

# Real Estate and Its Relation to the Financial Crisis

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**Key words:** real estate; world financial crisis; mortgage backed securities; nationalization; good/bad bank; crisis recovery; real estate taxation

## SUMMARY

The disclosure that highly leveraged financial institutions in the United States (and abroad) were holding toxic securitised subprime mortgages shocked market participants. Banks, fearful of their own solvency, all but stopped lending. Issuance of corporate bonds, commercial paper, and a wide variety of other financial products largely ceased. Credit-financed economic activity was brought to a virtual standstill.

The intervention system most likely to create the most benefit for the economy is a combination of loan insurance and good / bad bank methods. This will also create some nationalized institutions, as the government will in some cases become the majority stakeholder. A rescue intervention plan should shock the market in its scale. This will dispel some of the persistent psychological fear, which is worsening an already bad financial crisis situation.

Temporary public capital infusions into banks would facilitate a faster recovery and arguably provide more benefit per dollar than conventional fiscal stimulus. Early on in this process, we will need to start unwinding the massive public credit extended to lending institutions and guarantees put in place during the crisis, now estimated at \$7 trillion.

The buyer / borrowing pool in real estate transactions is currently constrained to a fraction of a normal level due to a shortage of available finance. This shrinks the borrower pool and creates a temporary decrease in sales prices. A portion of the decrease in real estate sales prices will snap back quickly when normal levels of credit once again becomes available to adequate borrowers, and not just those with high levels of liquid cash.

Broadly speaking, financial crises are protracted affairs that affect many layers of the economic landscape. The aftermath of a severe financial crisis typically shares three characteristics. First, asset market collapses are deep and prolonged. Real housing price declines average 35 percent stretched out over five to six years, while equity price collapses average 55 percent over a downturn of about three and a half years. Second, the aftermath of banking crises are associated with profound declines in output and employment. The unemployment rate raises an average of 7 percentage points over the down phase of the cycle, which lasts on average over four years. Output falls (from peak to trough) an average of over 9 percent in GDP, although the duration of the downturn, averaging roughly two years, is

considerably shorter than for unemployment. Third, the real value of government debt tends to explode, raising an average of 86 percent in the major post–World War II episodes. The main cause of debt explosions is not the widely cited costs of bailing out and recapitalizing the banking system, but is actually due primarily to a decrease in tax revenues.

## **INTRODUCTION**

### **INCREASED NEED FOR CAPITAL BY BANKS AND PRIVATE BUSINESSES**

In a recent article, Alan Greenspan, former chairman of the Federal Reserve Board of the United States, discusses the need for still greater capital for the banking system in the United States, beyond the stimulus packages already extended.<sup>4</sup>

The disclosure that highly leveraged financial institutions in the United States (and abroad) were holding toxic securitised subprime mortgages shocked market participants. Banks, fearful of their own solvency, all but stopped lending. Issuance of corporate bonds, commercial paper, and a wide variety of other financial products largely ceased. Credit-financed economic activity was brought to a virtual standstill.

The world faces a major financial crisis. Other financial and real estate problems around the world have come to light as the financial infection spread, breaking free other problems that had previously been overlooked or ignored in the greater context of world prosperity.

In the summer of 2006, with an average book capital of 10%, more than 99% of all United States insured institutions met or exceeded the requirements of the highest regulatory capital standards. However, a history of strong increases in real estate values, driven by strong demand, relatively weaker equity market performance over the 2001 to 2003 period, and a flood of international capital, lulled market investors into a false security that real estate values underlying mortgage backed securities would continue to perform strongly. This is despite a loosening of lending criteria and a general slowdown in the economy and large war-related spending.

When bank book capital finally adjusts to current market imperatives it may reach its highest levels in 75 years (approximately 14%), and a new regulatory system may be put in place. One easily forgotten risk component in real estate lending is the cost and time a financial institution incurs in a foreclosure or even short sale situation. A transaction cost of 10% on a typical residential home would not be unusual for a financial institution in a foreclosure situation, further decreasing the value of the asset to the lending institution.

The insertion of \$250 billion of equity in late 2008 into the American banks through TARP (Troubled Assets Relief Program) appears to be a good start to address the issue, but not yet enough. Another \$250 billion would return the LIBOR/OIS spread to pre-crisis levels. This arithmetic would imply that investors now require 14% capital instead of the 10% as of mid 2006.

Alan Greenspan strongly believes (and I concur) that the use of government credit must be temporary. Eventually, the most credible source of equity will be a partial restoration of the \$30 trillion of global stock market value wiped out in 2008. This would enable banks to raise needed private capital over time. Markets are being suppressed by a degree of fear not experienced since the early 20<sup>th</sup> century (in the United States).

Temporary public capital infusions into banks would facilitate a faster recovery and arguably provide more benefit per dollar than conventional fiscal stimulus. Early on in this process, we will need to start unwinding the massive public credit extended to lending institutions and guarantees put in place during the crisis, now estimated at \$7 trillion.

Another critical factor for the return of global financial stability is the stability of American homes prices (underlying many mortgage backed securities). As these prices stabilize we will be able to clarify the market value of financial institutions assets and therefore more closely compare book value with market pricing. This knowledge will help remove both risk and fear over time, and help stabilize stock prices.

The lack of adequate capital to finance real estate transactions also has the effect of shrinking the pool of available buyers to those with high liquid capital levels, relative to past requirements. Current timidity by lenders has forced out the majority of buyers even in situations where both price for the real estate in question as well as the quality of the borrower are adequate. This has the effect of further dropping real estate prices over harshly by limiting the buying pool. However, decreases in price for this factor are temporary, as they will return once credit begins to flow to adequate borrowers at normal sustainable levels.

## **BANKING RESCUE CHOICES FACING THE ECONOMIES IN CRISIS**

The proper design of a rescue package is difficult to do correctly. Many pitfalls and financial costs surround an improper response. Broadly, there are three main categories of a potential banking rescue solution, as well as the option to do nothing and let the free market work out the problems. The option to do nothing is considered a poor choice due to the large anticipated negative effects, including a much deeper initial crash across most economic sectors which would be inflicted upon the economy in question with little or no intervention.

1) Intervention: The first intervention option is a system of loan guarantees and insurance. Large systems based on this principal are popular because they are a charge now and pay later system. It is also very quick to swing into action with managers who already know the assets in question.

2) Good Bank / Bad Bank: The second intervention system is the creation of a good bank / bad bank. This approach allows for the toxic or bad assets to be removed from the balance sheets of the afflicted financial institution, showing the losses on these assets immediately. Bad banks create a clean break that enables the good bank to get on with the real job of raising capital and lending it out appropriately.

3) Nationalization: Lastly, the third intervention system is nationalization. In a nationalization system the difficulties of valuing the assets and of bank shareholders attempting to grab taxpayer relief money are lessened, because the government is on both sides of the deal. There will likely be a lot of arguments for these systems coming soon, and some have already taken place around the world. Difficulties with nationalization systems are also apparent. Nationalization or state ownership may make some sense for specific institutions, at least in the short run (Fannie Mae, Freddie Mac and Northern Rock are good examples). However, unless nationalization takes place at market prices, it will undermine property rights and raise the long-term cost of capital. Nationalized institutions have a record of allocating funds worse than that of private banks.

The United Kingdom chose government guarantee and insurance systems alone. The scale of the intervention was insufficient to impress the markets, causing share prices to fall even at the institutions to be helped. The scale of the intervention should be large enough to surprise the market, which will in turn begin to banish the psychological fear factor plaguing the minds of market participants. A much larger scale intervention would likely have produced better results.

The bad bank intervention system calls for buying the very worst assets at their market value. Coupling this with an insurance system to reassure the market that the healthy assets are protected against catastrophe will allow the good banks to make a clean start and raise / lend capital. Each bank would be examined on its merits and cleaned out, partially insuring against risks, and re-capitalizing it with government capital as necessary. In some situations this will leave the government as the single largest shareholder (Royal Bank of Scotland), or the sole owner (Northern Rock). In such cases, nationalization is not an end unto itself, but a consequence of policy that will most rapidly return the banking system to health.

As such, a solution that includes components of each of these intervention systems is likely to be the most effective overall. It will also be tempting to bind lending in a thicket of regulation. Some tighter regulation is in order, especially greater transparency, however, too tight a regulatory environment will strangle enterprise, which is certainly not the goal of logical reform of these institutions.

## **LONG TERM ECONOMIC TRENDS – AGING POPULATIONS**

In the face of the current economic crisis it is easy to overlook some long-term factors that will surely affect the major economies around the world over the coming decades. Many of the world's largest economies have aging populations, commonly due to the rapid increase in births after World War II (the baby boom).

As this large group retires from the work force over the coming 20 to 25 or so years, the work force of these countries will significantly decrease. This will impact GDP in these nations. This will also be coupled with an increase in the cost of social services, magnifying the downward affect of a smaller workforce. The most likely response to this downturn will be a

governmental / social emphasis on keeping the population as healthy and productive as possible for as long as possible. This will very likely include decreasing public services and increasing typical retirement age to minimize both of the negative factors of greater social costs and a smaller workforce. Immigration of a younger workforce can also offset this factor.

In 2008, the median age in the United States is 36.7 (somewhat below the oldest nations). Major world economies that will be affected by this factor include Japan, Germany and Italy (all with median ages in 2008 of approximately 45 years of age), with France, the United Kingdom, and Spain all with median ages of approximately 42, and Russia with a median age of 40.<sup>5</sup> Japan, Italy, Germany, Austria, Spain, United Kingdom and France all have between 21% and 26% of their populations aged 60 or older as of 2005 (Japan is the highest at 26.4%, decreasing to France with at 20.8%).

## **THE AFTERMATH OF THE CURRENT FINANCIAL CRISIS FOR THE UNITED STATES**

The world is undergoing a financial crisis with real estate values, mortgage backed securities, and real estate lending being key underlying factors behind the inception of the crisis. Stabilization in real estate property values will be a cornerstone to a world financial recovery. The financial instruments based on real estate, the availability of funds, and the stability of lending institutions will all improve in performance after real estate values stabilize and become relatively predictable once again.

As such, it would be remiss in any analysis of the current world financial crisis to gloss over the historical lessons learned from similar crises throughout history. An excellent and timely piece on this subject was a paper written by Carmen M. Reinhart, University of Maryland, and Kenneth S. Rogoff, Harvard University, titled *The Aftermath of the Financial Crisis*. The major concepts will be discussed in depth and charts reproduced herein as this is the likely economic environment in which real estate and real estate related instruments will perform in over the coming years.

As of 2007, standard indicators for the United States, such as asset price inflation, rising leverage, large sustained current account deficits, and a slowing trajectory of economic growth, exhibited virtually all the signs of a country on the verge of a severe financial crisis.<sup>1</sup> The following section will show a similar comparative historical analysis that is focused on the aftermath of systemic banking crises. The breadth and depth of this current crisis will affect real estate values and real estate related instruments as the financial markets adjust.

In the following analysis, should the financial crisis performance of emerging economies be considered? The United States is a highly sophisticated global financial center and is at the center of the current world financial storm. What can advanced economies possibly have in common with emerging markets when it comes to banking crises? In fact, as Reinhart and Rogoff (2008b) demonstrate, the antecedents and aftermath of banking crises in rich countries

and emerging markets have a surprising amount in common. There are broadly similar patterns in housing and equity prices, unemployment, government revenues and debt. Furthermore, the frequency or incidence of crises does not differ much historically, even if comparisons are limited to the post World War II period (provided the ongoing late-2000s global financial crisis is taken into account). Thus, this study of the aftermath of severe financial crises includes a number of recent emerging market cases to expand the relevant set of comparators. Also included in the comparisons are two prewar developed country episodes for which housing price and other relevant data was available.

Broadly speaking, financial crises are protracted affairs that affect many layers of the economic landscape. The aftermath of a severe financial crisis typically shares three characteristics.

**First:** Asset market collapses are deep and prolonged. Real housing price declines average 35 percent stretched out over six years, while equity price collapses average 55 percent over a downturn of about three and a half years.

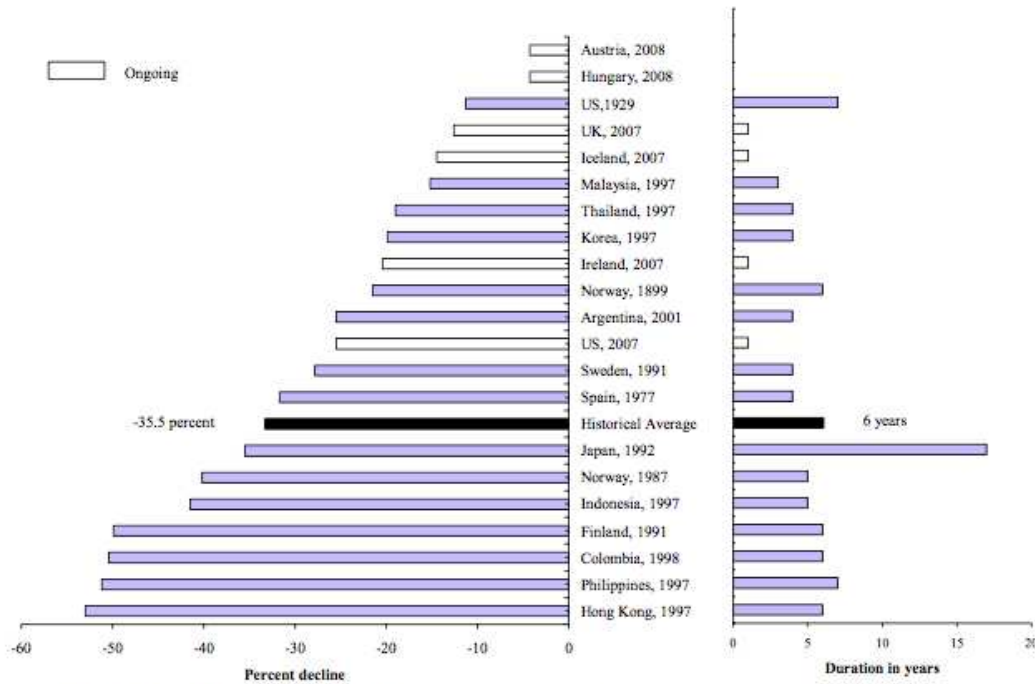
**Second:** The aftermath of banking crises are associated with profound declines in output and employment. The unemployment rate raises an average of 7 percentage points over the down phase of the cycle, which lasts on average over four years. Output falls (from peak to trough) over 9 percent in GDP in roughly two years.

**Third:** The real value of government debt tends to explode, rising an average of 86 percent in the major post-World War II episodes. The main cause of debt explosions is not the widely cited costs of bailing out and recapitalizing the banking system. Rather, the big drivers of debt increases are the inevitable collapse in tax revenues that governments suffer in the wake of deep and prolonged output contractions, as well as ambitious counter-cyclical fiscal policies aimed at mitigating the downturn. Bailout costs are difficult to measure, and there is considerable divergence among estimates from competing studies. But even upper-bound estimates pale next to actual measured rises in public debt.

A financial and banking crisis is currently enveloping the United States, Austria, Hungary, Iceland, Ireland, Spain, and the United Kingdom. Other countries / economies may also be in crisis or may go into crisis over the coming few years. On the following charts the ongoing current crisis in the fore-mentioned countries will be compared to historical crises. This will help show where the individual countries / economies are on the relative scale compared to the historical data. A careful look at this data can allow forecasting, and foreshadow the likelihood that an individual component of the crisis will either be more or less severe, or more or less protracted than the historical average crises data. The implications of this will be discussed as we explore the individual financial components.

Figure 1

Past and Ongoing Real House Price Cycles and Banking Crises:  
Peak-to-trough Price Declines (left panel) and Years Duration of Downturn (right panel)



Sources: Reinhart and Rogoff (2008b) and sources cited therein.

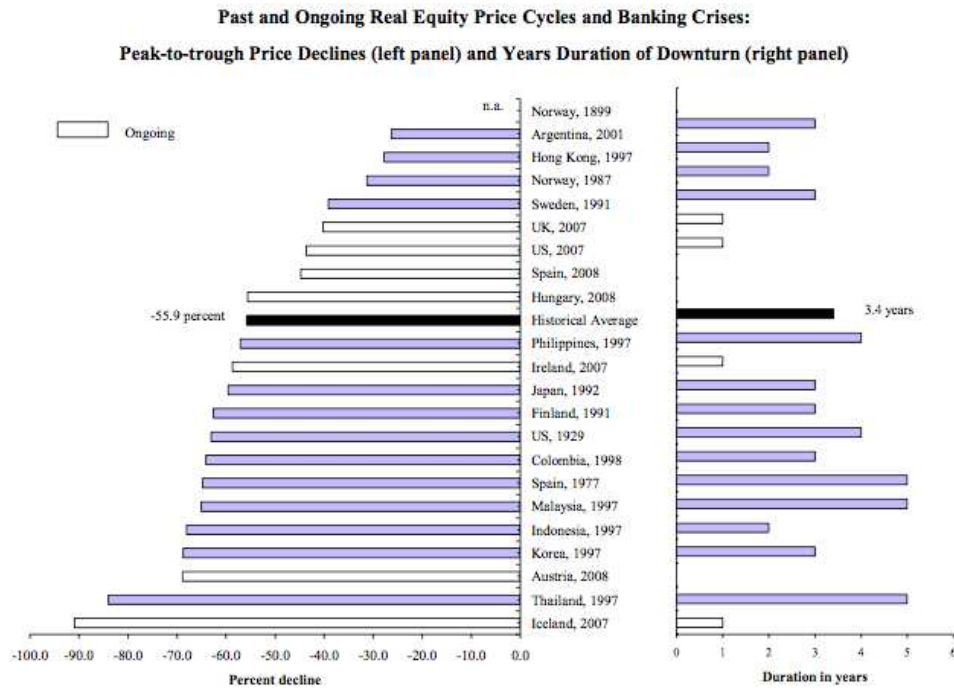
Notes: Each banking crisis episode is identified by country and the beginning year of the crisis. Only major (systemic) banking crises episodes are included, subject to data limitations. The historical average reported does not include ongoing crises episodes. Consumer price indices are used to deflate nominal house prices.

This illustration shows that the average down cycle in real estate values (sale prices) shows a decline from peak to trough of 35.5%. This decline will take 5 to 6 years to reach the bottom (five if you exclude Japan from the survey, where the decline was unusually long at 17 years). Taking a close look at the United States shows a current decrease at 28% (some surveys show a bit less). Reinhart and Rogoff show this being the first year (2008) of the down cycle for the United States, but NAR (National Association of Realtor data) shows a 1.9% decline in average home prices from 2006 to 2007, and a 17.55% decrease from 2007 to November of 2008.<sup>2</sup> As such, it is possible the down turn for real estate began a little sooner, and that the decrease in sales prices / value might be a little less than the above forecast suggests. Another survey, the Case-Shiller national index showed a 16.6% decrease from 3<sup>rd</sup> quarter 2007 to 3<sup>rd</sup> quarter 2008.

The speed in which the financing markets recover from the current crisis will have a strong effect on how steeply prices fall, and how long it takes to reach the bottom of the market. Currently, the constrained availability of credit has removed many purchasers from the market that otherwise have fairly strong credit and fairly good asset to debt ratios. The high degree of fear and uncertainty has greatly limited the buyer pool to those with high amounts of liquid

cash, fairly low debt, and fairly spotless credit. This is making it difficult for a typical operator to finance a transaction even when all indications are that the sales price is at or even well below market. This impacts commercial transactions as well.

Figure 2



Sources: Reinhart and Rogoff (2008b) and sources cited therein.

Notes: Each banking crisis episode is identified by country and the beginning year of the crisis. Only major (systemic) banking crises episodes are included subject to data limitations. The historical average reported does not include ongoing crises episodes. Consumer price indices are used to deflate nominal equity prices.

Equity price declines (stocks, bonds and related instruments) that accompany banking crises are far steeper than housing price declines, if somewhat shorter lived. The shorter duration of the downturn when compared with real estate prices is consistent with the observation that equity prices are far less inertial. The average historical decline in equity prices is 55.9 percent, with the downturn phase of the cycle lasting 3.4 years on average. The above chart shows equity declines for the United States to be above 40% in the first year of the down cycle. The following chart will show equity market prices over the 1999 to 2008 period for a longer view of the relevant trends.

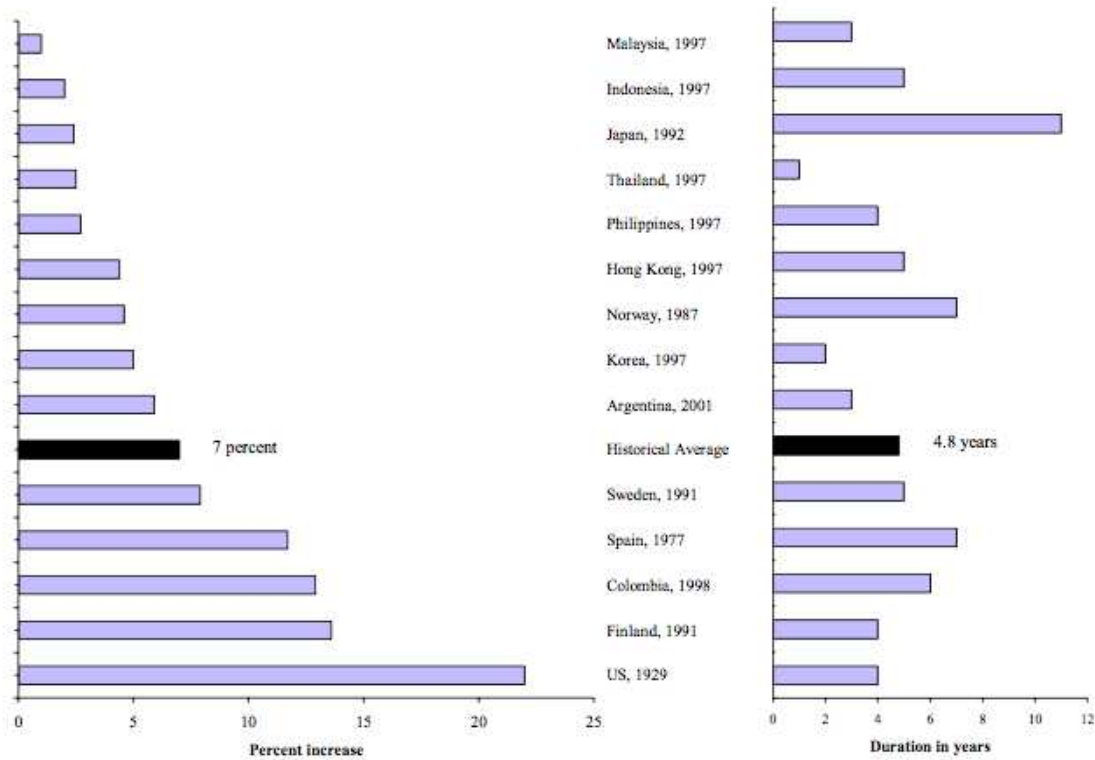




The above data tends to suggest that the downturn in the equity markets actually began in mid to late 2007. As such, this data tends to suggest that we are a little more than a year (15 months possibly) into this down cycle. It is also interesting to note that the United States equity markets shown here are still above the bottom in 2002, after the beginning of the current problems in the Middle East. The 2002 to 2007 period showed a fairly stable and consistent level of growth in each of the equity markets noted above.

Figure 3

Past Unemployment Cycles and Banking Crises: Trough-to-peak  
Percent Increase in the Unemployment Rate (left panel) and Years Duration of Downturn (right panel)



Sources: OECD, IMF, Historical Statistics of the United States (HSOUS), various country sources, and authors' calculations.

Notes: Each banking crisis episode is identified by country and the beginning year of the crisis. Only major (systemic) banking crises episodes are included, subject to data limitations. The historical average reported does not include ongoing crises episodes.

Based on historical crisis precedent, unemployment rises for almost five years, with an average increase in the unemployment rate of about 7 percentage points. While none of the postwar episodes rivals the rise in unemployment of over 20 percentage points experienced by the United States during the Great Depression in 1929, the employment consequences of financial crises are striking.

The relatively poor performance in advanced countries suggests the possibility that greater (downward) wage flexibility in emerging markets may help cushion employment during periods of severe economic distress. The gaps in the social safety net in emerging market economies, when compared to industrial ones, presumably also make workers more anxious to avoid becoming unemployed. It is also possible that unemployment volatility varies considerably in emerging or industrialized markets, and that emerging markets may adjust faster to market changes in general relative to the more established industrialized economies.



source: Bureau of Labor Statistics

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Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2008	4.90	4.80	5.10	5.00	5.50	5.60	5.80	6.20	6.20	6.60	6.80	7.20
2007	4.60	4.50	4.40	4.50	4.50	4.60	4.70	4.70	4.70	4.80	4.70	4.90
2006	4.70	4.80	4.70	4.70	4.70	4.60	4.70	4.70	4.50	4.40	4.50	4.40
2005	5.20	5.40	5.20	5.20	5.10	5.10	5.00	4.90	5.00	5.00	5.00	4.80
2004	5.70	5.60	5.80	5.60	5.60	5.60	5.50	5.40	5.40	5.50	5.40	5.40
2003	5.80	5.90	5.90	6.00	6.10	6.30	6.20	6.10	6.10	6.00	5.80	5.70
2002	5.70	5.70	5.70	5.90	5.80	5.80	5.80	5.70	5.70	5.70	5.90	6.00
2001	4.20	4.20	4.30	4.40	4.30	4.50	4.60	4.90	5.00	5.30	5.50	5.70
2000	4.00	4.10	4.00	3.80	4.00	4.00	4.00	4.10	3.90	3.90	3.90	3.90
1999	4.30	4.40	4.20	4.30	4.20	4.30	4.30	4.20	4.20	4.10	4.10	4.00

January 1 1998 to January 21 2009 Update Chart

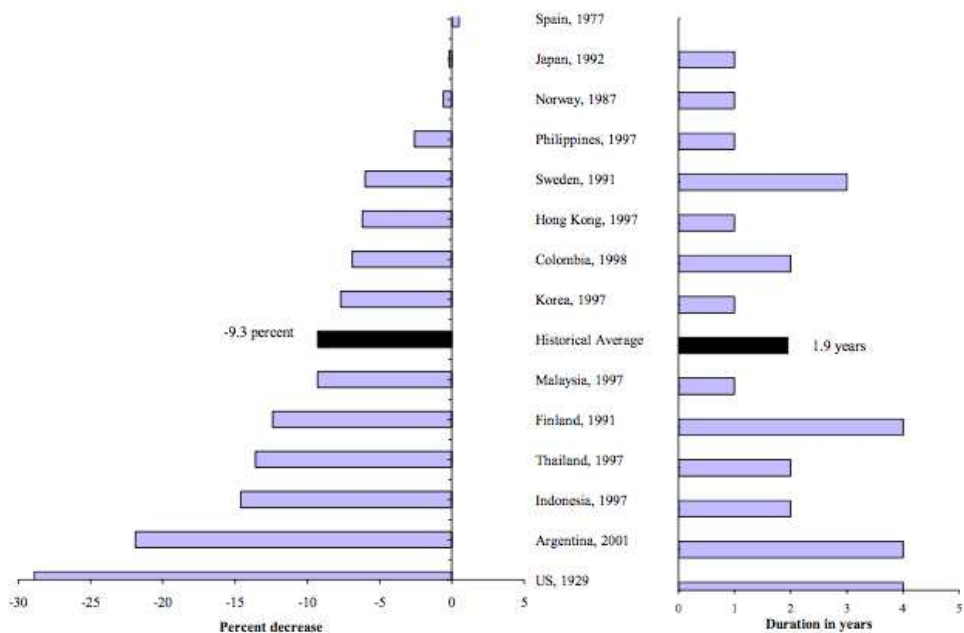
Unemployment in the United States was 7.2% at year-end 2008, with an average of 5.8% across 2007.<sup>3</sup> Based on this data it appears that unemployment began to rise slowly in early to mid 2007 and began to pick up steam late in 2008. As such, this factor has been worsening for approximately 1 ½ years. If there is a 7% increase in unemployment in the United States to the peak, then this figure is likely to increase to approximately 11.5% to 12% before it's decline back to a long term stabilized rate.

Figure 4 looks at the cycles in real per capita GDP around banking crises. The average magnitude of the decline is surprisingly large at 9.3 percent. Post World War II period declines in real GDP were smaller for advanced economies than for emerging market economies. A probable explanation for the more severe contractions in emerging market economies is that they are prone to abrupt reversals in the availability of foreign and domestic credit. They also tend to have more fragile economies in general. When foreign capital comes to a sudden stop, economic activity heads into a tailspin. This lack of credit, both foreign and domestic, has a tendency to strangle otherwise profitable enterprises. It is possible that this

stranglehold on credit is somewhat more pronounced in emerging economies than in industrialized ones, hence the deeper decrease in GDP. Functioning credit markets are essential to a healthy growing and efficient economy.

Compared to unemployment, the cycle from peak to trough in GDP is much shorter, only two years. Presumably, this is partly because potential GDP growth is positive, and we are measuring only absolute changes in income, not gaps relative to potential output. Even so, the recessions surrounding financial crises have to be considered unusually long compared to normal recessions that typically last less than a year. Multi-year recessions typically occur in economies that require deep restructuring.

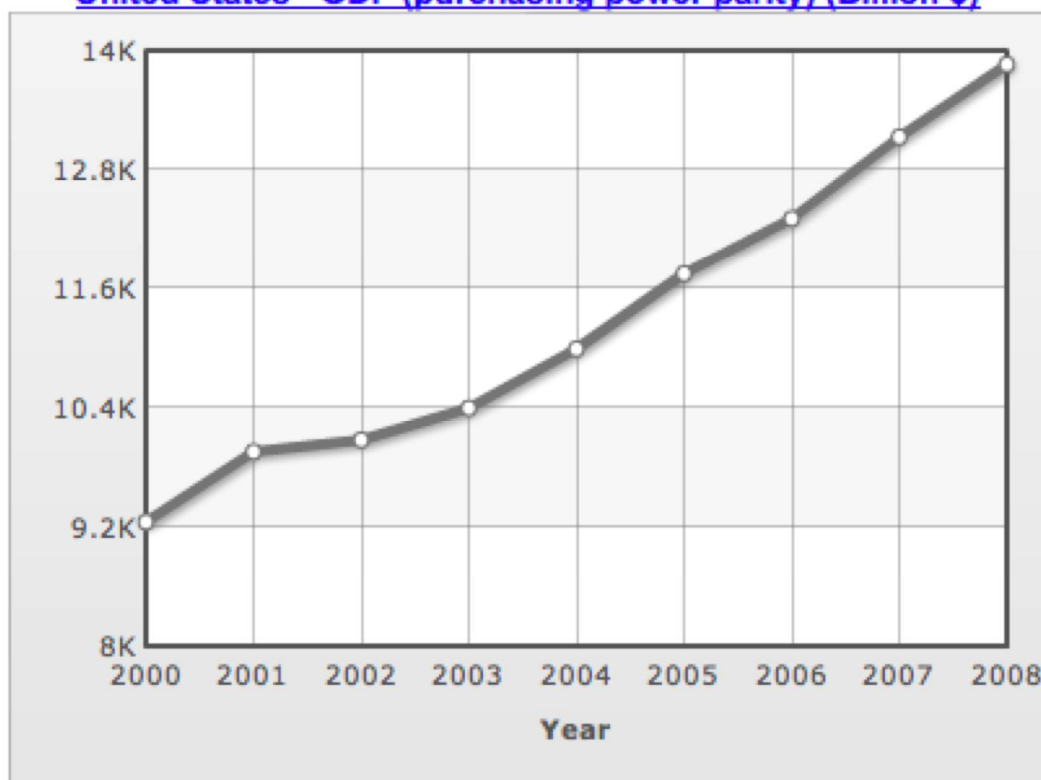
**Figure 4**  
**Past Real Per Capita GDP Cycles and Banking Crises: Peak-to-trough**  
**Percent Decline in Real GDP (left panel) and Years Duration of Downturn (right panel)**



Sources: Total Economy Database (TED), Historical Statistics of the United States (HSOUS), and authors' calculations.

Notes: Each banking crisis episode is identified by country and the beginning year of the crisis. Only major (systemic) banking crises episodes are included, subject to data limitations. The historical average reported does not include ongoing crises episodes. Total GDP, in millions of 1990 US\$ (converted at Geary Khamis PPPs) divided by midyear population.

### United States - GDP (purchasing power parity) (Billion \$)



Embed: <http://www.indexmundi.com/g/g.aspx?c=1> [Preview](#)

GDP growth appears to have consistently grown since 2000 in current dollars. After adjusting for inflation, GDP slipped just slightly (down a tenth of one percent) in the 3rd quarter of 2008 (4th quarter data is not yet available).

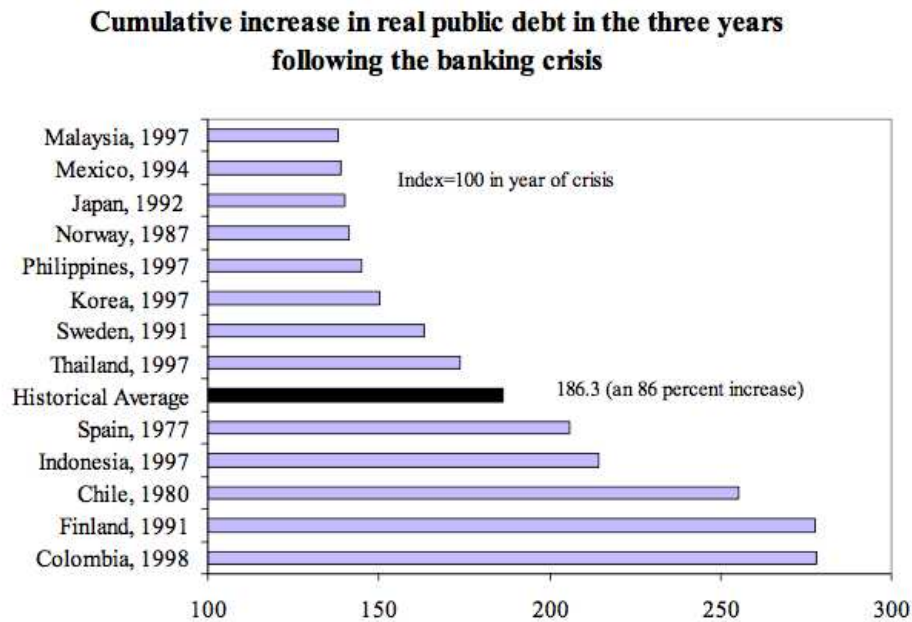
An interesting data comparison showed a 79% increase in home sale prices over the 1997 to 2008 period. GDP over the same period increased by 72% (not adjusted for inflation) showing a similar relationship between the average cost of housing and national production.

Adjusting for inflation, GDP increased by 33.5% over the 1997 to 2008 period, compared to the average CPI (inflation) increase of 29% over the 1997 to 2007 period. Median income levels grew 5% more than CPI over the same period.

These relationships suggest that the true cost of housing (relative to income performance) to the consumer in the United States has stayed relatively stable over this period. As such, this data suggests that the bottom of the real estate price market may be very near, and that the other economic factors of the financial crisis (like poor availability of credit, increasing unemployment, and slipping GDP, uncertainty/fear/psychology) could be the primary factors surrounding additional drops in real estate home values in the United States. This also

suggests that upon recovery of the other financial and psychological factors, real estate prices should recover to levels fairly close to those currently seen in the market (plus or minus 5% to 10%).

Figure 5



Sources: Reinhart and Rogoff (2008b) and sources cited therein.

Notes: Each banking crisis episode is identified by country and the beginning year of the crisis. Only major (systemic) banking crises episodes are included, subject to data limitations. The historical average reported does not include ongoing crises episodes, which are omitted altogether, as these crises begin in 2007 or later, and debt stock comparison here is with three years after the beginning of the banking crisis.

Figure 5 shows the rise in real government debt in the three years following a banking crisis. The deterioration in government finances is larger than most would imagine, with an average debt rise of over 86 percent. Reinhart and Rogoff (2008b), taking advantage of newly unearthed historical data on domestic debt, show that this same buildup in government debt has been a defining characteristic of the aftermath of banking crises for over a century. Percentage increases in debt were considered, rather than debt to-GDP, because sometimes steep output drops would complicate interpretation of debt-GDP ratios. As Reinhart and Rogoff (2008b) note, the characteristic huge buildups in government debt are driven mainly by sharp falloffs in tax revenue and, in many cases, big surges in government spending to fight the recession. The much ballyhooed bank bailout costs are, in several cases, only a relatively minor contributor to post-financial crisis debt burdens.

Current performance in the United States generally concurs with this proposed causal effect. Governmental budget deficits in states hit with sharp declines in real estate values (Florida and

California being two notable examples, real estate tax affected), as well as weaker income performance (income taxes), and poor retail performance (sales tax) all point to sharply lower tax receipts during the initial stages of the financial crisis correction period in the United States. Adjustment in spending for less needed programs will need to be considered or targeted for elimination alongside new spending programs that will boost economic growth and stabilize the nations credit and financial markets. Careful economic decisions will need to be made by the American Government to minimize the damage and length of the current economic downturn.

## **CONCLUSION**

The buyer / borrowing pool in real estate transactions is currently constrained to a fraction of it's normal level due to limited availability of credit. This shrinkage in the borrower pool creates an illusory decrease in prices. A portion of the decrease in real estate prices will snap back quickly when credit once again becomes available to adequate borrowers, and not just those with high levels of liquid cash.

The intervention system most likely to create the most benefit for the economy is a combination of insurance and good / bad bank methods. This will also certainly create some nationalized institutions, as the government will in some cases become the majority stakeholder. The rescue intervention should shock the market in its scale, bleeding off some of the persistent psychological fear worsening an already bad financial crisis.

An examination of the aftermath of severe financial crises shows deep and lasting effects on asset prices, output and employment. Unemployment rises and housing price declines extend out for five and six years, respectively. On the encouraging side, output declines (GDP) last only two years on average. Even recessions sparked by financial crises do eventually end. However, these recoveries are almost invariably accompanied by massive increases in government debt.

How relevant is an examination of past crises? Some major central banks have already shown an aggressiveness to act that was notably absent in the 1930s, or in the latter-day Japanese experience. Additionally, these major central banks seem to be acting somewhat in tandem with each other, and sharing knowledge and experience so that each economy can make an informed decision on how best to proceed. However, one would be wise not to push too far the conceit that we are smarter than our predecessors. A few years back many people would have said that improvements in financial engineering had done much to tame the business cycle and limit the risk of financial contagion. Obviously, we still have much to learn about the macro economic interconnections of our world economy, and it can be argued that the world economies are more interconnected now than ever. Increased transparency, better regulation, and somewhat better safety margins, among other tools, will certainly allow us to better address similar recessionary trends in the future.

Since the onset of the current financial crisis, asset prices have slipped in the United States and elsewhere along the tracks lain down by historical precedent. The analysis presented in

this paper of the post-crisis outcomes in this paper for unemployment, output and government debt provide sobering benchmark numbers for how the crisis could continue to unfold. Indeed, these historical comparisons were based on episodes that, with the notable exception of the Great Depression in the United States, were individual or regional in nature. The global nature of the crisis will make it far more difficult for many countries to grow their way out through higher exports, or to smooth the consumption effects through foreign borrowing. A comprehensive approach to the crisis resolution with international cooperation will be required to minimize the negative effects of this downturn.



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## BIOGRAPHICAL NOTES

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