

Changing Role of Central Banks: Comparison of Practices

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Abstract: *Central banks could not come to existence without the power of the government behind them, and in some cases they would disappear if their governmental protection ended. Nonetheless, the central banks have evolved through time in such a way that now they serve important economic goals. Thus central banks turned into a great example by changing their roles and responsibilities to the state and society. Both historical experience and the public choice theory show us that such organizations might be dangerous for society if they are abused by the government. There is a strong pressure to make central bank independent of the government. The independence of central banks generally invites new problems: the accountability, responsibility, and legitimacy of operational activities questionable. Most central banks evolved out of private institutions, which at some point were endowed with special statutory powers, such as a monopoly on the issue of banknotes, and perhaps also special responsibilities, such as with respect to short-term financing of the government. Gradually they were transformed into public institutions, through government appointment of governors and perhaps other senior officials, and eventually often through outright nationalization. It was the politicians who have created central banks to serve their purposes. The 19th century central banks were usually created to serve fiscal needs of governments. In the 20th century central banks were established by political pressures as well, sometimes for governmental fiscal needs, sometimes for other particular reasons. In case of USA it is said "After all, the FED is a political institution designed by politicians to serve politicians." The same applies to all other countries across the globe, irrespective of political and ideological belief of socialism, capitalism, liberals and fundamentalists. The role of central bank changes with the changes in political power at the center. This paper tried to present that Central banks were historically created first to manage the state's credit: this is the story of the oldest central banks, the*

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Swedish Riksbank, the Bank of England, as well as of a newer wave of central banks that followed the example of the Bank of France. It was suspicion of the politics behind a designated state-oriented central bank that led to the non-renewal of the charters, and the demise, of the First and Second Banks of the United States. Resistance to the process of political capture led in some countries such as Switzerland at the end of the 19th century has become an example. A second historical motivation for the creation of central banks involved the safeguarding of a financial system, and the maintenance of an adequate supply of credit. In the mid-19th century, a new generation of central banks was established essentially to manage payments systems, and stabilize fragile banking systems: this was the motivation behind the German Reichsbank (1875) or the Federal Reserve System of the United States (1914). It was only after the end of metallic monetary standards and the advent of paper-based money that central banks began to be concerned with the problem of price stability. Finally, this paper documented a comparison of the changing roles central banks in few countries including Bangladesh.

1. Introduction

There are organizations in modern economies that neither evolved spontaneously for some economic reason (like e. g. firms), nor were set up out of pure necessity (like e. g. army), but were established by governments for their special interests. Usually, these organizations could not come to existence without the power of the government behind them, and in some cases they would disappear if their governmental protection ended. Nonetheless, many of these organizations have evolved through time (and sometimes they have changed their environments as well) in such a way that now they sub serve important economic goals—some of them even have a vital role in modern economies. A great example of such an organization is a Central Bank, but many other instances are at hand. Both historical experience and the public choice theory show us that such organizations might be dangerous for society if they are abused by the government. The theory and experience also show us that there might be (at least sometimes) a strong incentive for the government to abuse these organizations. That is why there is a strong pressure to make some of these potentially dangerous organizations independent of the government. However, with independence new problems might arise: the accountability, responsibility, and legitimacy of these organizations might become questionable.

Most central banks evolved out of private institutions, which at some point were endowed with special statutory powers, such as a monopoly on the issue of bank-notes, and perhaps also special responsibilities, such as with respect to short-term financing of the government. Gradually they were transformed into public institutions, through government appointment of governors and perhaps other senior officials, and eventually often through outright nationalization. This process started in the 1930s (e.g. the Reserve Bank of New Zealand, the Bank of France in

1936, when Prime Minister Léon Blum assumed appointment of virtually all the Regents, the Bank of Canada in 1938, but was greatly accelerated by the financing and other requirements of the Second World War and its immediate aftermath. The Bank of England was nationalized in 1946, the Reserve Bank of India in 1948. From the beginning the Federal Reserve System of the United States had a peculiar status. Although created by Federal legislation in 1913, it is technically owned by its member banks, which appoint 72 of its 108 regional bank directors, who in turn select the regional bank presidents (subject to approval by the Board of Governors in Washington), who in turn participate in framing monetary policy. The seven governors are appointed by the President of the United States, subject to confirmation by the Senate, for 14-year non-renewable terms, with the chairman (Alan Greenspan, 1987-2006) appointed for a renewable four-year term. Originally the Secretary of the Treasury and the Comptroller of the Currency, both public officials, sat as ex officio members of the Board of Governors, but that provision was eliminated in 1934. The Federal Reserve thus remains a curious hybrid, a privately owned, quasi public institution, whose sole function is central banking (including bank regulation and supervision). Central banks have long valued their independence and, when not literally independent of government, their operating autonomy. Immediately before and during the Second World War most central banks became the agents of their governments, in particular of ministers of finance, de facto if not literally nationalized until later. They regained their autonomy of action only gradually (the Federal Reserve in the celebrated "accord" of 1951, when the Fed ceased to support the government bond market), with many central banks achieving statutory independence only in the 1990s.

Even then, important ambiguities still remain, for example with respect to the setting of exchange rate policy and the management of exchange rates. Whether decisions are made by governments or by central banks is not always clear, nor who runs exchange risk, although execution is almost invariably the task of central banks. Thus "central bank cooperation," or lack of it, often reflects the decisions of governments, not of central banks themselves. This ambiguity was concretely acknowledged when central bank governors were invited to join the Group of Ten in 1962 and the informal G-5 ministers of finance meetings starting in 1973, and their representatives also attended many meetings of the deputy finance ministers. Even during the 1920s, when the ethos of central bankers was to keep governments at a respectable distance, and the Federal Reserve Bank of New York took the lead in cooperating with European central banks, Benjamin Strong regularly reported his intentions to the Board of Governors and to Secretary of Treasury Mellon (who at that time sat with the Board), and thus had their actual or tacit approval in his various proposals and actions.

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well as of a newer wave of central banks that followed the example of the Bank of France. It was suspicion of the politics behind a designated state-oriented central bank that led to the non-renewal of the charters, and the demise, of the First and Second Banks of the United States. Resistance to the process of political capture led in some countries such as Switzerland at the end of the 19th century has become an example. A second historical motivation for the creation of central banks involved the safeguarding of a financial system, and the maintenance of an adequate supply of credit. In the mid-19th century, a new generation of central banks was established essentially to manage payments systems, and stabilize fragile banking systems: this was the motivation behind the German Reichsbank (1875) or the Federal Reserve System of the United States (1914). It was only after the end of metallic monetary standards and the advent of paper-based money that central banks began to be concerned with the problem of price stability.

This is precisely what has happened in the case of central banks in the earlier times. In the second half of the 20th century, central banks were seen as an inevitable part of market economies, which were necessary to stabilize the business cycle and the banking system, and perhaps also the price level. Then new theories and evidences appeared showing that the government can benefit from an abuse of the monetary policy or the central bank itself. White (1999) portrays that there is no spontaneous tendency for the evolution of central banks. Definitely, some of the functions provided nowadays by central banks (such as emergency lending, banking supervision to decrease information asymmetry etc.) may be provided on the voluntary basis by private clearing houses or other organizations. But there is no spontaneous tendency to make money independent of a commodity, or create a centralized reserve system, or an authority able to carry out the monetary policy etc. Bagehot (1873, ch. 2) puts it this way: “. . . the natural system that which would have sprung up if Government had let banking alone is that of many banks of equal or not altogether unequal size.” In other words, if politicians did not meddle with the banking systems in the past, there would be no central banks nowadays—only commercial banks of a similar size interconnected by private clearing houses. Some of these banks would issue bank notes convertible at par into specie.

It was the politicians who have created central banks to serve their purposes. Bagehot (1873), Smith (1936), and White (1984, 1999) among others put across that in the 19th century central banks were usually created to serve fiscal needs of governments. In the 20th century central banks were established by political pressures as well, sometimes for governmental fiscal needs, sometimes for other particular reasons (see Rothbard (1999), and Friedman and Schwartz (1963) for the account for the Fed. However, in all cases central banks were established by politicians. Kane (1980) says (for the Federal Reserve System): “After all, the Fed is a political institution designed by politicians to serve politicians.” (Italics is Kane’s.)

Of course, in many cases the actual outcomes of the politicians' acts have been quite different from their intentions. Most politicians in the 18th or 19th century did not plan to establish a central bank at all—they simply wanted to obtain a credit for the government on more favorable terms. The obvious way to get it (at least from their perspective) was to give some bank privileges or even monopoly power. Such a bank would be both willing and able to offer cheaper credit to the government in return. The modern central bank has evolved step by step from these privileged banks. As Bagehot (1873, ch. 3) says: "Thus our one reserve system of banking was not deliberately founded upon definite reasons; it was the gradual consequence of many singular events, and of an accumulation of legal privileges on a single bank which has now been altered, and which no one would now defend." To put it in a different way, a central bank is neither a product of a spontaneous evolution, nor an outcome of economic reasoning and planned governmental policy. It is a product of a "political evolution." Thus the origin of a central bank shows us that a central bank is an organization with quite different characteristics from organizations that have evolved spontaneously. It was given many privileges: the note-issue monopoly, power to set either the monetary base or interest rates, and the right to regulate commercial banks can be mentioned as the most important ones. These privileges are granted and protected by the government—without its power they could be neither established, nor preserved. In this sense the central bank shares the part of the governmental power while it is, because of its banking origin (at least from the legal point of view), a separate organization.

We have seen above that the central banks were created by politicians to serve their special interests, but through the time they obtained special rights and privileges that allowed them to conduct the monetary policy. This was made possible by the governmental power that guarantees these rights. At the same time the banks are given objectives by the government. From this point of view the management of a central bank is bureaucracy, or a bureaucratic management, see Mises (1944). Central banks have no inherent goals, only the goals given by the government. But the same does not hold for its managers. The central bankers are agents of the government (and of the public), but poorly constrained ones. It allows them to act in their own interests. Therefore, to understand the behavior of a central bank we have to first understand the incentives of its managers. This is what the theory of bureaucratic behavior of central banks explores.

The general concept of bureaucracy and its behavior goes back to Weber (1997). The approach was then applied to central banks in many papers on the theory of bureaucratic behavior of central banks; for the summary see White (1999, ch. 8). Some of the classical authors in this field are Acheson and Chant (1972, 1973a, and 1973b), Friedman (1982), Kane (1980), and Toma (1982). The theory views central bank managers as poorly constrained agents who may seek their own interests, which may deviate the monetary policy they carry out from its optimal course

(whatever it may be). The authors analyze the general incentives of the central bankers, and then use their findings to explain some deviations of the monetary policy practices from its theory. Let us summarize the major incentives attributed by the theory to the central Bankers. The theory assumes that the utility of the central bankers is derived first of all from their prestige, and safety (or the self-preservation of the central bank). Other potential bureaucratic goals (like on-the-job consumption, hoarding of power, or high wage rates) are neglected—either the authors assume they are not important for the central bankers, or that they do not have a considerable influence on the monetary policy of the bank.

Prestige is assumed to be a goal per se for a central bank. It is derived from the position of the bank in the social hierarchy. It “reflects the public’s and other groups’ concern with the goals associated with the bureau, the bureau’s degree of responsibility for such goal and the public’s and other groups’ opinion of actual performance relative to the expected performance.” (Chant–Acheson, 1972, p. 14) Their prestige is influenced by many factors: The importance the public associates with the bank’s goals, the public’s rating of the bank’s performance, the bank independence et cetera. The theory predicts that the central bankers tend to act in such a way that enhances or at least protects their prestige. Central bankers’ safety includes two interrelated parts: They seek to preserve the “life” of the bank, and they seek to preserve their jobs there. The preservation of the bank is necessary for their (the banker’s) own job safety, and also his prestige as it signals the importance of the bank in the economy. These two ultimate objectives (prestige and self-preservation) create an incentive structure for the central bankers’ behavior. The theory predicts many phenomena we can observe in the real world (some of them were mentioned above).

First of all, a central bank seeks to keep its operations secret. It usually resists offering information about its actions. Such secrecy not only raises the prestige of the bank, but it also protects it against criticism. The same reasons have motivated the bank not only to obfuscate rather than offer information, they also motivate it to create a “central bank mythology”—to persuade the public, the government etc. that the central bankers are fierce fighters against inflation, that they are able to carry the monetary policy out better than any ironclad rule, and that their task is extremely complex and beyond all understanding of laymen on the one hand, but on the other hand that they cannot be blamed for any failure because there are many factors affecting the policy outcomes out of their control, because the transmission is not well-understood et cetera. This way all successes can be attributed to the bank, but all failures can be attributed to external shocks, irresponsible fiscal policy et cetera. Under the information asymmetry the bank can always argue that without its provident policy the outcomes would be much worse. (For details see especially Friedman, 1982, and Acheson–Chant, 1972, 1973a, 1973b.)

Second, for the same reasons a central bank usually opposes any ironclad rules and

sticks to incomplete discretionary policies, and complex instrument-mixes, because it further lowers the ability of outsiders to monitor the actions of the bank—and thus to criticize it for a poor performance. Moreover, if the bank had admitted that the discretionary policy could be replaced by a rule (i. e. by an automaton), its prestige would have diminished to zero (ibid, see especially Friedman, 1982). Third, the theory predicts that a central bank will struggle for its independence. If a bank is independent, and its responsibility for the monetary policy is not shared with other agencies, its prestige is *ceteris paribus* higher.

Central banks have generally had three main objectives or functional roles: (i) To maintain price stability, subject to the monetary regime in current operation, for example the gold standard, a pegged exchange rate or an inflation target. (ii) To maintain financial stability, and to foster financial development more broadly. (iii) To support the state's financing needs at times of crisis, but in normal times to constrain misuse of the state's financial powers. In the past this meant preventing debasement and misuse of the inflation tax. Prospectively it may in future also involve preventing misuse of the bank tax.

Naturally, the balance between these three objectives has shifted over time, with support for state financing becoming prominent during wartimes. Indeed, several of the first central banks to be established, notably the Bank of England and the Bank of France, were founded to help provide war finance. In the absence of wars, it is the shifting balance between the central bank's monetary policy (stable prices) and its financial stability role that usually generates most interest. In this latter respect, we may perhaps identify three main stable epochs from the past, with the shortest periods of confusion and search for a new regime/system in interregnums between them. These three periods are: (i) the Victorian era, say from the 1840s until 1914; (ii) the decades of government control: the 1930s until the end of the 1960s; and (iii) the triumph of the markets: from the 1980s to 2007. The period from 1914 to 1931–33 was a confused interregnum including World War I, followed by a failed attempt to re-establish the gold standard (Eichengreen (1992)). Similarly, the 1970s was another confused interregnum between the subservience of monetary policies to government control, and the establishment of a free market system, with the central bank following a regime of inflation targeting.

2. Objective and Structure of the paper: This paper attempts to evaluate the role of central banks in different economic, financial and political regimes. In particular, this paper discusses the roles and objectives of the central banks under the changing environment of political philosophy, business and economics both in national and international perspectives, in rich and poor countries, in command and market oriented economies, and in recession heat and boom situations. This paper also looks into generic functions and changing patterns of the central banks in dealing with the situation mentioned herein. Given these, the paper is divided

into eight sections. *Section one* discusses the theory of the changing roles of central banks. The key concepts on the role of organization vs. institutions and central bank independence have already been addressed. *Section two* describes the historical evidence of changing roles of central banks. *Section three* highlights the future role of central banks under the changing economic and political scenario of a country. Moreover it touches on the essence of central banks in terms of bank tax, sanctions, debt management, bank resolutions, interest rate settings, interaction with other regulators, structural management of the development of financial sectors, and the future of central cooperation. Section four produces evidence of the changing roles of central banks in the market economies like USA, UK, France and Germany showing the pattern of central bank independence positions since their inception. Section five documents the post crisis role of central banks. Section six highlights the communication and stabilization policy. Section seven highlights on the developmental role of central bank by providing evidences from Europe and North America covering developed and developing countries. Section eight presents a brief description on the origins and motivations of establishment, objectives and functions, independence since the inception highlighting the changing economic environment. Countries covered from Europe include Sweden, England, Norway, Germany and France. North American country includes USA and Chile from South America. African country include Zambia, and from Asian countries India, Sri Lanka, Vietnam, Kuwait and Bangladesh. Section nine summarizes the paper.

3. Theories on the changing roles of central banks

This section will discuss how networks and relations between key individuals influenced the changing role of the central banks and will also examine the extent to which the central banks have held a mediating position between politicians and financial institutions, and between domestic and international concerns. Can this position –or the lack of such a position- as a boundary organization explain how and why a central bank had developed a new role during a particular period. Another fruitful theoretical contribution within the dynamic-institutional research tradition is provided by the political scientist Stephen Bell, who adds a third level of analysis to the study of changing central banks, namely the institutional environment surrounding these banks.

Despite the fact that the two above research traditions are partly complementary, in other respects they can also be viewed as competing, especially as regards the generation of general theories. Even if most scholars of the dynamic-institutional tradition primarily analyze particular historical cases, some also aim at the generation of more abstract general theories. Unlike the static-generalizing tradition, however, the general theories of the dynamic-institutional tradition attach great importance to the historical and institutional context of central banks in order to understand their development and behavior. Thus, rather than trying to

de-contextualize, simplify and fix central bank behavior, these general theories incorporate social and institutional complexity as well as dynamic perspectives in order to understand how and why the behavior of central banks change. In our context, one of the most interesting theoretical perspectives within the dynamic-institutional tradition has been developed by the sociologist Susan E. Stockdale, who has explained the nature and timing of shifts in CBI by comparing four twentieth-century legislative events in the USA and Great Britain: the 1935 Banking Act (US), the 1946 Bank of England Act (GB), the 1980 Monetary Control Act (US), and the 1998 Bank of England Act (GB). While the two earliest of these events represent shifts towards less CBI regarding monetary policy, the two later events were shifts toward greater independence. Stockdale interprets central banks as organizations that exist in the boundary between state, society, and economy. As boundary organizations, they mediate the relationship between these realms by managing the tension not only between the public and private sectors, but also between domestic and international concerns. The concept of boundary organizations, which was originally derived from principal-agent theory, has been promoted most effectively by the political scientist David H. Guston, who argues that the success of a boundary organization is determined by principals on either side of the boundary, both of whom rely on the boundary organization to provide them with necessary resources. Applied to central banks, this would mean that their chances of success in terms of political influence and autonomy depends on their ability to act as intermediaries and provide necessary resources to principals of, for example, the political authorities on the one hand, and the financial institutions on the other. As pointed out by Stockdale, changes in the role of central banks can thereby be explained not only by exogenous factors, such as changes in political and economic conditions, but also by factors endogenous to central banks themselves, such as ideological and mental elements, which central bank officials can influence through networking and active participation in policy-making processes. Hence, according to this perspective, the degree of CBI is a direct consequence of boundary construction, reconstruction, and maintenance activities of central bank officials.

The theory on boundary organizations brings light to two mutually dependent levels of analysis that are necessary to explain changes in the role of a central bank: the individual level with central bank officials and other principal actors who take part in policy-making, and the organizational level with its focus on the position of the central bank as an organization in this policy-making environment. In his examinations of Australia's recommitment to CBI in the 1990s, Bell emphasizes the importance of the international context to domestic policy-making processes. Based on an inductive, historically grounded political economy approach, Bell introduces a model of 'embedded statism' that places such domestic processes, in which politicians and central bankers act in relatively closed 'state-directed' monetary policy network, in a wider, international context. Bell argues that standard

theories of political science based on closed economy models are insufficient in order to explain Australia's recommitment to CBI since they exclude the fundamental structural changes and globalization of international financial markets that embedded this domestic process. Whereas political scientists traditionally have tended to view changes in the role of central banks as a result of domestic pressure group politicization over monetary policy, political business cycles and government-central bank conflict only, Bell argues that these domestic processes are decisively influenced by the international institutional, political and economic context in which they take place.

In accordance with the approach of the dynamic-institutional tradition, Bell limits his model of state embeddedness to a specific historical setting: the globalized economy of the 1980s and 1990s. However, perhaps his theoretical perspectives also can be applied to the pre-globalization period after World War II. During the first postwar decade, a new institutional framework for the exchange of goods and capital had to be developed to replace the former gold standard system. As a small, traditionally open economy, Norway totally depended on taking part in this process, which was characterized by much uncertainty as well as economic and political unrest. Based on Bell's model of embedded statism, the question in our context is thus to what extent and in what way did this international process affect the development of a new role for the Bank of Norway.

In his most recent academic contribution, Bell has focused on another important dimension in the study of central banks, namely the balancing of theory versus practice. Commenting on the contemporary literature on CBI, Bell argues that although this model has been underpinned theoretically, there is a critical shortage of empirical studies on how CBI has worked in practice. Based on his own empirical studies, Bell questions the theoretical presumptions that monetary policies and independent central banks are characterized by rule compliance and transparency (such as inflation targeting and publications of inflation forecasts) rather than discretion and political consultations in policy-making. Bell argues that the very nature of central banking, as part of a political system, encourages various forms of non-transparency, and he rejects the idea that central banks are insulated from particular interests and thus 'depoliticized'.

Bell's call for empirical studies of today's central banking agrees well with Stockdale's emphasis on the need for such examinations in order to determine the changing role of central banks also in a historical perspective. Moreover, Bell and Stockdale share a common theoretical view of central banks as institutionally embedded, yet capable of maneuvering purposefully within this institutional framework. As Bell has described it:

The role of institutional arrangements is context specific and variable. Neither governments nor central banks are necessarily passive in the face of institutional

arrangements and their strategy in this respect will depend on their own motives and on the wider context.

In order to understand how and why the role of the central bank changed after World War II, such general, yet historically rooted theories on changing central banks are useful, among other things, for empirically examining, identifying and explaining social relations and behavioral characteristics. In the following, there will be an elaboration on the approach to the theory and its application in general.

Theoretical considerations

Basically, it has an eclectic approach to theory in the sense that it applies to various theories or parts of theories, which can shed new lights on the different aspects of particular historical studies. Along with many historians, and in contrast to natural sciences and many social scientific disciplines, the approach to theory is not driven primarily by an ambition to develop a new theory. Instead, it can be said that a theory is a source of new research questions, concepts, and explanatory models, which can add to the understanding of historical events. Theories enter this understanding as the instruments for creating historical news rather than as part of an objective of theory-making.

All scholars use theory throughout the research process, from the generation of research questions, via the selection of empirical evidence, to the interpretation and presentation of their findings. Whereas some disciplines apply theories explicitly by requiring that scholars state their theoretical standing in detail. Historians traditionally have used theories more implicitly, for instance, interpreting actors as rational or utility maximizing agents without actually pronouncing any specific framework of behavioral theory.

A classic argument for the first approach is that explicit theoretical accounts make underlying assumptions more visible and easier to evaluate, while scholars of the latter tradition argue that a strict and complete theoretical framework will impose “tyrannical” guidelines on research and restrict the analytical perspectives of researchers. A compromise between these two extremes, which is preferred by many historians today including myself, is to select certain key concepts and build loose theoretical frameworks, which can contribute to systematizing a course of events and clarifying causal mechanisms without being too deterministic.

Institutional theory includes variants of different behavioral assumptions and epistemological approaches, such as economic institutional theory, which regards individuals as rational actors who use cost-benefit logic when they relate to their institutional setting, and sociological institutional theory, which usually emphasizes how the structural surroundings determine individual actions by the internalization of values and establishment of routines. A common feature, however, is the perception that institutions constrain and regularize individual behavior, as expressed by the economic historian Douglass C. North:

[Institutions] establish the cooperative and competitive relationships which constitute a society and more specifically an economic order (...). It is the institutional framework which constrains peoples' choice sets.

According to North, institutions control human behavior much in the same way that rules of a game control the players. He uses the metaphor of a soccer game, and argues that the institutional rules that influence human action can be compared to the three types of rules that structure this game. There are formal rules, which lay down the number of players, the size of the pitch, and how to carry out the game; informal rules, which constitute the culture and norms that create notions such as fair play and team spirit; and meta-rules, which determine how to change the rules. By using the metaphor of a game, North acknowledges that individuals are not free to do entirely what they want, but at the same time he presents the rules as relatively explicit and understandable. As a representative of the economic branch of institutional theory, he also emphasizes the ability of individuals to reflect consciously upon their institutional framework and choose whether or not they should obey the formal and informal rules. In this respect, North's approach diverges from other branches of institutional theory, more oriented towards sociology, which tend to see institutions as internalized norms and values that individuals follow routinely. Some sociologists, associated with a so-called cognitive branch of institutional theory, go even further and regard institutions as symbols, words, signs, gestures that shape the meanings that the actors attribute to objects and activities, and help them make sense of what is happening. In the terminology of North's soccer game metaphor, this far more abstract approach to institutional theory entails that the game not only involves rules and enforcement mechanisms, but also consists of socially constructed players. From an eclectic's point of view, the various behavioral theories and epistemological traditions of institutional theory do not necessarily represent a problem. On the contrary, they can make an excellent starting point for discussing different interpretations of human interaction and for giving balanced assessments of historical events. People are multi-dimensional, and human interaction is a complex matter. Thus, rather than constructing general theories by reducing the number of dimensions shaping human behavior, as many social scientists would do, we aim at accentuating and understanding this complexity by applying different theoretical perspectives. As a historian, one would believe that human behavior cannot be generalized but depends on the historical and geographical setting in which it takes place.

Human behavior is not either rational and profit maximizing or totally determined by external forces; it is usually a combination of these extremes. People might be partly trying to increase their personal power or wealth, but at the same time be influenced by their institutional setting, a setting upon which they can reflect only partly, since it is, to some extent, internalized. In other words, people are complex, and if scholars operate with too rigid and simplified behavioral assumptions, they

might miss out on important aspects of their object of study. Institutional theory generally emphasizes the stabilizing effects of rules, norms and values on social developments as well as individual behaviors. However, from the 1920s to the mid-1950s, the political, economic and cultural environment underwent considerable changes, which means that the period in question was one of institutional change rather than stability. Old rules, norms and values met new ones, and there were no clear breaks between two consistent institutional regimes. Rather than being surrounded by a fixed, unambiguous institutional framework, individuals and organizations faced inconsistent and changing expectations, as well as new challenges and opportunities. A theoretical concept that aims to explain such institutional changes is 'institutional entrepreneurship', a term that has attracted considerable attention in recent years.

This concept combines perspectives from literature on institutions, which emphasize the stabilizing effect of rules, norms, and cognitive perceptions, and entrepreneurship, which accentuate how institutions are themselves shaped by creative entrepreneurial forces that bring about changes. It thereby brings light to the dual perspective that often emerges in historical examinations that organizational and social processes are usually characterized by both continuity and change. This theoretical approach tends to view actors as institutionally embedded, but by developing strategies of change and entering into negotiations with other organizations or individuals, they can also bring about institutional change that again constitutes a new, stabilizing institutional framework. By emphasizing the strategic elements and forces behind institutional change, this approach tends to present this as the result of strategic and skillful action by entrepreneurs who "narrate and theorize change in ways that give other social groups reason to cooperate". However, as we will see below, such strategic and conscious explanations constitute only one of several possible perspectives underlying individual behavior. In order to understand the mechanisms underlying institutional change, it might thus be necessary also to apply other theoretical perspectives.

Key concepts I: Roles

A key concept emphasized by the normative branch of institutional theory is the notion of roles. Defined as "patterns, as configurations of goals, attitudes, and behaviors that are characteristic of people in particular situations", the concept of roles draws attention to an often-occurring standardization of human action. Roles can be generated from formal positions – for example the position of central bank governor – in which an actor is expected to behave in a particular way, or they can take shape over time from informal interaction that creates expectations of a certain behavior. An important aspect of this concept is that a role not only imposes constraints on social behavior: by being associated with certain rights and privileges, it also empowers and enables social action. According to the underlying behavioral assumptions of economic institutional theory as defined by Douglass

North, we have seen that the key question for an individual in a social setting would be: *What are our interests in this situation and how do we fulfill them – by manipulating or adapting to the institutional framework?* In contrast to this ‘cost-benefit’ logic, the normative branch of institutional theory argues that rational action is grounded in social contexts that specify appropriate means to particular ends.

This generates a different key question for individuals: Given my role in this situation, what is expected of me? According to the normative branch of institutional theory, values and normative frameworks structure the actors’ choices by, on the one hand, defining what preferred or desirable goals are and, on the other hand, specifying the suitable way to pursue these goals. However, even if the values and normative institutions are often internalized, this does not imply that human behavior is unreasoned or automatic. Since institutional rules have to be adapted to every particular situation, actors must select and interpret the appropriate rules. And in this process of selection and interpretation, the normative branch of institutional theory assumes that actors will attach more importance to environmental expectations than to their personal preferences.

The concept of roles can add important perspectives to our understanding of how and why the individuals who participated in developing a new role for the central bank acted as they did. Rather than interpreting policy initiatives or confrontations as mere reflections of quests for power and influence, the concept of roles draws our attention towards the institutional context of these events and suggests that they alternatively – or partly – were attempts to meet environmental expectations. During the period of interest here, the expectations regarding the central bank and its governor were shifting from anticipations of political independence towards notions of the central bank as part of a politically controlled bureaucracy and the governor as a loyal civil servant. A question is thus how did the central banks respond to these changes and to what extent did the governor and his officials take new expectations of political loyalty into account. By applying the concept of roles as an alternative dimension to the notion of power-seeking strategists, we can thereby more easily explore and explain complexities in individual and organizational behavior.

Key concepts II: Organizations vs. institutions

In everyday language, the two concepts of organizations and institutions are often used synonymously. Large firms or organizations are referred to as institutions without any further reflection. Institutional theory, by contrast, provides a clear conceptual distinction between the two: institutions are defined as the formal and informal rules that regularize behavior, while organizations are viewed as a specific type of participant within this institutional framework. In the case of central banks, this conceptual distinction can add to our understanding of their

nature since they can be viewed as both organizations and institutions. On one hand, central banks are organizations that have to relate to a surrounding institutional context. In interaction with the political authorities, the financial markets and the general public, central banks have to take a wide set of rules, norms and values into account in order to perform their tasks effectively. And when this institutional framework changes, as it did from the inter-war period onwards, central banks would have to change their behaviors as well in order to survive. Hence, studying how the central banks operated as organizations becomes an important element in explaining the development of a new role after World War II. On the other hand, central banks constitute part of the institutional framework in which they operate. By virtue of its long history, its economic expertise and its traditional key roles in conducting monetary policy, the central bank had traditionally been an important generator of economic institutions such as legislation, directives, and informal rules as well as more abstract values and norms. During the post-WWII period, the position and tasks of the central bank changed, and an important question that arose was the extent to which the central banks continued to serve as part of, and further develop, the institutional framework that regulated economic behavior in general and the working of the financial markets in particular.

Key concepts III: Central bank independence

As mentioned earlier, during the post-WWII period there was a recognized discrepancy between the legislative status and the actual position, for example, the Bank of Norway. Despite political ambitions to control the central bank, the liberalist central bank law of 1892, which granted the central bank extensive operational autonomy, remained virtually unchanged until the mid-1980s.

This discrepancy indicates that the concept of CBI is ambiguous and has to be discussed more thoroughly. Lexically the concept of independence is defined as the power to act, speak or think without externally imposed restraints. Based on this definition, a central bank would be politically independent only if it could act in whatever way it preferred. For central banks this will never be the case, since they are created as part of a political and economic system. Most scholars agree that whether a central bank has an independent or politically controlled position, the political authorities usually decide policy objectives and define a framework within which it has to operate. However, when it comes to the importance and nature of this framework the opinions diverge. Some scholars stress the element of conflict between the political authorities and the central bank when trying to define the concept of independence:

A central bank is independent if it can set policy instruments without prior approval from other actors and if, for some minimal period (...), the instrument settings clearly differ from those preferred by other actors.

By this definition, independence to a large extent reflects the ability of central

banks to resist political pressure. Thus, it is closely associated with the behavioral assumptions of the static-generalizing tradition of central bank literature that depicts central banks as more conservative and predictable than political authorities. This definition makes no acknowledgement of the fact that the socio-economic context surrounding central banks has changed over time and between countries and that in some periods central banks have been viewed as an integrated party of policymaking processes rather than a corrective of 'lavish' politicians. A definition that to a larger extent emphasizes how central banks are part of political systems is:

Autonomy is the scope allowed to the central bank to formulate monetary policy as it thinks best (...) in the light of the Government's policy and the socio-economic situation.

This definition explicitly states that the degree of independence is a result of political decisions. It can more easily be applied to various cultural, economic and political settings, and therefore correspond better with the historical approach. This definition also acknowledges the fact that even independent central banks have to take the preferences of politicians into account, since ultimately it is the political authorities that can grant central banks independence and can thereby also abolish it. As Francis Sejersted has pointed out:

It is only on the surface that the CBs [central banks] can act independently. In a broader perspective the CBs must act as an integrated part of a political system which is designed to serve the common good and which has defined reasonable stability as desirable. The CBs can only confront the government in conflict as long as there is a deeper consensus on the policy pursued.

Most scholars who study the matter of independence quickly realize that there often are discrepancies between a central bank's legal status and its actual role. Usually, central bank legislation only gives a rough indication of the actual role, and in some cases – as in post-WWII Norway – it can be directly misleading. Thus, scholars often establish a dual conceptual distinction between the formal, legal or *de jure* status of central banks, on the one hand, and their actual, behavioral or *de facto* position, on the other. According to this approach, the conventional view on the central bank during the post-WWII period would be that its *de jure* position was one of political independence, while its *de facto* role was characterized by total political control. It is observed that the central banks obtained a more influential role than usually assumed, one would find it necessary to introduce an additional conceptual distinction: the declared position of central banks. The concept of declared independence captures the publicly announced ambitions of the political authorities regarding the central bank, whether they wish to control it or to grant it independence. In our case, the *declared* position of the central bank is one

of total political control and organizational subordination to the Ministry of Finance. Then it remains to be seen throughout this study whether this declared position equals the central bank's de facto role.

4. Historical Evidences of Changing Role

The Victorian era: in praise of the real bills doctrine:

The main concern of the great monetary writers of the Victorian age, notably Henry Thornton and Walter Bagehot, was how to reconcile adherence to the gold standard with the maintenance of financial stability, especially at times of panic and stress (though the Bank of England was also much concerned about the opposite problem of how to make the Bank Rate effective in times of confidence and expansion). The answers that came forth mostly took the form of certain rules of thumb, notably the Palmer rule for varying the Bank Rate (named after Governor Horsley Palmer of the Bank of England, which may, with the eye of faith, be seen as a kind of prototype Taylor reaction function) and the Bagehot rule for acting as lender of last resort, which latter is all too often misinterpreted.

But the rule, or doctrine, that it is desired to be focused on here is that concerns real bills. In this respect "real" does not mean "adjusted for expected inflation", as now, but instead "real" in the sense of being based on actual, real, output and/or trade. "Real" interest rate is now correlated to "nominal" interest rate, whereas, "real bills" in Victorian times was considered as "speculative" or "finance bills". Since "real bills" were based on real output and trade, monetizing them via central bank discounts could not create inflation, so the argument went on as the output and money kept rising hand in hand. Similarly, since they were based on trade/output, they would become quasi-automatically self-financing when the goods were eventually sold. In contrast, speculative, or finance, bills were drawn to support asset purchases, notably in stock markets, and hence generated unhealthy asset price bubbles and busts with accompanying (temporary) inflation and deflation.

During the Victorian era, governments tended to run (small) surpluses in peacetime years. Deficits were generally a function of war. So, the standard assumption was that government papers – bills and bonds – were not related to underlying output/trade. Thus, under this doctrine, the purchase of government debt was just as reprehensible as open market operations in finance, or speculative, bills. While it may seem crazy now, one reason why the Fed was so reluctant to undertake expansionary open market purchases of government debt in the depths of the Depression was that their model told them that this was quasi-automatically inflationary and wrong (Meltzer (2003)). One reason it is worth remembering this episode now is that it puts in context the (historically mistaken) claims that have been made by some economists that central banks should only now carry out open market operations in government debt.

Another reason for recalling the real bills doctrine is that it provided a unifying theoretical basis for both monetary policy (price stability) and financial stability. So long as discounts and lending were strongly directed to “real bills”, both price stability and financial stability would be jointly and simultaneously assured. Ever since this Victorian era we have lacked such a unifying theory. So now we wonder whether the single interest rate instrument can, or should, be made to bear double duty, to “lean into the wind” of asset price and credit fluctuations as well as stabilizing inflation, and its expectations; or whether a second set of macro-prudential regulatory instruments can be developed to maintain separate control of financial stability.

Of course, the real bills doctrine was wrong. It was wrong for the same reason that the real business cycle model, which lies behind DSGE models, is wrong: it assumes implicitly that the private sector is inherently self-stabilizing. So long as the government does not make everything worse by misguided intervention, the assumption was that output/trade would always return to equilibrium, so there would always be enough real bills to monetize to keep output at equilibrium and prices steady. When the Great Depression hit, this assumption collapsed. Deflation ensued.

The decades of government control, 1930s–1960s: the subservience of central banks:

The Great Depression and the accompanying collapse of the gold standard represented a huge failure for central banks. Their objectives, their models and their mental framework all fell apart. Moreover, there was another model waiting in the wings, that of socialist control by government, a model which was given a massive extra boost by the need to direct economic resources to the conduct of World War II.

Certainly there was not much theory behind the government takeover of monetary policy; it was pragmatic. Initially, with continuing depression and deflation, governments pressed for low interest rates once the gold standard had been abandoned, and with that for devaluation, at least against gold. Thereafter, with an excess demand for resources during World War II, the standard procedure was to control demand by direct rationing rather than by the price mechanism. By the time rationing ended, the selection of the official interest rate had become established in most countries as a governmental exercise, not only in wartime but at all times. This was, perhaps, least so in Germany (after World War II), Switzerland and the United States, where central bankers had, for a variety of reasons, some room for maneuver and ability to face down political pressures. But for most other countries, the politicians, not the central banks, directed monetary policy. This is not to say that central banks in these more subservient countries had no influence on the conduct of monetary policies. They were treated by the relevant minister(s)

as expert advisers, alongside the civil servants in the ministry of finance (treasury). But the minister usually paid much more attention to the economists in his own ministry; after all, they had his ear. In contrast, the central bank, certainly in the United Kingdom, emphasized its knowledge of market behavior. These years, the 1950s and 1960s, were a period when in the United Kingdom and some other countries, the swollen wartime national debt was only slowly being worked off, and the foreign exchange markets were often fragile during the Bretton Woods pegged-but-adjustable exchange rate regime. Under these conditions, should the central bank warn that “markets would not like” some proposed policy changes, then ministers would listen with attention. In the United Kingdom, both the central bank and the Treasury fiercely guarded those areas where they dominated. The Treasury refused to allow the Bank of England to publish its own economic forecast, and sought to censor the economic commentary in the Bank’s Quarterly Bulletin. In turn, the Bank became exercised and hostile should the Treasury attempt to second (junior) staff to City financial institutions in order to gain market expertise.

With interest rates being held generally low to support investment and lessen the cost of servicing the national debt, there was a need for some additional policy to prevent undue credit expansion, which might threaten both the current account and inflation. This was provided by direct quantitative controls, of one kind or another, over bank lending, reinforced by exchange controls over international capital movements and controls over leasing terms, access to capital markets, etc. In the United Kingdom there was an attempt to get away from direct controls over bank lending in 1971 with the adoption of the policy of “Competition and Credit Control”. But the Heath government was not willing to allow interest rates to rise sufficiently high; the policy failed, and a final version of direct lending controls, known as “the corset”, was reintroduced in 1974 and lasted until 1981.

One of the lessons that had been learnt, rightly or wrongly, from the financial collapse in 1929–33 was that competition within the financial system was dangerous to the maintenance of stability. Such competition pared profit margins and hence the build-up of capital buffers. It encouraged banks to take on more risk in pursuit of higher profits. The more oligopolistic banking systems, for example in Canada and the United Kingdom, had fared better than the more competitive and less diversified system in the United States. Consequently, many of the “reforms” enacted in the 1930s were intentionally anticompetitive, limiting the interest rates that could be paid on deposits and limiting the scope of business that various groups of intermediaries could undertake. Thus housing mortgages would only be provided by some specified group of mortgage, housing finance, intermediaries, credit provision or personal sector purchases of consumer durables by another financial group, and so on.

In many countries during this era, not only was the amount of private sector credit

expansion constrained, but so also were the rates at which they could do such business. Given these constraints, financial intermediaries naturally satisfied the demands of their biggest and safest customers first. There was no call for financial innovation; bank managers were trained to say “no”, rather than “yes”; and they, and their counterparts in mortgage banking, followed the 3:6:3 rule, i.e. borrow at 3%, lend at 6% and be on the golf course at 3 pm. Lunches were long and liquid. The current nostalgia for the controlled conditions of the postwar period is misplaced. But such a controlled system is, by and large, a safe system. Between the Great Depression and the 1970s there was a comparative dearth of bank failures.

Crisis frequency

Year	Banking Crises	Currency Crises	Twin Crises	All Crises
1880-1913	2.30	1.23	1.38	4.90
1919-1939	4.80	4.30	4.03	13.17
1945-1971	0.00	6.85	0.19	7.04
1973-1997 (21 Countries)	2.03	5.18	2.48	9.68
1973-1997 (56 Countries)	2.29	7.48	2.38	12.15

Source: Eichengreen and Bordo (2003), Table 3.5

This was *not* due to any exertion of effort by central banks to maintain systemic stability; instead, the controlled, constrained financial system was just a safe, but dull, place. Indeed, the general absence of financial stability problems meant that experience and interest in this field in central banks eroded. At the onset of one of the first episodes of instability, the fringe bank crisis in the United Kingdom in 1973–74, the Bank of England entrusted all supervisory duties to one fairly senior official, the Principal of the Discount Houses, and four or five more junior officials.

So, if during this era the central bank, at least in many countries, did not set the official interest rate, since the relevant minister did, and did not exert much effort in maintaining systemic stability, since the framework of controls saw to that, then just what did it do? It had three main roles: (i) advice on policy; (ii) the administration of the system of controls, and (iii) the management of markets.

Although the monetary policy, both domestic and international, was generally set by the relevant minister, s/he did listen to the advice of the central bank. Whereas on domestic monetary issues the economists at the treasury (ministry of finance) generally had greater influence than those at the bank (though not in Italy, where the Bank of Italy developed an estimable reputation), the expertise of the central bank on international monetary issues was unrivalled either in the treasury or in the

foreign office.

Perhaps the greatest use of manpower in many central banks in this era was in the administration of the government's panoply of controls. In terms of sheer numbers, the Exchange Control Department was the biggest segment of the Bank of England in the 1960s. Acting as a go-between amid the ministry setting the control, often with little understanding of the financial sector, and the regulated financial sector, complaining bitterly and sometimes validly about their imposition, was not a role that central banks relished.

It was in their third role, overseeing the management of markets, that the real kudos was to be found. The three most important positions in the Bank of England, below the Governor and his Deputy, were those concerning the management of the three key markets: the gilt-edged market, the money market and the foreign exchange market. Debt management, liquidity management and foreign exchange operations were central and crucial. Whereas in all these cases the overarching policy strategy was ultimately decided by the government, the parameters of what strategy might be possible lay in the hands of Bank officials, whose tactical skills and experience were renowned.

1980–2007 The triumph of the markets

The cabined and constrained financial system of the early post-World War II system was, of course, inefficient. What brought it down was market pressure, as improved information technology encouraged greater international competition. Those less constrained by regulation sought to garner quasi-rents from the more constrained. The first location where this took place was in the newly developed Eurodollar market in the late 1960s. Central bank Governors, meeting at the Bank for International Settlements (BIS) in Basel, quickly identified this market as posing a serious challenge to their prior cozy domestic control systems, and set up their first standing subgroup, then called the Euro-Currency Standing Committee, to monitor its development. But the authorities could not prevent the advent of this market facilitating international capital flows, despite exchange controls. Such capital flows undermined the pegged, but adjustable, Bretton Woods exchange rate system, since it was usually obvious who the potential candidates for devaluation or appreciation were; the speculative profits (enjoyed by the “gnomes of Zurich”, as Harold Wilson termed the speculators) from this one-way bet could be huge. The Bretton Woods system finally collapsed in 1972–73.

Before that collapse, all other countries had pegged on to the United States, so faster-growing countries, like Japan, had higher inflation than slower-growing countries, such as the United Kingdom, owing to the Balassa-Samuelson effect. In the United States itself, inflation was restrained by the instinctive, pragmatic monetarism of Fed Chairman McChesney Martin, under periodic attack from more expansionary (and Keynesian) pressure from presidents and Congress.

Once the Bretton Woods system had broken down, it allowed countries, previously restrained by balance of payments constraints, to “go for growth”, and a worldwide boom ensued, punctuated by the 1973 oil price shock. A period of debate between monetarists and Keynesians was accompanied by a decade of confused policymaking in the 1970s and high and variable inflation. This was ended in 1979 by Volcker’s adoption of the (non-borrowed) reserve base system, which quickly led many other countries to adopt a roughly similar policy of pragmatic monetarism and monetary targets. But the short-term instability of relationships between monetary growth, however measured, and nominal incomes and inflation soon led to the abandonment of such targets; “We did not abandon the monetary targets: they abandoned us,” Governor Bouey of Canada quipped in 1982.

The story of the search, thereafter, for some other anchor for policy, and its (chance) discovery in 1988 in New Zealand in the guise of an inflation target is well known. What is perhaps less often realized is that the setting of the official interest rate in order to hit the inflation target does not need to be done by an (independent) central bank. It can just as easily (in an operational sense) be carried out by the ministry of finance. Indeed, in the United Kingdom, Chancellors of the Exchequer had the final say on the choice of interest rate from 1992–93, when, after ejection from the European Exchange Rate Mechanism, the United Kingdom adopted an inflation target, until 1997, when Gordon Brown gave the Bank of England operational independence.

What such operational independence for the central bank provides is credibility for the policy of inflation targeting. In contrast, a Minister of Finance has conflicts of interest. The best known conflict is the desire for a more expansionary policy (especially before an oncoming election). But almost as pressing, when the national debt is high relative to taxable capacity, is the minister’s desire to keep the interest burden low. Central bank operations in public sector debt and in rate setting have an immediate and direct fiscal impact. As the burden of national debt will now rise once more, questions of coordination between fiscal policy, debt management and interest rate setting, which have been largely in abeyance in the last couple of decades, will come to the fore again.

Meanwhile, the development of the Eurodollar market in particular, and of the global financial system in general, was changing the nature and structure of banking, and with it of the regulatory approach to the industry. Previously banks had felt constrained by the available stock of (essentially retail) deposits held with them, whose total was largely outside a banker’s control. Their margin of freedom to expand (or reduce) loans to the private sector, given the quantum of such deposits, lay in their ability to offload (or buy) marketable public sector securities (liquid assets). Fortunately for the banks, they had been stuffed full of government debt during World War II and so entered the postwar period in a highly liquid form. So, their ability to expand loans, when direct controls were not biting, seemed to lie in

their holdings of such liquid assets. In response, theories about the money supply (Sayers (1967)) and regulation then (1950s and 1960s) focused much more on liquidity, and a variety of required liquidity ratios.

All that got blown away by the development of the Eurodollar and other wholesale markets. Now a banker was no longer constrained by a combination of exogenous retail deposits and available liquid assets. If the banker wanted more funding, he could just borrow it in wholesale markets. Funding liquidity had replaced asset liquidity.

What, then, determined the size of banks' books? Not cash, since the central bank had to provide enough cash to keep market rates in line with the official rate; not liquid assets, for the above reason. The answer, of course, was capital. But here there was a problem for the regulators. First, while more capital would make a bank safer, it would, given the unpriced insurance given to bank depositors/bond holders and the tax wedge, lower the return on equity (ROE). In banking, the Modigliani-Miller theorem did not hold. So, limited liability equity holders would encourage bankers to adopt riskier strategies (Bebchuk and Spamann (2010)) – an encouragement that bankers hardly needed to don their vestments as “Lords of the Universe”.

The second concern was that the collapse of a bank, because of a combination of size and interconnectedness, would cause contagious externalities. The financial system was subject to various self-amplifying mechanisms in both the upwards (bubble) and downwards (bust) phases of the credit cycle. For both these reasons, banks could not be expected, of their own independent volition, to hold sufficient capital, in order to obtain the best social trade-off between risk and return. Indeed, by the mid-1980s capital ratios amongst banks had been declining quite steadily and sharply for some time.

The catalyst to enforce regulatory change was the Mexican/Argentine/Brazilian (MAB) crisis of 1982. During the 1970s, western, mostly US, commercial banks had intermediated successfully between oil exporting emerging economies, such as Saudi Arabia and Kuwait, and oil-importing emerging economies such as Argentina and Brazil. With other commodity prices quite high and real interest rates low, and often negative, the borrowers had no problems servicing their debts. Paul Volcker's regime switch utterly altered the context. Real interest rates rose steeply and commodity prices tumbled. Neither the borrowers nor the bankers saw the danger quickly enough, lulled by Citibank's CEO, who erroneously believed that “sovereign countries do not default”. In 1982, MAB threatened to do just that. Even without default, the secondary market valuation of such loans fell so far that, on a mark to market basis, most US city centre banks were insolvent.

Congress was outraged (every financial collapse – 1907, 1929, 1982, 2007–08 – provokes Congressional rage; Wall Street is not beloved on Capitol Hill) that the

banks had put the financial system in such a fragile state, and wanted to insist that all the US banks establish a stronger capital base. But the banks complained that they would then lose business to foreign, especially Japanese, banks which would not be subject to such reinforced requirements. So Volcker was mandated by Congress to go to Basel to put pressure on the Basel Committee on Banking Supervision (BCBS) to agree on an international standard for bank capital. Difficult negotiations resulted in the Basel Accord of 1988, now often termed Basel I. The choice of the mandated capital requirements – a minimum of 4% of risk-weighted assets for Tier 1 capital, and of 8% for Tier 1 plus Tier 2 capital – was not based on much empirical analysis, e.g. stress tests, nor on any theoretical consideration of what might be necessary (for what? or why?), but rather on the pragmatic basis that this was the highest numerical requirement that could be reasonably expected to be reached, after a transitional period, by the main commercial banks from their current starting point without causing them or their economies undue stress.

The initial risk “buckets” in Basel I were crudely defined, which gave banks an incentive to securitize those loans/assets whose regulatory requirement was excessive, and to hold those assets where the regulatory requirement was comparatively too soft. It was this latter failing that brought about the further negotiations leading up to Basel II, whereby the risk weightings were to be based on (the banks’ own) risk assessments (the internal ratings-based (IRB) approaches). While altering the risk weightings, Basel II made no significant changes to the definition, or required quantum, of capital. The implicit belief was that this arbitrarily chosen level of capital should suffice to act as a guarantor of continued bank solvency. With bank solvency thereby assured, banks should face no difficulty in meeting any (temporary) liquidity requirements by borrowing in efficient, broad wholesale markets. These comfortable assumptions fell apart in August 2007.

Meanwhile, the trend in credit expansion to the private sector had for several decades comfortably outstripped the trend growth in bank deposits, (Schularick and Taylor (2009)), though quite why this was so remains unclear. Commercial banks had responded by:

- (i) selling off their liquid public sector debt;
- (ii) borrowing more and more, often on a short-dated basis, from wholesale markets; and
- (iii) securitising their loan books (originate to distribute).

All this reinforced their exposure to, and fragility in the face of, a malfunction in such wholesale markets.

Moreover, during the years of confidence and asset price boom, banks were taking on additional leverage, in each case subject to their own particular set of regulatory requirements. Both US investment houses (broker-dealers) and European banks

were subject to Basel II, but not to a simple leverage ratio. So they increased leverage sharply by filling their portfolios with highly rated (AAA) mortgage-backed securities (MBS), which carried a minuscule risk weighting. In contrast, US commercial banks were subject to a simple leverage ratio, but not at that time to Basel II. They exploited their position by taking on the riskier tranches of MBS.

Indeed few – whether bankers, regulators or economists – perceived this overall fragility, though many realized that risk was being underpriced. A reason for this blindness was the procyclicality of Basel II (since risk seemed low, risk-weighted capital appeared to rise!), and of mark to market accounting (when asset prices rise, the resulting capital gains in trading books go straight into profits and enhanced capital). Never had the profitability and capital strength (over the last couple of decades) of the banking sector seemed higher; never had market appreciation of bank risk, as measured by banks' CDS market prices, seemed more sanguine than in the early summer of 2007. With the benefit of hindsight, a populist frenzy now blames the excesses of bankers for putting the system at risk, and the weakness (light-touch) of regulators/supervisors for allowing this to happen. But at the time, neither bankers nor regulators, nor virtually all commentators, had any appreciation of the (systemic) risks that were being run.

Whether or not the inevitable “blame game” is worthwhile or justified, the experience of financial crisis, panic in September 2008 to March 2009, and nearly widespread financial collapse, has been so unnerving and shaking that there are likely to be far-reaching consequences to the operation and regulation/supervision of the financial system in general, and to the role and functions of the central bank in particular. It is to this latter subject that we now turn.

5. The future role of the central bank

In the years prior to August 2007, central banks had appeared to have almost perfected the conduct of monetary policy. The standard regime was one in which the central bank was delegated operational independence to vary the official short-term interest rate in order to achieve an inflation target, which in turn was mandated either in general or in specific numerical terms by the democratically elected government. We now recognize that the achievement of price stability by this procedure does not guarantee financial stability. That raises, *first, the question* whether this standard procedure, whereby the central bank dedicates setting the official interest rate to the achievement of its inflation target, should be radically altered. The answer to that, which have developed in other papers – and which will not be rehearsed again here – is no. The implication of this answer is that a separate additional set of (macroprudential, regulatory) instruments will need to be developed for the specific purpose of maintaining financial stability.

The *second question* related to the role of central banking, then, is what their role in this latter exercise will be. Should the central bank also be in charge of systemic

financial stability; or, if not, what should be its relationship with the systemic regulator? This is a good entry point for examining the changing role of central banks, since the answers, in my view, depend on and reflect the essence of central banking as an institution.

The essence of central banking

Whereas the systemic stabilizer may or may not be allocated a new and shiny set of macroprudential instruments to operate, such as (possibly time- and state-varying) capital, liquidity and leverage ratios, the traditional focus of stabilization has been the central bank's capacity to lend, and thus to create liquidity, either to an individual bank, as the lender of last resort, or to the market as a whole, via open market operations (OMOs). It would cause massive complications if liquidity management remained the sole province of the central bank while a separate financial stability authority was to be established without any command over liquidity management. It can infer from that that the financial stability authority has to be given command over liquidity management; but that also implies that the financial stability authority would have command over the central bank balance sheet. Indeed, the financial stability authority would then, *de facto*, become the true central bank.

Lord Cobbold, former Governor of the Bank of England, is reputed once to have said, "A central bank is a bank, not a study group". It can take this to mean that the essence of central banking lies in its power to create liquidity, by manipulating its own balance sheet. The question is often asked whether a central bank that sets interest rates should also manage financial stability. This question is put the wrong way around; it should be whether a central bank that manages both liquidity and financial stability should also be given the task of setting interest rates.

Unlike the essential role of liquidity management, setting official interest rates is not essential for a central bank. As we already saw in the opening historical section, in many countries and for many decades, it was done by a politician, not the central bank. It could easily be done by a "study group", as many monetary policy committees really are, and they could be formally separated from the central bank without much loss. Or indeed interest rate setting could be done by a coven of Druids casting runes over the entrails of a chicken. What is important is not so much as who does it as how it is done; the need is for a reaction function that restores equilibrium smoothly and surely after some adverse demand or supply shock. We shall, however, leave until later our initial question of whether the liquidity managing central bank, charged with financial stability oversight, should also set the official interest rate.

One of the main concerns of the Bank of England in the 19th century was how to make its Bank Rate effective in the market. Under normal circumstances, the main task of the monetary management desk in central banks is to undertake OMOs so

as to drive market rates into line with the separately set official rate. At such ordinary times, this is a somewhat humdrum exercise, hardly noticed by most people but of considerable technical interest to the cognoscenti. But, under conditions of financial disturbance and crisis, liquidity management takes on a life of its own, potentially independent of official interest rates. This is patently obvious once nominal interest rates hit the zero lower bound, so that subsequent unconventional measures, whether quantitative easing, credit easing or the ECB's suite of market measures, all involve OMOs and manipulation of the central bank's balance sheet. But even when interest rates are above the zero bound, there is a range of freedom to operate liquidity management independently. This margin of freedom may now, perhaps, be greatly augmented by the generalized adoption of the "corridor" system for managing short-term interest rates. In principle at least, the corridor system could be so managed that liquidity policy and interest rate policy could be varied in a largely independent fashion. Thus, for example, official interest rates could be raised to counter speculative attacks on the exchange rate, while at the same time the liquidity of the domestic financial system could be maintained, or even enhanced, leaving market rates at the lower edge of the corridor. For the time being, central banks are still experimenting with the extra degree of freedom that the corridor system has given them. During the financial crisis many of the innovations in liquidity management were a somewhat ad hoc response to each new twist of the crisis. Looking forward, there is still much to learn and discover in this field.

One of the more contentious topics in liquidity management is what should be the set of assets in which the central bank should operate and hold on its balance sheet. Again, as we noted in the historical section, fashions change. Under the real bills doctrine, the commercial paper of the private sector was the preferred asset for OMOs. Since World War II, the preferred asset has, in most countries, become government short-term paper, bills or short-dated bonds. But some more fortunate countries have not had to develop a broad market in their own government paper, and they carry out liquidity management through other assets, in some cases foreign exchange, as in Switzerland or Hong Kong SAR.

Whatever asset is used for OMOs, it is likely to have fiscal consequences. For example, the United Kingdom's quantitative easing has had massive fiscal consequences. Indeed, it is precisely because the fiscal consequences of setting interest rates and undertaking OMOs in public sector debt are so great that their exercise has been delegated to the central bank, to avoid politicians being subject to massive conflicts of interest.

The concern about the choice of market for central bank operations should not be so much on its fiscal implications, but rather on the extent to which such intervention might distort relative prices and have a distributional effect, benefiting one set of borrowers rather than another. But this raises a question and a problem. When

some financial markets malfunction, so borrowers in that market suffer relative to the rest of the economy, would central bank intervention directly in that market just restore the status quo ante, and thereby stabilize an adverse distribution, or is that intervention having a distributional effect which central banks ought to eschew? For fervent adherents to the efficient markets theory, there is no contest. For everyone else, the issue is much more nuanced. Fed credit easing, for example in the commercial paper and MBS markets, is a case in point. In practice, such questions will probably usually be answered pragmatically, “needs must”, and such a pragmatic response is, to my mind, preferable to one based on theoretical ideology.

Interactions with government

One of the attractions, to many economists and others, of the standard inflation targeting regime was that the choice of interest rates could be made independent of government, in order to achieve an objective democratically mandated. That same separation and independence is not really feasible in the central bank’s pursuit of its financial stability objective. We have already discussed how a central bank’s liquidity management, and especially its unconventional measures, will have both fiscal and distributional consequences. Here we shall consider five further ways in which the central bank and the government may need to interact.

(i) *The bank tax:* The imposition of a tax on banks is an idea whose time has come, especially since US President Obama called for such a tax in January 2010. Governments’ fiscal positions are so stretched, banks and bankers are so unpopular, and the tax can be justified as a quid pro quo for potential future or past taxpayer support of the banking/financial system. Although the parameters, tax base and most other details have yet to be determined, a bank tax is likely to be adopted, either unilaterally in many countries or internationally. The analogy, which Perotti (2010) makes, is with the inflation tax and seigniorage. There is a temptation for politicians to make excessive use (from an overall social welfare standpoint) of the inflation tax. So a solution is to mandate the central bank to hold inflation at a desired, low and stable, level, but to pass the proceeds of seigniorage to the government. By the same token, governments could be tempted to impose a tax on the banking system that would not optimize social welfare, either by failing to operate in an ex ante preventive fashion, or by being so draconian as to impede the essential intermediation and allocated functions of that system. Perotti’s idea is to combine a low basic tax rate with prudential, time-varying surcharges: “Variable surcharges should be chosen by a macro prudential council where central banks play a significant role.” The revenue from both the basic rate and the surcharges would flow to the government.

Whatever may be thought of this particular idea, a bank tax will have financial stability implications. It would surely be wrong to introduce such a tax without a

full exploration of the relationship between the tax and the financial stability objective.

(ii) Sanctions: The Basel Committee on Banking Supervision has no formal legal status, being only an advisory standing committee to the G10 central bank Governors meeting at the BIS in Basel. It could only put recommendations and suggestions to the Governors. Understandably, but regrettably, they interpreted this as meaning that it was for each nation state, not for the BCBS, to decide how the proposed standards, especially the capital ratios, should be enforced. So the BCBS never discussed how sanctions might be imposed for shortfalls below the proposed ratio(s).

In effect, with no discussion of a ladder of increasingly tough sanctions, the Basel requirements became treated by everyone as minima, to be observed at all times. But, as already noted, such requirements were intentionally designed to raise capital levels above those that banks would want to keep of their own accord. So the available margin of safety, the buffer of excess capital beyond that required, was generally kept quite low by the banks. This led to a poor outcome, in that banks held a stock of required capital that could not be trenched upon without signalling a crisis occasion, while the usable buffer was just too small. An example of an appropriate ladder of sanctions is given by the FDIC Improvement Act of 1991. The BCBS and the Financial Stability Board (and the ECB and the European Systemic Risk Board) must overcome their hesitancy about advising on patterns of sanctions. For example, if banks had been prevented by regulatory sanctions from paying out dividends in the crisis, the system would have been much more robust.

But sanctions, like taxes, such as the prospective bank tax, depend on (national) democratic legislation and the rule of law. Thus, the systemic supervisor in each country will have to engage with their own government to get the appropriate pattern of sanctions (and taxes) applied. Regulators have consistently tried to avoid such engagement. That should not continue.

(iii) Debt management: For over three centuries (1694–1997), a prime function of the Bank of England was to manage the national debt. But as that debt declined, both as a percentage of GDP and in relation to the size of the financial market, debt operations became simpler and standardized, falling into a routine pattern. Much the same happened in other countries. Under these circumstances, the transfer by Chancellor Gordon Brown in 1997 of such management to a separate and specialized Debt Management Office was hardly noticed or remarked, except by a few historians. But now, many countries face the prospect of sharply rising debt levels, to a point that may, once more, test the confidence of market participants. Debt management is again becoming a critical element in the overall conduct of policy, as events in Greece have evidenced. Debt management can no longer be viewed as a routine function which can be delegated to a separate, independent body. Instead,

such management lies at the crossroads between monetary policies (both inflation targets and systemic stability) and fiscal policy. When markets get difficult – and government bond markets are likely to do so – the need is to combine an overall fiscal strategy with high-calibre market tactics. The latter is what central banks have as their *métier*. During the coming epoch of central banking, they should be encouraged to revert to their role of managing the national debt.

(iv) Bank resolution: A central bank can only provide liquidity; it cannot provide capital. If liquidation of a failing bank cannot be allowed and the market will not provide more capital, then the only remaining recourse is to taxpayer funding. That implies that politicians must have, on behalf of the taxpayer, a leading role and concern in resolution policies and mechanisms, and indeed in the preventive policies that the central bank, as systemic supervisor, may be putting in place. As long as taxpayer funding, or (partial) nationalization, of failing banks remains a possibility, the relevant minister must be involved at all times, and in charge of the resolution exercise itself. Of course, the necessary involvement of the political authorities could be much reduced if “too big to fail” (TBTF) or “too interconnected to fail” never held. And there have been numerous proposals to try to prevent the need for future taxpayer funding and TBTF. For example, Senator Dodd’s bill, as of April 2010, will put more weight on the:

- (i) prior completion of living wills or “funeral plans”;
- (ii) accumulation of a bank-financed “orderly liquidation fund”; and
- (iii) imposition of haircuts on unsecured and secured creditors in order of seniority.

While there are good arguments in favor of such proposals, many doubt whether such an “orderly liquidation process” will suffice to end TBTF. The losses that may need to be absorbed, partly as a result of fire sales into unwilling markets, are likely to deter investors from putting additional capital into other banks. So the dynamic market process, as began to emerge after the Lehman bankruptcy (and before the capital injections by governments), could bring a large proportion of the financial system towards default simultaneously. Can any government seriously envisage liquidating half (or more) of its banking system simultaneously, and if they did press on with such massive liquidation, would they be sensible to do so.

Even in the case of one large bank, and even assuming that depositors could be provided quickly with transaction balances elsewhere, the withdrawal of access to funds by borrowers with unused credit facilities could have a devastating effect on them, especially if the liquidator sought early repayment of outstanding loans. This is not the place to go into more radical ideas, such as Larry Kotlikoff’s mutual banking (similar to Islamic banking, with similar drawbacks), or making all banks “narrow” or tiny, or both. They will not happen, and for good reason. The upshot is that government insurance of the systemically important parts of our financial

systems will remain in place for the foreseeable future. As the ultimate provider of such insurance, governments will want, and need, to maintain a close involvement with the conduct of systemic stability.

(v) Interest rate setting: Many have argued that liquidity management is integral to the management of systemic stability and the essential core of the operation, and *raison d'être*, of a central bank. Thus the institution running systemic stability will be, in practice, the central bank. But this institution does not necessarily also need to set the official interest rate. Should that be hived off to a separate body.

Throughout this subsection, many have emphasized that the central bank in its systemic stabilization role will have to work closely with government. Indeed, despite the patent, but in the end hopeless, desire to get away from TBTF, many see the linkages between central bank and government becoming stronger, as the bank tax, the need for a ladder of sanctions and the much enhanced role of debt management all conspire to drive government and central bank back into each other's arms.

One of the arguments for separating interest rate setting from central banking (and systemic stability) is that the former depends on its credibility for independence, whereas the latter is conjoint with government. I have never been much swayed by this. An institution can wear two hats simultaneously. A similar argument is that the combination of responsibilities would lead to conflicts of interest. Again, it would tend to argue that the main failures of central banks, as interest rate setters, have lain in taking too little account of financial conditions and monetary developments. Possibly a more persuasive argument is that the combination of operational independence to set interest rates and liquidity management together with prospective macroprudential regulation just vests too much power in a non-elected body. There is some force in this.

Arguments against separation mainly rely on the necessarily intimate connection between the two facets of monetary policy. For example, once the zero lower bound to interest rates is reached, then monetary policy, in the guise of inflation targeting, and systemic stability issues become indistinguishable. If you had an MPC separate from the central bank, who would decide on credit easing, or QE-type measures? And when the official interest rate rose above the zero bound, who would decide on the width of the corridor, or the terms and conditions of access to the discount window? One could envisage a completely separate body, whose sole function would be to determine the official interest rate, but I somewhat doubt whether this would be the most sensible approach.

Interactions with other regulators/supervisors at home and abroad: The regulator in charge of systemic stabilization – which we assume, for the reasons given, to be the central bank – should also be a direct supervisor of the main systemic financial intermediaries. It should also have unquestioned supervisory access to

such other banks and intermediaries which it considers may cause, or be involved in, systemic problems. But it need not, and probably should not, be the sole supervisor of even the most important and largest banks. Except in relatively small countries, or countries with few skilled professionals, there is little to be gained by concentrating all supervision within a single institution. Indeed, when the focus of supervision differs between supervisory institutions – between the economic, market-based focus of the systemic supervisor and the more accountancy-oriented, legal stance of the micro-prudential supervisor – there may instead be actual benefits from having large and systemic intermediaries seen from two differing viewpoints.

Particularly if the central bank combines interest rate setting with its essential roles of liquidity management and systemic stabilization, there is some question whether its role and functions are reaching the acceptable limit for a non-elected body within a democratic society. Under these conditions, it would, in my view, be unwise and inappropriate to also give the central bank the task of micro-prudential supervision, even for the domestic banking system, let alone the much wider set of financial intermediaries, including various forms of investment funds and insurance companies. If the interest rate setting function were to be hived off to a separate body, then there would be more of a case for combining both macro- and micro-prudential functions within the central bank.

But even then the central bank should seek to steer well clear of consumer protection issues, and should want to be consulted, but not take the lead, on questions about product designs, innovations and safety measures. Similarly the actual administration of the resolution of a financial intermediary, when subject to a special resolution regime, is best left to the microprudential supervisor, if separate, or otherwise to a specialist body.

So, in a large, developed country there are likely to be, and should be, a number of regulatory/supervisory bodies with focused specialized purposes. There probably does need to be an oversight, coordinating committee. The proposal is that, in normal times and whenever discussing measures for preventing crises, that committee should be chaired by the Governor of the central bank, but that in crisis periods and whenever discussing measures for resolving existing crises, that it would be chaired by the relevant minister. The distinction between the two cases should not be hard to make.

When we turn to the international (including here the euro zone) context, the problem of coordination becomes much more difficult. The basic problem is that the financial system is cross-border, if not global, whereas both the legal structure and fiscal competences remain national. There are two logical possibilities. The first is to make the financial system conform to national boundaries, but this would be anathema both to most of the cross-border financial intermediaries and, more

importantly, to all those upholding the single European market. The second is to harmonize a limited, but appropriate, set of laws relating to the resolution of cross-border intermediate (Avgouleas et al (2010)) and to provide some form of agreement over fiscal burden-sharing. What needs to be done to achieve the latter is now reasonably well discerned (Fonteyne et al (2010)). The problem remains to get political agreement to take this programme forward. In the absence of such agreement, the treatment of cross-border financial crises will remain a dangerous dark hole.

Structural development in the financial sector: Direct government intervention in the financial sector in our second epoch, the 1930s to the 1960s, was consciously so far-reaching that, to a large extent, the structure of intermediation was largely determined by regulation and controls. Then in our third epoch, 1980–2007, the ethos changed. The government set the overall framework, especially the rule of law and the monetary regime, but beyond that, structural changes were to be determined by the private sector market processes and innovations. Whatever met the test of the market was, *prima facie* at least, considered to be good.

Now we are moving back, perhaps somewhat unconsciously in reaction to the crisis, towards the second, more interventionist, mode. Perhaps in this coming epoch, intervention will be less draconian, less based on direct quantitative control, and more on the pricing mechanism, perhaps via bank taxes and graduated macro-prudential regulation. But such intervention will still shape the future structural development of the financial system. What worries me is that the debate on systemic regulation is almost entirely reactive and backwards-looking; that is, the focus is on how such regulation might, if in place, have prevented or mitigated the crisis of 2007–10. While this is inevitable, what is also needed is forward thinking about what should be the desirable future structure of our financial systems, and how the various regulatory initiatives proposed might help to get us there.

Central banks used to be concerned with such structural issues. They saw themselves as having a deliberate role to play in shaping the developing structure of the financial system. More recently, they have eschewed such a role. As we return to an epoch of greater government (and central bank) intervention in markets, central banks had better brush up their understanding of, and participation in, such structural issues.

Summary: The first (Victorian) and third (1980–2007) epochs of central banking were characterized by highly successful monetary regimes (the gold standard and inflation targeting), reliance on market mechanisms and independent central banks. After an interregnum post-World War I, the first epoch came to a crashing halt in the 1929–33 Depression, and deflation then led to a period of government domination, direct controls and subservient central banks. Now there is a good chance – but not a certainty – that we are entering a fourth epoch, in the aftermath

of the financial crisis of 2007–10.

This is likely to involve some return towards the second epoch, with more intrusive regulation, greater government involvement and less reliance on market mechanisms. I would hope that we only go part way back. Instead of central bank subservience, perhaps we could have a more even-handed partnership. But the range and scale of interaction with government, on the bank tax, on regulation and sanctions, on debt management and on bank resolution, is likely to increase. The idea of the central bank as an independent *institution* will be put aside.

We do not see that this greater extent of interaction between central bank and government on those other fronts need not prevent the continuation of the present desirable procedure whereby the central bank also has operational independence to set the official short-term rate. But some will see an inconsistency. If so, their answer should be to hive off the interest rate setting function to a separate (study) group (of economists) but do not confuse the study group with the central bank.

As expected, Charles Goodhart has written an interesting and challenging paper, which starts with the historical background of central banking, and then discusses a key set of issues that face all central banks at present and that will continue to face us in the months and years ahead. As one read the paper, recalled a line of Paul Samuelson's about what one expects from a paper: "It's not whether it's right or wrong that matters, it's whether it gives you a good run for your money" – meaning that a good paper is one that makes you think hard about things you believe or think you know. This paper succeeds splendidly in that regard.

Historical section: The historical background on central banking is well worth reading. It includes a few teasers, such as the mystery line "... the Bagehot rule for acting as Lender of Last Resort, which is ... all too often misinterpreted." In discussion with Charles after the session at the conference, I learned that the misinterpretation concerns lending at a penalty rate. Many interpret Bagehot as requiring the lender of last resort to lend at a penalty rate relative to the market rate during the crisis. Goodhart's interpretation is that Bagehot's recommendation was that the lender of last resort should lend at a penalty rate relative to the normal market rate, i.e. relative to the market rate that the central bank expects will obtain after the crisis has been dealt with. Whether or not this is exactly what Bagehot meant, the advice is clearly logical.

This section also includes a persuasive answer to the question we must all have asked ourselves at some time: "How come there were so few financial crises or bank failures in the period after World War II, up to the early 1970s?" The relevant sentence is: "This was not due to any exertion of effort by central banks to maintain systemic stability; instead the controlled, constrained financial system was just a safe, but dull, place." (p8). No doubt there were times during the last few years when many central bankers would have preferred to be in a safe but dull place.

The future of central bank cooperation:

Central bank cooperation has a long history. From the episodic efforts to support the 19th century gold standard to the personal interactions of interwar central bankers, to the institutionalized postwar efforts to maintain fixed exchange rates, to the post-Bretton Woods progress in developing standards for prudential bank regulations, central bankers have progressively consulted and coordinated their activities. Such cooperation has always been shaped by a few perennial parameters. Can central bankers agree on theory (end-means relationships)? To what extent can they agree on goals (social purpose)? Do they have the capacity (technical and institutional) to achieve their collective goals? Does the broader political environment facilitate or impede cooperation? It is easy to assume, in writing a paper on the “future of central bank cooperation,” that such cooperation is (1) easily observable (implicit in the assumption that a non-participant can meaningfully write about it), and (2) a good thing. Neither of these assumptions is without controversy, however. First, we can say that central bank cooperation is factually controversial. Looking over the historical record, there are important disagreements over whether, in fact, central bankers have cooperated at various historical moments. The passage of time does not seem to have settled the debate over whether, for example, central bankers in the 19th century were mutually cooperative or merely opportunistic. Much depends on how one defines cooperation. The dictionary defines it as “joint operation or action;” its antonym is “competition.” Joint action can be shallow or deep; deep cooperation is marked by policy adjustments that differ from those that would have been taken unilaterally, and which are taken specifically to address a collective good or mutual interest (Downs, Rocke, and Barsoom 1996; Keohane 1984). “Deep” central bank cooperation can be normatively controversial as well. Theoretical controversies rage about whether - and the extent to which - exchange rate or monetary policy coordination actually improves outcomes over well-designed unilateral policies (Obstfeld and Rogoff 2002). Moreover, to countries which are excluded from decision-making, policy coordination may look more like a cartel than cooperation. Global standards for the supervision and regulation of internationally active banks for example can be interpreted as serving disproportionately the interests of major banks in the leading jurisdictions. Some of the more profound forms of central bank cooperation can be expected to raise domestic political controversies as well: there are bound to be domestic voices concerned about the collective interests that might sacrifice an important national interest. The historical reluctance of the United States to officially allow the Federal Reserve to participate in the activities of the BIS largely reflects such a concern. Despite these concerns, central banks have accomplished a lot through collective effort, which bodes well for the future. Collectively produced and shared information is increasingly rich and user-friendly. Central bank independence from regular government interference is fairly (though not universally) robust, reducing (though not eliminating) political

frictions. Cooperation in some areas appears to be cumulative, involving positive feedback loops through which central bankers continue to develop and improve on past achievements, successfully learning while doing despite an increasingly complex global financial environment. In their collective regulatory capacity, for example, it is hard to imagine a return to the free-for-all that existed prior to the 1980s. Additionally, central banks also seem to have developed a reasonably robust response to financial crises, though efforts here have plateaued far short of acting as lenders of last resort. The ability of central bankers to assemble very short-term financial packages to contain crises (as a bridge to more substantial - and more conditional - IMF assistance) has been an important example of the rapid response of which central banks may be uniquely capable.

We have come a very long way from 1931. However, in areas such as setting exchange rates or other macroeconomic policies, central bank cooperation is as difficult and controversial as ever. At the theoretical level, there are important debates over whether central banks should do anything other than tend to domestic price stability. Optimism in the 1980s on the joint gains to be made from coordinating monetary policies has given way to greater skepticism that such coordination could ever really “get it right.” Legitimate questions have even been raised about the efficacy of official international intervention in foreign exchange markets of the major floating currencies. Moreover, with the imbalances reflected in rapidly expanding Asian, and particularly Chinese, dollar reserves, the global political economy is changing in ways that will challenge existing institutions and practices. This essay explores the future of central bank cooperation along with a continuum from “easy” to “difficult.” The first section lays the foundation for assessing future collaboration by observing the central banks and governors themselves. The second examines what I have been able to find on the state of the presentation and sharing of information among central banks. The trajectory here, I argue, is really quite positive. The third section discusses cooperative standard setting, and the fourth looks at extraordinary emergency central bank assistance. Finally, I examine the most difficult issue facing central bank cooperation in the near future: imbalance at the core of the international economy. I conclude with some observations about the political-economic and institutional environment.

Cycles in history: The idea that central bank independence and international central bank cooperation were conspiracies to divert money away from a national community was a commonplace argument 70 years ago, in the aftermath of the Great Depression. Figures such as the long-lasting Governor of the Bank of England, Montagu Norman, were first venerated (before the Depression), and then ridiculed and reviled. According to the retrospective diagnosis, Norman had pushed the overvaluation of sterling in order to restore Britain’s position as an international financial centre, but had in consequence starved the British industry of funds. Conspiracy theories about central banks abounded. In Britain, the left of

the Labor Party blamed the Bank of England for orchestrating a “Banker’s Ramp” which had used financial blackmail to force the government to cut unemployment benefits. In France, the left saw the Bank of France as controlled by its 200 shareholders, who represented the “two hundred families,” a sinister and powerful money elite. Central banks were blamed (rightly) for failing to provide currency stability; and blamed (mostly rightly) for having used their independence or autonomy in a political sense. The solution was popular control.

In the United States, Benjamin Strong, Norman’s close friend and Governor of the Federal Reserve Bank of New York – at that time the institution that managed the Fed’s international business – was believed to have fuelled the New York stock market bubble by holding interest rates down in 1927 and 1928 to comply with the demands of European central bankers. In an extreme version, the critique held that the major cause of bubbles, speculation and fraud was financial internationalism.

Norman’s leading critic was the Cambridge economist John Maynard Keynes. When it came to designing an international monetary system at the end of the Second World War, Keynes wanted to limit the power of central banks. The major new institution for coordinating international action, the International Monetary Fund, was to be run by finance ministries and treasuries, not central bankers. In other words, it would be firmly anchored in the structure of domestic political arrangements. The US administration wanted to close down the central bankers’ bank, the Basel-based Bank for International Settlements. The IMF would ensure that capital markets were tightly controlled, and that monetary policy could be made in a national setting.

One country went a different way, but that was because the rest of the world, for good reasons, did not trust the political process of that country. The German central bank, the Reichsbank, was recreated as an independent institution under the terms of the 1924 Dawes Plan and the London Conference. It had a new administrative council, of which half the members were foreigners, as a guarantee of its independence. But after 1933, under the Nazi dictatorship, it became subject to political control. In reconstructing the German economy in the wake of the Second World War, the US military authorities insisted on central bank independence, strengthening the position of the central bank at the expense of the government. By the 1970s, the Bundesbank was widely admired by other central bankers.

The discussions of central bank independence in Germany, both in 1924 and in the post-World War II era, emphasized independence from the government and political institutions, which had been in the eyes of Allied experts responsible for the pressures that led to hyper-inflation in the early 1920s. But it was not only independence from the government that mattered. Part of the pathology had lain in the subservience of the central bank to the interests of the financial and business community. It had not only discounted government paper, but had also offered credit

facilities to banks and to large and well connected businesses at low nominal and negative real interest rates. In consequence the central bank had to be doubly insulated, and taken away from pressures to yield both to politics and to finance.

By the 1970s, when the fixed exchange rate system invented at the Bretton Woods conference collapsed, central bank independence began to be fashionable again. In particular the German Bundesbank, with a firm legal guarantee of its independence, looked like an impressive model that yielded a better macroeconomic environment and greater growth. Academics and politicians followed the general public into thinking that inflation was damaging. Many central banks consequently wanted to be more like the German model. European monetary integration was founded on the idea that an institution created by international treaty and consequently endowed with cast-iron autonomy would give a better framework for making a strong European economy. Centre-left parties in Britain and France and elsewhere became enthusiastic converts to the idea of central bank independence. The process was best described as “tying hands” in order to prevent sub-optimal outcomes resulting from short-term political pressures.

6. The Changing Role of Central Banks in Market Economies

Among the main reasons for the emergence of central banks in Europe were the wars that ravaged the continent from the 17th century onwards and the consequent pressure this exerted on government finance. In brief, governments granted monopoly power over the note issue to a commercial bank and in return were given privileged borrowing facilities. This marked the beginning of the 'special relationship' between governments and their central bank. However, in most cases, recent years have witnessed enormous changes in the nature of this relationship. In particular, since the beginning of the 1990s, many governments have become convinced that the way to ensure price stability is to sever the institutional links between government and the central bank, leaving the latter to manage monetary policy free from political interference. The focus of this section is on the historical developments, which have underpinned this new monetary orthodoxy.

The nature of central bank independence:

The extent of central bank independence is assessed against two criteria: political independence and economic independence. Political independence, as defined by Grilli, Masciandro and Tabellini (1991, p366), embraces three aspects of monetary policy:

‘(i) the procedure for appointing members of central bank governing bodies; (ii) the relationship between these bodies and government; and (iii) the formal responsibilities of the central bank. ... This is why we identify independence with autonomy to pursue the goal of low inflation.’

Defined in this way, political independence was greater in the earlier history of

central banks than in the present day. The fact that most of the central banks were established as private institutions gave them autonomy to make their own appointments, set their own regulations and pursue their own objectives.

Economic independence, on the other hand, is defined by Grilli et al. (1991 p.368) as the freedom of a central bank to choose the instruments of monetary policy with regard to:

'(i) the influence of the government in determining how much to borrow from the central bank; and (ii) the nature of the monetary instruments under the control of the central bank'.

Central banks were established mainly to provide finance for governments to wars. Consequently, despite the high degree of political independence accorded to central banks, until recently they were granted far less economic independence. The major problem confronting central banks throughout the early years of their existence was that their obligations conflicted. On one hand they were required to finance government wartime expenditures, and on the other, they were required to maintain the full convertibility of gold at the fixed rate. In reality, this conflict of objectives was more apparent than real and the over-riding objective of central banks was to maintain the Gold Standard. Furthermore, in times of peace no conflict arose since the prevailing orthodoxy was one of laissez faire.

Independence and the changing objectives of central banks:

No consensus has emerged in the literature over the historical development of central banks. Toniolo (1988) has referred to their development as '... the free offspring of parents who were not born free'. Despite the lack of any consensus, this section identifies three distinct phases in the historical development of central banks: the nineteenth and twentieth centuries leading to the mid-1940's, the mid-1940's to the mid-1970's and the mid-1970's to the present day.

Period up to the mid -1940's:

Goodhart, Cappie and Schandt (1994, p51) have argued that in the nineteenth and early twentieth centuries, central banks had considerably more independence than they currently possess. Elgie and Thompson (1998) offer three reasons for this. **First**, the laissez-faire economies of the nineteenth century provided no role for the state and left the problem of resource allocation to the market. Correspondingly, no active role existed for central banks in influencing the performance of the macro-economy which was regarded as self-regulating. **Second**, the operation of the Gold Standard implied to the central bank independence since their major objective was to maintain a stable economic environment consistent with ensuring convertibility with the national currency within the limits set by the 'gold points'. **Third**, the equity of central banks was privately owned and this gave them a considerable a priori independence. Goodhart (1988) has also stressed the role of Gold Standard

and has argued that the objective of the early central banks was to 'unify what had become in cases, e.g., in Germany, Switzerland, and Italy, a somewhat chaotic system of note issue, to centralise, manage, and protect the metallic reserve of the country, and to facilitate and improve the payments system'. The operation of the Gold Standard provided a means of achieving at least some of these objectives and during the late nineteenth and early twentieth centuries, central banks were charged with responsibility for maintaining the convertibility of national currencies. Central banks also provided finance for governments in times of war when tax revenues were insufficient to meet government expenditures. An obvious conflict exists between these objectives, but until the mid-1940s it was generally accepted that central banks would have no obligation to finance government expenditures in times of peace.

Mid-1940's – mid-1970's

A second period stretching from the 1940s until the mid 1970s can be identified. During this period governments became increasingly active in managing the economy and Goodhart (1995, p112) has noted that following the end of the Gold Standard 'the links between central banks and governments in the conduct of the macro-policy became much closer'. The economy was no longer thought to be self-regulating and among other things, central banks were now charged with responsibility for ensuring that the central government's budget deficit was financed in accordance with planned changes in the aggregate demand that the governments felt would deliver their economic objectives. The multiple and inconsistent goals of central governments (inflation, employment, growth and the balance of payments) were a source of conflict with their central banks because these goals had no clearly defined hierarchy and their importance often changed in response to economic mismanagement, or as governments moved through the political cycle. The rate of interest became the main operational tool of monetary policy and, in order to ensure central bank compliance with required changes in the rate of interest, many governments nationalized their central banks. For example, during this period the central banks in Canada, Denmark, the Netherlands, England, France, Norway and New Zealand were all brought into public ownership (Elgie and Thompson 1998, p.17). This removed at a stroke any independence central banks possessed, but the situation was different in Germany where, after the currency reform of 1948, the Bundesbank was constitutionally authorized to preserve the internal value of the currency. German experience of hyperinflation, in the 1920's significantly increased the country's determination to maintain price stability and this was accorded priority even in times when most countries were targeting maximum employment!

Being the banker to the central government, central banks have gradually increased the degree of centralization of commercial banks' reserves. Consequently Goodhart (1988) has identified two dimensions of central bank monetary

policy: a macro dimension and a micro dimension. The macro dimension involves setting monetary conditions for the macro economy, while the micro dimension involves ensuring the efficient functioning of the individual entities that make up the banking system. The interrelationship between the central bank's macro and micro functions resulted in the evolution of a supervisory function for central banks ultimately involving the provision of lender-of-last-resort facilities. This role was performed in different ways in different countries. In some, like Germany and Switzerland where the central bank was publicly funded, banking supervision was entrusted to a separate body and the central bank was not empowered with lender-of-last resort facilities. In other countries, like England, France and Italy, where the central bank was initially funded by private shareholders, it was charged with responsibility for providing lender-of-last-resort facilities and was also empowered with a supervisory role over the commercial banks.

Post 1970s

The revival of independent central banks marks the third stage of their development as identified by Goodhart (1994). The policy of granting a greater independence to central banks became particularly popular during the 1990's when countries world-wide started providing their central banks with greater autonomy. Cukierman (1995) has argued that there are several reasons behind this tendency. First, the experience with fixed exchange rates, in particular the Bretton Woods System and later the European Monetary System persuaded countries to design institutions increasing their commitment to price stability.

In most countries until about the mid-1970's, economic policy was based on the assumed existence of a stable tradeoff between inflation and unemployment and decisions by the central bank were motivated by the particular combination of inflation and unemployment that satisfied the government's objectives at each point in time. As the relationship between unemployment and inflation deteriorated during the 1970s a consensus emerged at the International Monetary Fund conference in Kingston, Jamaica in 1976, that the primary objective of central banks should be price stability. Increasingly price stability has become the major objective of the majority of central banks worldwide with other goals, such as promoting stable employment, accorded far less prominence in the hierarchy of central bank objectives. The single policy objective greatly enhanced the independent status of central banks and Goodhart (1994) has argued that central banks with a single objective are more likely to be less subservient to central governments than central banks with a plurality of vague objectives. A single objective for monetary policy also facilitates greater accountability since it is abundantly clear whether an institution has achieved its objectives or not. Goodhart (1994) has further argued that targeting a single objective might reduce any dispute between central bank officials and academic economists over operational techniques since, for most central banks, interest rate adjustment is the only instrument of policy available.

The *second* reason identified by Cukierman (1994) for the emerging trend towards central bank independence was its establishment as one of the requirements for joining the single currency bloc. As a consequence, the central banks of European Union (EU) countries were granted increasing independence in the 1990's as a prelude to the creation of the single currency. More recently, the EU accession countries have granted independence to their central banks and more generally this is now an established global feature of central bank development. The third reason for emerging independence among central banks identified by Cukierman (1994) was the performance of the Bundesbank with its proven track record of delivering consistently low inflation in the post-war period. Progress was also made in providing the theoretical explanation for the Bundesbank's success. In particular, Kydland and Prescott (1977) showed that when a central bank is not independent, policy announcements are subject to time inconsistency. Barro and Gordon (1983) extended this work and showed that in the absence of binding rules on central bank behavior, an inflationary bias existed. Reputational considerations might reduce this inflationary bias, but it was felt that an independent central bank would act as a pre-commitment device, which would enhance credibility by transferring responsibility for monetary policy to a non-political body. This study, as well as an earlier study by Rogoff (1979) provided the rationale for what the Germans and the Swiss had known for decades: that price stability would more easily be achieved if central banks were granted greater independence from central government. The theoretical predictions of Rogoff (1979) and Barro and Gordon (1983) were confirmed empirically by Cukierman (1992), Cukierman et al. (1992), and Grilli et al. (1991) who showed that independent central banks facilitate lower inflation.

Changing Trends of Central Bank Independence: Country Comparisons

This section provides some inter-country comparisons of trends in CBI since their formation until the present day. The central banks included in the comparison are the Bank of England, the Bank of France, the Federal Reserve and the Bundesbank. This paper measures the degree of political independence of these central banks using the index designed by Grilli, Masciandro and Tabellini (1991) from their formation to the present day. Additionally Grilli, Masciandro and Tabellini index (referred to hereafter as GMT index) has become increasingly popular in the economic literature after its introduction in 1991. Table 1 summarises the studies on CBI that have used GMT index:

Table 1: Summary of major studies using GMT index of CBI

Empirical studies	Indices used
Grilli, Masciandro and Tabellini (1991)*	GMT ^
Dvorsky (2000)	Cukierman (1992), GMT
Maliszewski (2000)*	GMT
Alesina and Summers (1993)*	GMT, Bade and Parkin (1988), Alesina (1988)
Alesina and Grilli (1992)*	GMT
De Haan and Sturm (1992)*	GMT, Alesina (1989), Eijffinger and Schaling (1992)
De Haan and Siermann (1994)	Cukierman (1992)
Eijffinger and Schaling (1995)*	Alesina (1988), Eijffinger and Schaling (1993), GMT, Cukierman (1992)

The Bank of England

From its very earliest days the Bank of England could appoint and nominate its own personnel. The Governor, Deputy Governors and directors were chosen every year between March and April (Elgie and Thompson 1998, p.36). Independence was guaranteed because the Committee of the Treasury was created comprising the Governor, Deputy Governor and the most senior of the directors with responsibility for preparing proposals for the election of Governors and Directors. For 1931, a lower score on the overall index of independence is recorded because the degree of economic independence of the Bank fell as result of its responsibility for selecting the instruments of monetary policy being withdrawn. An attempt to measure the political independence of Bank of England has been made using the Grilli, Masciandro and Tabellini (1991) index summarised below.

Table 2: Political Independence of Bank of England (1694 – 1998) using Grilli et al. index

Question	1694	1931	1946	1992a	1998
1. Governor not appointed by the government	*	*	-	-	-
2. Governor appointed for more than 5 years	-	*	*	-	-
3. All the Board not appointed by the government	*	*	-	-	-
4. Board appointed for more than 5 years	*	*	-	-	-
5. No mandatory participation of government representative on the board	*	*	-	-	-
6. No government approval of monetary policy is required	*	-	-	-	*
7. Statutory requirements that central bank pursues monetary stability amongst its goals	*	-	-	-	*
8. Legal provision strengthening the central bank's position in conflict with the government	Na	Na	-	-	Na
Overall index of political independence	6	5	1	1	3

a - the authors derive these estimates from reference to the Bank's statute. An asterisk indicates the criterion is satisfied and a dash indicates that the criterion is not satisfied;

b - these results are taken from Alesina and Grilli (1992, p.49);

c - the results for the period 1694 – 1946 are reported by Elgie and Thompson, according to their index of term of office. During this period the term of office was between five and eight years.

Table 2 shows how the degree of independence of the Bank of England changed over the period since its formation in 1694 until 1998. Both tables confirm that in 1946, when the Bank was nationalized, there was a dramatic fall in the overall level of independence, particularly in the degree of political independence. Prior to this all appointments were made independently of government, but after nationalization all positions were government appointments and the anchor for monetary stability, the Gold Standard, was replaced by a plurality of competing objectives to be achieved through government intervention. The amendments enshrined in the Banking Act of 1998 granted the Bank greater independence and constituted the main focus of the Act. In line with greater independence, price stability was established the major objective of the Bank and supervision of the banking system was transferred from the Bank to the FSA. As a result, the index score of political independence increased from one to three during 1998.

The Bank of France

The Bank of France was founded at the very beginning of the nineteenth century with private shareholder capital. It therefore possessed a high degree of political independence since nominations and appointments to the General Council (the governing council) were made independently of government. The General Council consisted of fifteen members who appointed the Central Committee which was charged with responsibility for supervision of the Bank's activities. The Regents (members of the General Council) were elected by the General Assembly of the shareholders. The tenure of the governor and sub-governors was completely free of any outside interference. Monetary policy was conducted by the Bank and decisions of the board were taken independently of any instructions from the government of the day. Using GMT index, the political independence of the Bank of France is measured and our results using this index are reported in Table 3.

Table 3: Political Independence of Bank of France (1800 – 1993) using GMT index

Question	1800	1808	1945	1992a	1993
1. Governor not appointed by the government	*	*	-	-	-
2. Governor appointed for more than 5 years	-	*	*	*	*
3. All the Board not appointed by the government	*	-	-	-	-
4. Board appointed for more than 5 years	*	*	*	*	*
5. No mandatory participation of government representative on the board	*	*	-	-	-
6. No government approval of monetary policy is required	*	a	-	-	*
7. Statutory requirements that central bank pursues monetary stability amongst its goals	-	-	-	-	*
8. Legal provision strengthening the central bank's position in conflict with the government	Na	Na	-	-	*
Overall index of political independence	5	4	2	2	5

a - these results are taken from Alesina and Grilli (1992, p.49);

b - the Board does not accept instructions from the government but there are government representatives with the right of veto and thus we assume that government approval is necessary for policy formulation.

Comparing Table 2 with Table 3 reveals a common trend between the Bank of France and the Bank of England. Their activities were heavily controlled by their respective governments during the period 1945 to 1992, but both were highly independent during the Gold Standard period and again in the 1990s. The governor and sub-governors now have six-year terms of office, secure tenure and are prohibited from accepting any instructions from the central government. Monetary policy was entrusted solely to the Bank. With respect to economic independence, the major change affected lending to government and the Bank was prohibited from:

‘... authorising credit or granting any form of debt facility to the Treasury. The direct acquisition of government debt is also prohibited’. (Elgie and Thompson, 1998, p.133).

The Federal Reserve

In contrast to most of the European countries, the United States did not have a central bank during the period 1836 - 1914. Instead the US Treasury performed the role of central bank. Sylla (1988, p 20) has described the system thus: ‘The entire system was the victim of a kind of irregular and vicious centralisation... The money power of the country passed into the hands of a few financiers and big bankers, and the treasury itself, through politics and manipulation, acted in sympathy with them.’ Clifford (1965, p.50) argues that:

‘A few years ago, when the US Treasury was burdened with excessive revenues and the money market depended on the whim of the Secretary of the Treasury, practically all public men of whatever shade or political belief, were agreed that the government ought to be taken out of the banking system.’

The corporate elite became the driving force in the process of separating the central bank from the Treasury and creating an independent Federal Reserve. A central banking system, with twelve regional Federal Reserve Banks, instead of a single central bank, was created with the Federal Reserve Act in 1913 that operated accordingly. The rationale behind this was to prevent a single bank (New York) from dominating the nation’s administrative and financial centre (Sylla 1988). The Federal Reserve banks appoint six directors and the Board in Washington appoints three other directors making a total of nine directors in all. The nine-member board appoints officers of the respective regional reserve banks along with regional governors. With regard to these appointments, the Federal Reserve System is completely independent as none of the appointees come from institutions outside the Federal Reserve.

The Federal Reserve Board, consisting of five members, is appointed by the President of the United States for a period of ten years, and additionally two ex officio members are appointed. These are the Treasurer and his(her) subordinate who acts as the Comptroller of the Currency. The Federal Reserve Board is thus highly independent from government and its main role is to stand between the latter institution and the reserve banks, to conduct a unified monetary policy and to supervise the reserve banks' operations. The longer term of office of the Board of Governors makes it difficult for a President to influence the Board's decisions. Despite this, the President retains power over the Board and is allowed, via the Treasurer, to be involved in open market operations with or without the approval of the Federal Reserve. Moreover, in times of emergency these Offices are also free to intervene in the central bank activities whenever and however they decide to. (Sylla 1989). Table 4 shows the changing nature of Federal Reserve Bank independence between 1912 (the table says 1913) and 1992.

Table 4: Political Independence of the Federal Reserve (1913 – 1992) using GMT index

Question	1913	1935	1992
1. Governor not appointed by the government	-		-
2. Governor appointed for more than 5 years	*	*	-
3. All the Board not appointed by the government	-	-	-
4. Board appointed for more than 5 years	*	*	*
5. No mandatory participation of government representative on the board	-	*	*
6. No government approval of monetary policy is required	-	-	*
7. Statutory requirements that central bank pursues monetary stability amongst its goals	-	-	*
8. Legal provision strengthening the central bank's position in conflict with the government	-	-	*
Overall index of political independence	2	3	5

With respect to the degree of economic independence envisaged in the Banking Act of 1913, the regional reserve banks, acting as lender of last resort and fiscal agents, were partially allowed to issue banknotes. The influence of government became more explicit in 1917 when the United States entered the war. The Federal Reserve objected to the low interest rates set by the government on loans and securities – but these objections had no effect on policy and interest rates remained as set by the government! The Banking Act of 1935 conferred greater independence on the Federal Reserve. The major changes regarding economic independence are:(a) the Board of Governors (called hereafter the Board) could alter the legal reserve requirements of member banks; (b) the Board could set maximum interest rates on time deposits that banks could pay; (c) the Board could set margin requirements on loans to purchase securities; (d) the Federal Reserve Open Market Committee was established with responsibility for carrying out open market operations.

This marked a departure from the past when the Reserve Banks had the authority to implement their own open market operations. The amendments above increased the power of the Federal Reserve over the member banks and brought about a more efficient and unified monetary policy across the country. The Federal Reserve is now regarded as one of the most independent central banks in the world. The GMT index shows a relatively high degree of political independence, despite the governor and board being appointed by the President of the US.

The Bundesbank

The foundation of the German central bank took place on the 22nd January 1870, but the Reichbank de facto started to operate in 1876. Most of the founders were private shareholders. The primary objective of the Reichbank was to unify the note issue but its other tasks as central bank were to improve and organize the payment system in the country. Lexis has noted that:

‘... the nature of its (Reichbank’s) task is that it shall maintain the value of monetary unitas stable as possible’. (Quoted in Goodhart, 1988, p.108.)

The Reichbank’s administrative functions were performed by the Administrative Board and Management. The board was the ‘holder of all powers of attorney on the company’s behalf’. (Quoted in Gall, 1995, p.13). The management of the Reichbank was required to operate in ‘accordance with instructions given by the Administrative Board (subsequently the Supervisory Board)’. The chairman of the board was appointed by election. Instructions to the Reichbank came from its shareholders pursuing their own interest, rather than from government. This is illustrated by the resignation of one of the two members of the board with political affiliations because the:

‘business activity that has so powerfully imposed itself since. I wished to protect my parliamentary position by on major economic issues against any possibility of attack...(Gall, 1995).

Table 5 below provides the degree of independence of the German central bank using the GMT index of political independence.

Table 5: Political Independence of the German Bank (1870 (table shows 1880) – 1998 (1997)) using GMT index

Question	1880	1939	1997
1. Governor not appointed by the government	*	Na	-
2. Governor appointed for more than 5 years	*	Na	-
3. All the Board not appointed by the government	*	Na	-
4. Board appointed for more than 5 years	*	Na	*
5. No mandatory participation of government representative on the board	-	Na	*
6. No government approval of monetary policy is required	*	Na	*
7. Statutory requirements that central bank pursues monetary stability amongst its goals	*	Na	*
8. Legal provision strengthening the central bank’s position in conflict with the government	*	Na	*
Overall index of political independence	7	Na	6

The statute of the Reichbank changed drastically at the end of January 1933. The newly appointed State Secretary, Gottfried, concluded that: 'Of course the banks need to be directed by the State... One cannot accuse the Government of a lack of initiative'. (Quoted in James, 1995, p.284). This period has been described thus: 'The Bank, especially after September 1938, became part of the machine of the German imperialism, and its employees the agents of a brutal political process.' (James 1995, p. 352). The issues of independence came to the fore in Germany with the creation of the Bundesbank which established a standard of independence against which other central banks were judged. Similarly, its track record of delivering low inflation became the standard against which other policy makers were judged.

Section five: Post crisis role of central bank

Monetary policy after the crisis

The stable economic growth and low inflation of the last two decades could not prevent the emergence of vast imbalances in the global financial system, as the financial and economic crisis clearly showed. Such massive economic shocks are bound to have an impact on how central banks work. Nevertheless, ensuring price stability remains our top priority. The crisis made it evident that central banks have an effective set of instruments that can be used to mitigate the negative impact of financial crises. The unconventional measures used in this regard also proved to be effective. Yet despite these measures, the cost of the crisis remains enormous. One central conclusion, therefore, is that more attention needs to be paid to crisis prevention in order to improve the stability of financial systems. However, monetary policy instruments are only suitable up to a point in countering the emergence of financial imbalances. Hence, a different approach is needed. Strengthening macro-prudential supervision and regulation is one plausible option. Macro-prudential policy takes account of systemic risks in the financial sector through action geared to reducing such risks. As yet, however, we have little experience of this type of supervision and regulation. It is therefore vital that we act prudently and gradually when implementing any new measures, and that we give ourselves adequate time. The first step is to define clear and realistic mandates and objectives and to evaluate possible instruments. Collaboration between the various authorities involved – both nationally and internationally – is also of crucial importance. Overall, we need to create conditions that allow the timely application of suitable instruments to counter emergent financial instabilities. These instruments would essentially supplement our set of existing monetary policy instruments. Within such a framework, the SNB would be able to make an optimum contribution to both objectives – price stability *and* financial stability.

Comparing today's world with the situation a few decades ago, it becomes evident that much has changed. Deregulation of the financial markets has increased and

globalization has progressed extremely fast – in the real economy as well. The brisk level of trading made a significant contribution to the long-lasting worldwide upswing in recent years. This was supported by the credible policies pursued by central banks, which increasingly prioritized the goal of price stability, thus contributing to a global reduction in the level and volatility of inflation. The battle against high inflation appeared to have been won. Overall, this led to firm expectations of low inflation and a dramatic drop in risk premia in virtually all areas of the financial markets. However, the successful battle against inflation and the related reduction in macroeconomic volatility – also known as the ‘Great Moderation’ – were not able to prevent serious instabilities within the globalised financial system.

Alongside its evident benefits, the ‘Great Moderation’ thus seems to have produced a number of damaging by-products. In combination with low real interest rates, financial innovations and liberalized capital markets provided enormous credit-creation potential. Together with a reduced perception of risk, this fostered a rapid rise in asset prices which ultimately led to excesses and imbalances in some markets. Through contagion effects, the bursting of a credit and asset price bubble can bring the entire global financial system to the brink of collapse within a very short period of time. In view of the interaction with the real economy, this consequence also has serious implications for the world economy and global growth. This raises a number of questions about the future role of central banks. Can and should monetary policy be used to actively counter the development of imbalances or financial bubbles? Does it make sense to use monetary policy instruments for this? Will the new instruments used during the crisis also play a more important role in monetary policy in the future?

To answer these questions, one would like to look at two aspects specifically. First, I will examine the measures used by central banks during the crisis and briefly outline the possibilities and limitations on their future use in monetary policy. Then I will consider whether monetary policy should step up its focus on the goal of financial stability. With regard to measures taken during the crisis, one can say straight away that the effectiveness of monetary policy instruments was clearly demonstrated. We were able to safeguard price stability and cushion the negative impact on the real economy. However, vigorous interest rate cuts were not sufficient on their own – neither in Switzerland and nor in other countries. The liquidity situation on the money markets initially remained extremely tense.

In many cases, interest rates rapidly dropped to zero. The chief monetary policy instrument could thus no longer be used. Central banks around the world therefore adopted the so-called unconventional measures. These included direct intervention in the financial markets by buying assets, such as long-dated government bonds, debt securities issued by private borrowers and foreign exchange. Another measure was the temporary expansion of liquidity provision to banks beyond the ‘normal’ level – for example, through repo transactions with unusually long

maturities of up to one year. These measures were taken for two reasons. First, they permitted further monetary easing if the desired stabilization of prices and the economy could not be achieved through cutting interest rates alone. Second, unconventional measures could be justified by the central banks' role as lender of last resort. Its role, in other words, was to provide emergency funding for financial institutions that were facing short-term liquidity bottlenecks. The aim of these unconventional measures was to restore the functioning of market forces as quickly as possible and ultimately to restore market confidence in the financial system.

Two main lessons can be learnt from the vigorous response by central banks. It showed that zero interest rates on no account mean that central banks have exhausted their set of monetary policy instruments. Through quantitative and credit easing measures, the central banks have effective instruments that can be used to reduce risk premia, alleviate liquidity bottlenecks and prevent deflation. Moreover, their role as lender of last resort has taken on a new dimension. Previously, this role was confined to providing funds to bridge temporary liquidity bottlenecks at a particular bank. At the height of the crisis, however, the priority was to secure the liquidity of entire markets. The central banks demonstrated that they can fulfill this function to a previously unforeseen extent. In short, they demonstrated their ability to respond to a systemic crisis.

Nevertheless, we need to be cautious when considering whether such measures should be included in a central bank's conventional set of instruments in the future. These unconventional measures proved useful for direct crisis management. However, so far we have little practical experience of monetary policy management at zero interest rates, especially over a prolonged period of time. It is clear that the instruments used come at a price. In the longer term, for instance, they could create new instabilities and distortions on the financial markets. Similarly, such an enormous increase in liquidity could lead to a build-up of significant inflationary potential. So it is too early to conclusively assess the impact of the measures taken. In general, though, they should be reserved principally for crisis management.

Looking beyond the reactive crisis management, the aftermath of the crisis has brought an old question back into the limelight: To what extent should central banks proactively hinder the development of imbalances on the financial markets, rather than simply adopting an *ex post* 'mopping up' role. More specifically: should central banks try to counter market excesses by steering interest rates in order to prevent a potential collapse of the financial system and the resultant costly implications for the real economy? This is a complex issue and answering it would go well beyond the scope of this talk. However, it is very topical and tends to recur constantly in the public policy debate. I would therefore like to give you my view on this issue.

For a while now, central bankers and economists have been examining the extent to which changes in asset prices should be taken into account in monetary policy. For example, this could mean that the central bank would raise interest rates if there was a risk that an emerging credit bubble could destabilize the system. The debate is with difficulties, and though it started some time ago, research is still at its infancy. I will therefore merely outline the possible problems and challenges that could arise. To make my position clear: Many are convinced that a strategy geared to medium and long-term price stability is vital for effective implementation of monetary policy. After all, the economic benefits of stable prices are undisputed. High and volatile inflation rates are detrimental to productivity and growth. Uncertainty about future price trends leads to inefficient investment and consumer spending decisions. That does not mean, however, that financial stability should be ignored completely in monetary policy considerations. Nevertheless, taking greater account of financial imbalances presents a number of practical difficulties. An initial problem is that a *single* instrument – namely the interest rate – would be expected to achieve two objectives simultaneously: price stability and financial stability. That does not seem to be a problem at first sight, because usually the two support each other, especially when taking a long-term view. Credible action to ensure price stability fosters a sense of security and market confidence, which in turn play a key role in ensuring financial stability. Similarly, a stable financial system is a key prerequisite for price stability. The recent financial crisis provided impressive negative evidence to confirm this rule. The bursting of a financial bubble can easily trigger a deflationary trend. So far, so good. However, a second glance reveals potential conflicts between these two objectives in certain situations. For example, a positive supply shock – as a result of technological progress, for instance – could keep inflationary pressure low for a prolonged period.

Expansionary monetary policy conditions could therefore be maintained. However, if we look at financial stability, this situation entails the risk of a boom-bust cycle, which would require a tightening of monetary policy. A similar problem is conceivable if the economic outlook is so poor that raising interest rates would be inappropriate because of the risk of deflation. Then again, maintaining low interest rates would pave the way for potential imbalances, which – from the point of view of financial stability – would actually have to be countered by raising interest rates. Such situations make it clear that a single instrument cannot simultaneously achieve *two* objectives.

A further problem is that a bubble is not easy to identify. Expecting us to be able to tell in advance whether damaging price imbalances are building up within certain asset classes is not realistic. First, that would require us to be better than market forces in assessing the fundamentally justified value of a specific asset. Second, it is not easy to clearly identify which variables are to be used as indicators of imbalances. A third problem is that we do not yet have any sound knowledge of

the timing, effectiveness and required scope of the monetary policy response that would be necessary to counter financial imbalances. Since asset prices are typically far more volatile than real economic variables and general price levels, substantial changes in interest rates could be required to check financial imbalances, and this could have serious side-effects on the goal of maintaining price stability. As we can see, there are many questions that have not yet been clarified. The problems we have mentioned make it clear that central banks would rapidly reach their limits if they were simply to add a further goal alongside price stability without new instruments to deal with it. The more objectives an instrument is expected to achieve, the greater the risk of wrong decisions and conflicting objectives.

However, as it is already said, these problems do not mean that financial stability should be ignored completely in monetary policy decisions. Asset prices and other variables such as credit growth must be included as indicators when assessing the situation and the outlook for inflation. They are already included in the practical implementation of today's monetary policy strategy. Yet, care must be taken when interpreting such 'instability variables' because they provide only limited information about future economic trends. To sum up, monetary policy can make an important contribution to financial stability. However, the set of monetary policy instruments is unsuitable for excluding all imbalances in all circumstances. Accordingly, instruments that have a direct effect are needed to counter the emergence of (global) financial instabilities. A key lesson of the crisis is that there is scope to strengthen what is known as macro-prudential supervision and regulation. This should be seen as complementary to monetary policy, to aid attainment of the twin goals of price stability and financial stability.

A framework for macro-prudential supervision and regulation

Put simply, macro-prudential supervision and regulation is concerned with the stability of the entire financial system, rather than that of individual institutions, which is the domain of micro-prudential supervision and regulation. Macroprudential supervision and regulation involves examining systemic risks that arise from the interaction between individual banks or the risk that the default of a single bank – because of its size or market share – could jeopardize certain functions that are vital for the economy, such as payment transactions or lending businesses. For example, one solution that could significantly reduce such problems would be progressive capital adequacy requirements. In other words, the greater a bank's systemic importance, the more equity it would be required to hold. If capital adequacy requirements rise in step with systemic importance, banks have an incentive to stay smaller and thus less systemically important. Capital reserves for systemically important banks in excess of a minimum level could also act as a kind of 'automatic stabilizer'. Reserves built up in 'good times' allow banks to absorb losses in 'bad times' without having to cease normal business operations. Another

central aspect of macro-prudential supervision and regulation takes account of the build-up of systemic risks overtime, and especially the pro-cyclical effects in the financial sector. Discretionary action could be taken to cushion the growth of such risks over time – for instance, by imposing an obligation to build up additional capital in phases of excessive credit growth, in other words a countercyclical capital buffer. A key aspect here is that such measures help prevent possible imbalances within the financial system. Another way of achieving the required countercyclical effect is, for example, imposing direct restrictions on loan-to-value ratios if there are signs that a bubble could be forming in certain markets, such as the mortgage market.

The difficulties in applying macro-prudential supervision and regulation should not be underestimated, however. First and foremost, experience of discretionary instruments is still fairly limited. For example, there is not yet any conclusive research showing which indicators could be used to reliably identify systemic risks. Moreover, it is not easy to assess the point beyond which credit growth should be regarded as excessive. Furthermore, the interaction between macro-prudential and monetary policy instruments could make implementation more difficult. In particular, monetary policy transmission channels could be affected

The impact of a change in interest rates on lending could vary depending on the level of a bank's capital buffer. Therefore, in order to develop reliable indicators for systemic risk, to analyze the interaction and feedback between macro-prudential and monetary policy instruments, and to carefully evaluate the effective measures, we need clear mandates, enough time and additional expertise

So what is the role of central banks in establishing such a macro-prudential framework? Generally speaking, the traditional tasks of central banks are closely linked to various aspects of systemic stability. A stable financial system is very important for the effective implementation of monetary policy. But also in active crisis management, central banks bear a major responsibility, as the recent financial crisis clearly demonstrated. The contribution of central banks is therefore of great relevance in the analysis and regulation of systemic risk. In particular, central banks will have a key role to play in macroprudential supervision and regulation for the following reasons: Developing and structuring macroprudential measures requires reliable analytical and forecasting skills – for instance, with regard to the overall economy or specific market segments, such as real estate. Central banks have extensive and sound knowledge of these fields. Moreover – as have been already pointed out – macro-prudential policy interacts closely with monetary policy. This implies that the information advantage of central banks could be important in shaping macro-prudential measures. Central banks will therefore almost certainly have to play a major role in implementing such instruments. At the same time, the risks involved in overemphasizing the role of central banks in connection with such supervision and regulation also have to be borne in mind.

Central banks could find themselves facing increased political pressures that could jeopardize their independence. If their credibility with regard to maintaining price stability were undermined, this could have devastating implications for the effective implementation of monetary policy.

Institutional aspects

And now, in the final part, we would like to look at some institutional aspects. To allow a more detailed analysis of systemic risks and how to keep them in check, we need a macro-prudential framework in which various instruments can be combined to optimal effect. What is the best way of achieving this? Firstly, it is essential to recognize that ensuring financial stability as a whole is generally dependent on the decisions made by a range of different bodies. These need to act together in order to ensure financial stability. To create the necessary basis for a functioning macro-prudential framework, the exact institutional set-up of the regulatory authorities is of the utmost importance. First and foremost, objectives, mandates and responsibilities need to be clearly defined. In Switzerland, for instance, FINMA – the Financial Market Supervisory Authority – is responsible for the regulation and supervision of individual banks. The SNB, on the other hand, is required to contribute to financial stability. With regard to Switzerland's two big banks, there is a clear overlap between institutional and systemic risks. In this context, an exact definition of the responsibilities of the SNB and FINMA is of central importance for optimal macroprudential supervision and regulation. The revised Memorandum of Understanding between the SNB and FINMA is an important step in this direction. Secondly, to ensure that the institutions involved can optimally carry out the roles assigned to them, it is also important to give them the right tools. In concrete terms, this means that the SNB would, for example, need to have more extensive information about the stability of financial institutions – regarding their risk exposure, interdependences, etc. – or it would require specific instruments enabling it to take the right decisions when implementing macroprudential policy. Thirdly, the crisis made it clear that closer international cooperation between regulatory authorities is vital. Functioning international coordination mechanisms are required to counter future crises earlier and more effectively. International cooperation is the only way to check undesirable developments on the globalised financial markets.

To briefly sum up these lengthy remarks by trying to reply as explicitly as possible to the question raised earlier: is there a danger that the active and innovative involvement of central banks in crisis management will put at risk the two major achievements of the pre-crisis years, namely the priority given to (price) stability-oriented monetary policy and the independence of central banks? It is proposed to submit four specific conclusions.

Crisis Prevention and Management

It is believed that central banks should be given an explicit macro-prudential mandate as regards both crisis prevention and crisis management. One reason for this recommendation is the conviction that our globalised, competitive and highly innovative financial markets will continue to breed financial disturbances of a size and nature that could lead to systemic meltdown. Another reason is that have doubts about our ability to correct global imbalances, which therefore will continue to nurture a crisis-friendly environment. The last reason is that, with or without a mandate, central banks will find themselves in the first line of defense. It would seem to me preferable to give them a well defined framework within which they should operate, rather than rely exclusively on improvisation. We will always need improvisation, but we also need an operational framework.

Implement a price stability-oriented monetary policy

It is believed that we should not attach excessive weight to the argument that such a mandate would “pollute” the implementation of a (price) stability-oriented monetary policy. On the other hand, there is belief that the macro-prudential mandate should carefully avoid giving implicit approval of asymmetrical policies regarding asset price and/or debt bubbles. Any perceived asymmetry would sooner or later be detrimental to financial stability, and might also cause damage – although not with the same degree of certainty – to price stability.

Entrust with micro-prudential supervision

Should central banks be entrusted with micro-prudential supervision. Many have doubts on the wisdom of raising this question in abstract terms. Tried to say that what really matters is the flow, quality and speed of information between micro- and macroprudential supervision and acknowledged that these are two distinct, but very complementary functions. Depending on the specifics of organization, on tradition and on the “human factor”, ensuring the appropriate flow of information may succeed – or fail – in both the integrated and the cooperative model.

Central Bank Independence

Is central banking independence at risk? Yes, it is. The risk arises from the obvious fact that having to comply with two distinct mandates pushes the central banks into a much more complex world. The modalities of their independence in their monetary policy function may be debatable, but, once agreed, the terms of independence can be reasonably well defined. In the case of the macroprudential mandate (in both models), this is very difficult. Once it appears that an initial liquidity problem is mutating into a solvency problem, and especially when the latter implies the risk of a systemic meltdown, the central bank has to operate hand in hand with the government. But hand in hand can mean very different things – this is why one is pleading for a reasonably well defined operational framework. The macro-prudential mandate implies for the central bank a type of relationship with, and therefore a type of independence from, the government that is different in

substance from the one governing monetary policy. The rules of the game on both sides have to be spelled out.

7. Central-Bank Communication and Stabilization Policy

One of the most notable changes in central banking worldwide over the past two decades has been the increased openness with which central bankers speak in public about the policy decisions that they have made and that they are likely to make in the future. The title of William Greider's 1987 best seller about the U.S. Federal Reserve --- *Secrets of the Temple* --- indicates the air of mystery surrounding the institution only twenty years ago, and this mystique was jealously cultivated by central bankers.

Now, instead, monetary policy decisions are commonly announced and explained in press releases at the time that they occur --- the President of the European Central Bank even holds a press conference --- and a number of central banks, such as the Bank of England and the Swedish Riksbank, issue Inflation Reports several times a year that provide detailed presentations of the reasoning behind recent policy decisions. Moreover, a number of central banks, including both the Fed and the ECB, have in recent years frequently offered fairly direct indications about future interest-rate decisions in their official statements, and a few central banks even publish quantitative projections of the likely path of interest rates years into the future.

This shift toward greater transparency and more active communication about policy decisions and intentions is not a mere passing fad, but a fundamental change with important consequences for the success with which monetary policy can be used to maintain economic stability. A central aim of my research over the past decade has been to understand the role of communication in successful monetary policy, and to develop criteria for the conduct of policy that can allow the decision process to become more transparent.

Why Communication Matters

The importance of communication strategy for policy effectiveness follows from a fundamental feature of the kind of problem that a central bank is called upon to solve. Central banking is not like steering an oil tanker, or even guiding a spacecraft, which follows a trajectory that depends on constantly changing factors, but that does not depend on the vehicle's own expectations about where it is heading. Because the key decision makers in an economy are forward-looking, central banks affect the economy as much through their influence on expectations as through any direct, mechanical effects of central bank trading in the market for overnight cash.

Few central banks of major industrial nations still make much use of credit controls or other attempts to directly regulate the flow of funds through financial

markets and institutions. Instead, banks generally seek to control the overnight interest rate in an interbank market. But the current level of overnight interest rates *as such* is of negligible importance for economic decision making. The significance of changes in central-bank targets for overnight rates is wholly dependent upon the impact of these decisions upon other financial-market prices, such as longer-term interest rates, equity prices and exchange rates --- and these depend not on the current level of the overnight rate, but on its *expected path* over coming months and years. Moreover, it is the expected path of *real* interest rates that matters for economic decisions, and not the nominal rates that are directly targeted by the central bank; and these depend on the public's *expectations of inflation* in addition to the expected path of nominal rates. Expectations of inflation are in turn strongly influenced by the public's expectations about future monetary policy.

Thus the economic effects of central-bank decisions depend critically upon public expectations regarding the future conduct of policy; indeed, changes in the current interest-rate target are primarily significant for what they indicate about likely *future* policy. It is therefore important for central banks to think carefully about what their current actions signal about future policy, and reasonable for them to seek to develop other channels through which they can also shape expectations about future policy, perhaps in a more nuanced fashion.

Anchoring Inflation Expectations

One aspect of the expectation that the central bankers should seek to influence is the public expectation regarding the rate of inflation over the next several years. A large body of research has confirmed the robustness of the conclusion that, while some degree of short-run variation in the rate of inflation is inevitable or even desirable, it is important to maintain the public's confidence that the average rate of inflation over the medium term will be low and that this can be forecasted with reasonable precision. One reason is because expected inflation leads to socially wasteful efforts to economize on cash balances; a correct alignment of private incentives with the social cost of providing liquid balances to facilitate transactions occurs only if money is expected to retain its value. Moreover, uncertainty about the real value of future nominal payments discourages nominal contracting, reducing the efficiency of financial intermediation.

But at the same time, effective stabilization of the real economy depends on stable inflation expectations as well. For the available short-run tradeoff between inflation and real activity, which allows monetary policy to affect output and employment, depends critically on inflation expectations. If expectations are not firmly anchored, and are easily shifted in response to variations in the observed rate of inflation, then short-run variations in the rate of inflation will not produce substantial differences between current inflation and expected inflation, and hence will have only a small effect on real activity. If instead people have reason to believe

that inflation will always return fairly quickly to a stable long-run rate, so that an observed departure of the current inflation rate from the average rate has little effect on expected inflation for the future, the short-run "Phillips-curve" tradeoff between inflation and employment is much flatter, allowing monetary policy a larger short-run effect on real activity. Hence even from the point of view of improved stabilization of the real economy, it is important to find a way of stabilizing inflation expectations.

Central bankers have long understood the importance of maintaining confidence in the "soundness" of the currency. But the traditional understanding of how this could be done relied upon a commitment to convertibility of currency into some real commodity, such as gold. Since the collapse of the Bretton Woods system in the early 1970s, this approach to anchoring expectations about the future purchasing power of money has not been available. It has instead been necessary for central bankers to find ways to maintain confidence regarding the future purchasing power of an inconvertible currency that rely solely upon public beliefs about the way in which the instruments of monetary policy will be used in the future.

The most popular current approach to this problem is public commitment of a central bank (often through the legislative definition of its mandate) to a quantitative inflation target, or (as in the case of the ECB), a quantitative definition of the bank's objective of price stability. This kind of specificity about the goals of policy has clearly been valuable, but the mere declaration of a target is not enough to anchor expectations: it is also necessary that the public be able to see that policy is conducted in a way that should be expected to achieve the target, at least on average over a suitable horizon. This is where communication with the public about the basis for policy decisions can make a crucial contribution.

One might think that it should be sufficient for a central bank to behave reliably, without any need to talk about what it does. But requiring market participants to guess the pattern in the central bank's behavior by extrapolating from what they have observed is not likely to stabilize expectations as reliably as a convincing explanation by the bank of its behavior. For example, if the public must infer the inflation rate that is aimed at on average from observed outcomes, then any temporary increase in inflation will naturally lead to fears that the central bank's inflation objective is actually higher than had been previously believed; but this is exactly the kind of instability of beliefs that undermines the possibility of using monetary policy to stabilize the real economy. The ideal situation --- in which it is possible to allow some transitory variation in inflation for the sake of greater stability of the real economy, without undermining confidence regarding the medium-run inflation rate --- is only likely to be achievable if the reason why the central bank views transitory fluctuations in inflation as acceptable at particular points in time is explained to the public. Only in this way can confidence be maintained that the central bank's concern with the real economy is not of a kind that will be allowed

to interfere with achievement of its medium-run inflation objective.

Steering Interest-Rate Expectations

Effective monetary policy requires not only that certain aspects of expectations remain relatively constant in the face of transitory turbulence; it is also important that certain aspects of expectations change with changing circumstances, but in the proper way. As noted above, a central bank exerts its control over spending by affecting expectations about the future path of interest rates, rather than their current level alone; effective stabilization requires that those expectations about the path change with economic conditions in the way that the central bank intends. Here too, simply relying upon the public to discern the pattern in central-bank behavior on its own may be insufficiently reliable, and communication --- in this case, about the likely path of future policy --- can be essential.

A good example is the situation faced by the U.S. Federal Reserve in the summer of 2003. By June, the target for the overnight interest rate had been reduced to only one percent, and the Fed had little room for further rate reductions; yet inflation remained unusually low, causing some to fear that the U.S. could slide into a deflation like Japan's. At the same time, many traders were speculating that the Fed would begin raising interest rates soon, in view of signs of nascent recovery of the real economy, and as a result, long-term bond yields began rising sharply in anticipation of this. Officials at the Fed disagreed with the market's interpretation of their intentions, and moreover feared that the premature increase in long-term interest rates would strangle the recovery in its cradle, precipitating the dreaded deflationary spiral.

With little room to signal more expansionary intentions through further immediate interest-rate cuts, the Fed had to resort to direct communication about future policy intentions. The statement issued after the August policy meeting, at which there was no change in the current interest-rate target, included an explicit indication that the Fed expected that low interest rates could be maintained "for a considerable period," and similar language was included in each of the next several post-meeting statements. This had the desired effect of allowing long-term rates to subside fairly soon, and the recovery to gain momentum. Even once the deflation scare was past and it became necessary to return overnight interest rates to a more normal level, it was possible to raise rates without any notable disturbance of the long-term bond market, by signaling in advance the approach of interest-rate increases and committing to increase rates only "at a measured pace."

Forecast-Targeting as a Policy Framework

Shaping the expectations of market participants through central-bank communication requires more, however, than a mere willingness of the central bank to be forthcoming about its thoughts. Statements by the central bank will not influence expectations, or not for long, if they are not found to provide the key to what is

actually done. This in turn requires not only that the central bank's statements be made in good faith, but that the central bank know its own mind to begin with, so that it has something to communicate. A central bank cannot reveal its intentions regarding future policy if it has not actually formulated a plan of action; nor can it explain its past decisions, in a way that will help to predict future decisions, if those decisions were not actually based on a structured decision process. Accordingly, a successful use of communication policy requires not only a commitment to transparency, but the adoption of a more structured approach to policy deliberations as well.

This is one of the main reasons, in my view, for the increased role of quantitative modeling in monetary policy deliberations at central banks around the world. This is taken farthest by banks like the Bank of England, the Swedish Riksbank, the Norges Bank, and the Reserve Bank of New Zealand, which are leading exemplars of "inflation-forecast targeting." This is a decision making framework for monetary policy under which the central bank seeks at each policy meeting to determine the action that would lead it to project an evolution for the economy over the next several years consistent with a specific quantitative "target criterion." The discussion of economic projections under alternative assumptions accordingly comes to play a central role in policy deliberations. These projections are also central to the bank's explanations of its policy decisions to the public; typically, forecast-targeting central banks publish an Inflation Report three or four times a year with a detailed discussion of the most recent projections and the way in which they justify recent policy decisions.

A key aspect of the target criterion for all of these central banks is the requirement that a certain measure of inflation be projected to converge to a specified medium-run target value, over a specified horizon (usually two to three years in the future).

It is because of this emphasis on the inflation projection that the approach is called inflation-forecast targeting." However, this stipulation alone is insufficient to fully determine the appropriate policy action. There will be different paths by which inflation might be projected to reach the desired level two or three years in the future; these different paths may require quite different actions by the central bank in the short run, and of course it is always only the immediate policy action (say, an interest-rate target for the coming month) that is decided upon at any given meeting.

As a consequence, a fully specified target criterion must also include an explanation of what makes one or another nearer-term transition path acceptable. The Norges Bank has been most explicit about this. Each issue of its Inflation Report contains a box listing the multiple criteria that acceptable projections are expected to satisfy. The first item on the list is convergence of a particular inflation measure (CPI-ATE) to its target value (2.5 percent per year) at a particular horizon (the next 3 years). But the next item specifies that the "inflation gap" (departure of the

current inflation rate from the medium-run target) and the “output gap” (departure of current real GDP from the economy’s “natural” or potential level of output) should be of opposite sign, be in suitable proportion to one another, and be projected to be eliminated over time at similar rates. This explains how a temporary departure of projected inflation from the medium-run target must be justified, and what determines whether the rate at which inflation is projected to approach the target is too slow, too fast, or just right.

This approach has important advantages as a way of shaping private-sector expectations. On the one hand, a commitment to regular publication of a detailed analysis that shows how specific policy decisions conform to a general decision framework makes it evident to the public that it can count on the bank to conduct policy in a specific, relatively predictable way. Moreover, the emphasis on the bank’s projections of the economy’s evolution directs attention very precisely to the implications of the policy framework for expectations that the central bank would like the public to share. For example, the task of ensuring that medium-term inflation expectations remain anchored is served by constantly discussing what the path of inflation should be expected to be in the light of the most recent developments, and explaining why the central bank believes that its policy is consistent with convergence of the inflation rate to the unvarying medium-run target rate at a fairly specific future horizon, despite what might otherwise be troubling features of recent data.

At the same time, the approach achieves the goal of making the bank’s commitments evident and the consequences of its policies fairly predictable, without tying it to a rigid framework that would require policy decisions to be based on some very small, pre-specified set of statistics. The target criterion --- the thing that one should see in the projections in order to judge that policy is on track --- should be able to be specified in advance, and should remain consistent over time. But the information used in constructing the projections --- the information on the basis of which the bank decides whether a given policy should satisfy the target criterion or not --- may be of many kinds, that need not be specified in advance. These sources of relevant information may change over time owing to unexpected circumstances, and may include non-quantitative sources of information (“judgment”), as long as the required adjustment of the bank’s projections can be quantified. The source of discipline in such a procedure is the requirement that the reasoning behind the banks be publicly defended in considerable detail, in addition to the fact that the accuracy of the published projections can eventually be evaluated once the outcomes are observed.

Thus, credibility can be established without a central bank’s having to bind itself to a rigid framework that does not allow it to take account of developments of unexpected kinds. The key to success is a commitment to frequent and detailed communication. But this also requires a commitment to a clear policy strategy, the

necessary basis for clarity in communications. Economic research can contribute to the refinement of our understanding of the properties of desirable policy commitments, and more work of this kind is needed. But the experience of central banks around the world over the past decade has already shown that a more rule-based approach to policymaking is possible in practice, and that it pays substantial dividends in terms of improved stabilization of both inflation and the real economy.

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