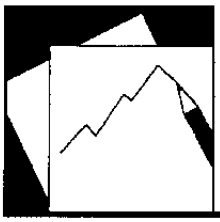
Working Paper

INTERNATIONAL MONETARY FUND

WP/03/121



IMF Working Paper

Responsibility of Central Banks for Stability in Financial Markets

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INTERNATIONAL MONETARY FUND

 WP/03/121

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International Capital Markets Department

Responsibility of Central Banks for Stability in Financial Markets

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June 2003

Abstract

What is the role of central banks in ensuring financial stability? This paper addresses this controversial subject, in part by drawing on the experiences in Europe, Japan, and the United States, and by examining four questions. What is meant by financial stability? Do central banks have a natural role in ensuring financial stability? What does a central bank need to execute this role effectively? How far have central banks actually gone in safeguarding financial stability? The experience drawn on in the paper suggest that central banks: have a natural role to play; at times may require supervisory information to execute this natural role; and have incurred risks to their balance sheets to ensure financial stability.

JEL Classification Numbers: E58, G15, G18, G33, H10, N20

Keywords: financial stability, central banking, financial crises management

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[1] This paper is adapted from a transcript of a one-hour lecture presented to a group of legal counselors from the central banks of selected emerging and transition countries. The counselors were participating in a joint IMF Legal Department and IMF Institute "Seminar on Current Issues in Monetary and Financial Law" (held in Washington, D.C., May 9-19, 2000). The text will be published in *Current Developments in Monetary and Financial Law*, Volume 2 (IMF, forthcoming). The author thanks Charles Kramer and Todd Smith for useful comments on an earlier draft.

Contents

I. Introduction 3

II. What Is Financial Stability? 4

III. Do Central Banks Have a Natural Role in Ensuring Financial Stability? 5

IV. What Does the Central Bank Need to Execute This Role Effectively? 9

V. How Far Have Central Banks Gone to Ensure Financial Stability? 15

References 16

I. INTRODUCTION

Four questions are addressed in this paper:

- What is meant by financial stability?
- Do central banks have a natural role in ensuring financial stability?
- What does a central bank need to execute this role effectively?
- How far have central banks actually gone in safeguarding financial stability?

Before attempting to provide answers to these specific questions, it is worth highlighting the controversies surrounding the general subject of central banking and financial stability. Although there is a long history of central banking and of financial crises and how they have been managed, there remains considerable controversy over the role of central banks in ensuring financial stability. The following two examples illustrate this point.

First, the United Kingdom recently moved responsibility for banking supervision from the Bank of England to the Financial Services Authority as part of the process of creating a single financial regulator. The creation of a single financial regulator is one way of rationalizing or merging together disparate organizations that are responsible for parts of the financial regulatory or supervisory framework. This rationalization can be justified for several reasons, but it is useful to observe that the Bank of England, which is the lender of last resort and the ensurer of financial as well as monetary stability, no longer has responsibility for banking supervision. An important issue raised by this example is, what kind of information does a central bank need in order to fulfill its mandate for ensuring financial stability and effectively providing lender-of-last-resort protection against instability?

A second example is the European Central Bank. This newly created central bank, which is supranational, manages a currency of twelve countries. In many ways, the Deutsche Bundesbank was the model used for designing the European Central Bank, both in statute and in practice. As will be explained more fully later, the Bundesbank, as it existed prior to the creation of the euro zone, could be characterized as a central bank based on a "narrow" concept of central banking. The Bundesbank had a single objective, the stability of the deutsche mark, which in domestic terms meant price stability. In practice, the Bundesbank was a de facto bank supervisor as well, even though there was a separate Federal Supervisory Office. The Bundesbank was responsible for collecting all of the information required for good banking supervision, and it provided that information to the Federal Supervisory Office, which legally was the supervisor. The Bundesbank had a very direct and central role in banking supervision. By contrast, the ECB does not. The ECB appears to be the ultimate "narrow" central bank; it literally has a mandate for price stability and a very small role in ensuring financial stability, confined to ensuring the smooth functioning of the TARGET[2] payments system, not the financial system.

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[2] TARGET stands for the Trans-European Automated Real-time Gross settlement Express Transfer System—the real-time gross settlement system for the Euro.

II. What is Financial Stability?

Given that this is a controversial subject, consider the first of the four questions, what is meant by financial stability? It is instructive to first consider what is meant by *monetary* stability: the stability of either the price level or of the inflation rate over some well defined, medium-term horizon—a year, eighteen months, or two years. Over shorter horizons, it also entails the stability of overnight interest rates, for example, or of monetary aggregates.

The definition of *financial* stability is, in general, more controversial. What it generally means is the joint stability of the key financial institutions operating within financial markets and the stability of those markets. For the financial institutions, this generally means that they are sound, meaning they have sufficient capital to absorb normal, and at times abnormal, losses and sufficient liquidity to manage operations and volatility in normal periods of time.

Market stability, generally, does not mean steady asset prices—even stable markets can have high volatility in asset prices. But it generally does mean the absence of the kind of volatility that could have severe real economic consequences. There is controversy about what is meant by "too much" volatility, for example, and about which asset prices, when volatile, would constitute general financial market volatility or instability. Is it just one sector, like real estate prices, or does it have to be a more widespread phenomenon?

The concept of financial stability is most often thought of in terms of avoiding financial crises but one can also think of it in terms of managing systemic financial risk. If systemic risk is managed reasonably well—including by market participants through their private risk management (the first line of defense) and the authorities through its banking supervision, market surveillance, and systemic risk management—then systemic financial crises will most likely not occur. It is necessary to have a working definition of systemic financial risk. A study by the G-10 provides the following definition:

> Systemic financial risk is the risk that an event will trigger a loss of economic value or confidence in, and attendant increases in uncertainly about, a substantial portion of the financial system that is serious enough to quite probably have significant adverse effects on the real economy. Systemic risk events can be sudden and unexpected, or the likelihood of their occurrence can build up through time in the absence of appropriate policy responses. The adverse real economic effects from systemic problems are generally seen as arising from disruptions to the payment system, to credit flows, and from the destruction of asset values. Two related assumptions underlie this definition. First, economic shocks may become systemic because of the existence of negative externalities associated with severe disruptions in the financial system. If there were no spillover effects, or negative externalities, there would be, arguably, no role for public policy. In all but the most highly concentrated financial systems, systemic risk is normally associated with a contagious loss of value or confidence that spreads to parts of the financial system well beyond the original location of the precipitating shock. In a very highly concentrated financial system, on

> the other hand, the collapse of a single firm or market may be sufficient to qualify as a systemic event. Second, systemic financial events must be very likely to induce undesirable real effects, such as substantial reductions in output and employment, in the absence of appropriate policy responses. In this definition, a financial disruption that does not have a high probability of causing a significant disruption of real economic activity is not a systemic risk event.[3]

The study notes that this definition encompasses much of what is in the literature but it is stricter in two respects. One is that the negative externalities of a systemic event extend into the real economy. They are not confined to the financial system. The second is that this extension into the real economy occurs with relatively high probability. The emphasis on real effects reflects the view that it is the output of real goods and services and the accompanying employment implications that are the primary concern of economic policymakers.

Finally, in answering the question, what is financial stability, it is useful to have a working definition of a financial crisis. Professor Anna Schwartz defines a financial crisis in the following way:

> A financial crisis is fuelled by fears that the means of payment will be unobtainable at any price and, in a fractional reserve banking system leads to a scramble for high-powered money. It is precipitated by actions of the public that suddenly squeeze the reserves of the banking system ... The essence of a financial crisis is that it is short-lived, ending with a slackening of the public's demand for additional currency.[4]

III. Do Central Banks Have a Natural Role in Ensuring Financial Stability?

This section argues that central banks have a natural role in ensuring financial stability. Specifically, there are features of central banking that make central banks a natural contender. Consider the traditional definition of monetary stability from Henry Thornton's classic monograph, *An Enquiry into the Nature and Effects of the Paper Credit of Great Britain*, published in 1802.[5]

> To limit the amount of paper issued, and to resort for this purpose, whenever the temptation to borrow is strong, to some effectual principle of restriction; in no case, however, materially to diminish the sum in circulation, but to let it vibrate only within certain limits; to afford a slow and cautious extension of it, as the general trade of the kingdom enlarges itself; to allow of some special, though temporary, enquiries in the

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[3] Group of Ten (2001).

[4] Schwartz (1986), p. 11.

[5] See also Capie (2000).

> event of any extraordinary alarm or difficulty, as the best means of preventing a great demand at home for guineas; and to lean to the side of diminution, in the case of gold going abroad, and of the general exchanges continuing long unfavorable; this seems to be the true policy of the directors of an institution circumstanced like that of the Bank of England. To suffer either the solicitations of merchants, or the wishes of government, to determine the measure of the bank issues, is unquestionably to adopt a very false principle of conduct.[6]

In this definition, one can see the traditional monetary policy role of a central bank. It has all of the ingredients of managing monetary aggregates and interest rates. It has embedded in it the monetary transmission mechanism, and references to monetary targets, or maybe interest rate targets.

Let me now turn to Thornton's views on what may be interpreted as the role of the Bank of England in ensuring financial stability at that time. In particular, three passages from Thornton's classic work appear relevant.

> If any one bank fails, a general run upon the neighboring ones is apt to take place, which if not checked in the beginning by pouring into the circulation a large quantity of gold, leads to very extensive mischief.[7]

> ...if the Bank of England, in future seasons of alarm, should be disposed to extend its discounts in a greater degree than heretofore, then the threatened calamity may be averted through the generosity of that institution.[8]

> It is by no means intended to imply that it would become the Bank of England to relieve every distress which the rashness of country banks may bring upon them: the bank, by doing this, might encourage their improvidence. There seems to be a medium at which a public bank should aim in granting aid to inferior establishments, and which it often must find it very difficult to be observed. The relief should neither be so prompt and liberal as to exempt those who misconduct their business from all the natural consequences of their fault, nor so scanty and slow as deeply to involve the general interests. These interests, nevertheless, are sure to be pleaded by every distressed person whose affairs are large, however indifferent or even ruinous may be their state.[9]

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[6] Thornton (1802), p. 259.

[7] Ibid, p. 180.

[8] Ibid, p. 188.

[9] Ibid.

The first passage describes a process of contagion that is likely to occur with a run on one bank. The second describes the role of the Bank of England. The third passage describes the concept of moral hazard, which is taken up below. All three passages together show clearly that Thornton had a working definition of the role of central banks in financial stability.

Consider a more modern view of the role of central banks in ensuring financial stability, which is consistent with Thornton's view. The following view was expressed by Paul Volcker in 1984, when he was Chairman of the Board of Governors of the U.S. Federal Reserve System:

> A basic continuing responsibility of any central bank—and the principal reason for the founding of the Federal Reserve—is to assure stable and smoothly functioning financial and payments systems. These are prerequisites for, and complementary to, the central bank's responsibility for conducting monetary policy as it is more narrowly conceived. To these ends, the U.S. Congress has over the last 70 years authorized the Federal Reserve (1) to be a major participant in the nation's payments mechanism; (2) to lend at the discount window as the ultimate source of liquidity for the economy; and (3) to regulate and supervise key sectors of the financial markets, both domestic and international. These functions are in addition to, and largely predate, the more purely "monetary" functions of engaging in open market and foreign exchange operations and setting reserve requirements; historically, in fact, the "monetary" functions were largely grafted onto the "supervisory" functions, not the reverse.[10]

According to Paul Volcker, the Federal Reserve system was **first** the ensurer of financial stability and **then** the manager of monetary stability. It is helpful to draw on some key points made by Thornton and by Paul Volker in order to characterize the reasons why there is a natural role of central banks in financial stability.

First, the central bank is the only provider of (what Anna Schwartz refers to as) the legal means of payment and of immediate liquidity. That is, only the central bank provides the "finality of payment." Attorneys have played an important role in defining what the finality of payment really means and in setting up clearance, payments, and settlement systems to put into practice payments finality.

The second natural role is for the central bank to ensure the smooth functioning of the national payment system. It is within the context of the soundness and stability of national payments systems that policymakers have traditionally and naturally thought about and considered systemic risk. Traditionally, systemic risk has been viewed as the possibility that problems at one bank would create problems at other banks and, in particular, banks that make up the core of the national payment system. In this view, problems at one bank would cascade through the payments system and perhaps lead to bottlenecks in payments and the

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[10] Volcker (1984), p. xx.

possibility of a widespread domino effect. The payment system, being the core of the financial market, has been the subject of much discussion, policy, and reform. Through G-10 efforts, there now exists real-time gross payments settlements systems that try to prevent the failure of one institution from cascading through the payments system and effecting other institutions within the payments system. So, again, the central bank has a natural role to play in financial stability—in this case, even if it is confined to the payments system.

The third natural role is that the banking system is the transmission mechanism through which monetary policy has its effect, in the first instance, on the real economy. To the extent that the banking system is experiencing distress, it will be more difficult for the central bank to provide whatever liquidity it thinks is necessary to achieve its monetary objectives. For this reason alone, central banks have a natural interest in sound financial institutions and stable financial markets. Central banks have, therefore, an interest in maintaining the stability of the banking system, in having the ability to see problems at an early stage, and being in a position to influence corrective actions.

Finally, there is an explicit link between monetary stability and financial stability. If we go back to the definition given by Anna Schwarz of a financial crisis, she refers to the propensity for the money supply to collapse. One simple equation makes this very clear. In basic money-and-banking courses in college, one comes across an equation called the money multiplier, which establishes a relationship (some would even say an identity if these parameters are fixed) between central bank money (B) held as bank reserves by the banking system and the broader money supply (M). Formally,

$$M = mB,$$

or, described in words, the money stock is equal to high powered money or the monetary base times the money multiplier (m). This can be written explicitly as follows:

$$M = \left[\frac{1+\frac{C}{D}}{\frac{C}{D}+\frac{R}{D}}\right] B \ ,$$

where $\frac{C}{D}$ is the currency/deposit ratio of the public, and $\frac{R}{D}$ is the cash/deposit ratio of the banks.

It has not been made clear in the above discussion whether M is a narrow monetary aggregate or a broad monetary aggregate: that will depend on what these ratios $\frac{C}{D}$ (the ratio of currency to total deposit liabilities) and $\frac{R}{D}$ (the ratio of required bank reserves to total deposits) are. Regardless, there is a direct link between what the central bank provides in the way of central bank money and the money supply of the economy. In the midst of a financial

crisis, there could be a run on liquidity. Everyone will demand liquidity (and the finality of payment), and everyone in the system understands that the only liquidity that really exists is central bank money—base money (B). In this rush for central bank money, the money supply shrinks because the ratio $\frac{C}{D}$ increases very rapidly as everyone increases C and reduces D. If the money supply is shrinking very rapidly in the presence of financial instability, then it will not take long before the central bank will have to supply liquidity (B) in order to restore monetary stability as the monetary aggregates collapse, as monetary stability objectives are less likely to be achieved, even in the short run. So when there is financial instability, there is likely to be monetary instability. This establishes a link between the natural role of the central bank as the provider of payments finality and its role in financial stability.

IV. What Does the Central Bank Need to Execute This Role Effectively?

Even if one is not convinced that the central bank has a central role to play in financial stability, it is useful to consider the third question of what the central bank needs to execute this role effectively. This is probably the most controversial part of this subject. There are competing views. The first view might be characterized as the "open market operations view," which strongly believes that there is an inherent conflict between the conduct of monetary policy and the conduct of broader financial policies. If a central bank has responsibility for achieving monetary objectives (e.g., keeping inflation in some target range) and if it also has the responsibility for banking supervision, the question that arises is whether or not the central bank will face a situation of having several large banks whose viability importantly depends on interest rates and at the same time be faced with the possibility of having to tighten monetary policy to achieve its monetary objectives. What then does the central bank do? Does it raise interest rates by 300 basis points in order to achieve its monetary objectives, thereby risking the viability of some large banks or does it relax its commitment to its monetary objectives, thereby saving these banks and presumably the financial system.

The open market operations view argues that the central bank should maintain its commitment to its monetary objectives, because it believes the tools that the central bank has to implement monetary policy—open market operations—can also be used to inject liquidity into the financial system that would be appropriate for safeguarding the financial system from the collapse of large banks and any contagion that might occur.[11] The argument rests on (1) the central banks' ability to take good collateral in return for its central bank money provided to the market and (2) the belief that the market itself can distinguish quickly between solvent and insolvent institutions; that is, the market can distinguish between those institutions that have liquidity needs but are otherwise solvent and viable institutions, and those institutions that are having difficulties obtaining liquidity because they truly are

[11] See Prati and Schinasi (1999) for a fuller discussion of these views and references to original sources.

insolvent. The importance of collateral in this argument is that if a bank has good collateral then it is not insolvent and if it is insolvent it will not have good collateral. That is roughly the open market operations view.

The second view is the banking policy view: An interpretation of the banking policy view is that it, too, recognizes this inherent conflict between achieving monetary objectives and the broader financial policy objectives. But it takes a more pragmatic view about how difficult it is to distinguish illiquid from insolvent institutions and, in particular, how difficult it is for the private sector to discriminate between illiquid and insolvent institutions. For example, a bank may have collateral but it may be illiquid collateral. In this case, even a solvent bank may not be able to trade its collateral for the cash that it needs to conduct its business. Therefore, the banking policy view believes that the central bank has a role to play in helping the market to distinguish between illiquid and insolvent institutions. In the banking policy view, the central bank has a banking supervisory function. This function helps the central bank know the banking system, know the banks through which it conducts its monetary policy so that when a crisis does occur, it has current and useful information about the strength and soundness of each of the institutions that it supervises. In this view, open market operations are not sufficient to deal with bank runs and financial crises and there is a natural role for the central bank in banking supervision and the broader financial policy/financial stability function.

Even if one ignores the role of the central bank in managing or ensuring financial stability, it is still possible to identify the key elements of preventing crises. Regardless of what role the central bank plays, a financial system should have in place the mechanisms for identifying vulnerabilities, preventing those vulnerabilities from leading to crises and for dealing with crises if those two lines of defense fail. One can identify some of the key elements of prevention:

(1) Market discipline,

  (i) Internal incentive systems within financial institutions,
  (ii) Risk management and control systems, and
  (iii) Stakeholder governance (shareholders, counterparties);

(2) Banking supervision; and

(3) Market surveillance (both on-exchange and over-the-counter markets).

Market discipline is a key element of prevention and is the first line of defense against systemic problems. If market discipline is working, individual financial institutions that make mistakes will pay for those mistakes very early on. There are three key elements to market discipline identified above, and they all play an important role.

Are there reasons to believe that private market discipline alone would be insufficient to prevent problems from arising? There are, and one of the most important is the existence of a financial safety net. In return for access to the final safety net, each institution is required to hold a minimum amount of capital and to conform to best practices regarding accounting

standards and business practices. The required capital acts as a cushion to absorb losses, losses that the taxpayer will not have to pay for. The second element of prudent management is adhering to strict accounting standards. The accounting standards are in place so that whatever losses are suffered will be reported and disclosed immediately. In some cases, disclosure occurs within a month—in most cases, within a quarter. Shareholders will have access to that information and can act as a disciplining force on the institution.

An example of how market discipline can work is how some financial institutions were affected after the crisis in the autumn of 1998. Internationally active financial institutions were the major counterparties of the hedge fund Long Term Capital Management (LTCM) in the autumn of 1998. Even though no one really understood fully how large or small the losses of these institutions would be, the behavior of stock prices was telling. Some of these institutions' share prices declined by up to 40 percent within a week. The institutions that suffered those equity price losses got a clear message from shareholders about their behavior in the period leading up to the LTCM problem. So shareholders have a role and the only way that shareholders can really exact an accurate penalty on firms is if there is good accounting disclosure. There are other aspects of market discipline and they include internal incentive systems, risk management and control systems, and financial stakeholder governance.

In the IMF's 1999 International Capital Markets report, there is a chapter on managing global finance which tried to step back from the turbulence in the mature markets in the fall of 1998 to draw lessons. There were failures in private risk management and shortcomings in disclosure and other aspects of market discipline. However, in the view of the authors of the International Capital Markets Report, there were also failures in banking supervision and in market surveillance. How is it that the kind of vulnerabilities that built up—in the two years preceding the Russian default and the LTCM crisis—were not detected at individual institutions through internal risk management and control systems, and banking supervision, and in the markets through market surveillance? The report does not provide definitive answers, but it does provide analyses about how to think about what banking supervision and market surveillance can do to identify these vulnerabilities before they build up to the point where a crisis occurs. In particular, more proactive (but not necessarily more intrusive) banking supervision and more proactive market surveillance can be useful in identifying vulnerabilities before they become financial crises.

There are key elements of crisis resolution as well:

- Legal framework for bankruptcy and closeout procedures for financial contracts,
- Exit strategies for insolvent institutions (large and small), and
- Lender-of-last-resort function in the central bank.

First, there is the need for a very clear and effective legal framework for bankruptcy and in terms of financial markets and contracts, for closeout procedures. Closeout procedures are, in effect, a last-resort private, credit-risk mitigation technique. If all else fails, and you have a defaulting party, closeout procedures allow you to make good on (part of) the claim. One of the lessons from LTCM was that even in what many people consider to be the most

advanced financial markets in the world, closeout procedures could not be relied on. Netting arrangements could not be relied on either. Attorneys at central banks **do** have a contribution to make in this important area.

The second part of any crisis resolution strategy is an exit strategy for insolvent institutions. To the extent that fiscal and monetary authorities become engaged with insolvent institutions, exit strategies for public agencies are required as well. As is well known, Japan has supplied a significant amount of public funds to its banking system in return for restructuring. It has structured those injections of public monies so that it can exact governance, either by ultimately taking over the banks and its management or by selling its shares in the market. Whenever a government intervenes in a bank directly, it needs to have an exit strategy. One of the most practical exit strategies would be holding shares in the company that are publicly traded.

Another key element of crisis resolution is the lender-of-last-resort function in the central bank.

On prevention and resolution, and the role of the central bank in prevention and resolution, there are several issues that are still evolving: in the context of the operations of the European Central Bank; in the context of the relationship between the Bank of England as lender of last resort, and the U.K. Financial Services Authority, as the new single regulator and supervisor; and within the United States with the new banking law, the Gramm-Leach-Bliley Act, which seems to shift the emphasis of supervision and regulation for conglomerates in the direction of the Federal Reserve System.

One can identify three key issues that focus on the role of the central bank. One key issue is, can market participants who are the agents of market discipline distinguish illiquid from insolvent institutions during a crisis and thereby continue to perform a useful market disciplining role during a crisis? A conclusion that can be drawn from the turbulence that followed the collapse and private rescue of LTCM is that in a panic, there is no discipline. It is a situation that is akin to a thousand people being in a movie theater that has capacity for three or four exit doors, and they all smell smoke and rush for the exits at the same time! Even if there was no fire, some people would get hurt because they are all rushing for the exits simultaneously. During the LTCM crisis, there was good reason for everyone to try and exit the markets.

Given that there seems to be a role for some official participation in crisis resolution, and given that the central bank is the only provider of payments finality—of central bank money—the central bank is the only practical lender of last resort. Even if it is not the lender of last resort, which might ultimately be a treasury, it is the immediate provider of liquidity during a crisis. This leads to the second key issue. In fulfilling its role as lender of last resort, can the central bank in the middle of a crisis clearly distinguish illiquid from insolvent institutions? A corollary to that question is whether it really needs to distinguish between illiquid and insolvent institutions? Going back to the open market operations view, the central bank often only needs to provide liquidity to the markets, rather than to specific institutions. The market will then sort out how to distribute that liquidity. It can be argued

that this would be the case where a relatively small number of smaller institutions are experiencing difficulties, in which case, liquidity provided to the market might be sufficient. In the case where there are larger institutions, then institution-specific injections of liquidity, not capital, might be required. In these cases the central bank would need to have information to identify illiquid from insolvent. If it is known that a bank is insolvent, the authorities would probably use an alternative mechanism to resolve the problem. It does not want to rely on a lender-of-last-resort role.

What kind of information does a central bank need in order to effectively execute its role as lender of last resort and does it need to be directly involved in banking supervision? In thinking about this question it is helpful to study the actual practices of central banks, which vary across countries. Consider three examples. First, there is the concept of central banking adopted by the U.S. Federal Reserve System (as discussed above). One could identify the U.S. Federal Reserve's responsibilities in both its monetary policy and financial policy making mandates to be a broadly conceived central bank. It has many mandates, only one of which is the conduct of monetary policy.

The second example, at the other extreme—and it is difficult to discuss concretely because it has only been in existence since January 4, 1999—is the European System of Central Bank (ESCB). If one takes the ECB as the central body of the ESCB, which holds 6 votes out of 17, then the ECB has no responsibility for ensuring financial stability. The following four passages describe the ESCB's functions related to prudential supervision and the stability of the payments and financial systems.

First, Article 25(1) of the ESCB Statute envisions a specific advisory function for the ECB in the field of European Community legislation relating to the prudential supervision of credit institutions and the stability of the financial system.

Second, Article 105(5) of the Maastricht Treaty stipulates that "the ESCB shall contribute to the smooth conduct of policies pursued by the competent authorities relating to the prudential supervision of credit institutions and the stability of the financial system" (emphasis provided).

Third, Article 105(6) of the Treaty states that "the Council may, acting unanimously on a proposal from the Commission and after consulting the ECB and after receiving the assent of the European Parliament, confer upon the ECB specific tasks concerning policies relating to the prudential supervision of credit institutions and other financial institutions with the exception of insurance undertakings."

Fourth, the ECB is given a more explicit role in relation to the working of the payments system. Article 105(2) of the Treaty stipulates that one of the basic tasks of the ESCB "shall be to promote the smooth functioning of the payments system." Article 22 of the ESCB Statute is more specific stating that "the ECB and national central banks may provide facilities, and the ECB may issue ECB regulations to ensure efficient and sound clearing and payments systems within the Community and with other countries."

As expressed in the first passage, Article 25(1) envisions an advisory function for the ECB. Whenever the EU comes up with legislation that directly bears on financial stability issues, a draft of the legislation goes to the ECB for comment. The ECB can exert whatever influence it has, but it has no specific role.

As noted in the second passage, Article 105.5 of the Maastricht Treaty stipulates that the ESCB is **not** the competent authority, either for prudential supervision of credit institutions or for the stability of the financial system.

The third item, again of the Maastricht Treaty, is a mechanism in the Treaty for the EU Commission to recommend to national parliaments and the European parliament in consultation with the ECB, to provide responsibilities for banking supervision to the ECB, if it decides it is necessary. This confirms that the ECB has no banking supervision or financial stability mandate. This deserves qualification.

The European system of central banks is composed of the ECB and twelve national central banks. Some of these national central banks have responsibility for banking supervision, and some do not. There are separate national agencies for banking supervision that are independent of the central bank. The ESCB decision-making body has 17 votes, 11 of which are distributed among the national authorities, and only 6 of which are distributed to the center, the ECB. Even if all national central banks had responsibility for banking supervision, there might be a conflict in the presence of a crisis. What to do? Who gets the information? How quickly does the ECB get it, so that its votes can carry accurate information to the board table? So there are some unresolved issues, even though some of the national central banks that make up part of the European system of central banks have banking supervision responsibility.

As the fourth passage indicates, the ECB has a mandate for ensuring the smooth functioning of the target payment system within Europe. A rigorous reading of the Maastricht Treaty and the ECB statute or the ESCB statute would suggest that this is the only tangible mandate that the ECB has in the financial stability area—that is, of ensuring the smooth functioning of the payments system. This mandate is not insignificant, but it does not encompass financial markets stability as such.

To summarize, there exists a sharp contrast between a broad central bank in the United States and a narrow central bank in the EMU. The U.K. system is presently somewhere in between in that the central bank has the lender-of-last-resort role and has a role in ensuring financial stability, but it does not have a mandate for banking supervision. There is a memorandum of understanding between the Bank of England, the U.K. supervisor, and Her Majesty's Treasury, indicating that whatever information the Bank of England needs to carry out its mandates, it shall have free and open access to it.[12]

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[12] Bank of England, (1997).

V. How Far Have Central Banks Gone to Ensure Financial Stability?

The final question is how far have central banks gone in safeguarding financial stability? Three examples serve to shed some light on this question. The first example is the case of Barings. In that case, the Bank of England, along with other official bodies, including Her Majesty's Treasury, probably decided that Barings was not systemically important. It was a small, at best medium-sized bank, and it was not central to the U.K. payments system. The Bank of England, because of its then banking supervisory role, apparently understood the relationships Barings had with the U.K. and other European counterparts and over a weekend was able to determine, and then to decide, that Barings could be allowed to fail. If a ready and able buyer would have taken Barings over the weekend, the Bank of England probably would have been very happy for that to happen. In this case, the financial stability role of the central bank was to decide how important this institution was for the U.K. financial system and the European financial system, and it decided it was not important enough to save.

The second example is LTCM, a four billion dollar hedge fund, which was relatively small for advanced markets, certainly relatively small for the U.S. financial market. The notional value of outstanding derivative contracts in the world, as of the end of last year, was estimated to be $80 trillion. The U.S. repo market has an outstanding daily value of one trillion dollars. So this four billion dollar hedge fund was not very big. It was not bailed out because no public monies were used; it was a private rescue. There apparently was a coordination failure among the 15 or 17 major counterparties of LTCM; the Fed became involved to facilitate the rescue. As it were, 17 did not participate in the rescue, 14 did. There appear to be two main reasons why the Fed may have acted the way it did. One was for financial stability; certainly, even with the private rescue, even with the 75 basis point reduction in interest rate, there was tremendous turbulence in the deepest and most liquid markets in the world. The other reason why the Fed may have intervened and, in particular, the reason why the Fed lowered 75 basis points, is that there was a real future threat to monetary stability in that if risk taking was not restored to at least a normal level, then it is conceivable that even small businesses, viable businesses, thriving businesses, would not have been able to receive the credit they needed to conduct their day-to-day business. This is a threat to monetary stability. In short, one can make the argument that the Fed acted for both monetary and financial stability reasons.

The third example is the case of Hong Kong intervening in the Hong Kong equity markets during the Asian crisis in 1997. One possible reason for the intervention was for financial stability in the face of attacks on currencies, sometimes through the equity markets, through double plays and the like. The second reason was for monetary stability. The Hong Kong economy was likely to be subject to a widespread systemic problem if the equity market collapsed.

VI. Conclusions

The experience of the advanced countries drawn on in this paper suggest that in the realm of financial stability—as opposed to monetary stability—central banks:

- have a natural role to play in ensuring financial stability;
- at times may require supervisory information to execute this natural role; and
- have incurred risks to their balance sheets to ensure financial stability.

A key issue in deciding how far central banks can go in intervening in financial markets to ensure financial stability is how much risk a central bank should take in its activities with the market, either on its balance sheet or in its off-balance sheet activities?

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