

---

# Origins and Resolution of Financial Crises: Lessons from the Current and Northern European Crises\*

---

## **Finn Østrup**

Copenhagen Business School  
Solbjergvej 3, 2000  
Frederiksberg, Denmark  
fo.ckk@cbs.dk

## **Lars Oxelheim**

Lund University  
Lund and Institute for  
Economic Research  
P.O. Box 7080, S-220 07  
Sweden  
lars.oxelheim@fek.lu.se  
and  
The Research Institute of  
Industrial Economics  
P.O. Box 55665  
102 15 Stockholm  
Sweden

## **Clas Wihlborg**

Chapman University  
One University Drive  
Orange, CA 92866  
USA  
and  
Copenhagen Business School  
Department of Finance  
Solbjerg Plads 3  
DK-2000 Frederiksberg  
Denmark  
wihlborg@chapman.edu

## **Abstract**

Since July 2007, the world economy has experienced a severe financial crisis that originated in the U.S. housing market. Subsequently, the crisis has spread to financial sectors in European and Asian economies and led to a severe worldwide recession. The existing literature on financial crises rarely distinguishes between factors that create the original strain on the financial sector and factors that explain why these strains lead to system-wide contagion and a possible credit crunch. Most of the literature on financial crises refers to factors that cause an original disruption in the financial system. We argue that a financial crisis with its contagion within the system is caused by failures of legal, regulatory, and political institutions

One policy implication of our view is that various forms of financial rescue would be reduced in times of crisis if appropriate controls and safeguards were already in place. We draw on experiences from the financial crises in the Nordic countries at the end of the 1980s and the beginning of the 1990s. In particular, the Swedish model for crisis resolution, which has received attention during the current crisis, is discussed to illustrate the problems policymakers face in a financial crisis without appropriate institutions. We discuss European Union approaches to the current crisis before turning to policy implications from an emerging market perspective in the current crisis.

---

## **I. Introduction**

In mid 2007, a major financial crisis hit the economies of the advanced industrial countries. The March 2009 crisis

---

Financial support from the Marianne and Marcus Wallenberg Foundation for Lars Oxelheim is gratefully acknowledged.

- \* We are grateful for comments on the draft presented at Asia Economic Panel meeting in Jakarta 23 March 2009.

has spread worldwide. The crisis had its immediate origin in the markets for so-called sub-prime mortgages in the United States, though in the current debate it is sometimes traced back to expansionary policies in the United States after the bursting of the IT bubble in 2001 and to Asia and the undervaluation of the Chinese yuan. The crisis affected European financial firms with large exposures to U.S. mortgage-related securities at an early stage. The crisis in financial markets triggered a severe recession that worsened through 2008 and the beginning of 2009. At first, the Asian economies seemed to escape the crisis relatively unscathed, but during the second half of 2008, the Asian economies experienced large-scale capital outflows and declining growth rates. Stock prices in the emerging economies fell more than in the advanced industrial economies during the “crash” of October 2008.

In March 2009, the financial crisis developed into a worldwide deep recession and there are widespread fears that economic activity will remain depressed for years. At this time, it is not clear to what extent the decline in real activity originates in the weak financial sector or whether it depends on a shift in consumption-savings behavior in Europe and the United States, in particular. In the first case, the large decline in real activity in many countries would be explained by a decline in the supply of credit while, in the second case, the decline in real activity would explain a declining demand for credit. Disagreements among economists about the appropriate response to the crisis reflect differences in opinion about the main source of current problems and the need for adjustment.

In this paper, we focus on causes of financial crises and the policy responses to them. In our terminology, to qualify as a financial crisis an event affecting a part of the financial system must spread throughout the financial system as a whole through contagion effects and the crisis in the financial system must have real consequences through, for example, a credit crunch. In general, a financial crisis requires both developments outside the financial sector leading to financial disruption and contagion within the financial sector from the original disruption. Once a crisis is underway, real activity is declining the factors outside, and inside the financial sector can interact in complicated ways. The appropriate policy response to a crisis would depend on the weight of the different factors as sources of decline in real activity.

The existing literature on financial crises rarely distinguishes between factors that create the original strain on the financial sector and factors that explain why these strains lead to system-wide contagion and a possible credit crunch. To clarify this distinction we discuss common explanations of financial crises in the literature and the policy debate. Although most of the literature on financial crises refers to devel-

opments that cause disruptions in the financial system, we argue that a financial crisis with its contagion within the system is caused by failures of legal, regulatory, and political institutions.

One policy implication of our view is that various forms of financial rescue would be reduced in times of crisis if appropriate controls and safeguards were already in place. We discuss institutional reform such as legally binding bank insolvency procedures. Without this type of reform, institutions lack the appropriate controls to avoid contagion within the financial system and a potential credit crunch, and as a result, financial crisis management by governments is required. We draw on experiences from the financial crises in the Nordic countries at the end of the 1980s and the beginning of the 1990s to illustrate the problems policymakers face in financial crises without appropriate institutional controls. We discuss the Swedish model for crisis resolution and current regulatory initiatives in the European Union (EU) in response to the current crisis.

Finally, we turn to policy implications from an emerging market perspective. We conclude that legal and regulatory institutions can contribute to reducing the likelihood that shocks to the system cause financial crises. Macroeconomic policy including exchange rate arrangements can be conducted to minimize the impact of shocks. Crisis resolution procedures are required once a large part of the financial system is distressed.

In Section 2, the paper proceeds with a summary of the evolution of the current crisis in the United States and Europe. Common explanations of financial crises are discussed in Section 3, with examples from European crises in particular. Thereafter, we present our view of financial crises as the result of institutional failures in Section 4. The so-called Swedish Model for crisis resolution is discussed in Section 5 and current regulatory initiatives in the EU are reviewed in Section 6. We present conclusions in Section 7 and outline implications for policy and institutional reform from an emerging market perspective.

## **2. The current crisis in the United States and Europe**

Prior to 2007, U.S. housing prices had risen to unprecedented heights relative to long-term levels, and were fuelled by a long period of low interest rates and an expanding credit supply. In 2007, a growing sense of uncertainty about mortgage-related investments was amplified by high levels of leverage and by the lack of transparency in structured financial products, in particular credit debt obligations, (CDOs), which had been issued with backing in mortgage loans. The perception of

uncertainty came to a head in June 2007 when two hedge funds managed by Bear Stearns, the fifth-largest U.S. investment bank, ran into trouble and had to be unwound. The uncertainty regarding real estate prices caused investors to adjust their appraisal of risk in the summer of 2007. Credit risk premiums increased and there was a big decline in prices on mortgage-backed securities. The upward adjustment of risk premiums spread to the short-term market for wholesale finance.

The financial crisis had an early impact on European economies through two channels. First, the crisis spread to Europe through the direct exposure of European financial firms to U.S. mortgage-related financial products. According to one estimate, one-third of U.S. mortgage-backed securities had moved offshore and to Europe in particular.<sup>1</sup> In August 2007, two German banks—IKB and Landesbank Sachsen—collapsed due to losses on mortgage exposures in the U.S. market. Among the large European banks, the Union Bank of Switzerland (UBS) suffered particularly large losses.

Second, European financial markets were affected by the same rise in risk premiums and the same demand for liquidity as the U.S. markets. The rush to liquidity because of insolvency fears caused financing difficulties for a number of European banks. In September 2007, depositors started massive withdrawals from the British bank Northern Rock, which had relied on the wholesale financing market.<sup>2</sup>

The European Central Bank reacted early to the difficulties in the wholesale financing markets by suspending a rise in its policy rate, which was expected to take place in September 2007. In addition, the European Central Bank reacted through a large increase in its lending facilities for banks. Also in September 2007, the Bank of England and several other central banks decided to lower their policy rates. In December 2007, further cuts in policy rates were implemented. The U.S. Federal Reserve (Fed) introduced similar measures in the United States.

In March 2008, Bear Stearns collapsed due to losses on mortgage-related assets and was taken over by JP Morgan Chase with support from the U.S. Treasury. Criticism followed the U.S. government's decision to support the bailout of Bear Stearns. The crisis entered a new phase when the U.S. government in mid-September 2008 decided not to intervene to save Lehman Brothers, the fourth largest U.S. investment

---

1 Blundall-Wignall (2008).

2 The British government intervened by guaranteeing all claims on Northern Rock. However, it was taken over by the British government in February 2008 as no buyers were interested in its acquisition.

bank, from bankruptcy. For the first time since the beginning of the 1930s, financial authorities in a major economy allowed a large financial institution to file for bankruptcy. Widespread turbulence in financial markets followed. Financing through several important markets came to a virtual standstill. The commercial paper market and interbank lending came to a halt. Growth prospects declined as reflected in the steep 30–50 percent fall in share prices in October 2008.

Also in mid September 2008, several large European financial firms had to be supported through the injection of capital from governments. One of the largest European financial groups, Fortis, was taken over by the Benelux governments. Dexia was taken over by the governments in Belgium, France, and Luxembourg. In Great Britain, the government acquired controlling stakes in three of the eight largest banks. In Germany, the government stepped in to save the mortgage lender Hypo Real Estate and, in January 2009, it acquired 25 percent of the equity in Commerzbank, the second-largest German bank. In Iceland, three major banks with international operations were taken over by the government. In December 2008, the Irish government took over one of the largest banks. In Denmark, seven smaller banks collapsed in the autumn of 2008. In Sweden, the government took control of a medium-sized investment bank.

European governments reacted to the financial crisis through rescue packages for banks and other financial institutions. The first package was implemented in Ireland where all claims on the six largest Irish-owned banks became guaranteed in September 2008. To a varying extent, the European rescue packages included government guarantees for debt obligations; government purchases of bad or “toxic” assets from banks; government injection of capital to banks in return for direct share holdings; lending facilities for the purchase of commercial papers; and direct government purchases of assets, such as mortgage-backed securities.

During 2008 and 2009, European banks were hit increasingly by losses originating in Europe, and this trend is expected to continue. First, in many European countries, real estate prices had risen to levels that appeared incompatible with long-term equilibrium already in 2007. Table 1 shows that housing price increases in, for example, the United Kingdom (UK), Spain, and the Nordic countries have been even steeper than in the United States. Second, losses of bank-subsidiaries in Eastern Europe are expected to increase.<sup>3</sup> Third, a number of large European corporations have been the target of private equity funds and, thereby have become highly leveraged.

---

3 In December 2008, Lithuania had to be bailed out through loans from the IMF, the EU, and the Nordic countries.

**Table 1. The increase in residential real estate prices relative to income**

|                | Increase in price-to-income ratio (percent) |         |
|----------------|---|---------|
|                | 1997–2007                                   | 2002–07 |
| Canada         | 31.4  | 30.8    |
| Denmark        | 63.6  | 38.2    |
| Finland        | —   | 15.0    |
| France         | 69.1  | 47.5    |
| Germany        | –24.3                                       | –13.0   |
| Ireland        | 86.1  | 20.2    |
| Italy          | 47.6  | 24.9    |
| Japan          | –28.4                                       | –22.2   |
| Netherlands    | 54.3  | 15.7    |
| Norway         | 54.3  | 26.4    |
| Spain          | 67.3  | 38.3    |
| Sweden         | 61.6  | 34.5    |
| Switzerland    | –6.9  | 5.7     |
| United Kingdom | 93.9  | 39.5    |
| United States  | 23.4  | 14.7    |

Source: OECD, *Economic Outlook, Statistical Appendix*.

Finally, a bubble in commercial real estate appears to have developed in several European countries. In 2007, prices on commercial real estate had risen to record levels in Denmark and Ireland. France, the Netherlands, and Spain have also experienced big price increases on commercial real estate.<sup>4</sup>

Table 2 shows that credit to the private non-financial sector over the 5-year period 2002–07 rose sharply in several advanced industrial economies. The pattern remains when the horizon is extended to the 10-year period 1997–2007. The largest expansion of credit took place in Spain where the debt of the private non-financial sector relative to gross domestic product rose 77.5 percentage points over the 5-year period 2002–07. Other countries with considerable increases in private non-financial sector debt over the 2002–07 period are Denmark, Finland, France, Italy, the United States, and the UK. There is no obvious correlation between credit growth and the severity of the crisis, however. The United States, the UK, and Denmark are among the countries that have been hardest hit but, until recently, Spain had not been affected as strongly as many other countries. Figure 1 indicates a positive correlation between the increase in debt incurred by households over the period from 2000 to 2007 and the increase in residential real estate prices relative to their long-term level for 15 advanced industrial economies.

### 3. Common explanations of financial crises

In this section, we review five commonly referred to explanations of financial crises and illustrate them with historical events. The explanations are not mutually exclu-

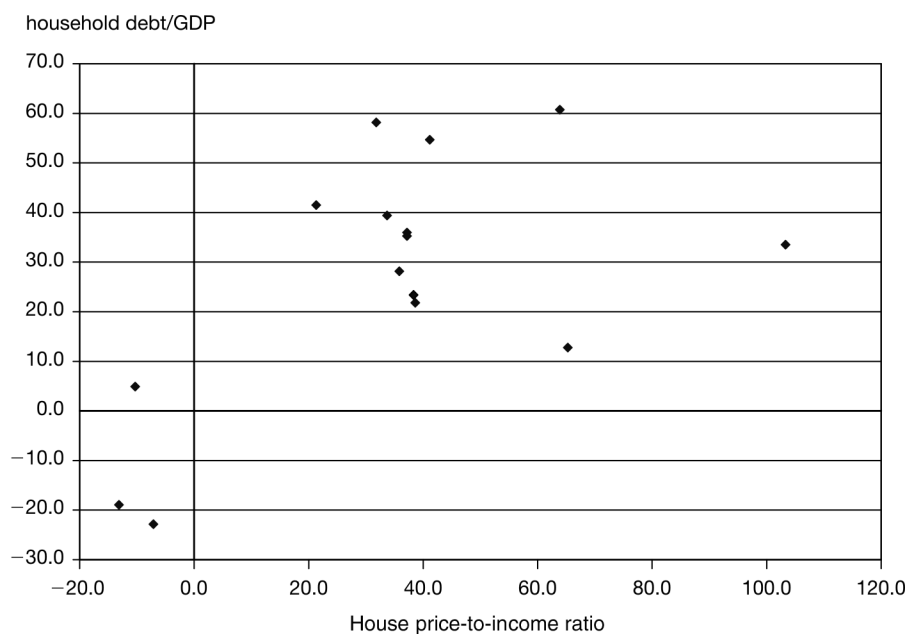
<sup>4</sup> BIS (2008).

**Table 2. The increase in credit to the private non-financial sector (percentage points of GDP)**

|                | 1997–2007          | 2002–07            |
|----------------|--------------------|--------------------|
| Austria        | 24.4               | 7.6                |
| Belgium        | 49.6               | 16.9               |
| Denmark        | 73.4               | 52.4               |
| Finland        | 39.5               | 29.5               |
| France         | 49.3               | 24.9               |
| Germany        |                    |                    |
| Ireland        | 13.3               | –10.6              |
| Italy          | 43.8               | 25.7               |
| Japan          | –44.4 <sup>a</sup> | –17.9 <sup>b</sup> |
| Netherlands    | 60.5 <sup>a</sup>  | 12.0 <sup>b</sup>  |
| Norway         |                    |                    |
| Spain          | 143.7              | 77.5               |
| Sweden         |                    |                    |
| Switzerland    |                    |                    |
| United Kingdom | 87.7 <sup>a</sup>  | 43.3 <sup>b</sup>  |
| United States  | 59.2               | 22.7               |

Source: OECD, National Accounts.

Note: a. 1997–2006 period. b. 2002–06 period.

**Figure 1. The relationship between increase in household debt and increase in residential real estate prices**

Source: OECD, Economic Outlook; OECD, Financial Accounts.

Note: The figure shows for 15 advanced industrial countries (Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Spain, Sweden, Switzerland, United Kingdom, and the United States) the relationship between (i) the increase in household debt relative to gross domestic product (measured in percent) over the 2000–07 period (for Japan, Netherlands, Switzerland, and the United Kingdom 2000–06, for Ireland 2001–07), and (ii) the increase in household prices relative to their long-term level (measured in percent) over the same period. House prices relative to long-term levels are found as the price-to-income ratio measured by the OECD.

sive and several crises appear to be the result of a combination of factors. The explanations of crises discussed here focus on factors that cause and trigger the original disruption in the financial sector as opposed to factors that cause the systemic effects of an original disruption. The five views we present are:

- 1) Macroeconomic developments and leverage;
- 2) Behavioral factors; speculation and optimism;
- 3) Shift to liquidity and safety;
- 4) Management failures; and
- 5) Institutional weaknesses.

### 3.1 Macroeconomic developments and leverage

According to this view, failures in financial institutions occur because of negative macroeconomic shocks following a period of credit expansion leading to high leverage of households and firms. The negative shock to highly leveraged firms or households causes losses in the financial system with the consequence that highly leveraged banks risk becoming insolvent.<sup>5</sup> According to the “debt-inflation” theory suggested by Fisher (1933), the level of debt in financial and non-financial enterprises is the crucial factor that determines the probability and size of financial crises. A high level of debt in non-financial enterprises raises the risk of bankruptcy during economic downturns, causing losses for banks and inducing them to cut down on their lending. In turn, a reduction in bank lending reduces the credit and money supply.

A secondary effect of macroeconomic shocks on asset prices can amplify the original shock and worsen the impact on the financial sector.<sup>6</sup> Similarly, substantial indebtedness in foreign currency can amplify the shock if the domestic currency falls in value, as is often the case.<sup>7</sup> Macroeconomic developments and shocks may explain why households and firms run into debt payment problems. However, the insufficiency of capital in financial firms to withstand shocks and the amplification of the original shock through the financial system must be explained in other ways.

Four Nordic countries (Denmark, Finland, Norway, and Sweden) experienced severe financial crises from the mid 1980s to the beginning of the 1990s. In each case, the crisis was characterized by a large prior increase in lending from banks and

---

5 See, for example, Mishkin (1991, 1997), which discuss five different types of macroeconomic shocks that may cause financial crises.

6 See, for example, Bernanke, Gertler, and Gilchrist (1996), Kiyotaki and Moore (1997), and von Peter (2004).

7 Eichengreen and Hausmann (1999).



other financial institutions, but the shock that triggered the crises was different. Large drops in real estate values triggered the Danish, Finnish, and Swedish crises. Also, the Finnish crisis was associated with a large decline in Finnish exports because of the break-up of the Soviet Union.

The financial crisis in Japan beginning in 1990 followed a pattern that was similar to the Nordic financial crises. In the second half of the 1980s, Japanese share prices rose 3.2 times. Real estate values on commercial property, in particular, also rose sharply. In 1990, Japanese asset prices collapsed and Japanese banks experienced large losses, especially in real estate (Inaba 2005). The Japanese authorities postponed a resolution of the crisis in the hope that the economic situation might improve. At the end of 1997, the Japanese financial system was close to collapse with massive withdrawals from banks. In November 1997, the Japanese Minister of Finance and the Governor of the Bank of Japan issued a common statement in which they guaranteed all deposits in Japanese banks. In 1998, one of the largest Japanese banks, Long Term Credit Bank of Japan (LTCB), collapsed.

The crises that hit several East Asian economies (Indonesia, Korea, Malaysia, the Philippines, and Thailand) in the 1997–98 Asian financial crisis can be classified within the same category to some extent. Fixed exchange rate regimes contributed to the crisis because they encouraged borrowing by banks and firms in foreign currency. Domestic bank lending expanded rapidly and grew relative to the GDP. Prior to the crisis, East Asian countries experienced steep increases in asset prices, in particular stock prices and prices on commercial real estate. A rising share of bank lending was used for speculative projects in real estate and for investments in equities. In July 1997, a sudden change in market perception of risk and the willingness to bear it took place (Furman and Stiglitz 1998). As a result, property prices fell sharply and triggered banking crises. The Asian crisis cannot be explained by macroeconomic developments alone, however. Other explanations are offered within the following two categories of crises.

### 3.2 Behavioral factors; speculation and optimism

A common explanation of financial crises refers to speculation in financial and/or real assets and excessive optimism during a period leading up to an event triggering a sharp decline in asset prices. Keynes (1936 [1973]) developed one view of asset speculation. According to Keynes, expectations of future returns on investments must be characterized by a large degree of uncertainty and this leaves a large margin for expectations to be determined by possibly shifty sentiments.<sup>8</sup>

<sup>8</sup> Keynes (1936 [1973]) writes: “The later stages of the boom are characterized by optimistic expectations as to the future yield of capital goods sufficiently strong to offset their growing

Minsky (1964) shares a similar view of asset speculation as the origin of financial crises. Driven by optimism, corporations increase debt levels to finance purchases of assets. At a certain stage, a sudden and sharp fall in asset prices occurs, combined with a large cutback in lending. Kindleberger (1989) offers a similar explanation of financial crises.

Related and more recent behavioral explanations have been offered by Bernanke and Gertler (1999) and Davis and Zhu (2005). The latter see speculation in commercial property as a particularly destabilizing factor as banks may be tempted to increase lending due to the apparent safety of commercial property as collateral. Borio (2006) and Borio, English and Filardo (2004) argue that a liberalized financial system is marked by recurrent crises as banks may be tempted to increase lending in periods with an optimistic valuation of future income prospects.

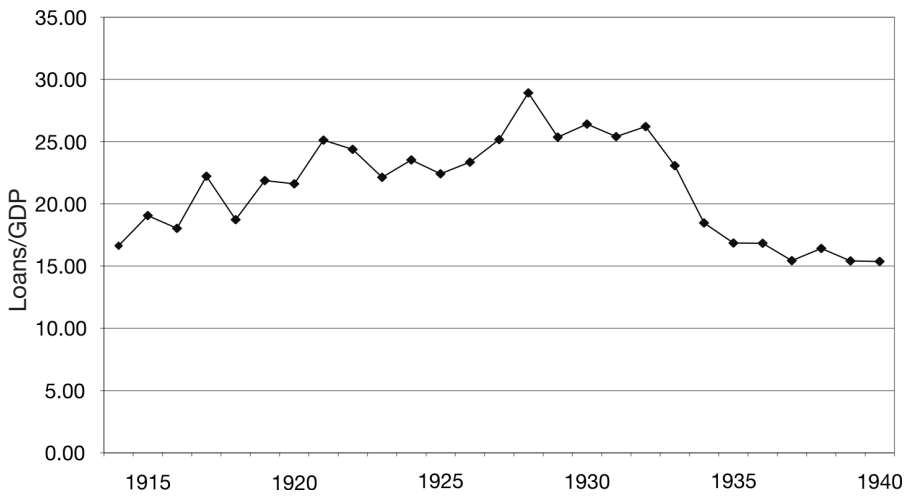
Historical examples are manifold. In 1907, the United States experienced a severe financial crisis with the collapse of several important institutions, most notably the Knickerbocker Trust Company. Stock prices fell by about 40 percent between September 1906 and November 1907. The collapse came after a period with sharp increases in stock prices marked by a speculative sentiment. J. P. Morgan Jr., partner in JP Morgan & Company, noted in January 1906: "For the first time in three years the public—with stocks at their present high prices—have begun to come in heavily with the result that the so-called market-leaders are no longer in charge, and that the stock market is running away in a fashion which I must say suggests to me possible trouble in the future although not in the immediate future."<sup>9</sup>

Over the 8-year period from August 1921 to September 1929, stock prices in the United States rose 6.1 times. Stock purchases were made possible through lending from banks. Especially after 1925, bank credit rose steeply relative to the GDP (Figure 2). Following the crash in October 1929, bank credit relative to the GDP fell sharply. A total of 9,096 U.S. banks, representing approximately a quarter of total deposits, collapsed from 1930 to 1933. The financial crisis spread to several European countries, especially Austria and Germany, as U.S. investors withdrew their overseas investments, as they needed funds in the home market.

---

abundance and their rising costs of production and, probably, a rise in the rate of interest also. It is of the nature of organized investment markets, under the influence of purchasers largely ignorant of what they are buying and of speculators who are more concerned with forecasting the next shift of market sentiment than with a reasonable estimate of the future yield of capital-assets, that, when disillusion falls upon an over-optimistic and over-bought market, it should fall with sudden and even catastrophic force" (pp. 315–316).

<sup>9</sup> Bruner and Carr (2007), p. 16.

**Figure 2. The evolution of bank lending in the United States 1914–40**

Source: Office of the Census, *Statistical Abstracts of the United States*.

### 3.3 Shift to liquidity and safety

Another classic explanation of financial crises is a sudden increase in demand for liquid and/or low-risk assets. Bagehot (1873 [2007]) discussed how a sudden demand for liquid, safe assets could be caused by a sudden sentiment of fear. The demand shift caused, for example, by sudden concerns about the solvency of banks may trigger bank runs. These runs can hit a large number of solvent as well as insolvent banks if the public cannot specifically identify the insolvent ones. Friedman and Schwartz (1963) describe how bank runs contributed to the crisis in the 1930s.

This explanation of financial crises comes closer to addressing issues of contagion within the financial system while the previous ones focus on explanations of shocks to the financial system. Keynes, Minsky, and Kindleberger argue that the demand shift to liquid and safe assets may arise when a speculative bubble bursts, thereby linking this explanation of crises with the speculative explanation above. As noted herein, the Asian financial crisis in 1997–98 was characterized both by a prior increase in asset prices based on optimism and speculation and a shift in risk perceptions in 1997.

### 3.4 Management failures

Excessive risk-taking on some level of a financial firm is one type of failure in this category. Irvine H. Sprague, chair of the Federal Deposit Insurance Corporation (FDIC) from 1979 to 1986 gave the following account of financial failures: “the greed

factor . . . remains the major—often the only—reason for a bank’s failure. Banks fail in the vast majority of cases because their management seek growth at all cost, reach for profits without due regard to risk, give privileged treatment to insiders, or gamble on the future course of interest rates. Some simply have dishonest management that loots the banks.”<sup>10</sup>

Referring simply to greed as in the above quote seems simplistic. Corporate governance that would allow simple greed to rule must be considered as well as incentives of bank managers. We return to these issues in the section on institutional weaknesses next.

### 3.5 Institutional weaknesses

This fifth view of financial crises refers to weak regulatory and contractual institutions, in particular. Many economic reports, as well as academic papers, refer to deregulation as an important cause of financial crises. According to Mishkin (1997), institutional weaknesses can cause financial crises for a variety of reasons. For example, a weak political structure may cause budgetary deficits and subsequent losses in financial institutions, which may be pressured into holding government assets to finance the deficit. The lack of efficient financial supervision may also be seen as the consequence of institutional weaknesses. Other writers see weak protection of creditor rights as raising the risk of withdrawals from financial institutions and thus of bank failures.<sup>11</sup>

It is a common view that institutional weaknesses and failures describe the situation in developing and emerging market economies. Financial crises occur with equal frequency in developed countries, however. In Section 4, we argue that a broader set of institutional failures should be viewed as the main causes of systemic financial crises in countries on all levels of development.

The overview of the current crisis in Section 2 indicates that all the explanations of financial crises discussed here seem to have been at work. Macroeconomic developments have played a role in that credit was in ample supply since 2001, as shown in Table 2. The availability of credit contributed to speculative activity in residential real estate, in particular, but probably also in raw materials and equities. A shift in favor of safety has revealed itself in higher credit risk premiums and lack of liquidity in markets for securities. Management failures in the form of a focus on short-term earnings and insufficient attention to risk management seem to have contrib-

<sup>10</sup> Sprague (1986 [2000]), p. 233.

<sup>11</sup> A review of the literature is found in Breuer (2004). A study by La Porta et al. (1998) shows a larger risk of financial crises in countries with a weak enforcement of property rights.

uted. Among institutional factors, many observers have pointed to deregulation but at the same time, the Basel Capital Adequacy Framework (BCAF) has become stricter. In the next section, we focus on a range of institutional factors that we suggest have contributed to the severity of the current crisis.

## 4. Financial crises as institutional failures

### 4.1 Allocation of value losses

From December 1999 through September 2002, the U.S. stock market lost half of its value, reducing household wealth by roughly US\$ 10 trillion. From mid 2006 through December 2007 real estate prices fell about 30 percent reducing household wealth about US\$ 3 trillion.<sup>12</sup> In the first case, the systemic consequences for the financial sector as a whole, as well as for the real economy, were minor. In the second case, a major system-wide financial crisis erupted with severe consequences in the stock market and, in particular, in the real economy. How can the system in one case allocate US\$ 10 trillion dollars worth of losses without severe strains while US\$ 3 trillion dollars worth of losses in the second case have severe systemic consequences? In both cases losses had to be allocated to households and individuals one way or another. One would expect the problem caused by the allocation of losses to be proportional to their magnitude.

The factor that immediately comes to mind as an explanation for the difference between the two cases is *leverage*. Equity investment is leveraged to a much lower degree than real estate investment. The financial firms supplying debt are also highly leveraged. Thus, in the case of real estate investment, a relatively modest decline in asset values threatened the solvency of a number of financial firms. Leverage cannot be the fundamental explanation of a systemic financial crisis, however.<sup>13</sup>

In markets functioning without friction, firms' leverage and insolvency should not cause a substantial problem. After all, there are contracts specifying how losses are to be allocated. Once the financial firms' equity is exhausted, the additional losses should be borne by their creditors. Some of these creditors are households and others are other financial firms. Insolvency procedures would allocate the losses in accordance with the pre-specified contractual arrangements or in accordance with

<sup>12</sup> See Gjerstad and Smith (2009). This article contains an analytical review of events leading up to the so-called sub-prime mortgage crisis. "Blindsided by the Bubble." *Wall Street Journal* 6 April 2009.

<sup>13</sup> We are not arguing that the severity of the current crisis is due entirely to the systemic effects of the sub-prime mortgage problem. It is likely that another important factor is the desire of households and firms to decrease their leverage as a result of increased risk-premiums as households reduce consumption and firms reduce investments.

rules as specified in insolvency law. Assets of the failing firms would be purchased at reduced values by other financial and non-financial firms or households. The indirect ramifications for the real economy should be small.

Most of the traditional explanations for financial crises cannot explain why a systemic crisis erupted after the US\$ 3 trillion worth of losses, but not after the US\$ 10 trillion worth of losses, in spite of the much larger initial shock to the financial system in the latter. For example, the expansionary, low-interest-rate policies of the Fed may have contributed to the run-up in housing prices since 2001 but they do not explain why the system could not handle the decline. Also, often cited “short memories” and other behavioral characteristics of financial market participants may also have contributed to the development of a pricing bubble, but explanations for the systemwide effects of the decline in prices must be sought elsewhere.

#### **4.2 Frictions creating systemic risk**

Here, the task is to identify the sources of frictions that cause great delays in the loss-allocation and to ask why these frictions exist. The tragedy in a financial crisis is that frictions cause additional losses in wealth and income. These losses must be allocated as well. Therein lies the systemic failure with contagion among financial institutions and the decline in real activity that we are now experiencing.

Six candidates come to mind when examining explanatory factors in financial markets:

- (1) The individuals and firms facing and taking losses are reluctant to accept these losses and may try to cover them up to, for example, not lose creditworthiness or to avoid runs.
- (2) The lack of transparency in valuation of assets allows financial firms, in particular, to delay loss recognition.
- (3) Uncertainty and asymmetric information about asset values create a liquidity problem in markets when potential buyers suspect that sellers try to unload relatively low-quality assets (adverse selection).
- (4) Insolvency procedures for many financial firms are time-consuming and costly in themselves. The allocation of losses requires assets of firms to be valued without well-functioning markets and exact contractual relationships must be identified.
- (5) Many potential losers are protected by explicit or implicit insurance schemes created by expectations of bailouts in different forms. The coverage of explicit deposit insurance schemes and other creditors of banks are often expanded in times of crises. In the current crisis, creditors of non-bank financial firms have also obtained protection. Even shareholders and managers of large entities facing losses

obtain a degree of protection when the survival of their firms is more or less guaranteed. The greater the share of the ex ante contractual losers that gain protection, the greater the losses that are potentially faced by others. In the end, losses must be borne by someone. The taxpayers are obviously the “loss-takers of last resort” but in the current crisis taxpayers seem to resist this role.

- (6) Political conflicts about the allocation of value losses create uncertainty about the final allocation of losses. This uncertainty about the political process creates disincentives for those contractually responsible for losses to take private initiatives to deal with them. First, firms hold out to see where the political process leads and they lobby to influence the political process with the objective of shifting losses to others.

These factors contribute not only to delays in the allocation of the original losses but also potentially to an amplification of the losses, as well as to contagion among financial institutions and from financial institutions to firms. Contagion is created by lack of liquidity in markets for securities, delays in settlement of claims, possible runs on banks, and the withholding of new credit.

The reduced availability of financial resources affects activity in the real sectors once the financial sector is impaired by the process of loss allocation. Frictions in labor and product markets may be the source of additional output losses and unemployment. These frictions affect the severity of the systemic effects of a financial crisis. Product and labor market frictions amplify the effects of households’ and firms’ attempts to decrease their leverage as well. In the following, the discussion is restricted to financial sector frictions.

Managers of financial firms and investors do not perceive that they live in a world without market frictions. Thus, one would expect that the listed frictions and their potential consequences would be taken into account in the risk analysis of investments and lending. For example, the risk and costs associated with slow insolvency procedures should be taken into account by creditors as well as financial firms, inducing the latter to hold more capital. Similarly, one would expect that the risk of declining liquidity of assets under some circumstances and the price effects of declining liquidity should be taken into account by financial firms and investors in various securities.

#### **4.3 Incentives to consider “friction-risk”**

A number of factors contribute potentially to relatively weak incentives for investors and managers of financial firms to take into account the risks associated with peri-

ods of increased friction. They increase the vulnerability of the system to systemic crises after, for example, the bursting of an asset price bubble and they provide the rationale for much existing regulation and supervision of the financial sector. The factors that weaken the incentives to take systemic risk and liquidity risk into consideration *ex ante* are partly the same as the above factors causing friction in the allocation of losses:

(i) Explicit deposit insurance and implicit protection of various stakeholders in the financial system in the form of expected bailouts create disincentives for creditors of banks and other financial firms to evaluate risk and to require a risk-premium for lending. For example, expected intervention by central banks in case low liquidity prevents assets from being sold at “fair values” reduces the incentives to manage liquidity risk *ex ante*.

(ii) The more responsive the political system is to pressures from particular groups facing losses in times of stress, the greater the implicit protection of these groups is. For example, large financial entities can more easily convince lawmakers and regulators about the dire consequences of their failures. The “too big to fail” argument for big banks is by now widely accepted. This argument provides creditors of these institutions with stronger implicit protection and the “too big to fail” firms with lower costs of funding.

(iii) Compensation and remuneration of executives, credit officers, and other risk decision-makers may bias incentives toward short-term profit considerations at the expense of risk.

(iv) Complexity and non-transparency of securities and their value-factors may enable originators to take on risk without facing increased funding costs and to sell the risk at prices that do not include an appropriate risk-premium. In the current crisis, mortgage-backed securities were created and sold in tranches. With the benefit of hindsight it seems that ratings agencies and quantitative risk models were unable to estimate risks associated with these instruments appropriately. It is obviously hard to make a clear distinction between the inability to evaluate risk and the lack of incentives to evaluate risk appropriately because of factors (i)–(iii).

(v) The supervision and regulation of banks in particular should be mentioned here, because, for example, capital requirements could substitute for incentives created in the market place. The BCAF specifies methods and procedures for evaluating the risk of particular assets. If these methods are inappropriate they divert risk manage-



ment resources to risk measures that do not reflect reality or to the gaming and manipulation of these risk measures. Under Basel I, which was in effect during most of the period leading up to the current crisis, the methods for risk-evaluation were crude and provided incentives for so-called *risk arbitrage*.<sup>14</sup> Under Basel II, which was implemented in 2007 in Europe, ratings and quantitative modeling became important for the amount of capital a bank must hold against a particular asset. Both elements of the Basel II framework seem to have failed in the current crisis. Neither Basel I nor Basel II considers the contribution of a bank to systemic risk when specifying capital requirements.

Factors (i)–(v) contribute to the likelihood that times of friction will occur as a result of excessive risk-taking in the financial system whereas factors (1)–(6) in Section 4.2 create frictions in the allocation of losses. These partly overlapping groups of factors contribute to the severity of systemic effects and both can be linked to legal, regulatory, or political institutions.

#### 4.4 Frictions, incentives and institutional failures

Legal, regulatory, and political institutional factors are not directly linked to the listed factors in Sections 4.2 and 4.3, but a specific institutional characteristic of a country can influence friction in financial markets as well as ex ante incentives in several ways. Relevant institutions affecting frictions in the allocation of losses are those influencing the incentives of firms and individuals to recognize losses, enforcement of contracts, liquidity of securities, and transparency of valuation and transparency of risk factors for securities as well as financial firms. Relevant institutions affecting ex ante incentives are those influencing risk-taking incentives of managers of financial firms and their incentives and ability to provide relevant information in the markets for securities including markets for their creditors and shareholders. The institutions discussed subsequently affect frictions as well as ex ante incentives in financial markets.

Most of the assets that fell in value after the IT bubble burst were traded in active markets for equity. Contractual relations for allocating the losses were uncomplicated since the assets were relatively simple claims on corporate assets. Furthermore, there were few layers of financial firms wherein losses had to be recognized. Finally, the political pressures to protect losses were mild and therefore, weakened the ability of equity investors to form political pressure groups to delay loss alloca-

<sup>14</sup> Under Basel I many asset types with different risk were given the same risk-weights within each “risk-bucket” providing incentives for banks to lend to relatively risky, high interest rate lenders within each “risk-bucket.” See Benink and Wihlborg (2002).

tion. Ex ante risk-taking incentives of investors in equity markets were not an issue either because risk-taking decisions were made by those directly exposed to risk.

The situation was obviously different in the markets for real estate and real estate financing. Layers of financial firms and markets for securities were involved in creating multiple agency relationships. Housing and its affordability is a major policy issue. The broad range of activities of financial firms involved in mortgage financing implies that one firm's failure may have broad repercussions. The political sensitivity of the failure of financial firms is enhanced by the sheer size and complexity of some of these firms.

Wihlborg (2009) describes a number of reasons that have been put forward in the debate about causes of the financial crisis and its systemic consequences. Several reasons for the crisis are mentioned previously including the existence of a real estate price bubble pre-2007 and its bursting. To explain the systemic consequences of these events, we now focus on institutional characteristics that contribute to the failures of loss allocation or to the failure of financial firms to account properly for the risk or both. We do not claim to present an exhaustive list but focus on a few key institutional characteristics: explicit and implicit insurance of stakeholders in financial institutions, procedures for resolution of insolvency, corporate governance in financial institutions, and uncertainty about the political process in times of crisis.

#### **4.5 Institutions affecting loss allocation and incentives**

**4.5.1 Explicit and implicit insurance in the financial sector** The explicit and implicit insurance of depositors and other creditors of financial firms reduce the incentives of these creditors to monitor the risk of financial firms. The explicit deposit insurance systems in the United States and European countries affected by the crisis provide only partial coverage for depositors through limits on the size of insured deposits and—at least until recently in the UK—through co-insurance.<sup>15</sup> Non-bank financial firms in the United States in particular do not enjoy the benefit of deposit insurance. Consequently, it is unlikely that the explicit deposit insurance systems were strong enough to remove major creditors' incentives to monitor financial institutions. Hence, the existence of explicit deposit insurance does not appear to have been a major contributing factor to the failure of market discipline on risk-taking behavior of financial institutions.

<sup>15</sup> Eisenbeis and Kaufman (2008) argue that the run on Northern Rock in the UK can be explained by the existence of co-insurance and possibly delays in insurance payments after a bank failure. They base this argument on the observation that there was no run on any U.S. bank that faced circumstances similar to Northern Rock.

A more plausible candidate would appear to be the existence of implicit insurance. One explanation of strong implicit insurance of banks' creditors is that banks have special characteristics relative to other firms. First, banks supply liquidity in the economic system as a whole. Large parts of their liabilities are short term and subject to bank runs if creditors fear non-repayment. Second, there are generally substantial amounts of short-term interbank liabilities that may contribute to contagion among banks if one bank fails. Third, creditors of banks in particular are diverse and many. Thus, banks do not generally have one or a few large creditors with a strong interest in resolving distress. The risk of runs on a bank in distress and contagion implies that speed of action in distress resolution is essential. Conventional liquidation and restructuring procedures are too time-consuming to be applied to banks without modification. As a result, governments in most countries tend to intervene to prevent bank failures of some magnitude. The moment the government intervenes, the allocation of the banks' losses becomes a political issue.

There is little doubt that the implicit insurance of creditors of banks is strong in most European countries, and there is strong empirical evidence that implicit insurance tends to be strong in countries with low explicit deposit insurance coverage (Angkinand and Wihlborg 2008). The strong implicit insurance in Europe may have contributed to the willingness of European financial firms to buy more than one-third of the securities backed by sub-prime mortgages in the United States. The implicit insurance of banks' creditors is probably weaker in the United States due to the existence of a legal infrastructure for bank crisis management, including the system of Structured Early Intervention and Resolution (SEIR). These procedures are discussed further subsequently.

There are observers, however, who argue that the implicit insurance of investment banks and large commercial banks is strong in the United States as well (Brook 2008). This argument is based on the "too big to fail" argument. The failure of a large non-bank financial firm can contribute to systemic risk because of price and liquidity effects in securities markets. Any large financial firm forced to liquidate assets may put downward pressure on prices and, accordingly, cause losses for other financial firms. Liquidity in the markets for particular securities may depend on relatively few large firms serving as counterparties. For this reason, there is pressure on the government to rescue such firms in order to avoid contagion. The Fed actions with respect to Bear Stearns as well as other major U.S. banks during the current crisis support this reasoning.

In spite of the "too big to fail" argument, it is hard to argue that investment banks like Bear Stearns were considered truly protected and impervious to creditors' market discipline. As described in Cohan (2009), investment banks in general and Bear

Stearns in particular built up large exposures to mortgage-backed securities using the short-term, often overnight, unsecured commercial paper market for funding. Managers of these firms must have been aware that this source of funding could dry up quickly as it did in the fall of 2007. Thus, the risk-taking behavior of these firms cannot be fully explained by implicit protection. Failures of corporate governance are considered subsequently.

Another source of implicit protection of creditors in the markets for mortgages in the United States is the government backing of Fanny Mae and Freddie Mac. These two firms were the largest buyers and insurers of mortgages with the explicit objective of making home ownership affordable. Although their activities may have contributed to the magnitude of the sub-prime mortgage crisis they cannot be held responsible for the exposures of investment banks and commercial banks.

These explanations of implicit insurance of creditors and, in some cases, shareholders of financial firms that may be considered systemically important, depend largely on an unwillingness of governments to allow formal insolvency procedures to work themselves out. These procedures may be considered too time-consuming for large, complex financial firms, in particular, and the procedures may force firms to liquidate assets rapidly with consequences for asset prices.

**4.5.2 Distress resolution and insolvency procedures** The difficulty of designing efficient insolvency procedures is caused largely by information problems regarding the cause of distress and asset values. Collateralized loans and priority rules discourage “runs” on the available resources of a distressed firm. A run can force a firm into bankruptcy prematurely. In banking this “run problem” is particularly acute.

Although in some ways the roles of insolvency procedures for banks are the same as for non-financial corporations, the objectives of the procedures differ in important ways. These differences are explained by the special characteristics of banks and other financial firms as mentioned previously. Speed of action in distress resolution is of the essence. Conventional liquidation and restructuring procedures are too time-consuming to be applied to banks without modification. The case of Lehman Brothers in the United States indicates that the same argument applies to non-bank financial firms. This firm was placed in bankruptcy, which is time-consuming and has an unpredictable outcome, to some extent, for many creditors with short-term claims on the firm.

For the reasons mentioned, corporate bankruptcy and restructuring laws are not applied often in countries where banks fall under the jurisdiction of these laws. Furthermore, few countries have special insolvency laws for banks and other financial

firms.<sup>16</sup> The main exception is the United States, which has implemented bank-specific insolvency procedures through the FDIC's enactment of the Federal Deposit Insurance Corporation Improvement Act (FDICIA) in 1991. A bank reaching a capital ratio of 2 percent is put under the receivership of the FDIC. Specific rules for merging or allocating the assets of the bank exist. A number of small and medium-sized banks have been closed this way since the beginning of the sub-prime mortgage crisis. So far, the procedures have not been tested on a large bank. In addition, the procedures do not apply to investment banks.

The pre-insolvency phase is of great importance in banking because of the difficulty of evaluating when the net worth of a bank is zero in market terms. In recent years, prompt corrective action (PCA) rules, including structured early intervention at trigger points while there is equity capital left (SEIR) have been advocated. An important function of PCA rules is to allow intervention before insolvency occurs to rehabilitate or restructure a distressed bank. In the United States, legally binding PCA rules exist since FDICIA's enactment. PCA rules are only effective if they are credible by being formalized in law.

Several economists have discussed the potential contribution of bank insolvency law in enhancing market discipline in Europe, where specific bank crisis resolution procedures have not been implemented.<sup>17</sup> Without predictable rules for the allocation of losses, resolution will be delayed and, in the meantime, management and shareholders of distressed firms are likely to avoid the realization of losses in various ways.<sup>18</sup>

The European Shadow Financial Regulatory Committee (ESFRC) (1998) expressed the objective of a special insolvency law for banks in the following way:

The implementation of insolvency law for banks . . . should achieve an acceptable, low risk of runs and low risk of contagion while inefficient owners and managers exit. The contractual predictability of claims and the predictability of bankruptcy and PCA-costs should provide efficient ex ante incentives. By achiev-

16 In addition to the United States, Canada, Italy, and Norway have specific insolvency laws for banks. The existence of a law does not necessarily mean that it is successful in the sense that it achieves its objectives. If not, as in Norway, the law is typically not put to use. In Sweden, a law for public administration of distressed banks was proposed in 2000. The law has not been implemented yet.

17 See Angkinand and Wihlborg (2006), Eisenbeis and Kaufman (2008), Goldberg, Sweeney, and Wihlborg (2005), Huertas (2007), Hüpkes (2003), Krimminger (2005), Lastra and Wihlborg (2007), Llewellyn and Mayes (2003), and Schiffman (1999).

18 The European Shadow Financial Regulatory Committee (1998) and Lastra and Wihlborg (2007) discuss characteristics of special bank insolvency procedures.

ing these objectives the government's and the regulator's fear of a system crash should be alleviated. Thereby, non-insurance of groups of creditors and shareholders would be credible.

**4.5.3 Corporate governance in the financial sector** During the Swedish banking crisis in the early 1990s, there were reports that the loan officers who granted the largest volume of loans won vacation trips to Hawaii. It is obvious that granting incentives for credit volume reduces the awareness of credit risk. Adding to the incentives for volume competition in the early 1990s were widespread expectations—based on the creation of a common European financial market—that the European restructuring of the banking sector would end up with eight large pan-European universal banks before the end of the decade. Thus, banking strategies tended to focus on volume and universality to create an advantage in the restructuring process.

Similar reports of incentives encouraging volume competition exist in the current crisis. It is necessary to distinguish between the incentives of the originators of loans and the incentives of those bearing the risk, however. The volume incentives of loan brokers are obvious but one would expect that the loan originators set standards and loan evaluation procedures for the brokers. However, the ability of many sub-prime mortgage loan originators to securitize the mortgages and, thereby, to transfer the risk to the buyers of securities could have led to volume competition if prices of mortgage-backed securities did not reflect risk. In hindsight, risk premiums were too low. The question is then why the buyers of the mortgage-backed securities did not properly assess risk and require greater risk-premiums. This question relates to the role of rating agencies and quantitative risk valuation models, but also to the compensation schemes for bankers, fund managers, and other investors in the mortgage-backed securities. A number of observers including the Federal Reserve governor Randall Kroszner have argued that remuneration schemes in the financial sector rewarded short-term profits without incorporating longer-term considerations where risk considerations become more important.<sup>19</sup>

The incentives of top bank and financial firm executives must be considered as well. Top executives are responsible for the remuneration schemes for managers on different levels in the organization and for risk-management systems. In an effective corporate governance system, executive compensation schemes should align the interests of executives with the interests of shareholders. There are many reasons to suspect that corporate governance systems in the United States, as well as in many

<sup>19</sup> At AIG, managers of one unit insuring credit risk were remunerated in proportion to earnings from payments from issues of credit default swaps (CDSs). In the short term, these CDSs provided a nearly safe income stream at low cost, while the potential for losses seemed distant.

other countries, are not generally efficient in this respect. Top executives are powerful in designing remuneration schemes that favor their own interests in such a way that large losses do not have much impact on their remuneration.<sup>20</sup> In general, “huge bonuses are deposited and consumed long before the bad deals that generated them can slam investors.”<sup>21</sup> Generous exit packages for corporate executives that have been responsible for large losses can be motivated by incentives of diversified shareholders to discourage the risk-aversion of executives. This argument can be questioned in the financial industry, in particular, where risk management is the primary business activity. Remuneration of executives based on short-term earnings and equity prices in combination with generous insurance of executives against failure contribute to explaining the AIG business strategy as well as the high-risk Bear Stearns strategy of rolling over short-term commercial paper to fund investments in mortgage-backed securities.

Another consideration in the financial industry is that incentives for shareholder wealth maximization create incentives for risk shifting to deposit insurance agencies and taxpayers to the extent there is explicit or implicit insurance of creditors as discussed previously. This moral hazard problem in banking is supposed to be counteracted by means of risk-sensitive capital adequacy rules and supervision. Here, we are back to the question of whether the explicit and implicit insurance of depositors and other creditors affect risk-taking incentives.

Corporate governance systems develop in complex interaction between market incentives, law, regulation, and politics. The failures of corporate governance leading up to the current crisis could be a reflection of a corporate law generally in the sense that it enables management to extract large short-term benefits at the expense of shareholders. Conversely, corporate law may be sufficient to serve shareholders’ interests, but they may conflict with other stakeholders’ interests and societal interests. The existence of strong explicit and implicit creditor protection implies that managers of financial institutions do not have incentives to fully consider risk that can be shifted to taxpayers and deposit insurance funds as noted above. In particular, they do not have incentives to consider systemic risk arising because of contagion and market frictions as discussed above. In the first case, the remedy must be sought in general corporate law, whereas in the second case, policy incentives for implicit insurance for banks’ stakeholders should be considered.

<sup>20</sup> Often cited examples in the financial sector are Stan O’Neal and Chuck Prince, who were forced out of Merrill Lynch and Citigroup, respectively, in the face of large losses in the fall of 2007 with exit packages worth US\$ 161 million and US\$ 42 million.

<sup>21</sup> Cohan (2008).



Executive compensation schemes in the financial sector affect not only *ex ante* incentives but they may have contributed to the failure of loss allocation and, therefore, to the systemic effects of the sub-prime mortgage crisis in two ways. First, the lack of incentives to reveal losses could be associated with the incentives for short-term profits. Second, the separation of loan originators from those bearing the credit risk may have amplified the effects of short-term incentives.

Believers in the efficiency of markets argue that it is in the interest of solvent financial institutions to reveal asset values at market prices to the extent possible to distinguish themselves from the insolvent and the dubious ones. Thereby, they would be able to access markets for funding at relatively favorable terms. Similarly, the financial institutions that do not make a credible effort to reveal the quality of their assets would be considered possibly insolvent and unable to gain access to funding except at a high cost. Thus, transparency is a consequence of market forces according to this view.

Why do we not observe stronger attempts by solvent financial institutions to reveal their losses quickly and credibly to gain access to markets and reduce funding costs? One answer could be that they simply do not know. Not knowing does not mean that they cannot provide a best estimate, however. It is more likely that they are holding back because of a “collective action problem”; even the solvent institution is disinclined to reveal its losses truthfully unless others do the same. Institutions that reveal larger losses than others do risk being misunderstood and downgraded relative to others even if they are solvent. Furthermore, top management, which is remunerated based on shareholder value and earnings, may be reluctant to reveal losses and look worse than competitors in the short run. If remuneration were linked to long-term performance, management would have less to gain from delaying loss recognition and be less concerned with revealing losses even if others do not. There is little doubt that the reluctance to reveal losses has contributed to the lack of liquidity in markets for securities and derivatives. The reluctance to reveal losses as transparently as possible contributes to an adverse selection problem in securities markets since potential buyers may fear that more informed sellers try to sell the worst assets first.

The problem of liquidity cannot be blamed on incentives created by executive compensation schemes alone. Clearly, accounting rules and transparency standards implied by these rules play an important role as well. Much of the discussion of failures of corporate governance in the financial sector is, by necessity, speculative. There is clearly scope for much research to increase our understanding of governance structures in the financial sector and their effect on incentives.



**4.5.4 Uncertainty about the political process in times of crisis** Expectations of government intervention to bail out creditors and owners of financial firms affect more than just incentives for risk-taking and high leverage prior to financial crises. Once a crisis has erupted, expectations of bailouts and uncertainty about the exact nature of the bailouts can be a source of friction in the process of loss-allocation. These frictions can be amplified by attempts of different interest groups to influence the political process.

During the autumn of 2008, the Fed created a number of facilities that enabled financial institutions to obtain loans at favorable terms against increasingly weak collateral. Additionally, the U.S. Treasury announced the US\$ 700 billion Toxic Assets Relief Program (TARP) in October 2008. The original TARP proposal was quickly shot down because several auction experts considered the suggested reverse auction unworkable for heterogeneous mortgage-backed securities. There was no agreement about other methods for the valuation of toxic assets. The availability of US\$ 700 billion for crisis resolution—without political agreement on how to use it—created incentives for intense lobbying efforts. The funds could be used to recapitalize financial institutions or they could be used to help homeowners with negative equity to slow down the tide of foreclosures. Small and relatively healthy financial institutions did not want to be left out. Corporations, states, towns, and municipalities felt deserving of aid as well.

In Europe, governments developed more or less explicit schemes for aid to the financial sector. The European approach to the crisis is discussed in Section 6. There was political determination to prevent large-scale failures of financial institutions but the exact procedures were vague. Direct aid to those firms that had produced the largest losses proved to be politically unpopular.

Expectations of aid in one form or another without knowing the exact nature of the aid creates disincentives for financial firms to address problems through their own initiatives. Recognition of losses becomes delayed until the nature of the aid packages becomes known. In the current crisis, the lack of centralized clearing of credit default swaps and other over-the-counter derivatives has contributed to frictions in the allocation of losses. A relevant question to ask is whether expectations of government intervention are detracting from the organization of cooperative private initiatives.

It is impossible to know the extent to which private initiatives would be forthcoming to reduce the likelihood of contagion among financial firms and to speed up loss recognition. Credible commitments of no bailouts are not easily obtained in democ-

racies. If they were, the regulatory framework could substitute for private initiatives and focus on institutions that enable insolvent financial firms to be closed with a minimum of contagion, as discussed previously.

#### **4.6 Concluding remarks on institutional failures**

The different institutional failures described here are not independent because they interact in important ways. The lack of operational and credible insolvency procedures for financial firms stands at the center. Rule-based procedures for “structured early intervention” and the closing of banks have been implemented in the United States, but neither work effectively for banks that are “too big to fail” and to non-bank financial firms. Other countries lack effective and predictable procedures completely.

The lack of specific insolvency procedures for financial firms implies that governments are compelled to issue far-reaching guarantees to creditors and even to shareholders of financial firms. These implicit guarantees affect risk-taking incentives of financial institutions, thereby increasing the likelihood of crises and the incentives of financial institutions to resolve problems without government bailouts. The risk-taking incentives can also contribute to the existence of executive compensation schemes that favor short-term earnings and discourage consideration of risk in the longer term. Most likely, failures of a corporate governance system go deeper and depend on corporate law more generally.

Valuation and transparency issues have not been addressed in any depth despite their importance for crisis resolution. It can be argued, however, that transparency and incentives for information revelation are largely endogenous relative to the explicit and implicit protection of creditors of financial institutions, as well as to compensation schemes. Weak incentives of creditors to monitor risk-taking create weak incentives for information revelation. In times of crisis, information revelation is discouraged as long as the political process for support is uncertain and subject to lobbying efforts.

### **5. Northern European financial crises and the Swedish model for crisis resolution**

Four Nordic countries (Denmark, Finland, Norway, and Sweden) each experienced severe financial crises during a 10-year period beginning in the mid 1980s.<sup>22</sup> These crises had much in common with the current financial crisis. In each case, there was

---

<sup>22</sup> The Nordic region consists of these four countries plus Iceland.

rapid credit growth in a recently deregulated financial environment. Lending by banks and other financial institutions was used largely for investments in commercial property, fuelling big price increases. In Sweden, for example, prices on office buildings in Stockholm increased 4.2 times in real terms from 1980 to 1990 while prices for residential property doubled. When the property bubble burst, highly leveraged financial institutions in the Nordic countries suffered big losses. In Denmark, the two largest insurance companies and a number of small and medium-sized banks collapsed. When there was a run on the second-largest Danish bank, the central bank had to guarantee its deposits. In Finland, the government guaranteed all obligations incurred by banks while two of the largest banks were taken over by the government. The Finnish banking sector received capital injections from the government. In Norway, almost the whole banking system was nationalized when the three largest banks were taken over by the government and a number of smaller banks were merged after serious losses.

In the following, we focus on the Swedish approach to crisis resolution since it has received much attention during the current debate about resolving the ongoing crisis. The approach has been presented as a model to emulate by other countries. Most writers on the subject in the international press have fairly limited knowledge and sometimes misconceptions about the details of the model, however. In this section, we revisit the Swedish approach to the crisis in 1990–94 and discuss the consequences of specific aspects of the approach. We argue, “The devil is in the details.” In particular, we draw attention to issues of selection and valuation of assets transferred to a “bad bank” and to potential conflicts of interests caused by the creation and organization of the “bad bank.” These issues must be considered in any attempt to resolve a banking crisis without allowing large-scale failures of banks.

### 5.1 The “Swedish model” in brief

The Swedish crisis had its beginning in September 1990 when a number of finance companies could not refinance themselves because of falling prices on commercial real estate, in particular. The commercial banks were the important creditors of the finance companies. As a result, the credit losses in the commercial banks increased rapidly during 1991 and 1992. The credit losses amounted to about 6 percent of the loan stock each of these years.

The crisis peaked during the fall of 1992 when the Swedish government and central bank were fighting pressures on the krona. They temporarily increased the marginal interest rate for overnight borrowing to 500 percent in September before allowing the krona to float in November 1992 (Oxelheim 1996). By that time, one regional savings bank, one medium-sized private commercial bank, and one large state-owned

bank were insolvent. At the time, the Swedish market was dominated by five large commercial banks of which one was majority state-owned.

The main ingredients of the Swedish model formulated during the fall of 1992 were:

- a) A blanket guarantee of all liabilities of the commercial banks was issued in December 1992 to ease conditions for the banks' short-term financing. At the same time a "Bank Support Board" was created to consider possible applications by the banks for support.
- b) The shareholders in the privately owned medium-sized Gota Bank were not protected when the government took over ownership of the bank for the price of one krona (25 cents) in the autumn of 1992. The government recapitalized the bank soon thereafter and the state became the owner. No large bank was nationalized, however.
- c) The relatively large majority state-owned Nordbanken was divided into a "good bank" and a "bad bank" during the fall of 1992. The "bad bank," Securum, became a separate company on 1 January 1993 with the objective of unwinding the non-performing assets of Nordbanken. Securum as well as Nordbanken received capital from the state and the sound part of Nordbanken became fully state-owned. A similar arrangement was made for the smaller Gota Bank, then also state-owned. The two state-owned banks were later merged, as were the two "bad banks."

Nordbanken and the dominating large, privately owned banks recovered quickly in 1993 once the blanket guarantee was issued and economic conditions improved after the krona was allowed to float in November 1992. The krona depreciated substantially and interest rates fell. Nordbanken would certainly not have survived without the recapitalization. It is unclear whether all the privately owned large banks would have survived without the blanket guarantee of their liabilities. Macey (1999) argues that owners and creditors of banks were unnecessarily strongly protected in the sense that a systemic crisis could have been avoided with less drastic measures.

The general description of the different measures listed above is not sufficient to evaluate the costs and benefits of the approach. In particular, the conditions associated with the separation of Nordbanken into a "good" and a "bad" bank affected the outcome, as did the blanket guarantee of banks' creditors. Next, we discuss how the costs of the mentioned measures depend on coverage of protection, valuation, and selection of assets transferred to a "bad bank." We also include a comparison of the objectives of "bad banks" and regular banks.

## 5.2 The blanket guarantee, shareholders' losses, and risk-taking

There is little doubt that the Swedish banks before the crisis were considered protected in the sense that most creditors were deemed safe although there was no explicit deposit insurance system. The banks had been controlled tightly until the mid 1980s and were treated like public utilities. As a result, the banks preferred cheap loan financing and capital was kept low. Under these conditions, the competition among banks leaned toward volume competition, since the cost of funding depended little on risk-taking. There are numerous anecdotes from the period before the crisis about incentives. Credit officers focusing on volume of loans to win trips to exotic locations is one example. Thus, the so-called moral hazard effects of explicit and implicit protection of banks' creditors are likely to have played a role in Swedish banks before the crisis.

The blanket guarantee that was issued in 1992 confirmed the protection of creditors even beyond expectations. The guarantee is likely to have created lasting expectations of creditor protection. The formal abolishment of the guarantee after the crisis was not likely to have affected expectations substantially, since a guarantee can be re-introduced easily as soon as it is deemed necessary.

The guarantee also protected shareholders indirectly. The banks' costs of funding were lowered to the benefit of shareholders. As a result, share prices of the banks increased immediately and continued to rise dramatically during 1993.

In the current crisis, we can observe a confirmation of these effects. In Sweden and other countries, banks have been "surprised" holding insufficient capital, and new expanded guarantees of creditors have been issued.

In the case of the privately owned, medium-sized Gota Bank, shareholders were not protected. After failing to sell the bank as a whole, the state took over the bank for one krona. The government wanted to demonstrate that shareholders would not be protected. However, the policy toward Gota Bank's owners was contradicted by the effect of the blanket guarantee on shareholders of the other private banks. One interpretation of the differential treatment of the shareholders in Gota Bank is that this bank was not big enough for stakeholders to receive protection beyond the formal guarantee of creditors.

## 5.3 Asset selection, valuation, and competitive effects of a "bad bank"

There are two important issues to settle when forming a "bad bank" to manage and unwind the non-performing assets of a bank: the selection of assets that will be transferred to the "bad bank" and the valuation of these assets. These issues are

rarely discussed in connection with “Swedish model” but they are critical for the effects of creating a “bad bank.”

In the Swedish case, the implementation of the “bad bank” model was limited to the state-owned Nordbanken (including Gota Bank). This created potentially substantial effects on the competitiveness of Nordbanken relative to the privately owned banks. The magnitude of these effects would depend on the valuation of the assets Nordbanken “sold” to the “bad bank,” Securum.

A second aspect of the selection issue was that Nordbanken was given free reign to choose criteria for non-performing loans (NPLs) that were transferred to Securum. The new management of Nordbanken took the opportunity to think through the bank’s future strategy and to give the remaining sound bank a good start. The management kept only loans that would perform with substantial certainty and a large number of them were transferred to Securum. Thus, a number of small and medium-sized businesses found themselves in the hands of Securum although they were current with their interest and principal payments. Nordbanken was able to reduce potential costs associated with bankruptcies as well as costs of rescheduling and forgiving loans to firms facing short-run distress. Competing banks did not have the same opportunities. The consequences for businesses of Nordbanken’s ability to choose which loans to keep are discussed subsequently.

The valuation of the assets transferred from Nordbanken to Securum also affected competitive conditions. One model for valuation is that the bank receives a price representing the market value of an asset, if there is a market, or the value of expected future cash flows generated by an asset. In this case, the bank is primarily relieved of the risk associated with transferred assets while expected losses remain the responsibility of the bank.<sup>23</sup>

A second model for valuation is that the transferred assets are valued above economic value to recapitalize the bank. In this case, the bank is compensated for losses that have already occurred but have not been realized. In the Swedish case, the assets transferred from Nordbanken to Securum were given a value substantially above their economic value. This overvaluation contributed to the fresh start of the new, leaner Nordbanken while competitors were struggling to restore their capital base in the face of substantial credit losses.

---

<sup>23</sup> We neglect here that liquidity can drive a wedge between the market value and the present value of cash flows. This issue was not important at the time of the Swedish crisis.

In the Nordbanken-Securum case, loans with a book value of SKK 67 billion were transferred to the “bad bank.” The official price was set at SKK 50 billion, of which SKK 23 billion were given to Securum as equity capital and SKK 27 billion were borrowed from Nordbanken and backed by a state guarantee.<sup>24</sup> The large capital infusion reflected large expected losses for Securum in the process of unwinding the assets. At the same time, Nordbanken was given an SKK 10 billion capital infusion. This amount should also be viewed as a part of the price Nordbanken received. Thus, neglecting capital infusions into Nordbanken prior to its division, Nordbanken received 60 billion for assets booked at 67 billion. At the end of 1993, this value had been written down to 33.3 billion.<sup>25</sup> If we assume that these losses were expected at the end of 1992, the excess valuation of the assets transferred to the “bad bank” amounted to 30–35 billion.<sup>26</sup> Without this large overvaluation, Nordbanken clearly would not have survived.

An evaluation of the wisdom of the Swedish model must consider what would have happened if Nordbanken had been declared bankrupt. The bank was probably not large enough to be considered a systemic threat and it can be argued that the other large commercial banks could have recovered faster without competition from a bank relieved of its NPLs. It should be noted, however, that there were no formal procedures for handling the bankruptcy of a bank except the regular, time-consuming procedures for corporations. There was no attention to such procedures until after the crisis.<sup>27</sup>

#### 5.4 Conflicts of interest and unnecessary bankruptcies

The design of the Swedish model raises two types of conflicts of interest to consider. The first conflict arose because of Nordbanken’s ability to choose which loans to keep and which loans to transfer to Securum. The conflict amounted to an issue of equal treatment of borrowers. The second conflict is of a more ethical nature and relates to managers’ ability to use information acquired on the job for personal gain.

We argued previously that Nordbanken’s right to choose criteria for NPLs may have distorted competition, but it is likely that it also led to a large number of unnecessary bankruptcies and, thereby, large losses for individual business owners. The management of Nordbanken took the opportunity to transfer loans that were up to

<sup>24</sup> See Karlsson (2002).

<sup>25</sup> See Jennergren and Näslund (1998).

<sup>26</sup> Considering that the United States is more than 30 times larger than Sweden, the magnified “U.S. equivalent” overvaluation of Nordbanken’s non-performing assets was approximately US\$ 150 billion.

<sup>27</sup> A government committee proposed specific procedures for bank bankruptcies in 2000 but no action was taken. The current crisis has revived the proposal.



date with payments but had some likelihood of becoming distressed or costly for the bank if they were to be rescheduled or partly forgiven. If these loans had been transferred at “fair” prices, the bank would not have gained by transferring them to the “bad bank.” If they had stayed within Nordbanken, some of the borrowers would have continued to amortize their loans while others would have run into difficulties with payments but not to such a degree that the bank would have gained by declaring them bankrupt. These firms would have activities that were sustainable in the long term but survival would have required some debt forgiveness. In this situation, it would have been advantageous for Nordbanken to help the firms survive by accepting some loan forgiveness. By selling loans of this type to Securum at excess prices, the bank was able to avoid finding itself in a situation where it would be compelled to reschedule or forgive loans.

The task of contributing to a reconstruction of a firm with excess debt can be considered part of an implicit contract between a bank and a borrower. If Nordbanken had reneged on this implicit contract, it would not have had any consequences if borrowers had the same opportunities for debt restructuring with Securum. Securum was not a bank, however. The firm with its existing owner would have had to obtain financing from another bank to avoid bankruptcy. The problem the firm faced was that it had been classified as non-performing by Nordbanken when the loans were transferred to Securum.

The main task of Securum was to unwind its assets over time and to recover as much value as possible. The “bad bank” was not likely to play the role of a “house bank,” however. The industrial expertise may have been lacking and even if it existed, it would have had to convince other banks that some of its assets were performing or potential buyers that businesses were viable at reduced debt ratios in spite of having been abandoned by Nordbanken. It is not surprising that the firms with loans that had been transferred to Securum had difficulties finding new bankers. Nordbanken was best informed about the firms in terms of hard and soft information and it had classified the loans as non-performing. Bergström, Englund, and Thorell (2003), who conducted a generally positive study of Securum, noted that a relatively large share of Securum clients were declared bankrupt in comparison with financially comparable clients of other banks.

A Swedish study concluded that the frequency of bankruptcies was unnecessarily high in Sweden at the time as a result of an unwillingness of banks to supply bridge financing or debt relief to firms with viable activities.<sup>28</sup> The study may be flawed be-

<sup>28</sup> The study was conducted by the Swedish Employers Federation based on interviews of auditors and bankruptcy lawyers.



cause it was conducted with some stakeholder interest but its conclusions are supported by the large number of court cases after the crisis involving Nordbanken and Securum in particular. In these cases, Nordbanken was sued for renegeing on credit promises. Business owners were not successful in court, however, because the contracts they referred to were unwritten.

The second type of conflict of interest that has been linked to Securum arose as a result of the ability of management and employees to use information about assets acquired on the job for personal gain after leaving their jobs.<sup>29</sup>

### 5.5 The devil is the details

A “bad bank” of the type Securum represents can contribute to a banking system’s recovery in a banking crisis if there are widespread expectations that property or other asset prices will recover after some years whereas rapid assets sales will cause large losses for the banks. A separate state-owned firm can unwind the assets at a slower pace than a bank without facing liquidity constraints and thereby recover asset values more easily than the bank could.

In the current crisis, many banks hold assets they cannot sell at prices that they consider reflections of economic values. The low liquidity, meaning that there are few potential buyers, depends largely on uncertainty about asset values and potential buyers’ suspicion that sellers are trying to sell the worst assets first. Here, the values of the banks become uncertain as well. In this case, the state can enter as a buyer and remove the uncertain assets from the banks’ balance sheets. The devil lies in the details, however. The valuation of the assets determines the extent to which taxpayers take over losses that contractually should be taken by shareholders and uninsured creditors of the banks. In case assets are overvalued, the greatest subsidy tends to go the shareholders and the creditors of the banks that are responsible for the largest losses. Selectivity in the purchase of assets from different banks contributes further to competitive distortions.

In the Swedish case, assets transferred to a “bad bank” were valued far above economic values at the time and only the state-owned commercial bank received the implied subsidy. The non-state owned banks dominating the market remained solvent and did not receive similar subsidies, but their cost of funding was lowered due to the blanket guarantee of liabilities. Such guarantees can be costly, however, since incentives of banks’ creditors to consider risk are weakened. Conflicts of interest relative to clients of banks arise if the banks are given the opportunity to

---

<sup>29</sup> See Björk (2008).

determine whether assets are “non-performing” themselves. The Swedish case also indicates that managers and employees of the “bad bank” may obtain inside information that can be used for personal gain unless rules of ethics with respect to the use of such information are introduced.

## **6. European proposals for crisis resolution and financial sector reform**

Differences between Europe and the United States in their approaches to the crisis can be explained by the greater decentralization of fiscal and regulatory authority in Europe. Fiscal policy, as well as financial sector regulation and supervision, is a national responsibility in Europe, whereas monetary policy within the euro area is centralized to the European Central Bank (ECB). The UK, Denmark, Sweden, and Norway, as well as most EU members in Central and Eastern Europe, have independent currencies and central banks, however. Even within the euro area there is ambiguity with respect to the “lender of last resort” role of the ECB relative to the national central banks that participate in the ECB.

The less aggressive approach of the ECB relative to the Fed in the United States in the current crisis can be explained by the lack of legal authority of the ECB to initiate lending programs to banks without sound collateral. The ECB is not in a position to risk taxpayers’ money in all member states the way the Fed has by opening facilities for lending against weak collateral to a variety of financial institutions. Most crisis management authority lies on the national level where fiscal resources can be committed. However, the European Commission and the ECB can issue recommendations and act as agents for coordination.

In addition, stimulus programs must be decided on the national level since the EU has no fiscal policy authority. There is no consensus with respect to the required magnitude of stimulus packages and the extent of government intervention to rescue ailing industries. In general, there is currently greater skepticism in Europe than in the United States with respect to large deficits as a way out of the crisis. Nevertheless, a European Economic Recovery Plan (EERP) was agreed upon in the EU in December 2008. This plan committed governments to deficit financed stimulus packages amounting to € 400 billion over 2009 and 2010 corresponding to 3.3 percent of GDP. Aid to specific industries is constrained by EU rules with respect to state aid. Protectionist tendencies in various countries can also be reigned in to an extent by EU rules with respect to free and fair trade.

Crisis management with respect to the financial sector has also been discussed on the EU level, although decision-making powers remain on the national level. Coordination

minated action was agreed upon on the EU level during the fall 2008. The policy measures included recapitalization of banks and guarantees to prevent “melt-downs” of large banks and to restore liquidity in financial markets. The European Commission presented a communication to member states to guide them in designing measures to deal with toxic assets in such a way that state aid rules within the EU would not be violated. The alternative measures presented included state purchases, state guarantees, and swapping or hybrid arrangements. Banks holding toxic assets should disclose them to national supervisors.

Banks’ liabilities were also guaranteed beyond the deposit insurance schemes existing before the crisis.<sup>30</sup> The extent of these guarantees varies from country to country depending on the financial health of the banking system in each country. It is probably fair to say that banks’ liabilities have been almost completely guaranteed in most EU countries even if blanket guarantees have not been implemented.

The European Commission has been active in developing principles for a new financial regulatory framework. A set of principles was developed before the G20 London Summit on 2 April 2009. In a communication, the Commission “invites the European Council” to take a number of steps with respect to long-term reform of financial sector regulation and supervision with the objective of creating “responsible and reliable financial markets for the future.”<sup>31</sup> The Commission proposes a new reform program including:

- (i) the creation of a European body to oversee the stability of the financial system as a whole;
- (ii) the development of an architecture of a European financial supervision system;
- (iii) regulatory and supervisory standards for hedge funds, private equity and other systemically important market players;
- (iv) the development of tools for early intervention;
- (v) initiatives to increase transparency with respect to complex financial products;
- (vi) increased quantity and quality of capital for trading book activities;
- (vii) actions to establish a more consistent set of supervisory rules;
- (viii) marketing safeguards for retail investment products;
- (ix) the strengthening of measures to protect bank depositors, investors, and insurance policy holders;

---

<sup>30</sup> The co-insurance in the pre-crisis UK deposit insurance system has been abolished. The run on the Northern Rock bank in the UK was blamed on co-insurance.

<sup>31</sup> Commission of the European Communities (2009).

- (x) measures on responsible lending;
- (xi) the improvement of risk management through alignment of pay incentives with sustainable performance;
- (xii) the strengthening of recommendations on remuneration of directors; and
- (xiii) the implementation of measures to ensure sanctions are more effective.

This list is impressive in its scope but it obviously is a list of intentions based on experiences of the current crisis. The list demonstrates the Commission's intentions to push far-reaching reform.

When comparing this list to the discussion of institutional failures in Section 4, the absence of attention to procedures for closing or otherwise dealing with insolvent financial institutions is glaring. Item (iv), the development of tools for early intervention, is the closest the Commission comes to insolvency procedures. There is also no mention of problems caused by banks being "too big to fail" and measures that could enhance the role of market discipline. On the contrary, in item (ix) it seems that the Commission wants to expand the scope of explicit protection of depositors and investors.

The most interesting aspect of the Commission's list is its attention to risk management, pay incentives, and remuneration of directors in items (xi) and (xii). Failures of corporate governance systems to produce effective incentive structures in the financial sector were discussed in Section 4. Remuneration policies in the financial sector have received much attention in the EU recently and the Committee of European Banking Supervisors (2009) has developed "high level principles for remuneration policies" in the financial sector. The guidelines developed by the Committee are intended for both financial firms and supervisors. In other words, the intention is to bring remuneration policies under the scope of supervision.

The principles developed for remuneration refer to objectives, internal and external transparency, decision-making with respect to remuneration as well as rules that are more specific for measurement of performance and form of remuneration. The Committee states explicitly that remuneration should not encourage excessive risk taking, measurement of performance should include adjustment for risks and cost of capital, and bonus payments should not be upfront cash payments but contain a flexible deferred component that considers a risk-horizon of performance.

These principles provide the foundation for far-reaching intervention in remuneration policies in the financial sector. The danger with such intervention is that incentive effects of remuneration policies are not easily understood. Lacking market discipline on risk taking and indirectly on incentive structures, there are reasons to be

skeptical about supervisors' ability to influence incentives effectively as well as efficiently.

## **7. Implications for economic policy to enhance financial stability in emerging economies**

We turn finally to policy implications from an emerging market perspective. Three types of economic policy in a financial crisis have been discussed. First, legal, regulatory, and political institutions can contribute to reducing the likelihood that shocks to the system cause financial crises. Second, crisis resolution procedures are required once a large part of the financial system is distressed. Third, macroeconomic policy including exchange rate arrangements can be conducted to minimize the impact of shocks and to contribute to an economic recovery. The policy implications for a particular country would depend on whether it has its own financial crisis or whether foreign interest rates and demand conditions have affected domestic economic activity.

It has been argued that financial systemic effects of an event disrupting the financial sector can be minimized by the existence of appropriate contractual, legal, regulatory, and political institutions. These institutions would reduce frictions in the allocation of losses caused, for example, by the bursting of a real estate bubble by reducing incentives to delay the allocation of losses in accordance with contractual arrangements. Such delays contribute to contagion and to the reduced supply of credit from financial firms with uncertain survivability and from investors in financial markets. The institutions should also contribute to minimizing the incentives in financial firms to shift risk to deposit insurance funds and taxpayers.

The institutional failures emphasized here are the implicit protection of creditors and sometimes even shareholders of financial firms; lack of credible, formal insolvency procedures for financial institutions and corporate governance systems in the financial sector; and the failure of the political process to determine principles for allocation of losses rapidly and credibly. At the center stands the lack of operational and credible insolvency procedures for financial firms. Rule-based procedures for "structured early intervention" and the closing of banks have been implemented in the United States but they do not apply effectively to banks that are "too big to fail" and to non-bank financial firms. Other countries lack effective and predictable procedures completely.

The lack of specific insolvency procedures for financial firms implies that governments are compelled to issue far-reaching guarantees to creditors and even to share-

holders of financial firms once financial institutions are weak and insolvency or the near-insolvency of banks and other financial firms threaten the functioning of the financial system. Policymakers face the problem of minimizing the effects of a possible credit crunch caused by banks' need to build up capital. The "bad bank" model used in Sweden in the early 1990s illustrated the difficulties and potential costs of conducting such policies. Competitive effects of the valuation of the "bad assets" must be considered as well as the selection of assets transferred to the "bad bank" according to rules that minimize potential conflicts of interest.

The extent to which regulation itself contributes to systemic effects in a financial crisis has not been addressed directly. However, the "too big to fail" argument for implicit protection of financial firms and their stakeholders can be considered a result of a regulatory failure. The BCAF does not consider the potential systemic contribution of a particular firm's failure. It actually favors large financial conglomerates. The ESFRC (2009) recommended that systemically important financial firms should be required to keep a relatively high capital ratio.

In the lack of effective institutions that may prevent or reduce the likelihood of systemic consequences of a large shock in financial markets, policy must focus on creating a stable macroeconomic environment without strong incentives to build up leverage. Macroeconomic policy can also contribute to making the impact of de-leveraging as rapid and painless as possible. The design of such policy is highly controversial and beyond the scope of this paper. Frictions in labor and product markets would be important for evaluating alternative policy responses.

Turning to the current financial crisis and implications for emerging market economies without "home-grown" financial crises, there is little doubt that many countries are or will be seriously affected by a de-leveraging process in the United States and Europe. The experiences from the Great Depression and from the Japanese crisis suggest that de-leveraging may stretch over a prolonged period. The experience from the Nordic crises is more optimistic. The recoveries in Finland, Norway, and Sweden were supported by large-scale exchange rate depreciations in 1991–92. The introduction of floating exchange rate regimes aided recovery by making it possible to lower the interest rate and stimulate the demand for exports. This possibility of using exchange rate depreciations to exit from a financial crisis seems, however, to be an option that is limited to small open economies.

A prolonged period of suppressed demand in the advanced industrial economies implies a radical change in the economic situation of the emerging economies. Economic growth in the emerging economies has, during the last decade, been sup-

ported by the strong growth in private consumption and investment, which has taken place in the United States, the UK, and a number of continental European countries.

A weakening of demand in the advanced industrial economies will affect economic growth in the emerging economies through several channels. First, a reduction in private consumption and investments in the advanced industrial economies will spill over into lower import demand. As a second channel, a lower demand will diminish the wage pressures in the advanced industrial countries and will thus make enterprises from these countries more competitive. The weaker cost pressures in home markets will make firms from the advanced industrial economies less inclined to shift production to low-cost locations. We may thus expect a reduction in direct investments to the emerging economies. Finally, as a third channel, a reduction in demand will increase competition in goods markets, implying that producers from emerging economies will face a harder time when they try to expand their production through exports. Enterprises in the advanced industrial countries will try to recapture home markets, thus driving out competitors from the emerging economies.

The consequences of increased risk-premiums in markets for debt instruments have hit the Asian economies through channels familiar from previous crises. In particular, there has been a capital outflow as investors have withdrawn to countries that are considered safe heavens, in particular the United States. The credit spread between securities issued in emerging economies and securities issued by issuers in the advanced industrial countries has widened. During the stock market crash in October 2008, stock prices in the Asian countries showed a bigger decline than in the advanced industrial economies. Due to capital outflows, the currencies of several emerging economies have come under pressure.

Another consideration from an emerging market point of view is that the economic crisis will increase pressures on policymakers in the advanced industrial economies to pursue protectionist policies. During previous economic downturns, national policymakers have resisted such protectionist pressures. However, the present crisis may turn out to be more prolonged than previous crises and the effect of the current crisis on broad segments of the population is likely to increase political pressures for protectionism.

On a positive note, pressures may develop within the emerging economies for the introduction of floating exchange rate systems. Until now, exchange rate policies, which have involved varying degrees of exchange rate fixity vis-à-vis the U.S. dollar, have worked to the advantage of the emerging economies. Thus, the fixed ex-



change rate has made it possible to take full advantage of the strong import demand from the United States and, at the same time, it has improved financing conditions through easier access to the international capital markets. The United States has similarly seen an advantage in the fixed exchange rate policies because this has worked to keep down the real interest rate by facilitating capital imports from the emerging economies. However, in the current situation, a floating exchange rate will allow the emerging economies to pursue more expansive economic policies, thus bolstering production in the face of lower demand from the advanced industrial countries. A floating exchange rate system will further make it possible for emerging economies to exploit the savings glut for their own advantage, making it possible to maintain a low interest rate, which will benefit industrial development.

## References

- Angkinand, A., and C. Wihlborg. 2006. Bank Insolvency Procedures as Foundation for Market Discipline. In *Cross-border Banking, Proceedings from Federal Reserve Bank of Chicago-The World Bank Conference*, edited by G. Caprio, D. Evanoff, and G. Kaufman, pp. 423–446. Singapore: World Scientific.
- . 2008. Deposit Insurance, Risk-Taking and Banking Crises: Is There a Risk-Minimizing Level of Deposit Insurance Coverage? Working Paper No. 5, Social Science Research Network, Financial Economics.
- Bagehot, Walter. 1873 [2007]. *Lombard Street*. London: John Murray. In *The Lender of Last Resort*, edited by F. H. Capie and G. E. Wood, pp. 85–125. London: Routledge.
- Bank for International Settlements (BIS). 2008. *78th Annual Report*. Basel: Bank for International Settlements.
- Benink, Harald, and Clas Wihlborg. 2002. The New Basel Capital Accord: Making It Effective with Stronger Market Discipline. *European Financial Management* 8 (1):103–115.
- Bergström, Clas, Peter Englund, and Per Thorell. 2003. *Securum and the Way Out of the Swedish Banking Crisis*. Stockholm: SNS—Center for Business and Policy Studies.
- Bernanke, Ben S., and Mark Gertler. 1999. Monetary Policy and Asset Price Volatility. *Federal Reserve Bank of Kansas City Economic Review* 84 (4):17–51.
- Bernanke, Ben S., Mark Gertler, and Simon Gilchrist. 1996. The Financial Accelerator and the Flight to Quality. *Review of Economics and Statistics* 78 (1):1–15.
- Björk, Hans-Göran. 2008. Intressekonflikter Och Banksekretess [Conflicts of Interest and Bank Secrecy]. *Finans och Kapitalmarknadsdebatt* 2 (1):23–30.
- Blundall-Wignall, Adrian. 2008. The Sub-prime Crisis: Size, Deleveraging and Some Policy Options. *Financial Market Trends* 1 (1):29–53.
- Borio, Claudio. 2006. Monetary and Financial Stability. Here to Stay? *Journal of Banking & Finance* 30 (12):3407–3414.
- Borio, Claudio, William English, and Andrew Filardo. 2004. A Tale of Two Perspectives: Old or



New Challenges for Monetary Policy? BIS Papers No. 19. Basel: Bank for International Settlements.

Breuer, Janice Boucher. 2004. An Exegesis on Currency and Banking Crises. *Journal of Economic Surveys* 18 (3):293–320.

Brook, Yaron. 2008. The Government Did It. *Forbes* 18 July 2008.

Bruner, Robert F., and Sean D. Carr. 2007. *The Panic of 1907*. Hoboken, NJ: John Wiley & Sons.

Cohan, William D. 2008. Why Wall Street Has to Alter Its Financial Incentives. *Financial Times* 17 March 2008.

———. 2009. *House of Cards: A Tale of Hubris and Wretched Excess on Wall Street*. New York: Doubleday.

Commission of the European Communities. 2009. *Communication for the Spring European Council. Driving European Recovery*. COM 114 (4 March).

Committee of European Banking Supervisors. 2009. *Draft High Level Principles of Remuneration Policies*.

Davis, E. Phillip, and Haibin Zhu. 2005. Bank Lending and Commercial Property Cycles: Some Cross-Country Evidence Bank. BIS Working Papers No. 150. Basel: Bank for International Settlements.

Eichengreen, Barry, and Ricardo Hausmann. 1999. Exchange Rates and Financial Fragility. NBER Working Paper No. 7418. Washington, DC: National Bureau of Economic Research.

Eisenbeis, Robert A., and George G. Kaufman. 2008. Cross-Border Banking and Financial Stability in the EU. *Journal of Financial Stability* 4 (3):168–204.

European Shadow Financial Regulatory Committee. 1998. Resolving Problem Banks in Europe. Statement No 1.

———. 2009. The Financial Crisis and the Future of Financial Regulation.

Fisher, Irving. 1933. The Debt-Inflation Theory of Great Depressions. *Econometrica* 1 (4):337–357.

Friedman, Milton, and Anna J. Schwartz. 1963. Money and Business Cycles. *Review of Economics and Statistics* 45 (1):32–64.

Furman, Jason, and Joseph E. Stiglitz. 1998. Economic Crises: Evidence and Insights from East Asia. *Brookings Papers on Economic Activity* 2:1–135.

Goldberg, Lawrence, Richard J. Sweeney, and Clas Wihlborg. 2005. Can Nordea Show Europe the way? *The Financial Regulator* 10 (2):69–77.

Huertas, Thomas F. 2007. Dealing with Distress in Financial Conglomerates. In *Prompt Corrective Action and Cross-border Supervisory Issues in Europe*, edited by Harald Benink, Charles Goodhart, and Rosa Lastra, pp. 114–137. London: London School of Economics, Financial Markets Group, Special Papers No. 171.

Hüpkens, Eva. 2005. Insolvency: Why a Special Regime for Banks. In *Current Developments in Monetary and Financial Law* 3:471–513. Washington, DC: International Monetary Fund.

- Inaba, Nobuo. 2005. Planning for Efficient Resolution. In *Systemic Financial Crises: Resolving Large Bank Insolvencies*, edited by Douglas D. Evanoff and George G. Kaufman, pp. 407–413. Hackensack, NJ: World Scientific.
- International Monetary Fund. 2008. *Global Financial Stability Report*. Washington, DC: International Monetary Fund.
- Jennergren, Peter, and Bertil Näslund. 1998. Efter bankkrisen; Vad blev notan för skattebetalarna? [After the Banking Crisis: What Bill for the Taxpayers?]. *Ekonomisk Debatt* 26 (1):69–76
- Karlsson, Catrin. 2002. *Nordbanken och den svenska bankkrisen ur ett konkurrensrättsligt perspektiv* [The Northern Bank and the Swedish Banking Crisis Seen from the Perspective of Competition Law]. Center for Business and Policy Studies, Occasional Paper No. 90. Stockholm: SNS—Center for Business and Policy Studies.
- Keynes, John Maynard. 1936 [1973]. *The General Theory of Employment, Interest and Money*. London: The Macmillan Press.
- Kindleberger, Charles P. 1989. *Manias, Panics, and Crashes*. Basingstoke, UK: Macmillan Press.
- Kiyotaki, Nobuhiro, and John Moore. 1997. Credit Cycles. *Journal of Political Economy* 105 (2):211–248.
- Krimminger, Michael. 2005. Deposit Insurance and Bank Insolvency in a Changing World: Synergies and Challenges. In *Current Developments in Monetary and Financial Law* 4:727–756. Washington, DC: International Monetary Fund.
- La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny. 1998. Law and Finance. *Journal of Political Economy* 106:1113–1155.
- Lastra, Rosa. 2006. *Legal Foundations of International Monetary Stability*. Oxford: Oxford University Press.
- Lastra, Rosa, and Clas Wihlborg. 2007. Law and Economics of Crisis Resolution in Cross-border Banking. In *Prompt Corrective Action and Cross-border Supervisory Issues in Europe*, edited by Harald Benink, Charles Goodhart, and Rosa Lastra, pp. 90–112. Financial Markets Group Special Paper No. 171. London: London School of Economics.
- Llewellyn, David T., and David G. Mayes. 2003. The Role of Market Discipline in Handling Problem Banks. Bank of Finland Discussion Papers No. 21. Helsinki: Bank of Finland.
- Macey, Jonathan R. 1999. Are Bad Banks the Solution to a Banking Crisis? Occasional Paper No. 82. Stockholm: SNS—Center for Business and Policy Studies.
- Minsky, Hyman P. 1964. Longer Waves in Financial Relations: Financial Factors in the More Severe Depressions. *American Economic Review* 53 (1):324–335.
- Mishkin, Frederic S. 1991. Asymmetric Information and Financial Crises: A Historical Perspective. In *Financial Markets and Financial Crises*, edited by Robert G. Hubbard, pp. 69–108. Chicago: University of Chicago Press.
- . 1997. The Causes and Propagation of Financial Instability: Lessons for Policymakers. In *Maintaining Financial Stability in a Global Economy*. In *Proceedings of a Symposium Sponsored by the Federal Reserve Bank of Kansas City*, Jackson Hole, WY, 28–30 August, pp. 55–96.

Oxelheim, Lars. 1996. *Financial Markets in Transition: Globalization, Investment and Economic Growth*. London: Routledge and International Thomson Press.

Schiffman, Henry N. 1999. Legal Measures to Manage Bank Insolvency. In *Bank Failures and Bank Insolvency Law in Economies in Transition*, edited by Rosa Lastra and Henry N. Schiffman, pp. 1–29. The Hague: Kluwer Law International.

Sprague, Irvine H. 1986 [2000]. *Bailout: An Insider's Account of Bank Failures and Rescues*. Washington, DC: Beard Books.

von Peter, Goetz. 2004. Asset Prices and Banking Distress: A Macroeconomic Approach. BIS Working Papers No. 167. Basel: Bank for International Settlements.

Wihlborg, Clas. 2009. Can Market Discipline Be Restored; Lessons from the Sub-prime Crisis. In *Towards a New Framework for Financial Stability*, edited by David Mayes, Robert Pringle, and Michael Taylor, pp. 365–376. London: Central Banking Publications.