

**DEFINING AND ACHIEVING FINANCIAL STABILITY**

**By**

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## DEFINING AND ACHIEVING FINANCIAL STABILITY

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### **1. Introduction.**

The phrase ‘financial stability’ has in the past decade come to signify an important function of central banks and certain other public authorities. The Bank of England used the term in 1994, to denote those of its objectives which were not to do with price stability or with the efficient functioning of the financial system. We are not aware of any earlier usage of the phrase. Ten years on, there is still no widely-accepted definition of ‘financial stability’ and therefore, equally, no consensus on what policies should be pursued in the interests of financial stability. In the words of the Governor of the Swedish central bank, ‘the concept of stability is slightly vague and difficult to define’<sup>1</sup>.

It is, however, clear what kind of thing financial stability is about. It is about institutions not suddenly collapsing and causing economic damage to people who could not reasonably have been expected to anticipate the collapse. The purpose of this paper is to try to articulate a definition of financial stability, and to discuss what kind of public policies should be adopted in pursuit of financial stability.

### **2. An analogy – price stability.**

As a starting point, it is useful to explore the definition of the other main objective of central banks, namely price stability. Nearly all central banks have price stability among their statutory objectives, and many countries have found it useful to define price stability. The definitions are not all the same. Some of them specify a particular

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<sup>1</sup>Lars Heikensten: ‘The Riksbank and risks in the financial system’, speech give at Risk Management Conference, Stockholm, 16 November 2004. Available at <http://www.riksbank.com/templates/Page.aspx?id=14484>

rate of increase of a particular price index as constituting 'price stability'<sup>2</sup>; others specify a range of rates of increase. The Federal Reserve has several statutory objectives, including price stability. However, there is no statutory definition of 'price stability', and in framing its own definition, the Fed has eschewed numbers, preferring to define price stability as a state of affairs in which expectations of generally rising (or falling) prices over a considerable period are not a pervasive influence on economic and financial behaviour.<sup>3</sup>

There are many contentious issues in defining price stability, going well beyond the issue of whether a numerical definition is desirable. For example, there is the question of whether 'price stability' means just stability of prices of goods and services for immediate consumption, or whether it also includes stability of prices of future consumption, in which case some degree of stability of asset prices is additionally required<sup>4</sup>. But, despite these differences of view about the appropriate definition of price stability, there is plenty of common ground. In each currency area, it is clear what the objective of price stability is; and the definitions that different currency areas use are close enough for the policies that they adopt in pursuit of price stability to be recognisably similar.

It is not clear that there is comparable clarity and uniformity as regards financial stability.

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<sup>2</sup> For example, the Bank of England Act of 1998 gives the Chancellor of the Exchequer the power to decide what is to be taken as the definition of price stability for the purposes of monetary policy. He or she must make such a decision at least once a year, and may change the definition at any time. Since the Act came into force, price stability has been defined in a way about which there has been widespread agreement in principle, namely in terms of the behaviour of a price index. The chosen price index was changed in December 2003, from the Retail Price Index excluding mortgage interest payments (RPIX), for which the target was 2 ½%, to the EU Harmonised Consumer Price Index (CPI), for which the target is 2%.

<sup>3</sup> This definition is due to former Fed Chairman Paul Volcker, and it has been endorsed by his successor Alan Greenspan. See 'FOMC Transparency', a speech given by William Poole, President, Federal Reserve Bank of St. Louis, October 6, 2004, available at [http://www.stlouisfed.org/news/speeches/2004/10\\_06\\_04.html](http://www.stlouisfed.org/news/speeches/2004/10_06_04.html)

<sup>4</sup> There is an enormous literature on this issue, stimulated by A.A. Alchian and B. Klein, 'On a Correct Measure of Inflation', *Journal of Money, Credit and Banking*, 1973.

### 3. Desirable features of a definition of financial stability.

The definition of something which is a public policy objective is a matter of great importance, since a good definition is a prerequisite for a good policy. We begin the process of identifying a definition by listing a number of features which a good definition should have, and that is the purpose of this section.

(a) A good definition of financial stability should clearly be related to **welfare**. In other words, financial stability should be a state of affairs which is conducive to the public's welfare, otherwise promoting financial stability would not be a worthy objective of public policy. Likewise, financial instability should be defined as something which has substantial welfare costs.

(b) Financial stability should be an **observable** state of affairs, so that those who are responsible for maintaining financial stability can know whether they are succeeding or not. Unfortunately, as we shall show, financial stability on any sensible definition is only incompletely observable.

(c) Financial stability should be subject to **control or influence** by the public authorities. If it were not, then it would clearly be pointless for it to be an objective of public policy.

(d) Financial stability should be a **property of a clearly defined politically-significant entity**. In many cases, this means that financial stability is defined as a property of a nation state. In some cases, however, the policy instruments are not all at the disposal of the same tier of government. For example, in the United States, some of the relevant policy instruments are within the jurisdiction of the individual states, while others, including monetary and fiscal policy, are at the disposal of the federal authorities. There is an analogous division of power and responsibility in the European Union between EU bodies and member states. The division is, however, in some cases less clear than in the United States<sup>5</sup>.

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<sup>5</sup> See C.A.E. Goodhart, 'Some New Directions for Financial Stability', Per Jacobsson lecture, 2004, for an exposition of the dangers of this lack of clarity. Available at <http://www.bis.org/events/agm2004/sp040627.htm#pgtop> .

(e) In defining financial stability, it should be borne in mind that it is not only financial institutions whose collapse can cause economic damage. The same is true of many other companies. Thus emergency official support is occasionally provided not just for financially-distressed financial institutions, but also for non-financial companies, and for sovereign nations. The considerations which determine whether such support is to be provided are much the same in all these cases. **The definition and analysis of financial stability (or instability) should be broad enough to embrace all such cases, even though the public institutions assigned to resolve the problems may be quite different.**

(f) The definition of financial stability **should not be so rigorously demanding that it stigmatises virtually any change as evidence of instability.** Rigour is fine, but *rigor mortis* is not. Economies and financial structures need to change and develop as the economy grows, and trying to prevent such change in the name of financial stability would be futile and damaging.

#### **4. Financial stability and financial instability.**

The public policy interest in financial stability reflects consciousness of the economic and social damage that can result from financial instability. There have been many readily-identifiable episodes in history which, it would be generally agreed, were periods of financial instability. The Great Depression of the 1930s is perhaps the leading example, but there have been many others.

In physical sciences, stability is regarded as a *property of a system*, and not as a state of affairs that might or might not be prevailing at a particular time. A system is stable at a particular point if it returns to equilibrium after it has been subjected to a small perturbation from its starting point – in other words, if it reacts to small perturbations in such a way as to dampen them. Alternatively, a system which has been subjected to a small perturbation might oscillate around equilibrium, returning gradually to equilibrium. More seriously, it might diverge from equilibrium, in which case it is

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unstable. Moreover, a system might be stable at some starting points but not others; or it might react stably when subjected to one kind of perturbation, but unstably when subjected to other kinds.

A system might also be non-linear, in which case it could react differently to perturbations of different sizes. It might react unstably to small perturbations but once the reaction had reached a certain size, dampening forces might come to dominate so that the system became stable again. In contrast, it might react stably to perturbations below a certain threshold size, but be unable to dampen shocks larger than the threshold, so that its behaviour would be unstable in the event of such a perturbation.

We submit that it is most useful to think of financial stability in the same way - as a property of a system. A financially stable economy is one that does not degenerate into instability when it experiences a perturbation. In the context of economics, a perturbation is perhaps best thought of as an unexpected event, or shock, such as an unforeseen development in technology or consumer tastes, or the unexpected failure of a substantial company. A characteristic of a financially stable system is that it dampens rather than amplifies shocks. Intuitively, it seems unlikely that any real-life economy could be characterised as a linear system in the sense of the preceding paragraph. It is easy to imagine that an economy would be able to dampen disturbances of moderate size, but that larger shocks might not be dampened and might even be amplified.

Our proposed approach to defining financial stability is accordingly to begin by defining financial instability. In other words, we specify the characteristic features of an episode of financial instability. We then define financial stability as the property of an economic system which is not prone to episodes of financial instability as we have defined it.

We have suggested that the characteristic property of a financially-stable economy is that it dampens shocks, rather than amplifying them. But, as in physical sciences, there are many dimensions to such a property. An economy may dampen some shocks, but amplify others. An economy may dampen small shocks, but once the shocks exceed a certain size, the economy may amplify them.

Of course, it is also possible for an economy to appear stable, even if its structure is such that it amplifies certain shocks. Such an appearance of stability might be maintained for a long time - for just as long as no such shock occurs. For example, a fractional reserve banking system with no source of emergency liquidity provision can appear stable for as long as there is no sudden, large and unexpected drain of bank reserves. Instability can be latent rather than apparent.

This means that even though it would be desirable, as we said in section 3, for financial stability to be an observable state of affairs, we have to acknowledge that our strategy for defining financial stability means that financial stability will not be *completely* observable, because it is not possible to know how an economy would react to every conceivable shock. However, it is possible to monitor certain crucial features of an economy (for example, the way in which their large-value payment systems are constructed) and to draw inferences from such monitoring about the financial stability of the economy<sup>6</sup>. Such inferences provide information about financial stability, though it will always be incomplete. And it is possible to observe how the economy reacts to real-life disturbances, and whether in the particular circumstances of the time, the disturbances are dampened or amplified.

### **5. Candidate characteristics of financial stability or instability.**

Many have expressed views about what kinds of events are characteristic of financially stable economies, or alternatively, of episodes of financial instability. Those kinds of events include the following:

#### **(a) Fears that means of payment may be unavailable at any price.**

Anna Schwartz<sup>7</sup> defines a financial crisis thus:

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<sup>6</sup> The Financial System Assessment Programs conducted by the International Monetary Fund and the World Bank are designed for precisely this purpose.

<sup>7</sup> 'Real and Pseudo Financial Crises', in Financial Crises and the World Banking System, ed. F.H. Capie and G.E. Wood, Macmillan, London, 1986.

“A financial crisis is fuelled by fears that means of payment will be unobtainable at any price and, in a fractional reserve banking system, leads to a scramble for high powered money .... In a futile attempt to restore reserves, the banks may call in loans, refuse to roll over existing loans, or resort to selling assets. No financial crisis has occurred in the United States since 1933, and none has occurred in the United Kingdom since 1866.”

As we explain below, we see much merit in this definition, and incorporate its essence in our own proposed definition<sup>8</sup>.

**(b) Efficient allocation of savings to investment opportunities.**

Rick Mishkin<sup>9</sup> defines financial stability as

“... the prevalence of a financial system, which is able to ensure in a lasting way, and without major disruptions, an efficient allocation of savings to investment opportunities.”

This definition is quoted approvingly by Otmar Issing<sup>10</sup>.

In our view, the efficient allocation of savings to investment, though without doubt a highly desirable feature of any economy, should not be part of a definition of financial stability. For example, no-one would now say that savings were allocated efficiently to investment opportunities in the Soviet Union between 1917 and 1991, but the Soviet Union did not suffer from financial instability, except right at the end of its existence.

More generally, it is in most cases not possible to judge until long after the event – if then – whether the allocation of savings to investment opportunities was efficient.

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<sup>8</sup> In the Irish bank strike of 1970, which lasted for more than six months, most of the customary means of payment became unavailable. Yet the macroeconomic effects were very small. Repeatedly-endorsed cheques were accepted as means of payment, and there was an inflow of currency from the United Kingdom, with which Ireland was at the time in a monetary union. The essential reason why the macroeconomic effects were so small is that there was no general downgrading of perceived creditworthiness. See Antoin E. Murphy, ‘Money in an Economy without Banks: The Case of Ireland’, Manchester School of Economic and Social Studies, Vol 46, Issue 1, March 1978.

<sup>9</sup> ‘Anatomy of Financial Crisis’, NBER Working Paper no.3934, 1991

<sup>10</sup> ‘Monetary and Financial Stability: Is there a Trade-off?’, paper delivered to Conference on ‘Monetary Stability, Financial Stability and the Business Cycle’, Bank for International settlements, Basel, March 28-29, 2003.



History is littered with examples of unwise investment projects, and with projects whose usefulness is disputed even many years after the event. Even if we agreed with Mishkin that financial stability required the “efficient allocation of savings to investment opportunities”, this definition would be defective because it is not expressed, to any extent at all, in terms of observables.

**(c) Financial institutions only?**

Some commentators have suggested that financial stability is related to the financial condition of financial companies but not of non-financial companies, or, in other words, that financial instability can arise only from financial problems of financial institutions. Examples include Mishkin, de Bandt and Hartmann<sup>11</sup>, Padoa-Schioppa<sup>12</sup>, Schinasi<sup>13</sup>, Issing, and Michael Foot<sup>14</sup>.

We think it useful and important to bear in mind that instability of financial institutions is just one example, albeit an important example, of a wider class of problems, which might be called institutional instability. Episodes of institutional instability of all kinds raise similar economic issues and lead to similar policy responses. The revealed preference of governments is to consider providing emergency financial assistance to prevent corporate failure in the case not only of financial institutions but also in some cases of non-financial companies (eg airlines after 11 September 2001, British Energy in 2003) and of sovereign governments (mainly though the IMF). It is possible to imagine an event, which could certainly be described as a financial crisis, which originated in the failure of an item of infrastructure<sup>15</sup>. Such a failure would certainly cause financial problems for one or more companies, but those financial problems might well be incidental to the main

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<sup>11</sup> ‘Systemic Risk: A Survey’, European Central Bank Working Paper no. 35, 2000.

<sup>12</sup> ‘Central Banks and Financial Stability: Exploring a Land in Between’, paper delivered at the second ECB Central Banking Conference ‘The Transformation of the European Financial System’, Frankfurt, October 2002. Available on ECB website.

<sup>13</sup> ‘Responsibility of Central Banks for Stability in Financial Markets’, IMF Working Paper WP/03/121, June 2003. Available on IMF website.

<sup>14</sup> ‘Protecting Financial Stability – How Good Are We At It?’, speech give at University of Birmingham, June 6, 2003. Available on FSA website.

<sup>15</sup> Indeed, there was widespread anxiety about the possibility of such a failure in the run up to the millennium date change from 1999 to 2000. Happily, any such failures were few in number and of no great importance, but if they had been widespread, they could have disrupted not only the financial system but other kinds of economic activity as well. For example, many people were unwilling to travel by air over the millennium date change, for fear of an IT breakdown.

problem. Therefore, we maintain that an exclusively bank-centric, or financial institution-centric, view of institutional stability is too narrow. Governments provide emergency financial assistance in order to prevent economic disruption, and the analysis of the costs and benefits of providing such assistance is essentially the same whether or not the recipient of the assistance is a financial institution.

#### **(d) Asset price stability**

Some commentators suggest that financial market bubbles, or more generally, volatility in financial market prices, constitute financial instability. For example, both Issing and Foot require some degree of asset price stability as a condition of financial stability. There is a plausible argument that such bubbles, if and when they occur, impair financial market efficiency, but that is not the same thing as saying that asset price stability is a defining characteristic of financial stability. For our part, we believe that an asset price bubble could lead to financial instability (eg if it caused a serious weakening in the financial condition of financial institutions), but that is not the same thing as saying that an asset price bubble (however it is defined) in itself constitutes an episode of financial instability.

Why do we believe that asset price stability should not be a defining characteristic of financial stability? It is doubtful whether asset price stability is always beneficial to economic welfare. Asset prices embody among other things expectations about the future. The process of economic growth, based on the discovery and exploitation of new technologies, is not itself stable or well understood. Such discoveries are certain to affect asset prices, because they must affect expectations about the future. It is quite likely to take a long time for the effects of a new technology to become fully apparent, and during that time, expectations about the future are liable to be revised frequently, and perhaps by large amounts. These fluctuating expectations will be reflected in apparently unstable asset prices.

Historical experience is indeed that asset prices sometimes seem to “overshoot”; the stock market boom that ended in 2000 is an example. However, a policy which aimed to reduce asset price “overshooting” would necessarily involve some kind of judgment by the public authorities about what level of, eg, equity prices was

warranted by the commercial prospects of the businesses concerned. Public authorities have historically not been good at making commercial judgments<sup>16</sup>, and the costs of such a policy would probably therefore include the reduction of rates of economic growth. The policy might well reduce economic welfare rather than promoting it.

It follows that if asset price stability were to be part of the definition of financial stability, then the pursuit of financial stability, or at least this aspect of it, could be very costly. We discuss asset price stability more extensively below, after we have concluded our discussion of the definitions suggested by others.

Public officials often express a preference for asset price movements to take place gradually rather than suddenly. Central bankers frequently say that they do not object to the current direction of movement in the exchange rate of their currency, but that they would prefer it to be more gradual. Perhaps this is just a coded way of saying that they do in fact object to the direction of movement. But, if such statements are to be taken at face value, the justification for a preference for gradual movement is not clear. Of course it is true that if a party exposed to the price movement unwinds the exposure during the course of a gradual price adjustment, then losses will be dispersed, and dispersed losses are likely to pose less of a threat to financial stability, on any definition, than concentrated losses. A gradual price adjustment provides the opportunity for such loss dispersion; but there can be no guarantee that the opportunity will be taken. Nor is it clear that such gradual price movement is inevitably better from the point of view of efficient resource allocation than a sharp price movement, since it prolongs the duration of uncertainty about the new equilibrium level or trading range.

The question of how gradual rather than sudden price adjustments can be achieved is also important. There are two possibilities.

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<sup>16</sup> Note that here we are discussing the public sector's prowess at making purely commercial judgments; we are not discussing decisions by the public sector to intervene in commercial life in order to promote or protect the public interest, somehow defined.

There could be a body of private market participants who are slow to recognise changes in fundamentals and who therefore initially resist price changes based on changes in fundamentals. This would produce gradual price changes. However, market participants of that kind would systematically lose money, and therefore would be unlikely to continue in business for very long. Further, their systematic losses could themselves threaten financial stability, so that their presence would not be unambiguously desirable.

Second, there could be official intervention, aimed neither at smoothing erratic fluctuations in the price nor at trying to maintain the price at close to whatever the authorities regard as a desirable level but rather at slowing down the transition from one level to another. This kind of official intervention has the effect of socialising some of the losses of those parties who are exposed to the price movement. It would need to be justified by arguments based on the particular circumstances of the episode.

**(e) Deviations from optimal savings/investment plan.**

Haldane, Saporta, Hall and Tanaka<sup>17</sup> share our view that the best strategy for defining financial stability is to begin by defining financial instability. Their proposed definition of the latter is summarised as follows:

‘...financial *instability* could be defined as any deviation from the optimal saving-investment plan of the economy that is due to imperfections in the financial sector.’

This definition is not operational. There is apparently no lower limit to the size of a deviation from the optimal savings-investment plan of an economy that they would regard as financial instability. Any deviation, no matter how small, would count. Moreover, no-one knows what the optimal savings-investment plan of an economy is. Indeed, the failure of centralised economic planning as a tool of economic management in the Soviet Union and its satellites, and elsewhere, reflected the impossibility of anyone knowing such a thing. Moreover, HSHT do not define

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<sup>17</sup> Bank of England Financial Stability Review no. 16, June 2004.

‘imperfections in the financial sector’. Their paper discusses ‘missing markets’, but it would be wrong to regard the absence of certain theoretically-conceivable markets as evidence of imperfection. Setting up and maintaining markets involves economic costs, so it will be optimal for some theoretically-conceivable markets not to exist<sup>18</sup>. The benefit they could provide would fall short of their cost. A world in which every conceivable market existed would certainly not be perfect, because there would be no resources left to produce the goods and services that are supposed to be traded on the markets.

## **6. Our proposed definition of financial stability.**

As we have explained, we begin by proposing a definition of an episode of financial instability. It is perhaps easiest initially to approach this issue at the micro level. If a household encounters financial pressures which mean that its access to money is sharply and unexpectedly reduced, so that it has to reduce its spending abruptly and by a large amount, then that could be described as a financial crisis, or an episode of financial instability, for that household. A company financial crisis, or a financial crisis affecting a national government, such as that of Argentina, could be similarly defined.

It should be noted that a financial crisis, as we have defined it, does not have to be financial in origin. For example, the sudden curtailment of power supplies could disrupt the operations of many productive enterprises, and lead to an episode of economic instability which would certainly have financial consequences<sup>19</sup>.

But we would emphasise that financial stability is a macro-economic phenomenon, not a micro-economic one. It would not be a desirable policy objective to eliminate all micro financial crises. Micro financial crises play a useful role in capitalism. The possibility that they may happen provides a necessary incentive for households to plan their consumption, and not consume recklessly. At the corporate level, financial

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<sup>18</sup> See H. Demsetz, ‘Information and Efficiency: Another Viewpoint’, Journal of Law and Economics, vol 12 no 1, 1969.

<sup>19</sup> The three-day working week introduced in the United Kingdom in 1974 is an example.

crises provide a means, *faute de mieux*, of bringing to an end unsuccessful investment projects.

Thus we define episodes of financial instability as episodes in which a large number of parties, whether they are households, companies, or (individual) governments, experience financial crises which are not warranted by their previous behaviour, and where these crises collectively have seriously adverse macro-economic effects.<sup>20</sup> To use a phrase that we mentioned earlier, a distinguishing feature of episodes of financial instability is that innocent bystanders get hurt. Households and companies learn how to behave in such a way that they are not afflicted by financial crises. If, despite behaving in such ways, large numbers of households cannot get the means of paying their bills on any terms, and if aggregate consumer spending falls sharply and suddenly, then that is powerful evidence that a financial crisis is taking place. Likewise, if prudently-run companies experience sudden financial difficulties, and if aggregate corporate spending falls as a result, then that, too, is evidence that a financial crisis is taking place.

This is our preferred definition of financial instability. As indicated above, we would define financial stability as a state of affairs in which an episode of financial instability is unlikely to occur, so that fear of financial instability is not a material factor in economic decisions taken by households or businesses. This proposed definition is similar in style to the Volcker/Greenspan definition of price stability described above.

## **7. Financial stability and public policy.**

Because episodes of financial instability, as we have defined them, have macro-economic costs, and because they hurt innocent bystanders, ie households and companies which could not reasonably have been expected to anticipate them, it is in the interests of public policy to make such episodes unlikely by promoting financial stability. Moreover, there is also a case for public intervention to contain the consequences if, despite all attempts at prevention, an episode of financial instability nevertheless occurs, or threatens to occur.

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<sup>20</sup> Such parties will be referred to as 'innocent bystanders' in the remainder of this paper.

What kind of public policies are warranted to protect financial stability? The following points need to be taken into account:

- (a) There can be trade-offs between financial stability and other objectives of public policy, as discussed below.
- (b) Some public policies designed to protect financial stability have the incidental and undesirable consequence of reducing the incentives of private parties to protect their own financial stability by prudent behaviour. This is moral hazard.

An example of a trade-off between financial stability and other policy objectives is to be found in the field of bankruptcy law. The more creditor-friendly is the bankruptcy law of a particular jurisdiction, the greater will be the suffering of anyone who becomes bankrupt, the more prudent will be financial behaviour, and the less likely it is that the jurisdiction will experience financial instability. Thus creditor-friendly bankruptcy laws help to protect financial stability. However, it is also the case that, the more creditor-friendly are the bankruptcy laws, the less risk-taking, investment, and economic growth there will be. So, in this case, there is an inescapable trade-off between the two policy objectives of financial stability and economic growth.<sup>2122</sup>

Because there are trade-offs between financial stability and other policy objectives, it is not possible for any legislature to delegate responsibility for financial stability. This is in contrast with price stability. It is generally believed that there is no trade-off, except possibly in the short term, between price stability and other policy objectives. This has made it possible, in the United Kingdom and many other countries, for the Parliament to delegate the responsibility for protecting price stability to the central bank<sup>23</sup>. Because such delegation is not possible in the case of financial stability, in the United Kingdom financial stability is ultimately the responsibility of

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<sup>21</sup> See Wei Fan and Michelle J. White, 'Personal Bankruptcy and the Level of Entrepreneurial Activity', *Journal of Law and Economics*, October 2003. for evidence based on the differing bankruptcy provisions of U.S. states.

<sup>22</sup> At the same time, we acknowledge that in some circumstances, more creditor-friendly bankruptcy laws actually can stimulate risk-taking, investment and economic growth, if the enactment of such laws makes lenders more willing to provide funds to entrepreneurs. Thus the trade-off that we discuss is not present in all conditions.

<sup>23</sup> In the United Kingdom, the Treasury, however, has the power to reassert control over monetary policy in an emergency..

the Treasury, which is part of the government. Under the terms of a ‘Memorandum of Understanding’, the Treasury delegates certain financial stability functions to the Bank of England and the Financial Services Authority, and consults regularly with them, but it alone has the authority to make decisions about, eg, emergency financial support for distressed financial institutions<sup>24</sup>.

Nobody has, to our knowledge, listed the other policy objectives against which financial stability can be traded off, let alone quantified any of the trade-offs. Decisions on trade-offs are made implicitly, when individual measures are discussed and decided as part of the political process, rather than explicitly with the help of cost-benefit analysis.

The issue of moral hazard is ubiquitous in financial stability policy. One example is publicly-funded deposit insurance. Like other forms of insurance, deposit insurance acts as a disincentive to private parties to protect their own financial stability. It contains the effects of a bank failure on depositors, but it reduces or eliminates the incentive for depositors to monitor the creditworthiness of the banks in which they place their money. As a consequence, banks are able to raise funds more cheaply, and in larger amounts, than if everything else were equal except that they were not covered by deposit insurance. Deposit insurance thus acts as a kind of subsidy to risky lending and in some measure makes bank failures more likely to happen. It is possible for the pricing of deposit insurance to be designed so as to mitigate this moral hazard, but some moral hazard remains.

What kind of public policy measures are available to protect financial stability? They can usefully be classified into two groups: preventive measures, designed to promote behaviour patterns which are conducive to financial stability; and remedial measures, designed to contain the consequences of an actual or threatened outbreak of financial instability.

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<sup>24</sup> The Memorandum of Understanding between H.M. Treasury, the Bank of England and the Financial Services Authority is a document that was negotiated and agreed among the three agencies. It has no statutory force. It is available at [www.bankofengland.co.uk/legislation/mou.pdf](http://www.bankofengland.co.uk/legislation/mou.pdf). In paragraphs 11 – 13 of that document, it is made clear that although an emergency liquidity support operation is (in the U.K.) inevitably carried out by the Bank of England, it must be preceded by consultation with the FSA and by ‘...inform[ing] the Treasury, in order to give the Chancellor of the Exchequer the option of refusing support action.’



## **8. Preventive measures**

Preventive measures may be defined as any aspect of the ‘financial infrastructure’ which is designed to reduce the risk of financial instability, whether or not it arises from problems in financial institutions. For this purpose, ‘financial infrastructure’ can be broadly defined to include:

### **(a) Laws.**

In every jurisdiction, commercial behaviour is regulated by a body of commercial law. Commercial law regulates, for example, the procedures to be followed in the event of insolvency, and the rights of holders of collateral for loans. The detailed provisions of the law influence the behaviour of all parties involved in commerce. They are therefore extremely important for the functioning of the economy and are subject to frequent review and revision in the light of experience and new developments. In particular, they may give more or less encouragement to financially prudent behaviour. As already noted, encouragement of financially prudent behaviour will in some cases mean discouragement of enterprising behaviour, or of some other socially-desirable kinds of behaviour. Thus financial stability is a policy objective to be taken into account in formulating commercial law, but not the only one.

### **(b) Official agencies and their rules.**

The law in many countries attempts to protect financial stability by establishing official agencies for that purpose. Indeed, some central banks, notably the Federal Reserve System, were set up with that in mind. More recently, there has been a trend towards establishing official agencies, often separate from central banks, to regulate the activities of financial institutions. In addition to being subject to normal commercial law, financial institutions are usually subject to supplementary legislation directed specifically at them. Normally, such legislation mandates that financial institutions must be subject to supervision by an official regulator, who has delegated authority to make detailed rules and penalise non-compliance<sup>25</sup>.

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<sup>25</sup> Plainly the delegated authority needs to be sufficiently tightly defined that the regulator is not forced to make judgments about trade-offs between financial stability and other policy objectives that should

Financial regulators face a dilemma. They may, at one extreme, adopt a formulaic approach to regulation. They set out in advance, with some precision, the financial and other criteria that they require regulated institutions to meet. Provided the institutions concerned meet the specified criteria, they can expect regulatory approval. The difficulty with the formulaic approach is that precisely specified criteria quickly become outdated or incomplete as business practices change and develop. It is usually possible for regulated institutions to ensure that they meet the criteria as precisely specified, even if the criteria fail to capture fully their financial or other risk exposures. Thus financial institutions which have received regulatory approval fail from time to time, and the regulatory process comes to appear impotent.

Therefore regulators in many countries, including the United Kingdom, do not rely on formulaic approaches, but instead in effect oversee the management of financial institutions, requiring to be satisfied, for example, that their risk management techniques are up-to-date, and that they make decisions in an acceptable manner. One difficulty with this more comprehensive approach is moral hazard. If a bank's risk management technique has been approved by the regulatory authority, or even adapted or introduced at the insistence of the regulatory authority, but nevertheless fails to protect the bank as intended, then how can the regulatory authority escape any liability?

There is another problem, too, in that regulatory authorities aim to spread 'best practice' in risk management among financial institutions. This raises two issues. First, notions of what constitutes 'best practice' change and develop over time, and for regulators to impose a uniform view of 'best practice' across the financial industry may actually weaken the industry and make it more vulnerable to instability by eliminating healthy diversity and promoting 'herding'. Second, if regulators succeed in spreading 'best practice' among financial institutions, those institutions' incentives to develop and improve risk management are greatly weakened. If they improve their own practices unilaterally, they may be held up as a good example to others, but their competitors will get the benefit of their achievements without having to bear the full cost. If they do not unilaterally improve their own risk management, then regulators

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properly be decided by the legislature; and a wise legislature reviews the regulator's activities closely enough to ensure that this remains the case.

will give them free advice about how to do so. Thus the activities of the regulators undermine the power of competition to stimulate improvements in risk management. As a result, regulation could be harmful to risk management.

It is not clear that there is a satisfactory way of resolving these dilemmas, or that models of supervision involving extensive official oversight of management processes and official imposition of current 'best practice' are sustainable.

**(c) Market conventions.**

Market conventions are developed by market practitioners in order to prevent misunderstandings as to the obligations of any of the parties to a transaction. In that way, they can make an important contribution to protecting financial stability. Such conventions have the great advantage that they can be, and are, changed in the light of changing circumstances and needs, without the need for legislation. Of course they are by their very nature not policy measures directly under the control of the public authorities, though the public authorities are likely to be aware of them and sometimes encourage market practitioners to adapt their conventions so as to address a particular perceived problem<sup>26</sup>.

**(d) Official information provision.**

Information provision by the public authorities on economic matters includes the publication of reviews of macroeconomic conditions and forecasts by governments and central banks to explain and justify fiscal and monetary policy decisions – in other words, as a means of accountability. Increasingly, it also includes the publication by central banks and others of financial stability reviews.<sup>27</sup> These reviews generally include an assessment of the main risks to financial stability as perceived by the agency responsible for the review – in other words, what possible future events seem most likely to lead to an episode of financial instability. The purpose of such assessments is not solely to provide accountability, because they do

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<sup>26</sup> Market practitioners are sometimes concerned that proposed new market conventions will unintentionally violate competition law.

<sup>27</sup> For example, by the Bank of England, the U.K. Financial Services Authority, the National Bank of Belgium, the Bank of Canada, the Bank of France, the Sveriges Riksbank and the International Monetary Fund.

not necessarily contain any account of any actions taken by the agency in question. Rather, their purpose is to influence the behaviour of the private sector, either by drawing attention to specific risks that might otherwise have been overlooked, or by raising awareness of financial stability generally.

Such publications serve a useful purpose if they draw the attention of ‘innocent bystanders’ – whether households or companies – to financial risks that they might otherwise have overlooked. However, if they go further, and analyse the risks facing large financial institutions, such publications carry a moral hazard. If an official agency, whether it be the central bank or some other agency, provides free or for a trivial charge an analysis of the risks facing large financial institutions, it reduces the incentive for those institutions to undertake their own risk analysis. Financial institutions may become dependent on official risk analysis, and, since the official analysis may be incomplete or mistaken, the effect of free publication may be to increase rather than reduce the risk of financial instability.

**(e) Physical infrastructure.**

Some parts of the physical infrastructure which financial markets routinely use can affect crucially the way in which risks are transmitted from one financial institution to another, and can if badly designed pose a serious threat to financial stability. Large-value payment systems are a good example. In a badly designed payment system, the failure of one member can threaten the continued solvency of other members. For example, in so-called deferred net inter-bank settlement systems, participating banks settle net outstanding payments among themselves in a single operation at the end of each working day. They are unable to monitor their claims and liabilities to other during the course of the day. If a participating bank were to become insolvent and have to cease operations during the course of a working day, the exposures of the other participating banks would be unknown until later, and uncontrolled.

Improved technology has made it possible to replace deferred net settlement with real-time gross settlement (RTGS). In RTGS, each inter-bank payment is made and settled in real time by a transfer between the accounts of the two banks concerned at the central bank. In order to facilitate a continuous flow of such transfers during the day, the central bank makes intra-day credit available, in unlimited amounts, against

high-quality collateral of specified kinds. Because each payment is settled in real time, RTGS eliminates the risk that a bank which became insolvent during the course of a working day would infect other participating banks through this kind of payments system contagion.

It is normally one of the functions of a central bank to ensure that there is an adequate payments system for the national currency, and thus central banks have sponsored the widespread adoption of RTGS.

## **9. Remedial measures**

Financial instability may arise, or threaten to arise, because of some defect in whatever preventive measures have been taken, or because a well-informed judgment was made that the measures that would have been needed to prevent the threat of financial instability would have been too costly, in that they would have inhibited the achievement of other public policy objectives.

If there is a threat of financial instability there is always a question as to whether some kind of official intervention is warranted to forestall it. In the event of a financial crisis afflicting a household, a non-financial company, or a financial institution, unless there is some kind of intervention, the insolvency provisions of commercial law come into play. In the case of financial institutions, such intervention is often referred to under the title of 'lender of last resort'. The phrase 'lender of last resort' has been used to mean more than one thing, and as a result has become confusing. There is an important conceptual distinction to be made between liquidity support and solvency support. Liquidity support is the official lending of cash, against good collateral, to a financial institution which for some reason is unable to borrow from private sources. Solvency support is the official provision of funds to an otherwise-insolvent financial institution. Because the institution would be insolvent without the assistance, it follows that it must lack sufficient collateral to secure the needed loan. There can in principle be cases in which an institution would be insolvent if it were not provided with official funds, because its alternative source of funds would be the sale of illiquid assets at distress prices, but which would be solvent if official funds were provided, so that the sale of illiquid assets was not

needed. Nevertheless, the distinction between liquidity and solvency support is an important one.

### **(a) Liquidity support**

The term ‘lender of last resort’ was originally used to describe a provider of liquidity support. The Bank of England developed during the 19<sup>th</sup> century from being a competitor of the commercial banks to being a distinctive institution in part by virtue of providing liquidity support to other financial institutions during the several financial crises of that century.

It is sometimes argued that now, in the early 21<sup>st</sup> century, financial markets are much more developed than they were in the nineteenth century, and that the demise of the gold standard makes a general shortage of liquidity much less likely, so that any firm with adequate collateral could get liquidity if it needed it. Further, it is suggested that significant flights from financial institutions in general to cash are also not likely to occur today – if people distrusted one financial institution they would just go to another that they did trust. It is true that financial markets have changed a great deal since the 19<sup>th</sup> century, with perhaps the most important change being the enormous increase in the efficiency and speed with which information is disseminated. Nevertheless, the first of these propositions is not necessarily true in the absence of central bank liquidity provision; and the second is also not necessarily true.

As regards the first proposition, a computer failure could mean that flows of liquidity among financial institutions became disrupted, perhaps because a bank’s IT system was malfunctioning in such a way that the bank could receive but not make payments. There would be a sudden shortage of liquidity, just as in a classic banking panic, albeit for a different reason. In such an event, classic ‘lender of last resort’ action – the injection of liquidity to meet a sudden temporary increase in demand for it – is still necessary.

An excellent example of emergency liquidity support to a financial institution – though far from the only example – occurred in 1985, when the Bank of New York (BONY), which was (and still is) one of the main depository banks used by holders of U.S. government securities, experienced an IT malfunction of the type described

above. The Fedwire system for transferring government securities insists on delivery against payment, so that each transfer of securities between accounts maintained in the records of the Federal Reserve is automatically accompanied by a transfer of money in the opposite direction. BONY's system malfunction meant that it could receive securities into its accounts, but not transfer them off its accounts. Thus, on the day in question, it accumulated an enormous amount of securities on its accounts, and an equally enormous obligation to make payments, which it could not meet. This was indeed a pure liquidity crisis – there were no grounds for doubt about BONY's solvency – and the Federal Reserve Bank of New York in effect acted as lender of last resort by lending BONY the funds it needed to make its due payments against the collateral of all of BONY's domestic assets and all of the customer securities that they were empowered to pledge for such purposes<sup>28</sup>.

What about the claim that, nowadays, financial institutions generally are so widely trusted that any individual failure would be seen as an isolated event, and would not spread by contagion and unsettle public confidence in other financial institutions? In many countries and in most circumstances that may well be true. But in some countries, especially where a government in financial difficulties might be suspected of trying to appropriate bank assets to alleviate its own difficulties, it is probably not true. And the circumstances of an individual failure may be such that it would be rational for market participants to reconsider the creditworthiness of other institutions. For example, an unexpected legal judgment might affect not only the parties to the specific legal action, but also other parties involved in the same businesses. In any case, it would make no sense for any central bank to tie its hands by announcing that under no circumstances would it ever act as the lender of last resort, unless it was for some extraneous reason obliged to do so.

It should be noted that, in countries with currency boards rather than central banks, the rules of the currency board constrain the board's capacity to act as lender of last resort by supplying emergency liquidity on demand.<sup>29</sup> This is often cited as an

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<sup>28</sup> For an account of this event, see the Congressional testimony of Federal Reserve Chairman Paul Volcker and Federal Reserve Bank of New York President Gerald Corrigan on December 12, 1985, reprinted in Federal Reserve Bulletin, February 1986.

<sup>29</sup> After the Bank Charter Act of 1844, the gold standard rules to which the UK adhered were in all relevant respects like those of a currency board. How in that case did the Bank of England develop the role of lender of last resort? The answer is that, during financial crises, Parliament could temporarily

argument against the adoption of currency boards as a means of achieving price stability.

Does the provision of emergency liquidity support involve moral hazard? If financial institutions knew for certain that no official agency would lend them money in the event that they were unable to borrow, would they behave differently? We believe that they would behave differently. They would hold larger amounts of liquid assets, and they would perhaps take more trouble to ensure that they were protected against the risk of IT malfunction. This suggests that the interest rate charged for the provision of emergency liquidity should be above the previously prevailing market rate so as to encourage financial institutions to reduce the risk that they might need it<sup>30</sup>.

The official provision of liquidity support has been generally confined to financial institutions; it has not been extended to non-financial companies. Private financial institutions have generally provided liquidity support to non-financial companies when it has been needed.

The availability of emergency liquidity support, even if its provision is entirely discretionary in each case, can quite reasonably be regarded as an enhancement of the financial infrastructure. Even though emergency liquidity support is needed only if the measures taken to prevent financial instability have proved insufficient, its potential availability reduces the risk that threatened episodes of financial instability will turn into actual episodes. An analogy is the position of the goalkeeper in a football team. The goalkeeper's job is to be the last line of defence, and to prevent goals that the defenders have failed to prevent. A team with perfect defenders might

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suspend the gold standard rules, enabling the Bank to lend more freely than it otherwise could have done. It is possible for currency boards to act as lenders of last resort if they have reserves in excess of the currency board requirement which they can use to finance the necessary emergency assistance, but they are constrained by the amount of their excess reserves.

<sup>30</sup>Walter Bagehot was aware of the moral hazard created by the existence of a lender of last resort facility. It was on those moral hazard grounds that Thomson Hankey, a director of the Bank of England in the 1860s, maintained that the Bank did not have an unequivocal obligation to lend in a panic. Bagehot acknowledged the truth of this in "Lombard Street", but maintained that absence of LoLR could lead to greater harm. For discussion and review of this debate, see "Walter Bagehot and the Theory of Central Banking" by Hugh Rockoff, in Financial Crises and the World Banking System, edited by Forrest Capie and Geoffrey Wood. (Macmillan, London, 1986).



not need a goalkeeper. In practice, though, no defenders are perfect, and even the best teams want to have the best goalkeepers.

**(b) Solvency support.**

The problems that arise when a large financial institution, or a large non-financial company, becomes insolvent are much more difficult. Should the insolvency processes prescribed in law be allowed to take their course, with no discretionary official intervention?

In practice, in the case of a financial institution with large operations in more than one country, leaving the legal processes to take their course is likely to lead to prolonged and costly uncertainty, because of conflicting jurisdictions.<sup>31</sup> There is likely to be a good prospect that official intervention of some kind can reduce the costs. Thus it is not usually possible for the public authorities to take a completely hands-off approach in such cases, but there are still big questions about how much they should become involved.

If any substantial company gets into financial distress and is threatened with insolvency, the government is bound to consider whether emergency official assistance should be provided. As already mentioned, it is not only financial institutions that qualify for such consideration. US airlines got emergency assistance from the US government after September 11, 2001. Likewise, UK airlines got emergency assistance, in the form of insurance which was then unavailable in the commercial market, from the UK government.

The attractions of providing emergency solvency support are clear:

- (i) It prevents the immediate disruption to economic activity that would otherwise occur if the distressed company had to cease operations immediately.

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<sup>31</sup> See Robert R. Bliss, 'Resolving Large Complex Financial Organisations', Federal Reserve Bank of Chicago, May 2003.

- (ii) It protects the creditors of the distressed company from suffering losses. Of course, this can be a very important consideration if the distressed company is a major financial institution, in which case such losses could have a large depressing macro-economic effect.
- (iii) It eliminates the risk of contagion, in which the distress of one borrower causes harm to other borrowers by inflaming public concerns about their creditworthiness.
- (iv) It can be a means of preventing control of the distressed company from being acquired by foreigners, if that is thought to be desirable. Of course, protecting the company from foreign ownership may also mean protecting it from the stimuli to greater efficiency and innovativeness that foreign ownership can bring.

However, there are also drawbacks to providing emergency solvency support:

- (i) It adds to the debt burden of the distressed company, which is presumably already excessive.
- (ii) It involves taking risks with public money. If the support could be supplied with no risk, or negligible risk, then presumably the distressed company could have raised the needed funds in the commercial market, and there would have been no need for emergency official support. Therefore emergency official solvency support is bound to carry a significant risk of loss, and it should be regarded as an act of fiscal policy, subject to close democratic control, in contrast to monetary policy, which is normally delegated to appointed officials.
- (iii) Moral hazard is an ubiquitous issue in financial stability, as already noted. If the government creates the impression, either by its statements or its actions, that if a particular company gets into financial distress it will receive official support, then that can have powerful adverse consequences. Lenders will perceive the risk they run in lending to that company as greatly reduced, and so they will provide credit in larger amounts and on easier terms than they would have done in the absence of the moral hazard. That in turn makes it more likely that the company will get into financial distress.

It can be extremely difficult to make reasoned decisions about official solvency support in individual cases.<sup>32</sup> That is why financial authorities, faced with practical cases of financial distress, invariably try very hard to find a ‘private sector solution’, by trying to persuade shareholders and creditors of the distressed company (and perhaps others) that there are terms on which it would be in their interest to provide additional funds to the distressed company. This is the strategy which the Federal Reserve Bank of New York successfully pursued when the hedge fund Long-Term Capital Management got into difficulty in 1998.<sup>33</sup>

There are many techniques through which official solvency support can be provided, including the purchase of newly-issued ordinary or preference shares, loans against collateral, if any suitable collateral can be found, and loan guarantees. However, the choice of technique is normally a much easier problem than the decision whether or not to provide support.

It is normal practice in any solvency support operation for a financial institution to ensure that the shareholders and management of the distressed company receive no benefit at all from the operation<sup>34,35</sup>. This has the useful effect of minimising moral hazard as it affects the behaviour of the shareholders and managers of other companies which might in the future find themselves in distress. However, the creditors of the distressed company are bound to benefit from solvency support – indeed, that is the whole purpose of the support operation – so that moral hazard as it affects creditors’ behaviour is unavoidable.

## 10. Concluding remarks.

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<sup>32</sup> The difficulty is all the greater within the European Union, where, in the event of a financial institution active in several member states getting into financial difficulty, there could well be time-consuming disagreements about which national government or governments should finance any support, and about the role of EU institutions such as the European Commission, the Committee of European Banking Regulators and the European Central Bank. See C.A.E. Goodhart, ‘Some New Directions for Financial Stability’, Per Jacobsson lecture, 2004, cited above.

<sup>33</sup> See Roger Loewenstein, *When Genius Failed*, Fourth Estate, London, 2001.

<sup>34</sup> As an illustration of this practice, the President of the Deutsche Bundesbank once received a visit from a commercial bank chairman, who reported that the bank was in serious difficulties and asked for assistance. The President commented: ‘I look forward to discussing the problem with your successor.’

<sup>35</sup> This is however not always the case in solvency support operations for non-financial companies. For example, the emergency assistance provided to airlines after September 11, 2001 did benefit the airlines’ management and shareholders. Perhaps it was judged that they should not suffer as a result of such an event, but it could be claimed that the airlines’ capital structures involve debt/equity ratios that are far too high for an industry which is subject to occasional sharp but temporary reductions in revenues – an example of moral hazard at work.

The purpose of this paper is to try to articulate a definition of financial stability, and to discuss what kind of public policies should be adopted in pursuit of financial stability. Our discussion of public policies has been largely taxonomic, but our analysis leads us favour reliance on carefully-designed statute to protect financial stability, and to be suspicious of the empowerment of public agencies to exercise discretionary supervisory authority over private companies. This reflects above all our concerns about moral hazard.

A critic could well argue that the financial history of the past 30 years or so is powerful evidence in favour of precisely the opposite case. There have been widespread problems in commercial banking, and in other parts of the financial industry, throughout the world during this period, to a large extent resulting from bad risk management by commercial banks and others at a time when financial markets were being deregulated. The adverse consequences were in many cases contained by discretionary official action. It could plausibly be asserted that this experience shows that stability in the commercial banking industry requires continuous oversight from powerful regulators.

The financial regulation industry has grown very fast over the past 30 years, and international co-operation in financial regulation, which barely existed in the early 1970s, has developed in parallel, through the activities of bodies such as the Basel Committee on Banking Supervision. It would be foolish to deny that these official activities have made a decisive contribution to improving standards of risk management in commercial financial institutions. Official regulators have used the powers that they have been given to force commercial bank managers to pay adequate attention to risk issues, and have developed new and better techniques for measuring and managing risk.

Why was it necessary for commercial bank managers to be forced to make these changes, which were clearly desirable, not only from the public policy standpoint, but also from the standpoint of their shareholders? We do not have a full explanation, but we think that it partly lies in the transition that the financial industry has made from a strictly controlled environment to a much freer one. The transition occurred at different times in different places. In Europe and the United States, it took place in the 1970s and 1980s; in most of Asia in the 1990s. Before the transition, financial

institutions were in many cases subject to strict controls, maintained for macro-economic purposes, eg on the quantity of credit extended, or on the interest rates paid on deposits. At the same time, competition was limited in many countries, eg by restrictions on entry into the banking industry. In this environment, commercial banking was not a very risky business, at least as judged by present-day standards. Many of the important decision, such as how much to lend, were taken out of the commercial banks' hands. And with total lending limited by official fiat, the banks could choose to make only relatively safe loans, so that credit risk could be contained fairly easily. Moreover, the lack of competition meant that the financial consequences of bad business decisions were limited. In these conditions, commercial banking was not a very risky enterprise, and commercial banks did not require good risk managers.

The removal of controls did two things. First, it placed more business decisions in the hands of the financial institutions themselves. Second, by allowing more competition, it increased the scale of the financial consequences of bad business decisions. In other words, it transformed commercial banking from a very safe enterprise to a very risky one. In most countries, the managers of one or more major financial institutions were unaccustomed to risk management and proved unequal to the task of managing this rapid and profound transition. As a result, there has been a wave of failures or near-failures of banks and other financial institutions as countries have embarked on financial liberalisation.

In our view, this wave of failures or near-failures was the consequence of the introduction of risk into commercial banking. It has been accompanied by a change in the culture of commercial banking in which risk management has a central role. This change in culture is in our view the best available assurance that problems in financial institutions will be less widespread in the next 30 years than they have been in the past 30.

The degree of official control to which commercial banks in what is now the capitalist world were subjected between the 1940s and the 1970s was unprecedented<sup>36</sup>.

Consequently, the re-introduction of risk into commercial banking since the 1970s

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<sup>36</sup> The controls reflected partly the official reaction to the financial chaos of the Great Depression, partly the wartime and post-war extension of government controls over every aspect of economic life, and partly models of economic development which emphasised the role of government economic planning.

can best be interpreted as a one-off event. It is true of course that the commercial banking industry will continue evolve in the future, and that the process of evolution will be continuously risky. But an environment in which risks are shifting is qualitatively different from an environment in which risks are suddenly re-introduced after a long interlude into a previously safe industry.

In other words, while we accept that official regulation has played a crucial role in developing risk-management standards in the financial industry in the transition from a controlled environment to a freer market, we do not accept that the maintenance and further development of risk-management standards, once a free-market environment is established, will require anything like the same degree of regulatory activity and involvement. Indeed, for the reasons we have given above, we think that excessive regulation can unintentionally inhibit the development of risk-management techniques, and thereby retard further improvements in risk-management standards.

The Basel 2 regulatory standards for commercial banks are a case in point. Basel 2 has three component parts, or 'pillars'. Pillar 1 consists of quantified minimum capital requirements. Pillar 2 is about cross-country equivalence of regulatory treatment of banks, and Pillar 3 is about minimum disclosure standards. We see considerable merit in Pillar 3, which carries little moral hazard<sup>37</sup>, but we think that Pillar 1 has the capacity to do more harm than good.

It is true that Pillar 1 allows commercial banks considerable discretion in how they measure risks. Nevertheless, in some degree, it imposes a framework on them. It is by no means clear *a priori* why the public sector should be thought better-equipped than the private sector to design a risk measurement framework for commercial banks, particularly when it is recalled that the framework developed by 'the public sector' is in fact the outcome of an international negotiation in which each participant had national interests to promote and protect. Moreover, it is clear that some of the important decisions about the framework, such as the level of the minimum capital

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<sup>37</sup> It is an interesting question why financial institutions do not voluntarily disclose more financial information about themselves, and thereby make prudence one of the theatres of competition. We do not know the answer, though we speculate that the existence of official supervision and the perception that government 'would not allow large financial institutions to fail' has reduced the demand for such information. We note that it has been established that commercial banks which disclose more information than others generally take less risk than others (see Erlend Nier: 'Bank Stability and Transparency', Bank of England Financial Stability Review no. 17, December 2004).

requirement, which determines how much capital the global banking industry as a whole should be required to hold, were based on no secure logical foundation, but were to a substantial degree arbitrary. We suggest that any regulatory enterprise which depends on such decisions is likely to be ill-conceived.

How could Pillar1 do more harm than good? First, as already noted, it imposes on commercial banks an officially-designed framework for risk measurement. In the present state of knowledge, it may be the best framework available, but in time it will become outdated. The fact that the framework is mandatory, and that regulations of this kind are slow to change, means that commercial banks will have less incentive than otherwise to develop alternative frameworks that might help to improve risk management further. Moreover, the framework of Pillar 1 is necessarily uniform for banks in a single category; but the long-term stability of the banking industry might be better served if there were a variety of risk management frameworks in use: strength in diversity. Second, and by no means trivial, Basel 2, and Pillar 1 in particular, have pre-empted very large amounts of commercial bank management time, both in consultation and in implementation. That time carries a cost, not only to the profitability of the banks, but also potentially to their safety, since it is certain that, in the absence of Basel 2, some of that time would have been devoted to risk issues. Third, and perhaps most important, detailed regulation implies moral hazard. If banks get into difficulties despite being subject to Pillar 1, it will be difficult for regulators and governments to escape liability for private losses.

The debate on Pillar 1 has been of high quality and of intrinsic interest to commercial bank managers. The problem, in our view, is the mandatory nature of the result.

