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# When You've Seen One Financial Crisis...

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# When You've Seen One Financial Crisis...\*

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## **Résumé / Abstract**

Les crises des marchés des capitaux peuvent différer, mais les crises bancaires graves partagent en général de nombreuses caractéristiques. La crise la plus récente ressemble à de nombreux égards à la crise américaine de l'épargne et du crédit (Savings and Loans) des années 80 et du début des années 90, ainsi qu'à la crise LTCM en 1998. De façon plus générale, les crises bancaires sont souvent associées aux effondrements du marché immobilier. Pour réduire efficacement le risque de crises futures, il faut réduire l'ampleur potentielle des effondrements du marché immobilier, diminuer la vulnérabilité du secteur bancaire aux pertes du marché immobilier, ou les deux.

**Mots clés :** crises financières, crises bancaires, marché immobilier, réglementation financière

*Financial market crises may differ, but severe banking crises typically share many common features. The most recent crisis shares many features with the US Savings and Loan crisis of the 1980s and early 90s as well as some features of the LTCM crisis of 1998. More generally, banking crises are commonly associated with real estate market collapses. Effectively reducing the risk of future crisis requires some combination of reducing the potential size of real estate market collapses and the banking sector's exposure to real estate losses.*

**Keywords:** *Financial Crisis, banking crisis, bubbles, real estate, financial regulation, regulatory reform*

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***“Once you’ve seen one financial market crisis...you’ve seen one financial market crisis.”***

Attributed to Federal Reserve Board Governor Kevin Warsh by former US Treasury Assistant Secretary for Economic Policy Phillip Swagel in *The Financial Crisis: an Inside View*, March 2009, p. 4

## Introduction

Perhaps the worst moment in the recent financial crisis came on the night of Sept. 18<sup>th</sup> 2008, when the Chairman of the US Federal Reserve Board Ben Bernanke and the US Treasury Secretary Hank Paulson met with US House and Senate leaders in the Speaker of the House of Representative’s office. Chris Dodd, the Chairman of the Senate Banking Committee recalled the meeting this way.

*It's the economic equivalent of 9/11 in my view, having been here for both events, ... sitting in that room with Hank Paulson saying to us, in very measured tones, no hyperbole, no excessive adjectives, that unless you act, the financial system of this country and the world will melt down in a matter of days. There was literally a pause in that room where the oxygen left.<sup>2</sup>*

About thirty hours later, the Treasury Secretary submitted a four page request to congress for \$700 billion to buy troubled financial assets. Congress, facing elections in less than two months, quickly agreed.

Much has been written about the events of this financial crisis, its sources and the immediate choices facing policymakers.<sup>3</sup> This lecture focuses instead on the problem of preventing similar crises in future. The question is a timely one as there is an active public debate underway on the type of financial and other reforms that need to be undertaken, both in the US and elsewhere. This lecture surveys what we know about preventing financial crises and mitigating their effects, and how some of this relates to the current debates about financial reforms.

The next section provides motivation by noting some of the costs of the crisis thus far. It also acknowledges that while not all financial crises are to be avoided, systemic banking crises (popularly known as “banking panics”) are the highest priority for public policy.

The section thereafter looks at the extent to which crises are predictable and whether they follow common patterns. Many have claimed that the financial markets in 2008 were hit by “Black Swans”; severe events that were so unlikely as to be impossible to prepare for.<sup>4</sup> Others (as in the opening quotation from David Warsh) argue that every financial crisis is a unique event that provides little guidance for how to prepare for the future. This lecture instead notes evidence that the risk of a crisis

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<sup>2</sup> Senator Chris Dodd, interviewed for the documentary “Inside the Meltdown.” Interview transcript at <http://www.pbs.org/wgbh/pages/frontline/meltdown/interviews/dodd.html>. He does not literally mean “literally”.

<sup>3</sup> Of particular note are Brunnermeier (2009), Gorton (2008), Mehrling (2009) and Swagel (2009).

<sup>4</sup> The term “Black Swan” comes from the notion that all swans are white, so that the odds of ever seeing a black one are thought to be effectively zero. It is used without any apparent sense of irony at the fact that Black Swans (*Cygnus atratus*) are native to southern Australia and relatively common there.

was correctly understood well in advance and that it bears a strong resemblance to previous banking crises.

The penultimate section notes the similarity between some recent proposals for financial reform and those that have been suggested in response to past financial crises. It also calls for greater attention on the role of real estate bubbles in major banking crises, arguing that financial reforms need to reduce the size and importance of real estate bubbles in order to reduce the risk of systemic banking crises. The final section summarizes the conclusions.

## The Crisis of 2008

The financial market turmoil that became widespread in late 2008 has been costly. As this is written in late August 2009, there is some optimism that economic recovery may have started, but it is clear that we will not be able to total the costs of the crisis for several years yet. The best that can be done here is to consider what we know of the costs of the crisis so far.

The crisis began with a fall in US house prices; from its peak in 2006 average US house prices have fallen by about 1/3.<sup>5</sup> The fall has had a profound effect on the US mortgage market. Latest figures from the US Mortgage Bankers Association (MBA) for 2009Q2 showed 13.54% of all residential mortgages were delinquent or in foreclosure.<sup>6</sup> That's the highest rate since the MBA survey started in 1972 and it excludes properties that have left foreclosure (i.e. been repossessed and resold.) MBA note that the problem is continuing to shift from the smaller and riskier sub-prime ARM loans to the much larger prime fixed-rate loans that make up the bulk of the US mortgage market.<sup>7</sup> Given the poor outlook for unemployment, they expect these figures to continue to climb for some time.<sup>8</sup> Deutsche Bank estimates that at the end of 2009Q1 25% of US homeowners with mortgages owed more on their mortgages than their houses were worth.<sup>9</sup> The problem is expected to worsen: futures prices in late August 2009 predicted further price declines on the order of 5-10% for the coming year.<sup>10</sup>

The trouble in the US mortgage market has been bad for US banks. Over 80 US banks have failed so far in 2009; the rate is still increasing with an average of 4-5 failing per week through the summer.<sup>11</sup> While that may seem serious, it's worth noting that over 200 failed every year from 1986-2001 during the US Saving & Loan (S&L) crisis, peaking at 534 failures in 1989.<sup>12</sup> Nonetheless, the Federal Deposit Insurance Corporation's (FDIC) Deposit Insurance Fund balance fell from more than 75% from \$52.8 billion to

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<sup>5</sup> The Case-Shiller 20-city Home Price index is a 3-month moving average of the change in price of resold homes averaged over 20 US cities; it peaked in May 2006 at 206.17 and in June 2009 (latest available) stood at 141.31. Source: Standard & Poors.

<sup>6</sup> Mortgage Bankers Association, 20 August 2009, <http://www.mbaa.org/NewsandMedia/PressCenter/70050.htm>. Figures are for 1 – 4 unit properties.

<sup>7</sup> Ibid.

<sup>8</sup> Ibid.

<sup>9</sup> Shenn, Jody, August 5<sup>th</sup>, 2009, "'Underwater' Mortgages to Hit 48%, Deutsche Bank Says" Bloomberg.

<sup>10</sup> CMEGroup, [www.cmegroup.com](http://www.cmegroup.com), August 24<sup>th</sup>.

<sup>11</sup> <http://www.calculatedriskblog.com/2009/08/failed-banks-and-deposit-insurance-fund.html>

<sup>12</sup> Ibid.

\$13.0 from the end of 2008Q1 to 2009Q1.<sup>13</sup> Bloomberg estimates that the bank failures in the following five months cost upwards of 16 billion.<sup>14</sup> Simply covering the costs of the ongoing bank failures will cost billions of dollars per quarter; replenishing the fund will cost tens of billions of dollars.

But the overall cost of the crisis to the US government dwarfs the costs of insuring depositors in failed banks. The Congressional Budget Office (CBO) currently estimates that the US Federal Government Deficit for 2009 will be \$11.6 Trillion; at 11.2% of forecast GDP, that's the highest level since WWII.<sup>15</sup> Spending in 2009 is expected to increase by \$700 billion: that includes \$133 billion for TARP, \$291 for bailing out Fannie Mae and Freddie Mac, and \$115 billion in stimulus spending.<sup>16</sup> Revenues are expected to fall by half a trillion, or roughly the cost of those three programs.<sup>17</sup> For comparison, the US General Accounting Office estimated that the *total* cost to the US government of the S&L crisis was \$132.1 billion or just fewer than 2% of GDP.<sup>18</sup> While fewer institutions are failing in this crisis, the costs to the taxpayer will be much greater than before.

Of course, the costs of the crisis extend well beyond the costs to the government. Through July 2009, US employment was down 6.6 million from its peak as the unemployment rate more than doubled from 4.7% in late 2007 to 9.4%.<sup>19</sup> The OECD estimates that by 2009Q2 output in the US had fallen 3.9% from its level a year before.<sup>20</sup> Although the financial crisis originated in the United States, its impact has been no better abroad. Output in the G7 and in OECD countries both fell 4.6% over the same period: the UK, Germany, Japan and Italy all suffered declines ranging from 5.5 to 6.5%.<sup>21</sup>

All of the above seem like good reasons to try to avoid financial crises. However, there are also common arguments *against* avoiding financial crises that should be noted. Many important ones are based on the idea of risk tolerance. Businesses and managers tend to adapt to their behavior to the amount of risk that they see. Efforts to stabilize financial markets or the economy will therefore be partly offset by businesses taking on more risk. While this is rational for the individual business, the net effect can be to makes crisis prevention harder than it would otherwise be.<sup>22</sup> When the government offers to insure

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<sup>13</sup> Ibid.

<sup>14</sup> Bloomberg, August 20<sup>th</sup>, 2009, "FDIC May Add to Special Fees as Mounting Failures Drain Reserve" by Alison Vekshin.

<sup>15</sup> Congressional Budget Office, August 2009, "The Budget and Economic Outlook: An Update - Summary", p. 1, [http://www.cbo.gov/ftpdocs/105xx/doc10521/2009BudgetUpdate\\_Summary.pdf](http://www.cbo.gov/ftpdocs/105xx/doc10521/2009BudgetUpdate_Summary.pdf). Note that the costs to the FDIC mentioned above are not included in these numbers as FDIC is funded directly by a levy on bank deposits rather than from general government revenues.

<sup>16</sup> Ibid., p. 2

<sup>17</sup> Ibid.

<sup>18</sup> United States General Accounting Office (1996) "Financial Audit: Resolution Trust Corporation's 1994 and 1995 Financial Statements," Table 3 and author's calculations.

<sup>19</sup> US Bureau of Labor Statistics. Total civilian employment and unemployment rate, both seasonally adjusted.

<sup>20</sup> OECD Quarterly National Accounts; News release of 19 August 2009, p. 2.

<http://www.oecd.org/dataoecd/62/27/43514819.pdf>

<sup>21</sup> Ibid.

<sup>22</sup> We see the same effect when we look at the impact of 4-wheel-drive cars on winter driving accidents. The improved traction makes such cars much easier to control on snowy or icy roads. As a result, their drivers tend to drive more aggressively than they would without such traction, which reduces the improvement in safety.

business or individuals against risk, this increase in risk-taking may greatly increase the cost of such insurance.<sup>23</sup>

In addition, it is reasonable to point out that financial crises differ widely and the most recent crisis is uncommonly severe. Looking forward, we need to balance the expected costs of crisis prevention against the costs of a *typical* crisis. If crises are sufficiently rare, variable and hard to predict, it is possible that the costs of avoiding crises may outweigh the average benefits. To better understand this argument, the next section considers the evidence on the nature of different kinds of crises and their costs.

## How Different are Financial Crises?

*Leo Tolstoy famously observed that “every happy family is the same. Every unhappy family is miserable in its own way.” Every financial crisis is different and involves its own distinctive elements. There are, however, some elements that are common to many...<sup>24</sup>*

In making the observation mentioned at the outset of this paper, David Warsh may have been thinking of recent US financial crises. In 2000 the stock market crashed as the “dot-com” bubble collapsed; although a recession followed, there were no calls for the government to intervene in the stock market and the recession was short-lived. In 1998, financial markets were shaken by the collapse of Long-Term Capital Management (LTCM); the US Federal Reserve intervened only to ensure an orderly dissolution of the firm and an unwinding of its positions. No government funds were involved and there appeared to be no economic consequences. In the late 1980s and early 1990s, the S&L crisis caused the failure of over 1000 US financial institutions at a cost to the taxpayer of over \$100 billion. However, aside from higher government debts, the macroeconomic impact seemed minimal. In late October 1987, an abrupt stock market panic prompted extraordinary short-term measures to ensure that markets and brokers would be able to continue functioning. However, the panic appeared to be unrelated to economic developments and fears that it would trigger a recession soon faded. Just looking at these four crises, we see that they vary widely in location (stock markets, hedge funds and financial institutions), duration (the LTCM crisis lasted roughly a week; the S&L crisis more than half a decade), the role of government (a bystander in the 2000 stock market crash and an essential part of the problem in S&L crisis) economic impact and other dimensions. It is unlikely that any set of policies can be found to avoid all such crises.

The same is not true of banking crises, however. Banking crises are more similar than general financial crises in terms of all of the above characteristics. Of particular concern are systemic banking crises or “banking panics.” The hallmark of a banking panic is that concerns about the possibility of a default or bankruptcy by one financial firm lead to a chain reaction. If firm A defaults, firms to which A owes money will suffer losses and may therefore also default. The firms to which firm A’s lenders owe money may then default, and so on. Fearing the possibility of default, banks and other creditors refuse to extend credit to all but the most creditworthy borrowers. However, this sudden withdrawal of credit can

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<sup>23</sup> The same problem occurs when private companies offer insurance; this is more formally known as *moral hazard*.

<sup>24</sup> Summers (2000) p. 3-4.

cause even creditworthy firms to default, so that the *fear* of default *causes* a default. Because lenders are uncertain how much borrowers may be exposed to the possibility of default by third parties, most lending quickly comes to a halt and credit markets “freeze”.

Due to the critical role that banking plays in business finance, the economic impact of such a sudden halt in credit availability is severe. At the same time, the degree to which banks are interconnected by their borrowing and lending makes them particularly susceptible to such panics. To reduce the severity and frequency of banking crises, governments throughout the world use a combination of measures. In particular, they set minimums for the reserves that banks must hold to protect against the possibility of defaults by their borrowers. They also have central banks, whose role is to act as a lender of last resort; by making credit available (for a price) during market crises, they prevent or greatly diminish the chain reaction described above. This is precisely the role that the US Federal Reserve and other central banks around the world played in the fall of 2008 as they massively lent to financial institutions that were otherwise unable to borrow.

Obviously, these measures are not perfect; banking crises still occur and their economic effects can be severe as seen above. More generally, Reinhart and Rogoff (2008a) find that banking crises in developed economies lead to deeper and long-lasting recessions than normal. Claessens et al. (2008) look at recessions with and without various kinds of financial crises; they find that those that are associated with the most severe recessions are those involving house price collapses and “credit crunches.” Reinhart and Rogoff (2008b) find that in a typical banking crisis or real estate collapse

- Real GDP falls 9% over 2 years
- The stock market falls 55% over 3.5 years
- The unemployment rate rises by 7% (e.g. from 5% to 12%)
- House prices fall 35% over 6 years
- Real government debt increases by 86% in the 3 years following the start of the crisis.

Given the severity of the effects of banking crises, it seems reasonable to assume that further measures in avoiding them may be justified.

More difficult questions are how to avoid banking crises and whether such crises can be predicted. On the latter question, some note until mid-2008 the Chairman of the Federal Reserve System predicted that the “sub-prime” crisis would be contained and was unlikely to spill over into the rest of the financial system. However, other evidence suggests that the risk of crisis was well understood within the US administration. For example, Swagel (2009) argues that the risk of a banking crisis was understood well in advance; the failure to prevent the crisis lay in legal and political problems, not in forecasting.

*Most importantly, political constraints were an important factor in the reluctance at the Treasury to put forward proposals to address the credit crisis early in 2008. The options that turned into the TARP and subsequent actions were written down in March of 2008....But we saw little prospect of getting legislative approval for any of these steps in early 2008....legislative action would be possible only when Secretary Paulson and Chairman Bernanke could go to*

*Congress and tell them that the crisis was at the doorstep, even though by then it could well be too late to head it off.*<sup>25</sup>

Recent studies have found that banking crises, particularly those in advanced economies, tend to have similar characteristics. For example, a 2004 Bank of International Settlements (BIS) study that reviewed twenty years of banking crises in industrialized economies concluded

*Most of the widespread failures required some amount of public support, sometimes in very large amounts. All of the episodes that involved large amounts of public support were caused by credit risk problems. ...The widespread banking crises that involved credit risk were remarkably similar. A period of financial deregulation resulted in rapid growth in lending, particularly in real estate related lending. Rapidly rising real estate prices encouraged more lending, abetted by lax regulatory systems in many cases. When economic recessions occurred, inflated real estate prices collapsed, leading directly to the failures.*<sup>26</sup>

Although written four years before the US crisis, it aptly summarizes subsequent events.

More support for the view that banking crises follow similar patterns can be found by comparing the last three US banking crises; the S&L crisis, the collapse of LTCM and the most recent crisis. The S&L crisis closely followed the pattern described by the BIS report quoted above; financial deregulation, followed by a rapid growth in real estate lending, creation of local speculative bubbles in real estate prices, and the failure of institutions as bubbles burst (at substantial cost to taxpayers.)<sup>27</sup>

At first glance, the LTCM crisis appears quite different; no bank failed (LTCM was a hedge fund), its failure was unrelated to real estate investment or credit risk, and the crisis was resolved at no cost to the public treasury.<sup>28</sup> However, the LTCM crisis showed that, as a result of deregulation, a systemic crisis could start outside the regulated banking system. US GAO (1999) noted

*The LTCM case illustrated that market discipline can break down and showed that potential systemic risk can be posed not only by a cascade of major firm failures, but also by leveraged trading positions. LTCM was able to establish leveraged trading positions of a size that posed potential systemic risk primarily because the banks and securities and futures firms that were its creditors and counterparties failed to enforce their own risk management standards.*<sup>29</sup>

The same report noted

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<sup>25</sup> Swagel (2009), p. 2. Note that Swagel was Assistant Secretary for Economic Policy at the US Treasury from Dec. 2006 until January 2009.

Swagel also notes general concerns at Treasury about the rapid growth of OTC derivatives, particularly Credit Default Swaps and the looming problems in housing well before the start of 2008. However, these were mostly an awareness of risks rather than forecasts or probable outcomes. He also notes several instances where internal forecasts in 2007 and 2008 predicted that problems were about to subside.

<sup>26</sup> BIS (2004) p. 66.

<sup>27</sup> For descriptions of the S&L crisis, see BIS(2004) or the GAO report cited above.

<sup>28</sup> For descriptions of the LTCM crisis, see Scholes (2000), Edwards (1999) or GAO (1999).

<sup>29</sup> US GAO (1999) p. 29.

- *Gaps in [US Government agencies'] regulatory authority limits their ability to identify and mitigate systemic risk*<sup>30</sup>
- *Regulators did not identify weaknesses in firms' risk management practices until after the crisis*<sup>31</sup>
- *Monitoring did not reveal the potential systemic threat posed by LTCM*<sup>32</sup>

and provided a variety of proposals (some of which are mentioned below) to reform the financial system by reducing systemic risks.

The success of those reforms can be judged by the role of similar factors in the most recent US banking crisis. An important factor in the latter has been the role of derivative securities, primarily mortgage-backed securities and credit default swaps (CDS).<sup>33</sup> Again, government oversight of this market was limited due to faith in the market's ability to manage its exposure to risk, and was further weakened by divided responsibilities between multiple agencies.<sup>34</sup> Regulators and private lenders alike were again unaware of major firms' exposure to losses on derivative securities; this time even the heads of major financial institutions were not aware of the extent of their own exposures. Again, this was in part due to the lack of transparency, lack of clearing and high leverage afforded by trade in Over-the-Counter (OTC) derivatives (particularly those traded at Bear Stearns.) Again, weaknesses in firms' risk management practices became apparent only in hindsight. Again, major financial firms that were not regulated as traditional deposit-taking banks took on highly-leveraged positions and posed major systemic threats to the banking system. These included several investment banks (such as Bear Stearns, Goldman Sachs, Lehman Brothers, and CitiGroup) and the insurance company AIG.

## Preventing Future Banking Crises

The similarities among banking crises suggest measures that may be useful in preventing future crises. There is presently an intense debate over potential reforms to financial regulations and structures both at the national and international levels. In July 2009 the US Treasury proposed a number of reforms to specifically address the perceived causes of the recent banking crisis.<sup>35</sup> Key features of this plan included

1. The creation of a new Consumer Financial Protection Agency, a National Bank Supervisor, and an Office of National Insurance, which would join with several other agencies in a Financial Services Oversight Council.
2. Requiring reporting of all OTC derivative transactions, as well as clearing and transparent trading of all standardized OTC derivative products.

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<sup>30</sup> Ibid., p. 24.

<sup>31</sup> Ibid., p. 16.

<sup>32</sup> Ibid., p. 17.

<sup>33</sup> See Brunnermeier (2009) or Mehrling (2009) for details of the role of leveraged trading positions in transmitting the decline in real estate values to the banking system.

<sup>34</sup> Systemic banking risk is the responsibility of the Federal Reserve System, security trading is that of the Securities Exchange Commission, and derivatives are supervised by the Commodity and Futures Trading Commission. The current crisis has also deeply involved the Federal Deposit Insurance Corporation and the US Treasury. Swagel (2009) notes the co-ordination problems this created, together with conflicts with White House staff.

<sup>35</sup> For examples, see [http://www.financialstability.gov/latest/tg\\_07222009.html](http://www.financialstability.gov/latest/tg_07222009.html)

3. Expanding the mandate of the Federal Reserve to explicitly include all firms that pose systemic risks to the financial system.
4. Requiring registration of advisors to hedge funds and other pools of capital.

It remains to be seen how these proposals translate into law. In the wake of the LTCM crisis, many proposals were made to improve the reporting of hedge funds, improve transparency and clearing of OTC derivatives and improve co-ordination between financial regulatory bodies. For reasons that may be best left to political scientists or experts in organizational behavior, most of these proposals were eventually abandoned or severely diluted before becoming law. The result was an ineffectual reform and the recent, more severe, crisis.

There is also no shortage of alternative proposals, such as

- A reform of executive pay in the financial sector to reduce incentives for excessive risk-taking
- The provision of explicit government insurance to mortgage derivatives
- A ban on “naked” short-selling
- Restricting the sale of CDSs and similar instruments to those with long position in the underlying asset

One element that seems to be missing in the reform debate is the link between banking crises and real estate collapses. As mentioned above, both statistical studies (such as Reinhart and Rogoff 2008b) and qualitative analyses (such as BIS 2004) find an important link between speculation and the collapse of real estate prices on the one hand and banking crises on the other. The recent Canadian experience also supports such a link.

Canada’s experience during the financial crisis has contrasted sharply with that of the US and other industrialized countries. The economic slowdown and loss of employment has been milder thus far in Canada than in any other G7 economy despite Canada’s much greater economic and financial integration with the US. There has been no government bailout of Canadian financial institutions thus far, or does one appear likely at this point. The Bank of Canada introduced emergency credit facilities for the financial sector late in 2008 but their take up was slight. Shares in Canadian banks have performed much better through the crisis period than their US counterparts. At the same time, Canadian foreclosure and default rates have been more stable than in the US.<sup>36</sup>

The link between house prices and banking crises is not solely a causal one that runs from house prices to bank performance. The relative abundance or scarcity of bank credit for lending may tend to cause house prices to appreciate or depreciate. However, given the total value of real estate relative to the value of all other assets in the private sector of a typical economy, a large decline in value of real estate necessarily implies a large loss of total wealth. It is difficult for a financial system to allocate such large losses without imperiling most if not all of the equity in the banking sector. Put another way, it is

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<sup>36</sup> Other explanations for the superior performance of Canadian banks have stressed their large deposit base and relatively large capital adequacy ratios. For details on the performance of the Canadian economy during this period, see the analysis in the IMF’s May 2009 Article IV Consultation with Canada.

difficult to think of any industrialized country whose banking sector could survive a 30% drop in the average value of its real estate without provoking a major banking crisis requiring government intervention.

This in turn suggests an alternative way of viewing proposals for financial reform. If large fluctuations in real estate values are the fundamental economic cause of many banking crises including the current one, useful financial reforms will have to include some combination of measures to reduce the size of such fluctuations in real estate values and to reduce the effect of such fluctuations on the banking sector.

The most recent US crisis can be partly understood as the result of deregulation and financial innovations which increased both effects; the ready availability of sub-prime and other innovative mortgage products increased the demand for housing, fueling an increase in prices and simultaneously increasing the leverage of homebuyers. The net effect was to exaggerate the impact of low interest rates on housing prices and increase the exposure of the banking sector to declines in real estate values. Although Canada experienced very low interest rates, their impact on the exposure of the banking sector was more muted. In part, this reflected the very small market share of sub-prime and other nonstandard mortgages in the Canadian housing market. Canada also requires that mortgages for more than 80% of the purchase price of a house be insured; this reduces the leverage of typical Canadian mortgages and thereby reduces the risks to lenders. Much of this insurance is not provided by the private sector but by a Crown Corporation (the Canadian Mortgage and Housing Corporation) backed by a government guarantee.

Whether the present US administration's proposals (or competing proposals) will moderate housing price bubbles, or reduce the banking sector's exposure to housing bubbles, does not appear to be part of the current debate on financial reform. Some of their proposals may have such an effect indirectly, although their importance is hard to gauge. Their proposals may also have other merits, such as improving the co-ordination of different government agencies. But without explicit consideration of their effect on the banking system's exposure to real estate prices fluctuations, it is hard to be confident about the effectiveness of any package of reforms.

It is also surprising that so much of the public debate has focused on reform of regulatory agencies, banking laws and trading environments while so little attention has been paid to reform of mortgage regulations and mortgage-related securities. Among the potential changes that would appear to deserve further consideration are the following two simple measures.

1. Highly-leveraged mortgages increase the systemic risk in the financial sector and should be discouraged. This could be done in a number of ways, such as a tax on high loan-to-value mortgages, or compulsory insurance, or via regulation limiting the value of liens that can be attached to real estate, or simply by limiting mortgage-interest deductibility. Doing so should reduce the banking system's exposure to the real estate market by ensuring that borrowers have greater equity (or are backed by insurance.) The reduction in leverage may also reduce real estate price swings.

2. The insurance of mortgages and mortgage-related products (including credit-default swaps) requires tighter regulation. Such insurance is a critical buffer between downturns in the real estate market and the solvency of the banking system. While some mortgage risk is diversifiable, a substantial portion is a macroeconomic risk that is not diversifiable. This is particularly true for mortgage-backed securities, which pool risks across many individual mortgages. In the event of a national downturn in housing prices, it is not obvious that private-sector insurers will have the resources to honour their policies. At a minimum, the government needs to impose capital requirements for mortgage insurance and related financial derivatives that require a level of financial reserves commensurate with the degree of macroeconomic risk in this market. Others (such as Mehrling 2009) have argued that the government should simply provide such insurance themselves.

## Conclusions

*In my experience, policymakers in a country facing such a crisis tend to go through stages reminiscent of the five stages of grief. First, there is the denial that a crisis could be taking place. Second, we see anger, with a rush to blame speculators and other outside forces, and often, domestically, a change in government. Third, there is the bargaining; the desperate search for magic bullets ....Fourth comes despair.....Finally, in the fifth stage, there is acceptance and the agreement of a credible plan.<sup>37</sup>*

Financial markets and the global economy are now showing tentative signs of emerging from a serious crisis, and there is growing hope that an even more serious potential crisis has been averted. The critical question is what to learn from recent events and how to avoid such crises in future. In terms of the patterns described in the above quote by Summers, most will probably identify our position as somewhere between stage 2 and 4.

In the search for ways to avoid future crises, it is useful to remember that financial crises, particularly banking crises typically share many common features. The most recent crisis shares many features with the Savings and Loan crisis of the 1980s and early 90s as well as some features of the LTCM crisis of 1998. More generally, the financial crises in developed economies with the highest costs to governments are banking crises associated with real estate market collapses. Effectively reducing the risk of future crises requires some combination of reducing the potential size of such collapses and the banking sector's exposure to real estate losses.

The US President's current Chief of Staff, Rahm Emanuel, said "Never allow a crisis to go to waste."<sup>38</sup> If the current crisis is used well, it will hopefully be the worst US crisis that most of us see in our lifetimes. If not, then a quote from another observer of financial market crises may be more appropriate; "History repeats itself; first as tragedy, then as farce."

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<sup>37</sup> Summers (2000) p. 11.

<sup>38</sup> Emanuel, Rahm, 9 November 2008, interview on CBS *Face the Nation*.

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