, in the absence of quantitative measures of stability in these variables, made it difficult to measure and evaluate target fulfilment in this stability dimension. This makes it difficult to decide which policy-rate path best stabilizes both inflation and resource utilization.

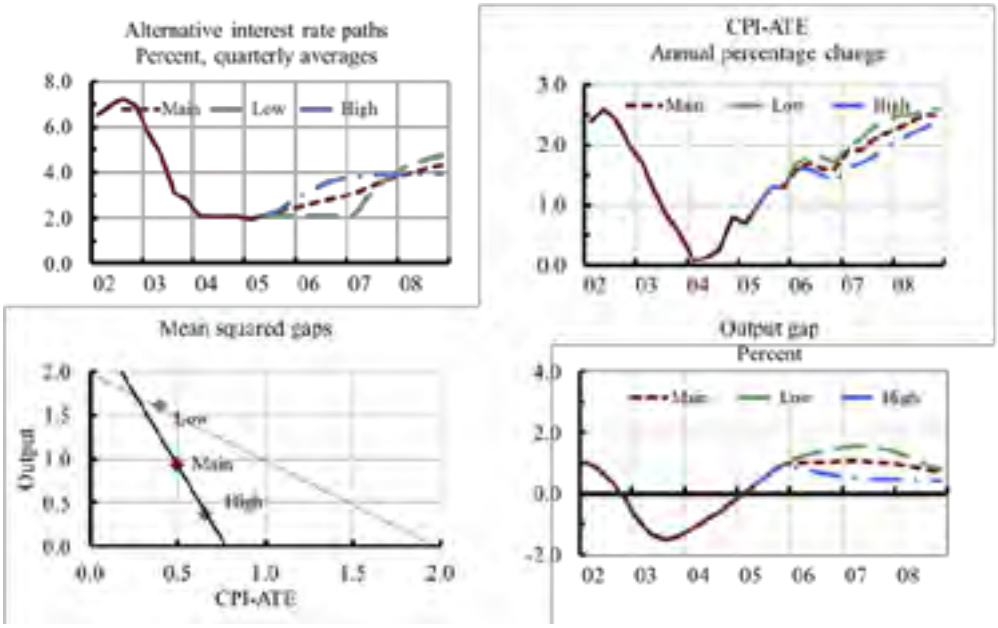
My suggestion is to use mean squared gaps for the inflation forecast and for the resource- utilization forecast as measures of the stability of inflation and resource utilization.[4] Figure 1 provides an example, using graphs from Norges Bank's *Inflation Report* of June 2005.

In figure 1, the top left panel shows three alternative policy-rate paths, the main path chosen by Norges Bank at the time and two alternative paths, a lower and a higher path. The top right panel shows the corresponding forecast of inflation according to the index CPI-ATE, the consumer price index adjusted for tax changes and excluding energy products. The bottom right panel shows

[4] See Svensson (2010a, c) for details. The mean squared gap for inflation is calculated as $\sum_{\tau=0}^{T}[\pi(t+\tau,t)-\pi^*]^2/(T+1)$, where $\pi(t+\tau,t)$ denotes the forecast in quarter t of inflation in quarter $t+\tau$ and π^* denotes the inflation target. The mean squared gap for output is calculated as $\sum_{\tau=0}^{T}[y(t+\tau,t)-y^*(t+\tau,t)]^2/(T+1)$, where $y(t+\tau,t)$ denotes the forecast in quarter t of output in quarter $t+\tau$ and $y^*(t+\tau,t)$ denotes the forecast in quarter t of potential output in quarter $t+\tau$, and T is the forecast horizon (normally 12 quarters).

the corresponding forecasts of the output gap, the gap between output and potential output. These three panels are shown in the June 2005 *Inflation Report*. We see that there is a tradeoff between stabilizing inflation and resource utilization, measured as the output gap. The lower (higher) policy-rate path stabilizes inflation better (worse) around the inflation target of 2.5 percent but resource utilization worse (better). The Qvigstad (2005) necessary (but not sufficient) condition for optimal policy is satisfied, namely that the inflation gap and the output gap should be of opposite signs.

Figure 1. Monetary policy with mean squared gaps (Norges Bank, June 2005)



The bottom left panel, with the mean squared gap for inflation plotted along the horizontal axis and the mean squared gap for output plotted along the vertical axis, has been added by me. The closer the mean squared gap for inflation and output is to zero, the better inflation or the output gap is stabilized. The less sloped straight line is an iso-loss line that corresponds to equal weight on

inflation and output-gap stabilization, that is to a "lambda" equal to one.[5] With such equal weight, the high policy-rate path is preferred. The steeper straight line corresponds to lambda equal to 0.3, that is, with a weight on output-gap stabilization equal to 0.3 relative to the weight on inflation stabilization. With such a weight, the main policy-rate path is about as good as the higher and clearly better than the lower policy-rate path. At the time, Norges Bank had announced that its decisions were consistent with a relative weight on output-gap stabilization equal to 0.3 and a relative weight on interest-rate smoothing of 0.2 (Bergo 2007 and Holmsen, Qvigstad, and Røisland 2007). With some weight also on interest-rate smoothing, the main policy rate is best.

The use of the mean squared gaps is one more step towards more systematic and transparent inflation targeting, in which central banks can be evaluated and held responsible for their decisions with even greater accuracy than before, following the introduction of numerical inflation targets, published forecasts of inflation and the real economy, published policy-rate paths and other important steps taken in the development of a systematic and transparent monetary policy.

[5] An iso-loss line shows combinations of mean squared gaps for inflation and output that are equally good. Combinations on an iso-loss line closer to the origin are better in terms of stabilizing inflation and the output gap. See Svensson (2010a) for details.

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Final remarks

Svein Gjedrem[1]

Dear colleagues and guests,

The question raised today was "What is a useful central bank?" A central bank is different from other public bodies in that it has its own balance sheet, independent budgetary authority and its own accounts. To build confidence in the bank over time, it must manage this form of autonomy in a sound manner.

In the morning session, Michael Bordo and Gianni Toniolo discussed historical perspectives on central banking. Central banks were put to a severe test in the interwar period. Central bankers sought the solution to the turbulent times by looking back at the stability of the gold standard. But the policy came with a cost. Central banks were held responsible for the deep recessions in the 1920s and early 30s.

The pendulum swung toward less independence for central banks, what Michael Bordo referred to as the *dark age*. The 60s and the 70s were probably an all-time low for central banks, including Norway.

The objectives pursued by the central bank are for the common good. However, we must manage our mandates well, a lesson drawn by both Bordo and Toniolo.

Today's monetary policy frameworks, either explicit inflation targeting or other formulations of the objective, are partly a reflection of the experience from the *dark ages*. Central banks had to be given a greater role in promoting a well functioning economy. So, we have already learned from our economic history, even without inflating our staff with economic historians, as Toniolo suggested.

[1] Concluding remarks by Governor Svein Gjedrem, Norges Bank, at Norges Bank's symposium "What is a useful central bank?", 18 November 2010.

Central Bank independence is again at stake in the aftermath of the most recent crisis. Governor Zeti Akhtar Aziz discussed the challenge of preserving independence while co-operating with the government in resolving financial crises. She also called for co-operation across countries and said that stand-alone arrangements may not lead to the desired outcomes. Phil Turner warranted an assessment of the interplay between QE and the issuance of government debt. (In the case of Norway, this topic is not imminent.)

Stefan Ingves reminded us that increased openness generally has proven useful.

So – what is a useful central bank? One conclusion might be that the question itself should be raised over and over again. It should be a permanent guideline for central bankers.

It is now time to close the symposium. The discussion today has offered a wide range of issues for discussion. I have enjoyed all the contributions – and I want to thank all presenters, discussants, keynote speakers and panellists for your efforts. For those of you who are not staying, I wish you a safe and pleasant journey home.

Thank you.

Norges Bank Symposium

What is a useful central bank?

18 November 2010

Norges Bank

Programme committee

Sigbjørn Atle Berg
Øyvind Eitrheim
Jan F. Qvigstad
Marius Ryel

Programme

8:30 – 9:00 Registration

Coffee and biscuits

Opening Session

9:00 – 9:15 *Words of welcome*

Jan F. Qvigstad, Deputy Governor, Norges Bank

Session I: Historical perspectives on central banking

Chair: Øyvind Eitrheim, Norges Bank

9:15 – 10:00

Long term perspectives

Michael D. Bordo, Rutgers University

10:00 – 10:45

Lessons from the interwar years

Gianni Toniolo, Duke University

Coffee Break

10:45 – 11:15

Session II: Perspectives from the emerging economies

Chair: Sigbjørn Atle Berg, Norges Bank

11:15 – 12:00

Challenges in developing financial markets

Zeti Akhtar Aziz, Governor, Central Bank of Malaysia

Lunch Ground floor ("Speilhallen")

12:00 – 13:00

Session III: Central banking: Theory and practice

Chair: Marius Ryel, Norges Bank

13:00 – 13:45

Fiscal dominance, the long-term interest rate and central banks

Philip Turner, BIS

13:45 – 14:30

Challenges for design and governance

Stefan Ingves, Governor, Sveriges Riksbank

Coffee Break

14:30 – 15:00

Panel session: Where do central banks go from here?

Moderator: Stefan Gerlach, IMFS Goethe University of Frankfurt

15:00 – 17:00

Panelists:

Michael D. Bordo, Professor, Rutgers University,

Stanley Fischer, Governor, Bank of Israel,

Philipp M. Hildebrand, Governor, Swiss National Bank,

Lars E. O. Svensson, Deputy Governor, Sveriges Riksbank

Closing Session

17:00 *Final remarks*

Svein Gjedrem, Governor, Norges Bank

Norges Bank Symposium

What is a useful central bank?

18 November 2010

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Norges Banks skriftserie / Occasional Papers No. 42

ISSN 0802-7188 (PRINTED), 1504-0577 (ONLINE)
ISBN 978-82-7553-603-5 (PRINTED), ISBN 978-82-7553-604-2 (ONLINE)