ARE THERE LESSONS TO BE LEARNED BY CANADA FROM PREVIOUS FINANCIAL CRISES?

AN INVESTIGATION INTO THE FISCAL IMPLICATIONS OF 'TOO BIG TO FAIL'

by

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1 Introduction

The 2007-2009 global financial crisis is the greatest crisis since the Great Depression of the 1930s. It involved poor regulation, excess risk taking, and complex financial instruments. However, the lead-up to the global financial crisis followed a similar path pursued by other nations in history. Capital flows were at all time high levels, leading to a large current account deficit, the federal and state level governments possessed a large amount of public debt and the creation of a large asset bubble in the housing market were all features similar to previous financial crises. Although the global financial crisis is distinct in its own respects, it contains striking similarities to historical financial crises, leaving lessons to be learned by Canada as to the fiscal and policy implications of having a highly consolidated banking sector that may be deemed 'too big to fail' by policy makers.

In Canada, the impact of the global financial crisis was minimal compared to other OECD countries. Profitability and funding conditions declined, but public bank recapitalizations were not needed and government guarantees on bank funding were not drawn upon (Ratnovski and Huang, 2009: p. 3)[1]. Furthermore, the World Economic Forum Global Competitiveness Report 2009-2010 ranked Canada's banking sector soundness number one in the world with a score of 6.7 out of a possible 7.0, ahead of New Zealand and Australia that ranked second and third, respectively. However, is the Canadian financial system really that resilient to financial turmoil? The following paper will investigate the fiscal and policy lessons Canada can learn from the previous financial crises of Japan, Sweden, the United States and Greece.

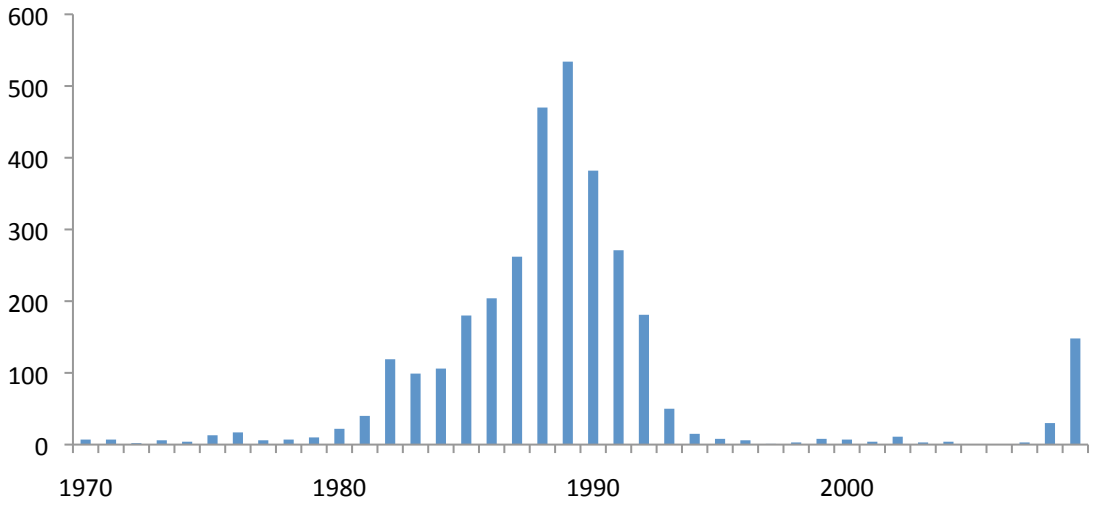
[1] Although the Canada's experience with the global financial crisis was mild relative to the United States, Canada did not completely escape the effects of the crisis. At the same time the United States securitization market was growing, portfolios funded by asset-backed commercial paper (ABCP) in Canada were also increasing. ABCP is a secured short term debt obligation issued by a conduit to fund purchases of assets that generate cash flow and the underlying assets can be made up of mortgages and consumer loans/receivables. However, according to John Chant, Economics professor at Simon Fraser University, during the financial crisis, many of the trusts held credit default swaps (CDS), collateralized debt obligations (CDOs) and other leveraged derivatives. During August 2007, approximately $32 billion of ABCP was frozen by the inability of the conduits to rollover their maturing notes, which represented 27 percent of the $117 billion ABCP market (Chant, 2008). The freeze of the ABCP market was triggered by the US sub-prime crisis, but stemmed from a fragile structure and unsuitable investments, such as levered credit derivatives, and lack of conditional liquidity arrangements (Chant, 2008). During the crisis, ABCP market liquidity was lost, creating a liquidity crisis for many ABCP holders.

The paper will be comprised of three main sections. Section 2 will investigate the term, 'too big to fail' and its policy implications for single and multiple bank failures, using the historical examples of the Continental Illinois' failure in 1984, the Swedish financial crisis from 1991-1994 and the Japanese financial crisis from 1992-1997. Section 3 will investigate the fiscal implications of bailing out 'too big to fail' banks using the example of the United States from 2007-2009 and the current Greek debt crisis. Finally, Section 4 will discuss two lessons for Canada reiterated from previous financial crises, as well as will discuss potential risks to Canada's economic recovery. These lessons pertain to the fiscal and regulatory policy implications of a banking sector that may be deemed 'too big to fail' during the next financial crisis and the importance of maintaining a fiscally responsible household and public sector.

2 The Role of 'Too Big to Fail' in the Policy Response of Historical Financial Crises

The wide spread bank failures of the Great Depression has had a long-lasting impact on the thinking of government and monetary authorities, as well as the bankers themselves on the risks posed by bank failures on economic activity and financial stability (Stern and Feldman, 2004: p. vii). The title 'too big to fail' is given to a bank when its failure is seen as "posing large risks to other financial institution, the financial system as a whole, and possibly economic and social order. Because of such fears, policy makers have responded by protecting uninsured creditors of banks from all or some of the losses they otherwise would face" (Stern and Feldman, 2004: p. 17) though the use of tax payer funded bailout packages. When creditors expect government protection in the event of a failure, they reduce their vigilance in monitoring and responding to banking activities (Stern and Feldman, 2004: p. 2), creating a moral hazard problem and leading banks to engage in more risky activities. Once the risk becomes too great, losses mount and the government is forced to bailout the large institutions in order to protect the uninsured creditors.

Figure 1: Number of United States FDIC Failures and Assistance Transactions: 1970 - 2009



Source: FDIC Historical Statistics on Banking; Table BF02

Historically, there have been two types of bank failures. The first type involves primarily small, single banks that fail regularly and do not attract media coverage or the attention of policy makers. In the U.S., such banks are handled by the Federal Deposit Insurance Corporation (FDIC). The FDIC maintains confidence in the U.S. banking system by insuring small deposits in banks and thrift institutions. Specifically, the FDIC directly insures 8,195 banks and supervises 5,039 banks as of the second quarter of 2009[2]. During the global financial crisis from 2007-2009, 181 bank failures of FDIC-insured banks occurred out of the 8,195 FDIC-insured institutions. However, in contrast to previous financial crises such as the Great Depression of the 1930s and the savings and loan crisis in the 1980s, the number of U.S. bank failures are much less. During the Great Depression and over the fourteen year span of the saving and loan crisis, 9,146[3] and 2,935 banks failures by FDIC-insured banks occurred, respective, in contrast to the 181 bank failures during the global financial crisis (Figure 1).

[2] Data on the number of FDIC insured and supervised banks can be found in the FDIC statistical report, "Statistics at a Glance," published on 30, June 2009 at the link:http://www.fdic.gov/bank/statistical/stats/2009jun/industry.pdf.

[3] The number of bank failures during the Great Depression can be found in the article by Mark Perry, "81 Banks have failed so far out of 8,195 FDIC-Insured Institutions: It's All Relative" by the Wall Street Pit Global Market Insight, published on 28 Aug. 2009 or by following the link: http://wallstreetpit.com/9899-81-bank-failures-out-of-8195-fdic-insured-institutions.

When a small bank becomes insolvent, the FDIC exercises their takeover ability and seizes the bank's assets. After the assets are seized, the FDIC can then choose to operate the bank under conservatorship or to sell the assets to other banks. An example of a single bank failure handled by the FDIC was U.S. bank, Continental Illinois' failure in 1984. Continental Illinois had been designated 'too big to fail', but in May of 1984, large foreign depositors created a run on the bank. The FDIC stepped in and created an open bank assistance plan that included injecting capital in the form of preferred stock into Continental Illinois, as well as brought in new management at the top level (Hoenig, 2009: p. 8). The FDIC also created a 'bad' bank in order to separate toxic assets from good assets, leaving the bank without toxic assets on the balance sheet to be restructured and sold.

The second type of bank failure involves multiple large banks becoming insolvent, such as during the Swedish financial crisis from 1991-1994 and the Japanese financial crisis from 1992-1997. When faced with multiple bank failures, the government's policy options fall within two extremes. The government can use the bailout approach by acting as an unlimited source of financial funds at the cost of the taxpayer or could choose the 'takeover' approach, similar to the actions taken by the FDIC. In the 'takeover' approach, the government makes use of asset management corporations (AMCs) to split an insolvent bank into two parts: good assets and toxic assets. Once split, the toxic assets can be transferred to the asset management corporations where they are restructured and cleaned up in order to be resold quickly though a fire-sale or held until a reasonable price could be obtained in the market.

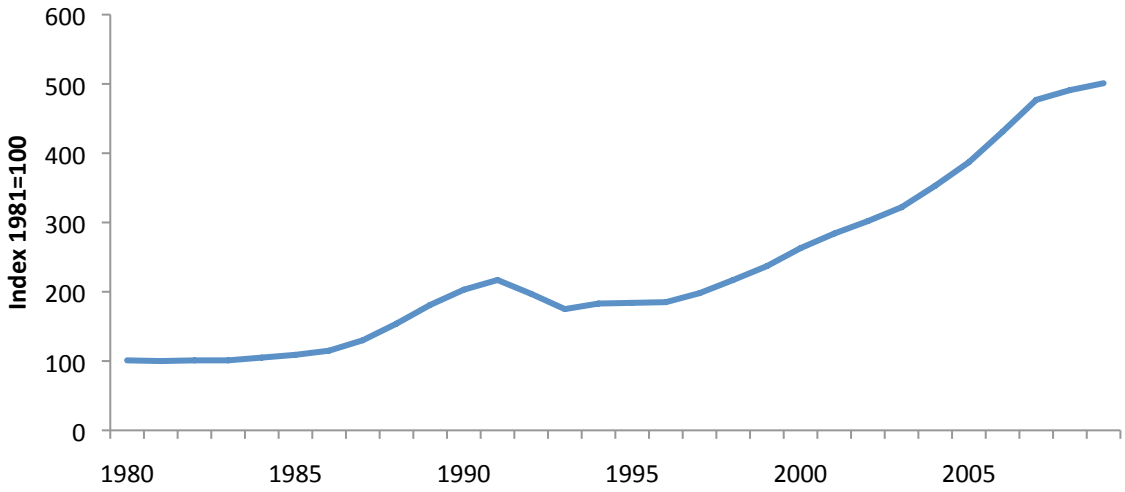
Examining the financial crises in Japan and Sweden illustrates the two extreme approaches to addressing financial crises. Japan's policy response was slow, prolonged and involved bailing out banks deemed 'too big to fail' by the Deposit Insurance Corporation (DIC) until insufficient funds were left, forcing public funds to be used. The financial crisis was costly and added to Japan's large fiscal deficit, as well as left Japan in a decade of high unemployment and low economic growth. In contrast, Sweden's policy response was swift, organized and addressed the problem head on; allowing large institutions to fail in a constructive manner by using asset management corporations to clean up and sell non-performing loans and, once resold, the institutions were re-privatized again. The end result of Sweden's policy response was a timely recovery of the Swedish economy and banking sector, as well as minimal loss to the tax payer. Sections 2.1 and 2.2 will discuss the Swedish and Japanese financial crises with focus on the role 'too big to fail' had on their policy response.

2.1 Sweden's Financial Crisis 1991-1994

2.1.1 Sweden's Asset Bubble

Sweden's asset bubble began in the mid to late 1980's due to financial deregulation. Financial deregulation involved liberalization of domestic financial markets and international capital flows that caused increased capital inflows to Sweden due to low interest rates and rapid expansion of credit (Honkapohja, 2009: p. 18). Financial deregulation also increased the competitiveness of the Swedish banking system, but forced banks to take on new risks to increase profits without having the appropriate expertise or risk management skills. The excess credit from capital inflows was spent on real estate and financial assets, creating an asset bubble that burst in 1991.

Figure 2: Real Estate Price Index for One or Two Dwelling Buildings for Permanent Living in Sweden: 1980-2009



Source: Statistics Sweden

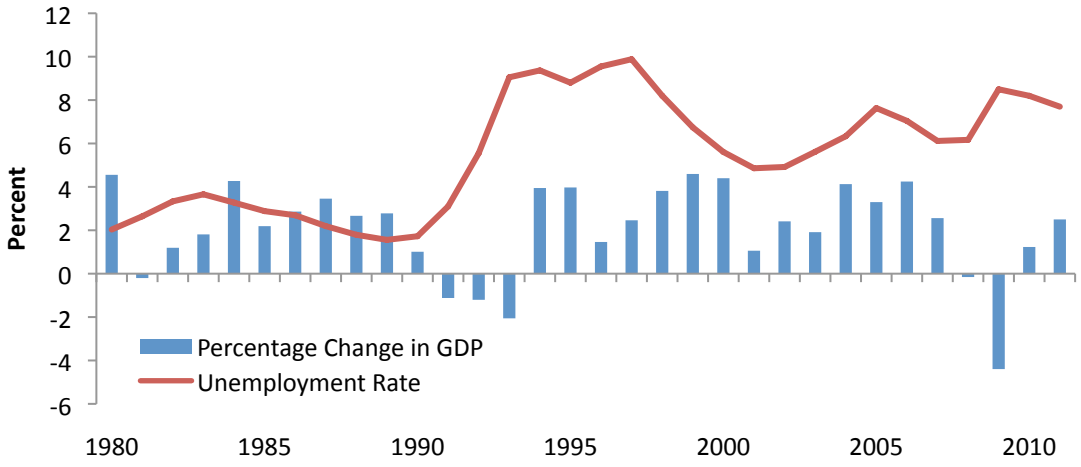
From 1985 to the burst of the asset bubble in 1991 (Figure 2), the Swedish real estate price index more than doubled due to a policy shift to a low-inflation regime in the rest of Europe, and a more hostile international environment (Heikensten, 1998: p. 4). When the asset bubble burst, house prices declined sharply leading to both a currency and financial crisis. While asset prices continued to rise before 1991, Sweden's rate of inflation also rose from 4.2

percent in 1987 to 10.5 percent in 1990[4]. The high rate of inflation eroded the competitiveness of the economy, resulting in an overvalued currency and thus a decrease in exports. As the Swedish Krona was bound to a basket of currencies, primarily the German Mark at this time, the high rate of inflation made the fixed-exchange rate policy untenable, forcing the Krona to devalue in 1981 and 1982 to revitalize their export industry (Ergungor, 2007: p. 2-3).

2.1.2 Real Economy

Prior to the Nordic financial crisis, Sweden had experienced a contraction in gross domestic product (GDP) growth since 1989 and had also experienced three consecutive years of negative gross domestic product growth after the financial crisis began in 1991 (Figure 3). Prior to 1991, Sweden had also maintained a low unemployment rate (Figure 3), an indicator of the rate of personal defaults, averaging 2.5 percent from 1980 to 1990. However, once the financial crises began the unemployment rate increased, reaching a peak of 9.9 percent in 1997. Furthermore, leading up to the financial crisis, Sweden's fiscal situation was vulnerable to economic shocks and speculation due to a public debt-to-GDP ratio averaging 50 percent from 1980 to 1990 (Figure 4).

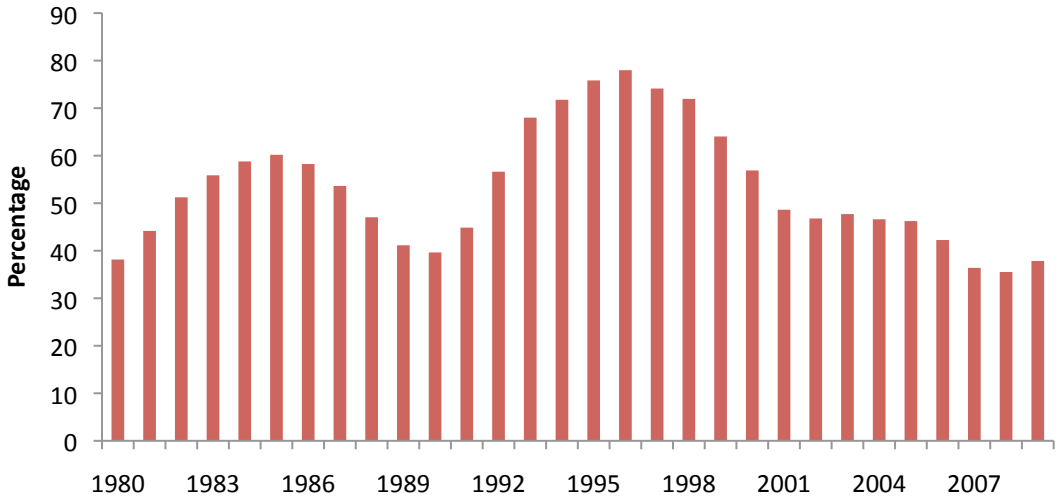
Figure 3: Percentage Change in Sweden's GDP and Unemployment Rate: 1980-2010



Source: International Monetary Fund, World Economic Outlook Database

[4] Data on Sweden's inflation rate is from the International Monetary Fund, World Economic Outlook Database, April 2010.

Figure 4: Sweden's Total Central Government Debt as a Percentage of GDP: 1980-2009



Source: OECD Statistics

2.1.3 Sweden's Policy Response

Sweden made use of the 'takeover' approach through the use of asset management corporations (AMCs) as their main policy response to the financial crisis in 1991. AMCs were used to split insolvent banks into two parts: good assets and toxic assets. Once split, the toxic assets were then transferred to the AMCs where they were restructured in order to be resold quickly though a fire-sale or held until a reasonable price could be obtained in the market. The use of AMCs was a successful tool in the restructuring and selling of toxic assets in a short time period, as it allows financial institutions to focus on their core business, while allowing experts to obtain the best values for the toxic assets. By 1997, Securum, the Swedish asset management agency closed after selling off 98 percent of its assets[5].

Furthermore, the Swedish government minimized moral hazard and the cost to the government by creating a common framework of measures to support the banking system that included a strategy for deciding which banks to reconstruct and which to liquidate (Heikensten, 1998: p. 6). This strategy was based on tests to the micro- and macroeconomic models and the number of toxic loans that existed on the balance sheet of each bank. If the model indicated that the bank would be profitable in the medium-term future it would be given support to survive, but if the

[5] See Daniela Klingebiel's 2000 paper, "The use of Asset Management Companies in the Resolution of Banking Crises Cross-Country Experiences," published by The World Bank, p. 16 for data and further information on the AMC, Securum.

model indicated profits would not be restored, the bank would be closed or merged in an orderly manner (Heikensten, 1998: p. 6). Furthermore, policy action within Sweden did not allow non-financial companies to be rescued or reconstructed.

Sweden's financial crisis was short in duration, only lasting three years before economic recovery took hold. The short duration was due to three primary reasons. First, Sweden's policy response was timely, organized and targeted specific unprofitable institutions to address the problems in order to restore financial stability. Second, Sweden abandoned their fixed exchange rate policy and experienced an export-driven upturn that helped to bring Sweden out of the recession (Heikensten, 1998: p. 7). Third, Sweden allowed large financial intuitions to fail without creating a large negative impact on the economy, taxpayers and financial sector. In total, Sweden spent SEK 65.0 billion or 4 percent of nominal GDP on capital injections and loans for their financial system until July 1994. Furthermore, the government's equity holdings in Nordbanken and Gotabank turned out to be very profitable, with the later sale of assets more than offsetting the initial losses incurred[6].

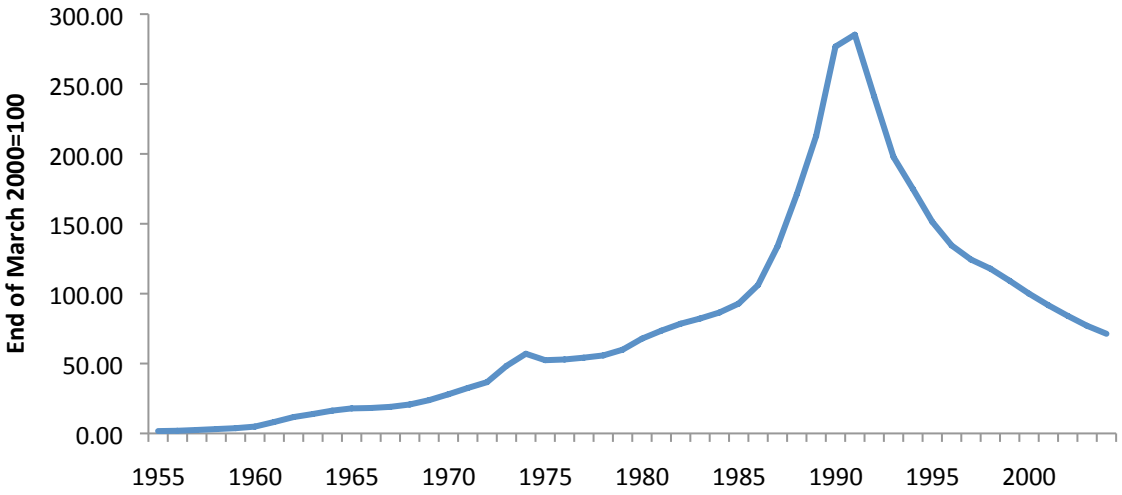
2.2 Japan's Financial Crisis: 1992-1997

2.2.1 Japan's Asset Bubble

Prior to Japan's financial crisis, capital inflows were high, inflating the stock market and housing prices. The inflated prices for urban land use can be seen in the Japan Statistics Bureau's Index of Urban Land Prices for six major cities and is an average of commercial, residential and industrial land use (Figure 5). Since the beginning of the series, the Index of Urban Land Prices has steadily increased, accelerating more rapidly after 1985 until its peak of 285.3 in 1991. Since the peak in 1991, the index has decreased 214.0 points.

[6] See Hiroshi Nakaso's 2001 paper, "The Financial Crisis in Japan during the 1990s: How the Bank of Japan Responded and the Lessons Learnt" published by the Bank of International Settlements, p. 32 for data on amount Sweden spent to restore financial stability.

Figure 5: Index of Urban Land Price in Six Major Japanese Cities: 1955-2004



Source: Japan Statistics Bureau, Chapter 15 Real Estate and Land (Japan Real Estate Institute)

The creation of the asset bubble was aided by measures taken by the Japanese government after World War II to increase economic growth. One such measure was called the "convoy system." The "convoy system" was a form of banking regulation whereby the Bank of Japan and the Ministry of Finance were expected to bailout failing banks and, in return for protection banks were expected to channel excess household savings to the industrial sector to increase the economy growth rate (Nakaso, 2001: p. 2). The "convoy system" created a moral hazard problem since it was believed by creditors and depositors that financial institutions were unable to fail, or 'too big to fail'. The presence of moral hazard changed the incentives of banks by increasing the risks taken in the financial system, including the undertaking of more risky loans.

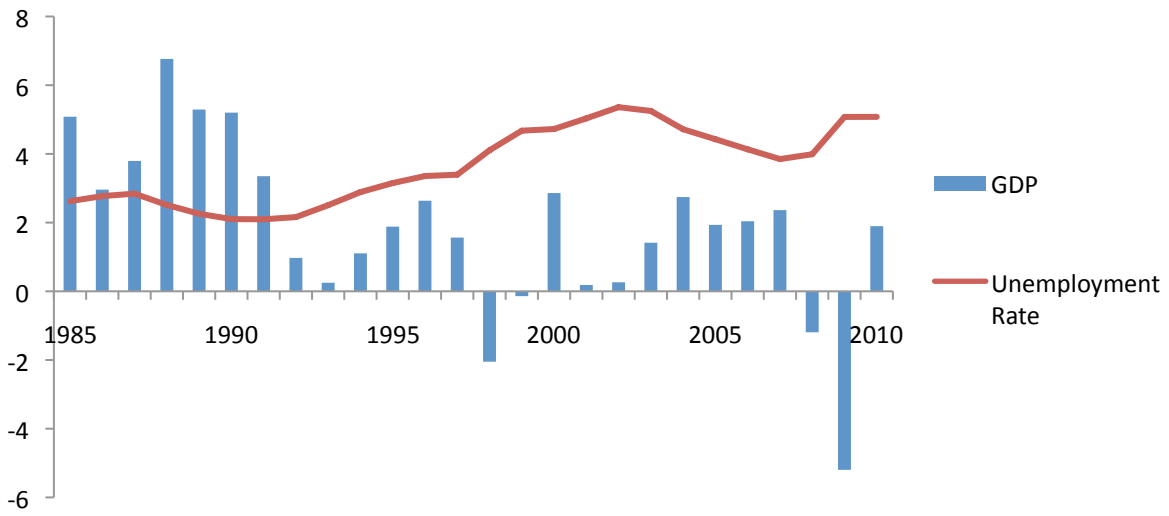
Furthermore, financial institutions were exposed to asset price shocks though housing loan corporations (*jusen*) that were created in 1970s by banks and other financial institutions to complement housing loans offered by banks (Nakaso, 2001: p. 6), as many banks owned or gave loans to *jusen* companies. By the 1980s, *jusen* companies faced increasing competition from banks for home mortgages so they expanded their lending to other market segments, specifically real estate developers. Once the asset bubble burst, *jusen* companies were caught holding a large quantity of non-performing loans. The Bank of International Settlements (2001) and the Japan Ministry of Finance

report that the aggregated loss of the seven *jusen* companies was ¥6,410 billion in the summer of 1995[7], much more than bank founders were able to cover.

2.2.2 Real Economy

Prior to the financial crisis, Japan had experienced sustained positive GDP growth that began to contract in 1988 after peaking at 6.8 percent and declined to 0.97 percent during the first year of the crisis (Figure 6). Since the financial crisis, Japan's GDP growth has become stagnant. Furthermore, since 1980 Japan had consistently maintained a low unemployment rate around 2.0 percent (Figure 6). However, since the financial crisis, Japan has experienced high levels of persistent unemployment. Also, similar to Sweden, prior to their financial crisis, Japan was in the midst of a long run central government debt problem that continued after the onset of the financial crisis in 1991 (Figure 7). More recently, Japan's general government net debt reached 96.8 percent of GDP in 2008 and has been forecasted by the International Monetary Fund to increase to 121.7 percent of GDP in 2010.

Figure 6: Percentage Change in Japan's GDP and the Unemployment Rate: 1985-2010[8]

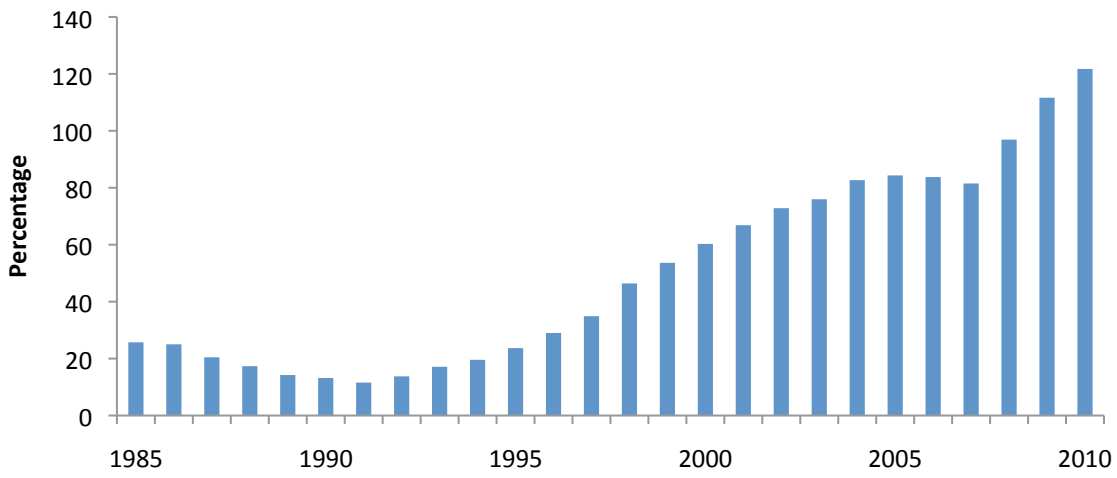


Source: International Monetary Fund, World Economic Outlook Database April 2010

[7] See Hiroshi Nakaso's 2001 paper, "The Financial Crisis in Japan during the 1990s: How the Bank of Japan Responded and the Lessons Learnt" published by the Bank of International Settlements for data and information on the aggregate loss of the seven *jusen* companies.

[8] Estimates start after 2009.

Figure 7: Japan's General Government Net Debt (National Currency) a Percentage of GDP: 1985-2010[9]



Source: International Monetary Fund, World Economic Outlook Database April 2010

2.2.3 Japan's Policy Response

During the financial crisis, Japanese policy makers experienced the inherent trade-off between creating moral hazard and maintaining financial stability. Resolution of a failed institution under insolvency laws creates the least moral hazard since shareholders lose their equity holdings; however, in Japan the insolvency approach was feared to have systemic consequences for financial markets (Nakaso, 2001: p. 47). Thus, deposit insurance funds were used to bailout insolvent banks. The financial turmoil in autumn 1997 made it clear that the deposit insurance fund would be unable to fulfil its obligations and the use of public funds would be necessary (Nakaso, 2001: p. 32). Once the seriousness of the financial crisis was realized, the Japanese government moved to recapitalization programs to reduce the credit crunch. The Japanese government gave all large banks capital injections in order to prevent speculation of 'weak' banks and to give the financial institutions a buffer to absorb losses. However, the multiple capital injections were not enough to restore financial stability.

Due to the unsuccessful nature of the final round of capital injections in 1999, Japan moved to temporary nationalization of insolvent banks in order to clean up their balance sheets by selling off non-performing loans. Once the non-performing loans were sold off, the government found new investors to buy the nationalized banks. The Japanese government established a number of asset management companies such as the Resolute and Collection

[9] Estimates start after 2008.

Bank (RCB), a combination of failed credit unions and the Housing Loan and Administration Corporation (HLAC) created to manage loans of failed *jusen* companies that were taken over by the government. These asset management companies were new banks created by the government to manage non-performing loans and given low-interest loans and capital injections to keep them afloat. In contrast to Sweden's 4 percent of nominal GDP spent on capital injections and loans, Japan spent a total of ¥70 trillion ($648 billion) or 14 percent of nominal GDP on credit lines and cashable bonds assigned for loss coverage[10]. The large amount spent on bailing out the Japanese financial sector further added to Japan's large fiscal deficit.

[10] See Hiroshi Nakaso's 2001 paper, "The Financial Crisis in Japan during the 1990s: How the Bank of Japan Responded and the Lessons Learnt" published by the Bank of International Settlements, p. 32 for data and further information on the monetary amount Japan spent to restore financial stability.

3 Fiscal Implications of 'Too Big to Fail' in the United States

3.1 Long Run United States Debt

Long-run budgetary problems are not a new dilemma for the United States. Alan Greenspan (1997), previous Chairman of the Federal Reserve Board warned of the long-term effects of maintaining "decades of budgetary imprudence" and the importance of "recognizing the fiscal problem" in his testimony before the Committee on the Budget and the U.S. House of Representatives. Greenspan (1997) suggested that small improvements in the context of the decades-long deterioration in the U.S. fiscal position should be looked at in the context of a "small down payment made on the longer-range problem confronting the United States in the future, due to the weak funding for the social security and Medicare systems." Furthermore, Greenspan (1997) warned that the longer the U.S. waited to make inevitable adjustments to the social security and Medicare systems, the more difficult they would become and, if the U.S. procrastinated too long, the adjustments would be "truly wrenching".

The United States debt can be broken into two types: private debt held by households such as mortgages and public debt held by the federal, state and local governments. Currently, the global financial crisis has morphed from being a private debt crisis to a public debt problem, as the private debt held by U.S. citizens has been offloaded to the federal government. Section 3 will first discuss the U.S. private and public debt problems, followed by a discussion on the fiscal implications of having banks that are 'too big to fail' and will finally illustrate an example of the risks of long-run over-borrowing.

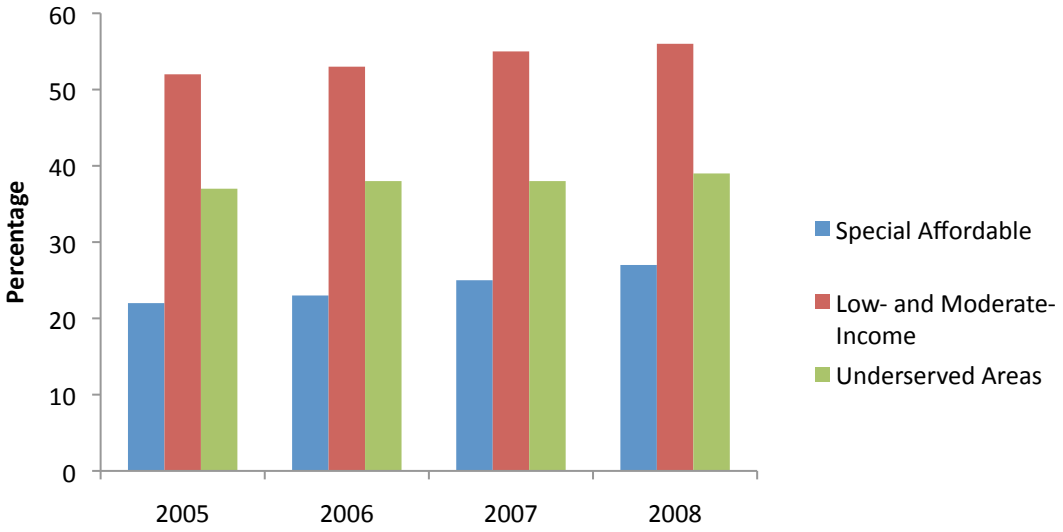
3.1.1 Private Debt Crisis

The U.S. private debt crisis began in the early 1990s with the creation of an asset bubble in the housing market, stemming from easily available credit. As evidence mounted in the early 1990s that U.S. income distribution of all percentiles other than the 95th were experiencing stagnant growth and the income inequality gap was increasing[11],

[11] Data from U.S. Census Bureau Historical Income Tables, Table F-1: Income limits for each 5th and top 5 percent of families (all races) can be found at http://www.census.gov/hhes/www/income/histinc/f01AR.html.

fast-acting political measures to address the growing inequality were introduced, specifically, affordable housing and easy credit for low-income groups[12].

Figure 8: United States GSE Affordable Housing Goals: 2005-2008



Source: U.S. Department of Housing and Urban Development; Working Paper No. HF-018

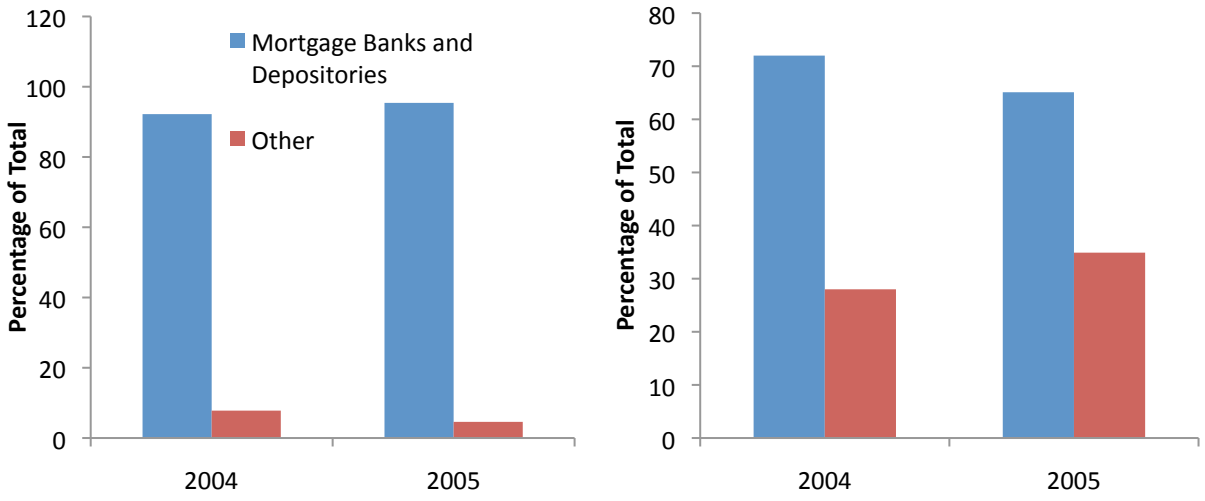
In 1992, Congress passed the Federal Housing Enterprise Safety and Soundness Act (FHEFSSA) that instructed the Department of Housing and Urban Development (HUD) to determine the percentage of their business that should be devoted to promoting low and moderate income housing though the two GSEs, Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac). In exchange for Federal benefits in the form of lower funding costs, Fannie Mae and Freddie Mac were required by Congress to promote access to mortgage credit for underserved families and their communities (Bunce, 2007: p. 5) by giving low income citizens a chance at living the 'American dream'. Under the HUD, Fannie Mae and Freddie Mac were to establish and meet three annual affordable-housing goals: (1) Low- and Moderate –Income Goal that targeted borrowers with income no greater than area median income, (2) Special Affordable Goal that targeted very low-income borrowers and (3) Geographically-Targeted or Underserved Area Goal that targeted low–income and high-

[12] Although it has not been explicitly stated in any government documents that that the affordable housing measures were to temporarily correct the growing income inequality, many sources such as blogs, papers and books such as Rajan's book published in 2010 titled, Fault Lines: How Hidden Fractures Still Threaten the World Economy suggest this was the case – specifically pages 8-9 and 34-35.

minority neighbourhoods (Bunce, 2007: p. 5). Specifically, the rate for the low and moderate-income GSE goal increased from 42.0 percent in 1996[13] to 56.0 percent in 2007 (Figure 8).

Furthermore during this time period, the HUD also changed the criteria of GSEs for meeting housing goals, allowing the two quasi-public institutions to count the purchase of subprime mortgages towards their quota for low and middle income housing falling under the 'other' category (Figure 9). For example, Fannie Mae's main sources of loans were primarily from 'traditional' mortgage banks and depositories defined by Bunce (2007) as mortgage banks, savings institutions, banks and credit unions, and accounted for 92.2 and 95.4 percent in 2004 and 2005, respectively. In contrast, Freddie Mac relied more heavily on 'other' or 'non-traditional' sources that increased from 28.0 to 34.1 percent in 2004 and 2005, respectively, due to the higher purchases of subprime asset-backed securities by Freddie Mac's (Bunce, 2007: p. 11-12) as loan purchases.

Figure 9: United States GSEs Acquisition in Metropolitan Area of Home Purchase Mortgages: 2004-2005
Right: Fannie Mae; Left: Freddie Mac



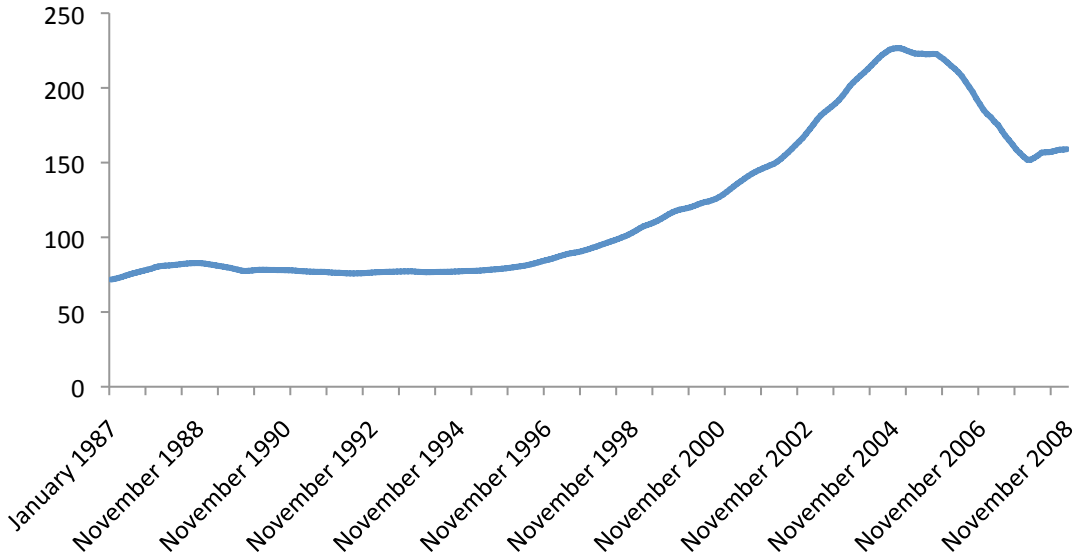
Source: U.S. Department of Housing and Urban Development; Working Paper No. HF-018

Further adding to the ability of middle and low income citizens to receive easy credit were brokerage housing such as New Century that were applying deceptive, high-pressure tactics to low income citizens, creating risky mortgages

[13] See Robert Pozen's book, *Too Big to Save? How to fix the U.S. Financial System* published in 2010, p. 30 for the 1996 rate for low and moderate income GSE goals.

such as the NINJA mortgage (no income, no job, no asset) and adjustable-rate mortgages that had a resetting interest rate for clients. The innovative mortgages allowed homeowners to use their house as an ATM machine, drawing out cash against its rise in value and increasing private debt. The Case-Shiller index shows that housing prices began to run up in the late 1990s from their previously constant rate of between 70 and 80 basis points (Figure 10). The run up in the Case-Shiller housing price index came to an end in April 2006 after reaching 226.6 basis points.

Figure 10: Case-Shiller United States Home Prices (Seasonally Adjusted) Composite-10: 1987-2010

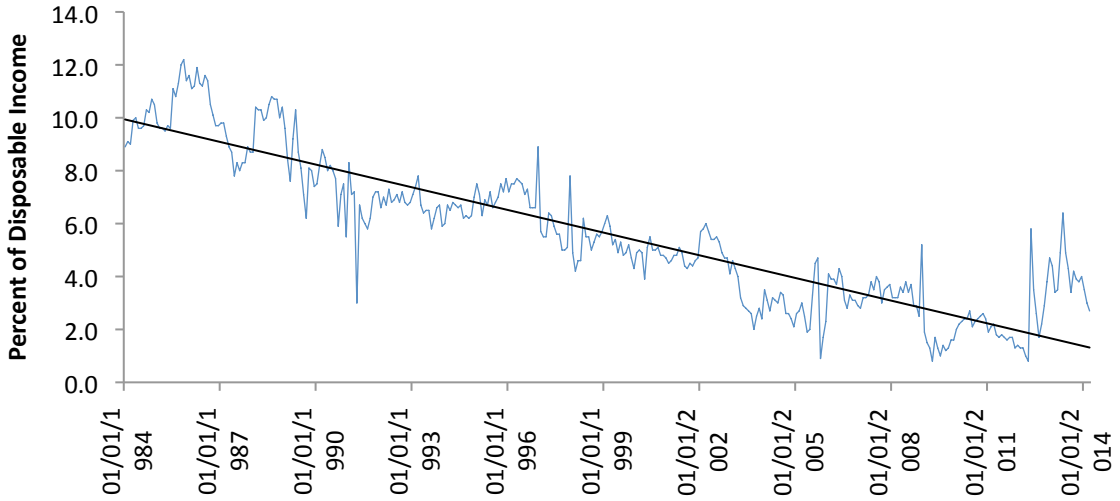


Source: Case-Shiller Home Prices History

Furthermore, over the past twenty years, there has been a considerable downward trend in rate of U.S. personal savings (Figure 11). The low personal savings rate stemmed from a structural shift in household saving and spending behaviour due to financial liberalization and innovations that made it easier for Americans to borrow, particularly against their real estate value and increase consumption (Ferguson, 2005: p. 5). As well as having a low personal savings rate, the U.S. consumer has continued to have high outstanding credit obligations that have risen since 1980 (Figure 12). The increase in outstanding credit obligations is due to increased private debt due to the rising values of their homes. Once housing prices declined and consumers were no longer able to afford financing on their private debt, the government stepped in to take on a portion of the outstanding private debt. The current trend

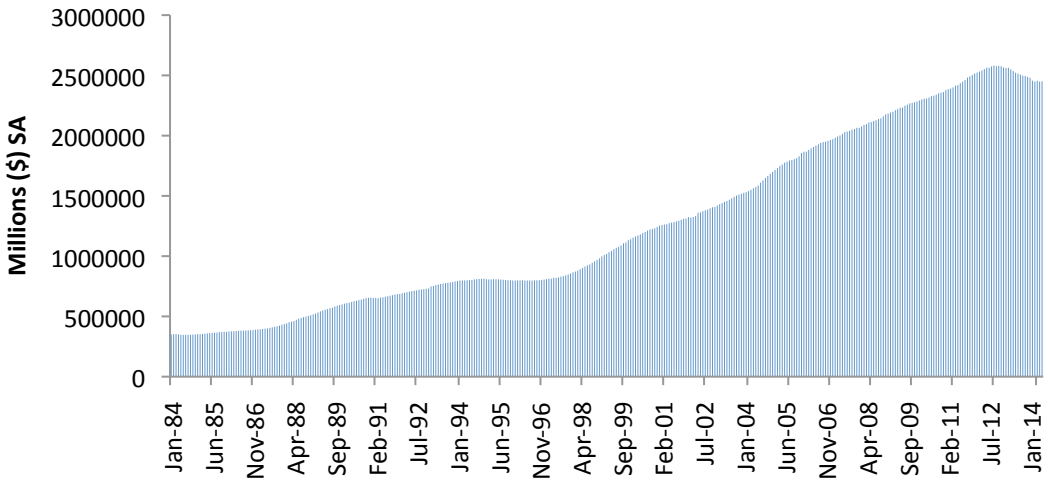
of low savings and high outstanding credit is not sustainable in the long run, posing a downside risk to the U.S. economy.

Figure 11: United States Personal Savings Rate (Monthly): 1980-2010



Source: Economic Research, Federal Reserve Bank of St. Louis

Figure 12: Total U.S. Consumer Credit Outstanding in Millions of dollars; Seasonally Adjusted: 1980 -2009



Source: Federal Reserve Statistical Release

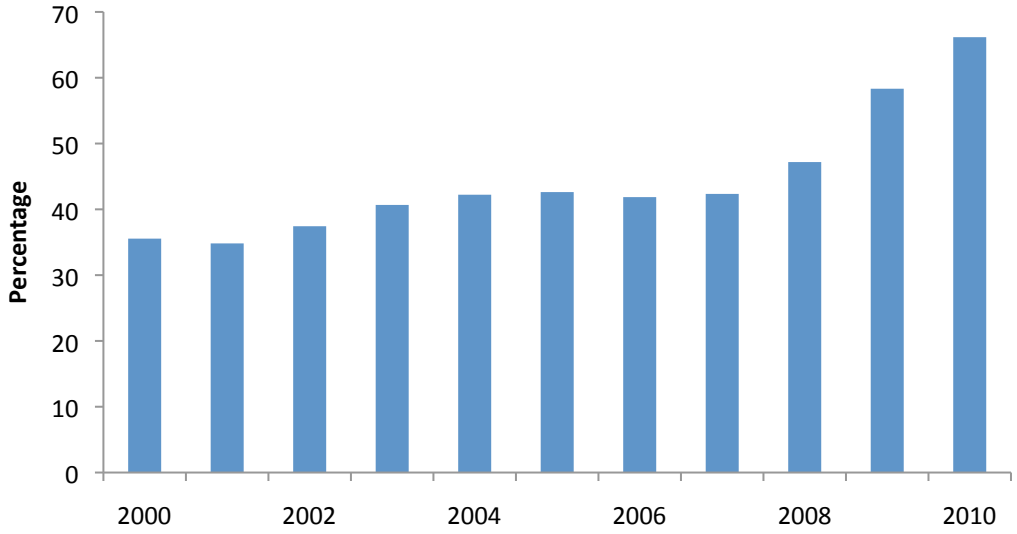
3.1.2 Public Debt Crisis

Prior to the global financial crisis, the U.S. federal government had a net government debt-to-GDP ratio of 41.9 percent in 2006(Figure 13). However, in the year after the global financial crisis (2009), the federal government's net debt-to-GDP ratio increased by 16.5 percent to 58.3 percent of GDP.

The deterioration of the U.S. fiscal situation is not restricted to the federal level. States such as California, New York, and Illinois have become highly indebted (Badenhausen, 2010), forcing the governments to increase their level of debt issuance. For example, since 2000 California's fiscal situation has dramatically deteriorated, forcing the state to increase their debt issuance, which reached $95 billion in 2009 (Figure 14). Large state public debt, such as California's, coupled with growing federal debt poses another downside risk to the long run budgetary problems facing the United States.

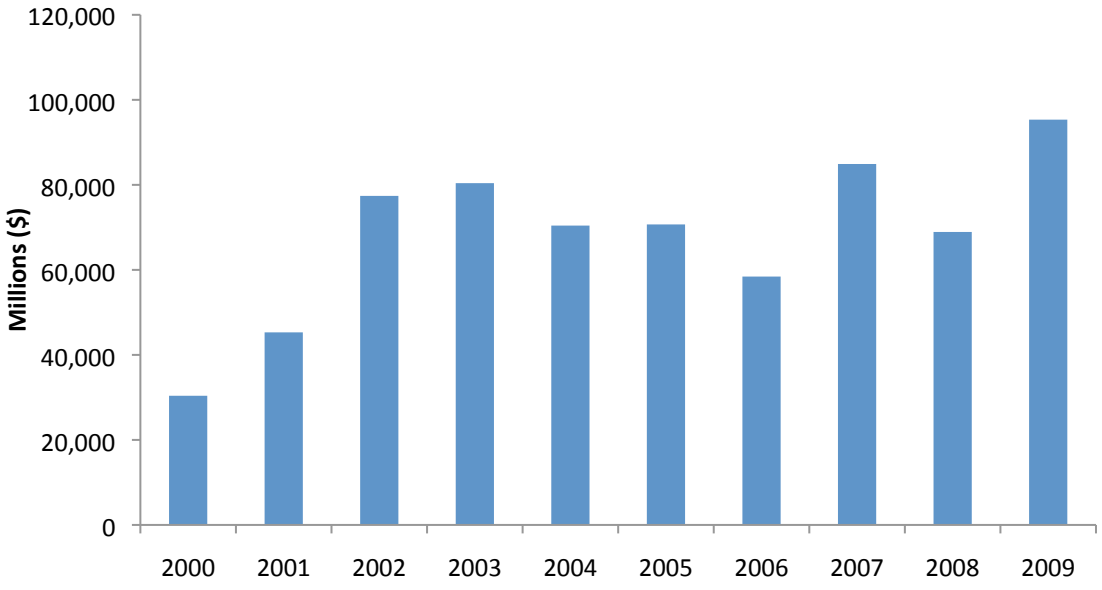
The long run budgetary problem in the United States long stems from two primary factors: lack of tax revenue and increased expenditures due to increased costs to the health care and the social security system as the baby boom generation moves into retirement. On the revenue side, the historical emphasis on tax cuts and maintaining low tax rates in the United States has reduced government revenues and has forced the U.S. to spend beyond their means. Historically, the U.S. has been an under-taxed nation compared to other OECD countries. Figure 15 shows the federal government total tax revenue as a percentage of GDP from 1987 to 2009 of four countries – Australia, Canada, United States and the European Union comprised of fifteen countries – as well as the OECD total tax revenue as a percentage of GDP. It can be seen that over the data 1988 to 2008 period, the U.S. has maintained the lowest tax revenue as a percentage of GDP of all the countries listed, averaging 9.8 percentage points below the OECD average.

Figure 13: General Government Net Debt (National Currency) as a Percentage of GDP: 2000 - 2010[14]



Source: International Monetary Fund, World Economic Outlook Database, April 2010

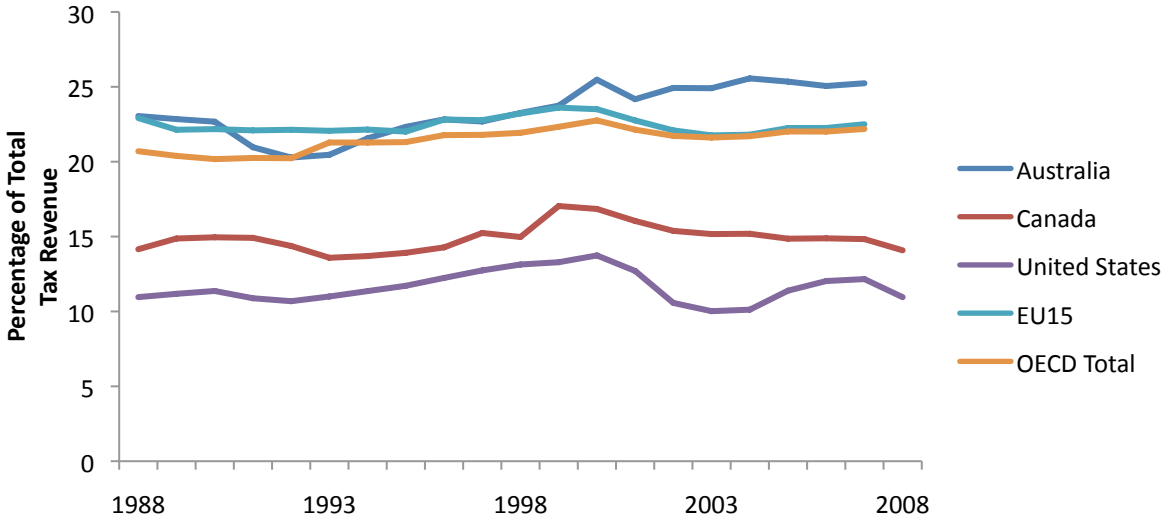
Figure 14: Total California Public Debt Issuance: 2000-2009



Source: California Debt and Investment Advisory Commission (CDIAC)

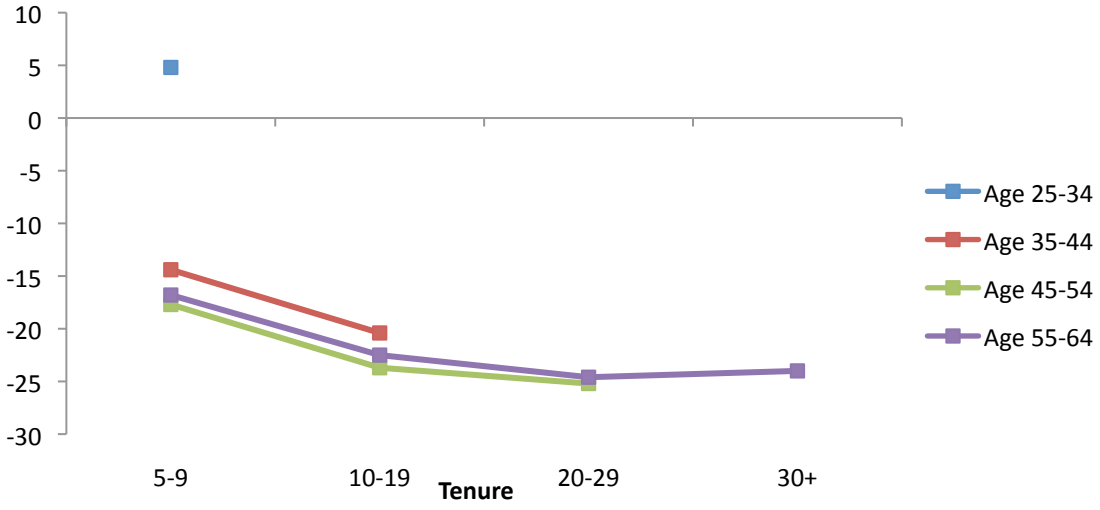
[14] Estimates start after 2009.

Figure 15: Federal or Central Government Total Tax Revenue as a Percentage of GDP: 1987-2009



Source: OECD Stats

Figure 16: Changes in Balances of 401(k) Plans in the United States in 2008



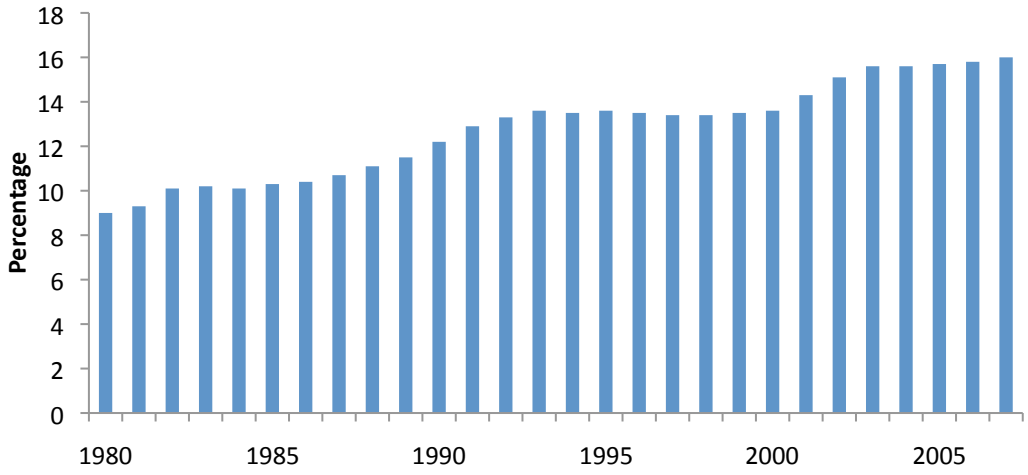
Source: Pensions at a Glance 2009: Retirement –Income System in OECD Countries – OECD © 2009 Part1 "Policy Issues", Chapter 1 "Pension system during the financial and economic crisis" Version 1

On the expenditure side, there are two primary factors contributing to the poor U.S. fiscal situation. First, with the social security system under stress from the first of the baby-boom generation entering retirement, the global

financial crisis has moved forward the urgency for reform and increased social security funding. In 2008, private pension funds in OECD countries lost 23 percent of their investment value due to the fall in equity and property prices ("Pensions at a Glance 2009," 2009: p. 11). As well, revenues for public pension plans have decreased due to rising unemployment and stagnant wages of the contributors. The financial crisis had a large effect on the balance of 401(k) plans – the main private defined-contribution scheme in the U.S. (Figure 16). Specifically, the financial crisis had the largest effect on the 45-54 year old age group and changed the balance of their 401(k) plans from 18 percent for short tenures and 25.2 percent for long tenures.

The increase in health care expenditures due to an aging population and rising health care costs is the second factor posing a large downside risk to the U.S. fiscal situation. Among OECD countries, the U.S. health care spending ranks the highest relative to GDP. The percentage of GDP that health care expenditures account for has increased since 1980 and will continue to grow as the baby-boom generation ages (Figure 17). The sharp increase in health care costs reflects the lack of funding in the health care sector, leading the International Monetary Fund (2004) to report that the system will fall into deficit in 2016 and have to be supported by growing transfers out of the federal general fund unless steps are taken to adjust contribution rates and benefits. Furthermore, as access to health care becomes more difficult for low income households and health spending continues to outpace income, health insurance and out-of-pocket payments will become increasingly unaffordable, putting even greater pressure on the government budgets (Bernanke, 2008: p. 3-4).

Figure 17: Total Expenditure on U.S. Health Care as a Percentage of GDP: 1980-2007



Source: OECD Stats

The long run budgetary problems faced by the U.S. that were thought to be a pressing issue over the next decade now pose a large downside risk to the U.S. fiscal situation in the aftermath of the global financial crisis. The large federal fiscal deficit that poses a large downside risk to the U.S. economy is further coupled with large state and private debt, making the U.S. fiscal situation a greater issue than most policy makers had forecasted. Furthermore, without the cushion provided by previous government surpluses, the time to address the social security and health care systems' underlying insolvency before government deficits and debt begin to increase unsustainably is lessened, making more urgent the need for reform (Muhleisen and Towe, 2004).

3.2 Fiscal Implications of 'Too Big to Fail'

3.2.1 U.S. Policy Responses

The United States policy response to the global financial crisis of 2007-2009 included: (1) purchase of preferred shares by the Treasury, (2) ad-hoc bailout packages and mergers of some financial and non-financial institutions, as well as creation of bank holding companies and (3) the Troubled Asset Relief Program.

The first policy response made by the U.S. government came on October 13th, 2008 when the CEOs of the nine large banks deemed 'too big to fail' – Bank of America, Bank of New York Mellon, Citigroup, Goldman Sachs, JPMorgan Chase, Merrill Lynch, Morgan Stanley, State Street and Wells Fargo – met with Treasury Secretary Henry Paulson and agreed to sell preferred shares to the government. By taking ownership interest in the nine major banks, the government was able to loan the banks money at a preferential rate below market rate of 5 percent and also chose to guarantee new debt issued by the banks, allowing them to raise money by selling government backed bonds to private investors (Johnson and Kwak, 2010: p. 154-155).

The second policy response made by the U.S. government was a group of ad-hoc bailout packages, mergers, use of government conservatorship and creation of bank holding companies to prevent bankruptcy. Such mergers included Bear Stearns with JP Morgan Chase & Co, and Merrill Lynch with Bank of America, as well as bailouts including AIG, and Country Wide. Government sponsored enterprises Fannie Mac and Freddie Mac were taken over by the government and placed in a conservatorship. Furthermore, Goldman Sachs and Morgan Stanley were forced to

become bank holding companies which gave them increased access to emergency lending from the Federal Reserve (Johnson and Kwak, 2010: p. 155). All of the ad-hoc bailout packages and mergers were funded by the tax payer.

The final policy response made by the U.S. government was the passing of the Emergency Economic Stabilization Act that included the provision of the Troubled Asset Relief Program (TARP). The TARP program gave the Treasury $700 billion to buy troubled assets from financial institutions. Specifically, $125 billion was committed to the nine major banks with an additional $40 billion given to Citigroup and Bank of America and more TARP money was used to finance the Federal Reserve guarantees of toxic assets held by Citigroup and Bank of America (Jonson and Kwak, 2010: p. 164). Furthermore, the FDIC promised to insure up to $1.5 trillion of new bank debt and the Federal Reserve committed trillions to an expanding list of liquidity programs intended to provide cheap money to the financial system (Jonson and Kwak, 2010: p. 154). The final round of TARP money was to be used by the Obama administration to create the Public-Private Investment Program (PPIP) to relieve banks of the toxic assets on their balance sheets. However, the U.S. government was unable to persuade enough banks to enter the program due to the mark down banks would face on their balance sheets if the toxic assets were removed, leaving financial institutions to hold onto their toxic assets.

3.2.2 Fiscal Implications of 'Too Big to Fail'

The policy response over the Bush and Obama administration supported the current financial system due to the belief that the financial and non-financial institutions were 'too big to fail,' despite their involvement in the creation of the global financial crisis. Instead of taking their previous advice given to emerging market countries in the 1990s and takeover failed banks, Paulson, Bernanke, Geithner and Summers chose to bailout the large banks they had deemed 'too big to fail' with taxpayer money.

Although the U.S. government was successful in restoring financial stability though the use of bailouts, it did not address the underlying moral hazard problem in the financial sector and instead chose to add a larger burden to their long run fiscal deficit problem. Economists such as Nobel Prize laureates Paul Krugman and Joseph Stiglitz believed the bailouts will do little to solve the short-term or long-term problems with the financial sector because the bailouts were not enough to restore the financial sector to the health necessary for them to start lending again. Furthermore, Thomas Hoenig (2009:p. 9), president of the Federal Reserve Bank of Kansas City suggested that institutions – no matter their size – that have lost market confidence and cannot survive without government

financing should have their losses written down, capable management brought in, and begin the process of restoring the institutions to private ownership, similar to the process taken by the FDIC and Sweden during the 1991-1994 financial crisis[15].

The choice to bailout 'too big to fail' financial institutions has had large fiscal implications immediately and in the long-term for the United States. First, the total potential support package of the TARP program has been estimated by the special inspector general for TARP to be $23.7 trillion or over 150 percent of U.S. GDP[16]. However, this estimate represents the potential liabilities of the government, as the net costs will be much lower since not all lending commitments are required, most loans will be paid back and most preferred shares will be bought back (Jonson and Kwak, 2010: p. 174). In their latest Budget and Economic Outlook (2010), the Congressional Budget Office (CBO) estimates that the total net cost of TARP will be $99 billion (excluding administrative costs) over the life of the program.

Second, the immediate fiscal effects of 'too big to fail' were felt in the 2009 U.S. budget balance due to the $787 billion stimulus package spent on infrastructure technology, tax cuts, education, energy, health and unemployment benefits[17], TARP outlays totalling $152 billion, net payments to Fannie Mae and Freddie Mac accounting for $91 billion, and decreased revenue of 17 percent due to lower taxable income and corporate profits[18]. In 2009, the U.S. total federal government debt as a percentage of GDP increased 13.1 percent from 40.0 percent of GDP to 53.1 percent of GDP[19].

Third, the long term fiscal implications of 'too big to fail' on the U.S. fiscal deficit will be even greater. In the Congressional Budget Office (CBO) for 2009-2019, the projected debt held by the public as a percentage of GDP

[15] It should be noted that although the FDIC and Sweden successfully used the takeover approach to failed banks, a takeover approach on Wall Street would be more complex since the nine banks at risk of failing were large, internationally connected banks that would have required international cooperation if the banks were to be taken over.

[16] See Johnson and Kwak (2010) p. 174 for the estimate outlays of the TARP program.

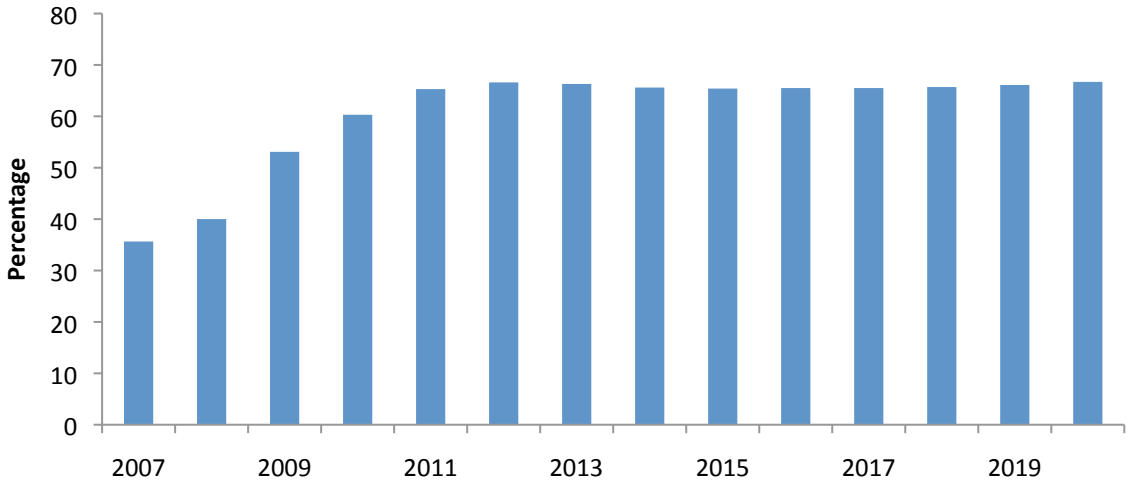
[17] See Nanto (2009) report published by the Congressional Research Service p. 39 for spending of TARP or follow the link: http://www.fas.org/sgp/crs/misc/RL34742.pdf.

[18] See "The Budget and Economic Outlook Fiscal Years 2010 to 2020" by the Congressional Budget Office (2010) for the net payments to GSE's or follow the link: http://www.cbo.gov/ftpdocs/108xx/doc10871/frontmatter.shtml.

[19] Data is from OECD Stats Extract.

dropped to 41.9 percent in 2019. However, in the CBOs most recent Budget and Economic Outlook report (2010), the debt held by the public has been projected at 65.5 percent of GDP for 2019, a 23.6 percent increase from 2009's CBO Outlook report (Figure 18).

Figure 18: U.S. Baseline Budget Projections as a Percentage of GDP; Debt Held by the Public: 2007-2020[20]



Source: Congressional Budget Office, OECD Stats

3.3 An Illustration of the Potential Threat to the United States from Continued Uncontrolled Borrowing

As Paul Volker (2010) pointed out in his article, "*The Time We Have is Growing Short*" if the U.S. needs a further illustration of the potential threats to their economy from continued uncontrolled borrowing, they only have to look to the European Union and the ongoing Greek debt crisis and the struggle to maintain a common currency. Section 3.3 will briefly discuss the potential risks of prolonged uncontrolled borrowing, using the example of Greece.

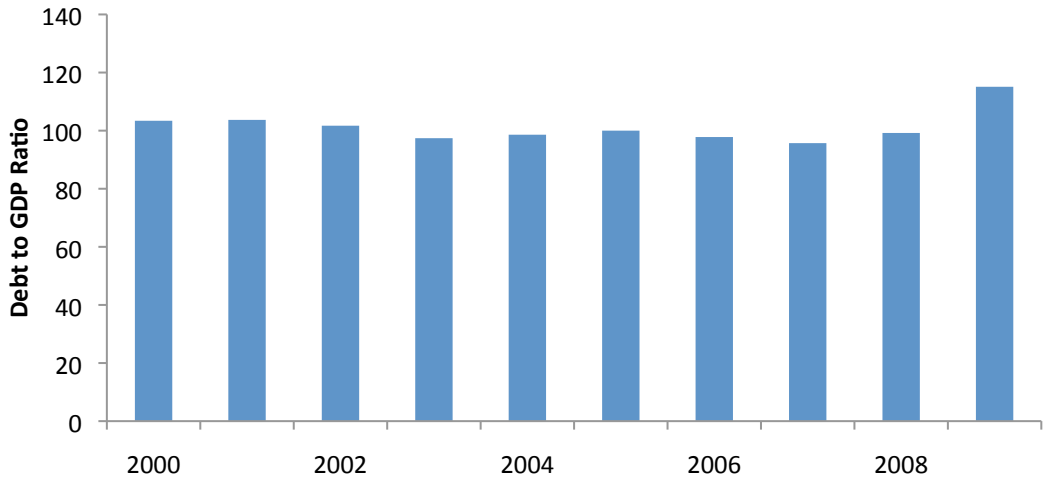
3.3.1 Greek Debt Crisis

The recent Greek debt crisis is an example of a long run public budgetary problem that increased in severity when the global financial crisis spread across the world in 2008. Emerging markets in Europe, such as Greece, proved vulnerable to reduced capital inflows due to high levels of private debt to foreign banks and foreign-currency exposure (Anderson, 2009). Prior to the global financial crisis, Greece had a long run government debt problem

[20] 2007-2009 are actual, projections from 2010-2020.

due to a fiscally irresponsible government (Figure 19). However, the severity of Greece's budgetary problems increased in 2008 and 2009, leaving Greece with a public consolidated gross debt-to-GDP ratio of 115.1 percent in 2009, an increase of 15.9 percent of GDP from 2008.

Figure 19: General Greek Government Consolidated Gross Debt as a Percentage of GDP: 2000-2009



Source: European Commission, Eurostat

The balance sheet problems for Greece caused the Greek government bonds to be downgraded to junk status by the credit rating agencies as they were no longer comfortable with Greece's budget deficit and their ability to repay lenders. The downgrade in government bonds left investors worried about the unsustainable fiscal positions in Greece and other euro area sovereigns (Gyntelberg, Hordahl and King, 2010: p. 5), causing the 5-year credit default swaps on Greek government bonds to increase 102.6 basis points to a record high of 848.8 points[21] over speculation that Greece would default on its debt. Furthermore, the widening of Greek bond spreads relative to German bonds increased the cost of borrowing, which in turn decreased their ability to roll over debt, causing a debt crisis.

Unlike Sweden, that was able to devalue their currency by abandoning their fixed exchange rate policy and experience an export-driven upturn to bring them out of the recession, Greece and other highly indebted European countries are tied to the euro zone and were unable to devalue their currency. Thus, in attempts to restore the euro zone's financial stability, the European Central Bank (ECB) created a €440 billion special purpose vehicle called the

[21] Data extracted from Bloomberg: Greece CDS USD SR 5Y Daily

European Financial Stability Facility to absorb 'junk' debt that, if allowed to default, would trigger a redistribution of income from northern Europe to southern Europe (Munchau, 2010). Similar to the bailout packages given to the U.S. financial sector during the global financial crisis that redistributed debt from the household to the public sector, the EBC's bailout package redistributed the debt created at the sovereign level by fiscally irresponsible governments to the highest governing authority, the European Central Bank, to be paid by all euro zone members.

Greece was not the only country in the euro zone that was affected by the debt crisis. Contagion spread across Europe to other euro zone countries such as Portugal, Ireland and Spain that also had high levels of debt-to-GDP, inducing a widening of the sovereign CDS and bond yield spreads relative to German bonds (Gyntelberg, Hordahl and King, 2010: p. 8). The rise in sovereign default risk caused investors to worry about the exposure euro banks had to Greek, Portuguese, Irish and Spanish assets. Specifically, the Bank of International Settlements (2010) found as of December 31 2009 euro area countries were the most exposed to Greece, Ireland, Portugal and Span and in total held $727 billion of exposures to Spain, $402 billion to Ireland, $244 billion to Portugal and $206 billion to Greece. Furthermore, within the euro zone, the BIS June 2010 Quarterly Review found French and German banks to be the most heavily exposed to the residents of Greece, Ireland, Portugal and Spain with a combined exposure of $958 billion ($493 billion to France and $465 billion to Germany).

Although the U.S. is not a small country tied to a currency union and is currently not vulnerable to speculative attacks such as the euro zone countries Greece, Portugal and Spain, it does have significant debt exposure. The U.S. fiscal deficit has been forecasted to increase as the private debt crisis of 2007-2009 turns into the public debt problem caused by the fiscal implications of bailing out 'too big to fail' banks and the aging population. The current fiscal deficit has left the U.S. ill-prepared to address future financial crises and has decreased their ability to run a cyclical deficit to stimulate the economy during a downturn. A further risk to the U.S. economy is the amount of debt held by foreign investors. Specifically, in 2009, 48 percent ($3.6 trillion) of federal debt was held by foreign investors, primarily by China and Japan that held 10.6 percent and 10.0 percent of the debt, respectively. Together in 2009, both China and Japan held approximately one-fifth of U.S. Treasury debt[22]. Since a large portion of U.S. debt is not held domestically, the U.S. is left exposed to the political and economic choices of foreign countries that may chose to discontinue the purchase of U.S. government bonds at any time.

[22] See U.S. Congressional Budget Office (2010) for data and further information on the foreign holders of U.S. debt.

4 Lessons to be learned for Canada from Previous Financial Crises

Section 4 will discuss two lessons Canada can learn from previous financial crises. The first lesson is the fiscal implication that `too big to fail` banks can have during a financial crisis. It is important that if large banks exist in a banking sector, a strong regulatory structure is in place to decrease excess risk taking. Furthermore, if a bank becomes insolvent and is deemed `too big to fail`, it is important that policy makers understand the policy options available to address insolvency and the fiscal implications such policies can have on public debt. Section 4.1 will discuss the importance of managing large Canadian banks with the appropriate regulation to reduce excess risk taking.

The second lesson Canada can learn from previous financial crises is the importance of having a fiscally responsible household and public sector. This is especially important in preventing the creation of asset bubbles though excess private debt, as well as during a financial crisis when governments naturally run a cyclical deficit. Furthermore, having had previous government surpluses and a low public debt-to-GDP ratio, the government has freedom when assessing potential policy options. Section 4.2 will investigate Canada's current private and public debt situations and their implications for the creation of future financial crises.

The final section of the paper, Section 4.3, will discuss five potential downside risks to the Canadian recovery after the global financial crisis. These risks include the strength of the global commodity markets, the effects of a slow U.S. recovery and strength of the Canadian dollar, increased private debt and the creation of an asset bubble, the quality of mortgage insurance backed by the government, and increases in the level of provincial and regional government debt.

4.1 The Importance of Managing Banks that May be Deemed 'Too Big to Fail'

4.1.1 Are the Large Canadian Banks `Too Big to Fail`?

The Canadian banking sector is highly concentrated with the six largest banks accounting for 90 percent of total deposits (Northcott, Paulin and White, 2009: p. 53) in the Canadian financial system. The six banks include the Royal Bank Financial Group, Bank of Montreal, the Canadian Imperial Bank of Commerce, TD Bank Financial

Group, Bank of Nova Scotia and National Bank. Although the concentrated banking system has allowed for a faster reaction time and better regulation between the six banks and the Office of the Superintendent of Financial Institutions (OSFI), the implications of having a highly concentrated Canadian banking sector on the government's policy response when a large bank becomes insolvent are untested. Specifically, it is unproven whether the Bank of Canada and OSFI would choose to bailout or take-over any one of the six large institutions if faced with insolvency. However, in a recent speech to the financial community in Toronto, Mark Carney, Governor of the Bank of Canada, stated that, "countries must find an orderly way to let failing banks stumble, then work to contain the damage, rather than propping up ailing institutions at all costs" (Robertson, 2010).

The statement given by Carney seems to imply that if faced with the insolvency of a large Canadian bank, the Bank of Canada's first response may not be to bailout the ailing institution. However, given the structure of the Canadian banking system and the counterparty risk to other banks if one was to fail, is it possible for OSFI and the Bank of Canada not to bailout an insolvent institution?

Prior to a financial crisis, governments can swear they will not protect bank creditors, but during a crisis their claims are proved worthless if they lose their nerve to follow through. However, an implicit guarantee to not bailout large banks, such as the development of an embedded contingent capital program approved by OSFI can be implemented. The embedded contingent capital is a security that converts to common equity when a bank is nearing insolvency, thereby increasing the core capital of the bank without the use of taxpayer dollars (Dickson, 2010: p. 3). An advantage of the embedded contingent capital is that governments do not explicitly guarantee a bank or provide additional funds unless the contingent capital fund is depleted. However, due to the inter-connectedness of the Canadian and global banking systems, one must wonder if the embedded contingent capital fund would be enough to restore financial stability without additional funds at the expense of the tax payer. Carney's statement implies that the Bank of Canada's position on 'too big to fail' banks is to not automatically bailout a failing institution. However, the question must be asked whether the Bank of Canada would still step in to 'prop up' an ailing institutions once other measures are depleted.

4.1.2 The Canadian Regulatory Framework

The Canadian banking sector has a strong regulatory framework that helped to protect large banks from becoming insolvent during the global financial crisis. First, the Office of the Superintendent of Financial Institutions (OSFI) is responsible for prudentially regulating banks and this prudent focus ensures the soundness of banks is not compromised by competing objectives (Northcott, Paulin and White, 2009: p. 46). Second, the Department of Finance develops regulations and financial sector policy for Canadian banks and other financial institutions, and third, the Bank of Canada contributes to the economic performance of Canada by keeping low inflation though the use of monetary policy. Finally, the Canadian Deposit Insurance Corporation provides industry-funded deposit insurance protection for federally regulated financial institutions (Northcott, Paulin and White, 2009: p. 46). The regulatory agencies work together to create a strong comprehensive regulatory framework aimed at promoting inter-agency communication and coordination and facilitating issue resolution that served Canada well during the current global financial crisis (Northcott, Paulin and White, 2009: p. 46).

4.1.3 Capital Requirements

The Canadian banking sector also has capital requirements above the Basil II baseline that gave a greater capital cushion when dealing with downside risk during the financial crisis[23], as well as helped to prevent rapid balance sheet expansion due to risky investment. Evolving from the 1988 Basel Accord, Basel II Pillar 2 requirement focuses on international supervisory activity, emphasizing banks' quality of risk management and their procedures for determining capital requirements. The Basel Accord required all banks globally to hold Tier 1 capital of at least 4 percent, which must be in the form of common equity and total capital of at least 8 percent of risk-weighted assets (Ratnovski and Huang, 2009: p. 17). However, in Canada the OFSI requires banks to hold targets that are higher than the minimum Basel requirement – Tier 1 capital of 7 percent and total capital of 10 percent (Ratnovski and

[23] Although higher capital requirements may have given Canada an extra cushion during the financial crisis, the International Monetary Fund (2009) believes that a high level of capital by itself does not make banks immune during a financial crisis. Their study on "*Why are Canadian Banks More Resilient?"* found that a number of large banks appeared to be highly capitalized before the crisis but quickly exhausted their capital buffers as a result of significant exposure to troubled assets.

Huang, 2009: p. 17) since 1999[24].

4.1.4 Quality of Capital

First, the quality of capital held by banks is related to the bank's funding structure that comes from a combination of retail and wholesale funding. Retail deposits are the most safe source of bank funding since they are covered by deposit insurance and interbank depositors are relatively informed and less likely to withdraw from sound banks (Ratnovski and Huang, 2009: p. 6). In contrast, wholesale funding often involves uninformed investors and tends to be rolled over frequently. Canadian banks prior to the global financial crisis relied heavily on wholesale funding, accounting for almost half of their total funding in 2008. However, Canadian banks also had a strong retail deposit base of approximately 30 percent of funding and also relied very little on the use of securitization and repurchase agreements (approximately 20 percent) for funding (Northcott, Paulin, and White, 2009: p. 44). The International Monetary Fund (2009) study found that Canadian banks are "positive outliers" among OECD banks in their funding structure. Specifically, they rely much less on wholesale funding and much more on depository funding from retail sources such as households, leading to the conclusion that the large retail depository funding was the key factor behind the relative resilience of the Canadian banks during the global financial crisis.

Julie Dickson, the head of the OSFI, believed that the specifications of restrictions on the quality of capital were also important during the financial crisis (Freeland, 2010) and separated us from the United States. Since common equity is permanent and absorbs losses, the OSFI requires 75 percent of Tier 1 capital to be in common shares as opposed to preferred stock. Furthermore, in order to manage risk concentrations, the OSFI requires banks to limit single name exposures to 25 percent of regulatory capital[25], thus banks with higher risks offset their risk with higher capital targets.

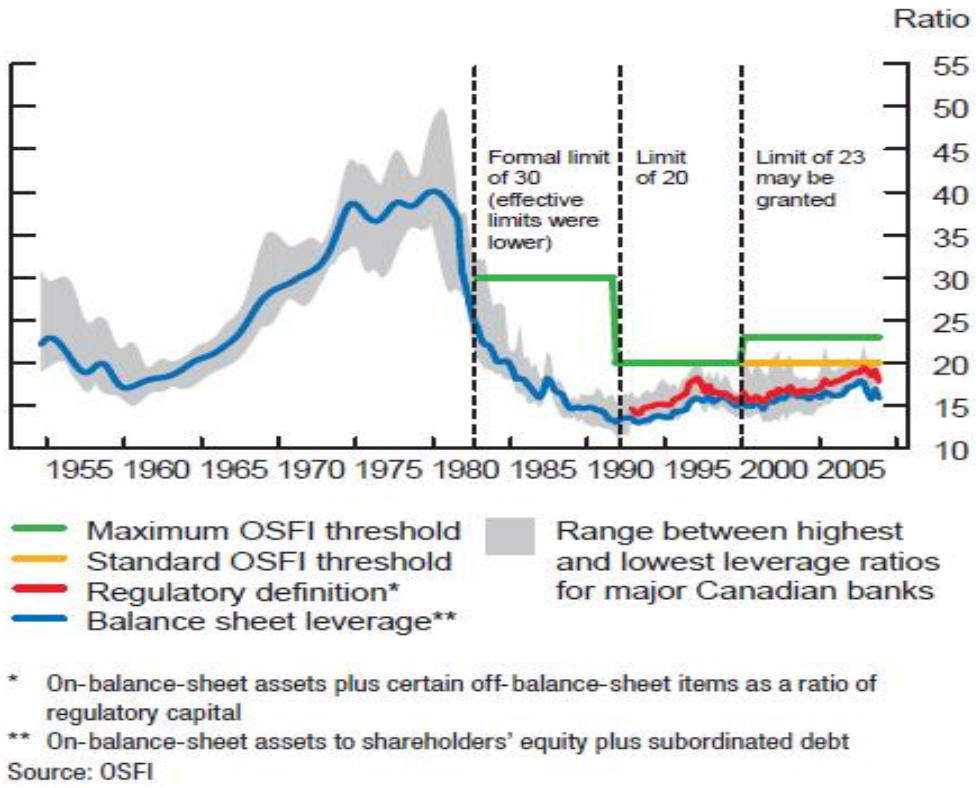
Second, the leverage ratio held by financial institutions also has implications for the quality of capital. However, there is no simple way to calculate a bank's leverage ratio as it is hard to quantify risk. In Canada, financial

[24] OSFI also requires when calculating the available capital that gains on sales arising from securitization and to cap mortgage service rights and other intangibles are to be deducted. See Northcott, Paulin, and White, (2009) p. 48.

[25] See Northcott, Paulin, and White (2009) p. 49 for details on OSFI requirements of Tier 1 capital and single name exposures.

institutions have been subject to a regulatory ceiling on the unweighted leverage ratio (defined as an assets-to-capital multiple) since the early 1980s (Crawford, Graham, and Bordeleau, 2009: p. 45). The regulatory measure of leverage in Canada is the ratio of total balance sheet assets and certain off-balance-sheet items including all direct contractual exposures to credit risk to the total regulatory capital that includes the net Tier 1 and Tier 2 capital[26].

Figure 20: Leverage History of Major Canadian Banks: 1950-2009



Source: Bank of Canada Financial System Review June 2009

Historically, the average leverage ratio for Canadian banks increased from the early 1960s until 1980 when a maximum leverage ratio was set (Figure 20). During this period, the average leverage ratio for major Canadian banks exceeded 30 and reached a peak of 40 in 1980, while individual institutions had ratios as high as 50 ("Financial Systems Review," 2009: p. 46). From 1982 to 1991 an effective upper limit on the leverage ratio was placed at 30 until 1991 when the formal upper limit of 20 was imposed until 2000 when some banks meeting certain conditions could receive an authorized multiple as high as 23 ("Financial Systems Review," 2009: p. 46). However,

[26] See the Bank of Canada "Financial Systems Review" (2009) p. 46 for the definition of the regulatory measure of leverage.

the standard limit for financial institutions in Canada is a ratio of 20, but small banks are subject to limits in the rage of 10-12.

Given the historical evidence of high leverage ratios and subsequent financial crises such as in the United States that experienced high leverage ratios prior to the global financial crisis, the historically high leverage ratios in Canada seems to imply Canada experienced a period of bank failures during the 1980s that required the Canadian financial regulatory structure to be reconsidered. Prior to the global financial crisis, the World Bank (2009) believes that excessive leverage of American banks was one of the main contributors to the financial crisis as the American risk-management treated structured credit products such as mortgage-backed securities as liquid assets, allowing banks to reduce their holdings of reliable assets (Ratnovski and Huang, 2009: p. 8). Furthermore, since the larger U.S. investment bank holding companies and their subsidiaries were regulated by the Securities and Exchange Commission (SEC), they were not subject to a leverage limit but instead were subject to restrictions at the level of the individual firm on the amount of customer receivables they could hold (D'Hulster, 2009), thus, investment banks in the U.S. became highly leveraged.

In Canada leading up to 1980, Canadian banks were highly leveraged, and, examples such as the U.S. experience during the global financial crisis seem to suggest Canada too experienced bank failures prior to the 1980s. However, it was not until the failures of the Canadian Commercial Bank (CCB) and the Northland Bank in 1985 that regulatory structure issues were rethought. Specifically, the Department of Insurance (DOI) and the Office of the Inspector General of Banks (OIGB) were merged under a common legislation of the Office of the Superintendent of Financial Institutions (OSFI) in 1987. OSFI was responsible for the regulation and supervision of all federally chartered, licensed or registered banks, insurance companies, trust and loan companies, cooperative credit associations and fraternal benefit societies ("Our History", OSFI).

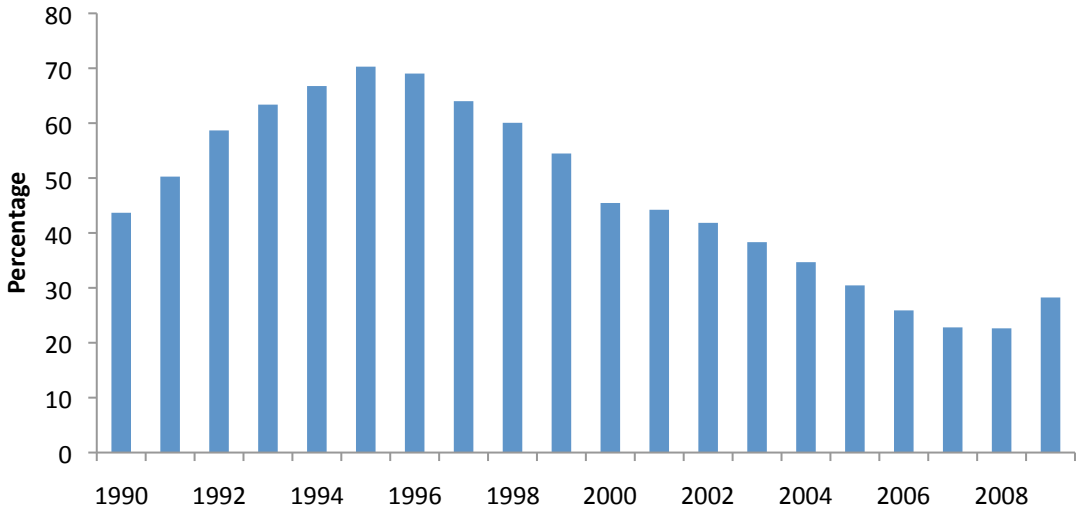
4.2 The Importance of Having a Fiscally Responsible Household and Public Sector

4.2.1 Public Debt

In contrast to the large U.S. fiscal deficit, Canada was the only G7 country to have a surplus in 2008 ("Economic and Fiscal Statement," 2008). However, the Canadian fiscal situation was not always as strong. Beginning in the

1990s, Canada faced persistent fiscal deficits and a growing public net debt-to-GDP ratio that increased to a peak of 70.3 percent of GDP in 1995 (Figure 21). The rise in government debt increased the risk premiums paid on Canadian bonds, thus increasing the interest rate and cost of servicing the debt (Traclet, 2004: p. 17). The inability of Canada to stop the debt spiral was realized when Moody's downgraded Canadian government debt in 1994 for the debt issued in foreign currency and in 1995 for the debt issued in Canadian dollars, as well as by Standard and Poor in 1993 for the debt issued in foreign currency (Traclet, 2004: p. 17), leading the federal government to take strong debt consolidation measures.

Figure 21: Canadian Federal General Government Net Debt as a Percentage of GDP: 1990-2009[27]



Source: International Monetary Fund, World Economic Outlook Database

To strengthen Canada's fiscal situation, the 1995 federal budget adopted two principles to decrease the debt ratio. First, the government used prudent economic assumptions to help the government avoid fiscal decisions that would be sensitive to growth forecasts, and second, the government adopted short-term (two-year) rolling deficit targets to restore the fiscal balance (Traclet, 2004: p. 18). Canada successfully restored their fiscal balance in the 1997-1998 fiscal year and has continued to run consecutive government surpluses since. The ongoing surpluses have enabled a significant reduction in the debt burden on the federal and provincial-territorial governments ("Economic and Fiscal

[27] General government net debt is defined by the International Monetary Fund, World Economic Outlook Database as the gross debt minus financial assets corresponding to debt instruments.

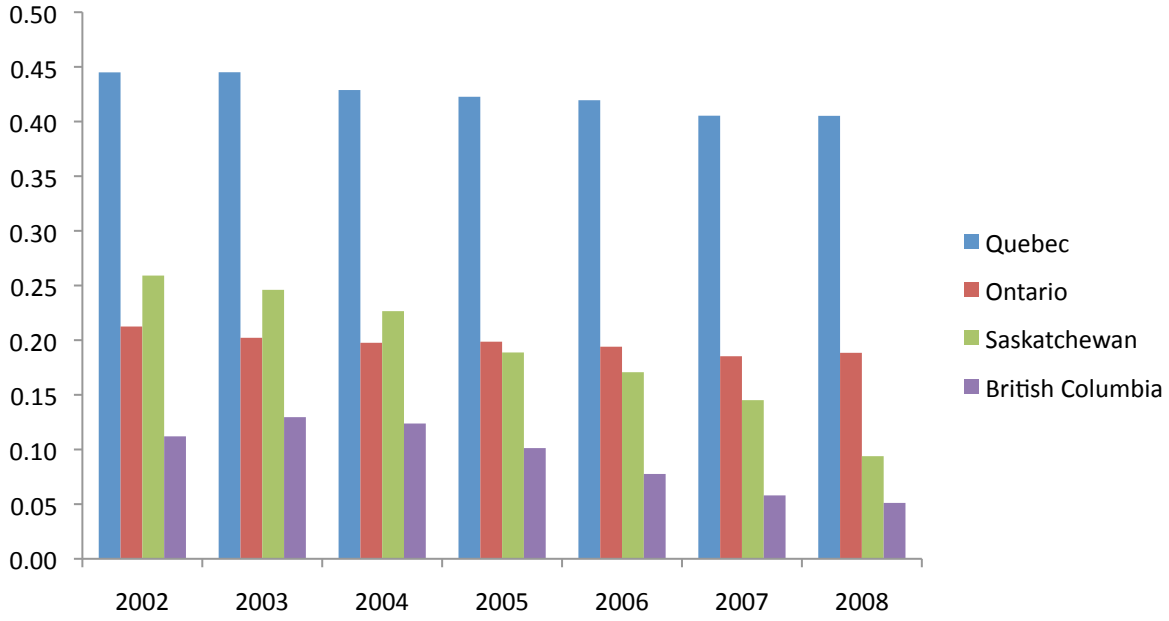
Statement," 2008), as well as has left Canada in a better position to deal with pressures related to an aging population.

More recently, some Canadian provinces and local governments have taken on high levels of public debt, specifically after the global financial crisis in 2008. Prior to the global financial crisis in 2008, Canadian provinces had been in the process of growing their way out of high debt-to-GDP ratios (Figure 22). Since 2002, the consolidated provincial and local government debt as a percentage of GDP in central Canadian provinces such as Ontario and Quebec had decreased. Specifically, the consolidated debt-to-GDP ratio in Quebec[28] decreased from 44.5 percent of GDP in 2002 to 40.52 percent of GDP in 2008 and the consolidated debt-to GDP ratio in Ontario decreased from 21.25 percent of GDP in 2002 to 18.84 percent of GDP in 2008. Other provinces such as British Columbia and Saskatchewan have experienced more drastic declines in their debt-to GDP ratio since 2002 and also have maintained a much lower level of debt-to GDP than Quebec and Ontario. For example, the consolidated debt-to-GDP ratio in Saskatchewan decreased from 25.92 percent of GDP in 2002 to 9.39 percent of GDP in 2008 and the consolidated debt-to-GDP ratio in British Columbia decreased from 12.96 percent of GDP in 2003 to 5.11 percent of GDP in 2008. However, in 2008 the financial crisis caused all levels of government to take on cyclical deficits due to increased public debt and reduced GDP growth, causing the debt-to-GDP ratios to increase[29]. Although the consolidated debt-to-GDP ratios for provincial and local governments have increased since 2008, the previous trend of provincial and local government debt-to-GDP ratios was declining, thus, once the recovery of the Canadian economy takes hold, provincial and local governments should continue to decrease their debt-to-GDP ratios.

[28] Quebec tends to have a high debt-to-GDP ratio as they have greater expenditures due to duplicate services that would normally be provided by the federal government.

[29] Data is not available past 2008 for consolidated provincial and local government net financial debt as Statistics Canada is not updating the table until 2012.

Figure 22: Consolidated (Provincial and Local) Government Debt-to-GDP Ratio: 2002-2008



Source: Statistics Canada

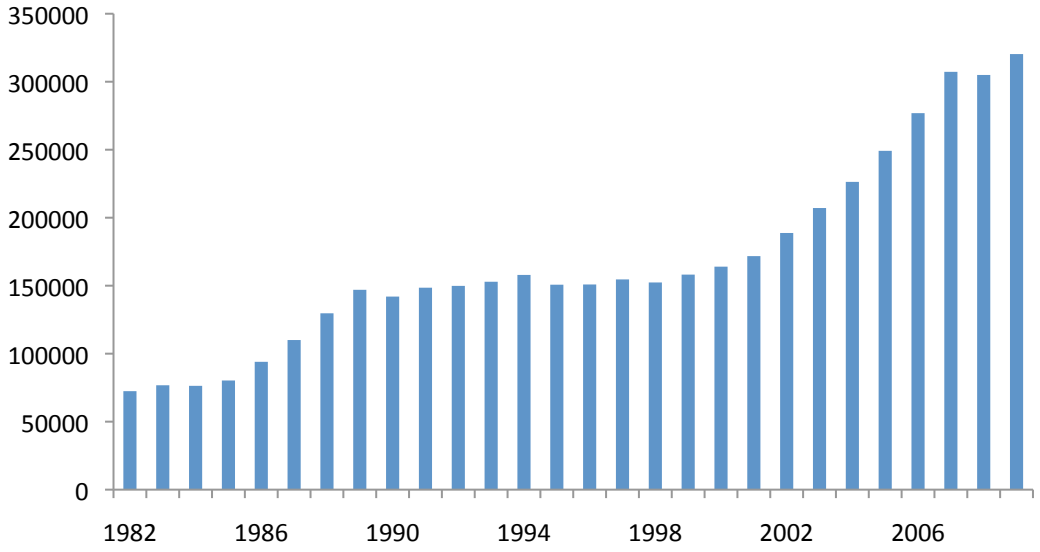
4.2.2 Private Debt

Prior to the financial crisis in the United States, financial innovations allowed homeowners to use their house as a line of credit and take on excess private debt, creating an asset bubble in the housing market. Although the Canadian banking system does not widely use financial innovations, easy credit and low interest rates has left Canada following a similar trend in asset prices. First, Canada, on average, is currently experiencing a run-up in housing prices (Figure 23). Since 1982, the multiple listing service (MLS) selling prices for residential housing in Canada has been on an upward trend, with a substantial run-up in selling prices beginning in 1999 to its current average selling price peak of $320,333 in 2009.

Furthermore, provincial markets such as British Columbia, as well as regional markets within British Columbia such as Greater Vancouver and Victoria have also experienced large run-ups in residential housing prices. Since 2000, the MLS has reported an increase of $248,736 in the average selling price of a British Columbia residential house from $216,989 in 2000 to $465,725 in 2009. Regionally, Victoria and Greater Vancouver have also experienced large increases in selling prices since 2000, with the largest gains coming from the Greater Vancouver region.

Specifically, Victoria selling prices have increased from $223,348 in 2000 to $476,137 in 2009 and Greater Vancouver selling prices have increased from $281,163 in 2000 to $592,441 in 2009[30].

Figure 23: Multiple Listing Services (MLS) Canadian Residential Housing Selling Price: 1982-2009



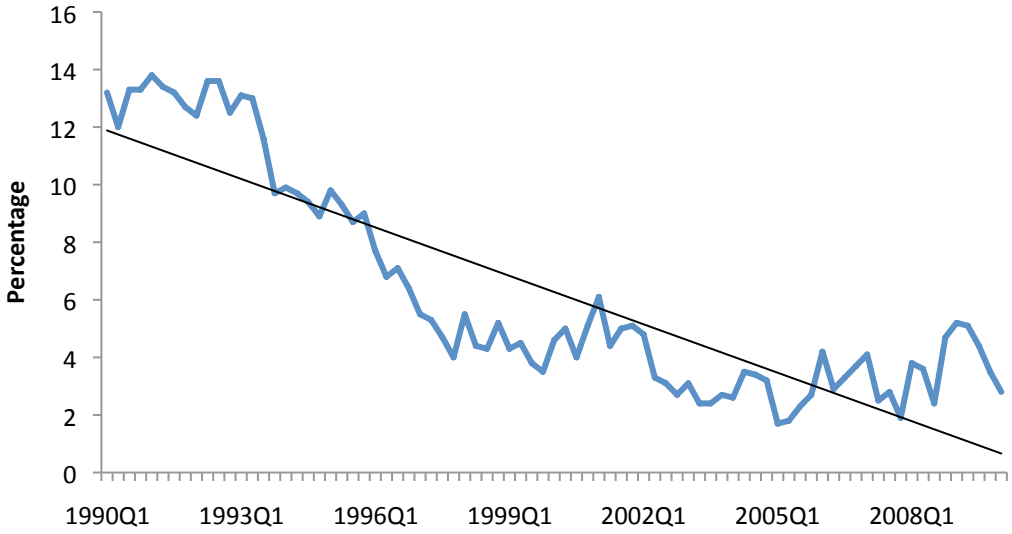
Source: British Columbia Statistics, Canadian Real Estate Association

The rapid increase in the MLS selling price for Canadian residential homes is a warning sign of a real estate bubble looming in the Canadian housing market. However, David Wolf, Adviser on the behalf of Timothy Lane (2010), Deputy Governor of the Bank of Canada reported that between 2000 and 2006, U.S. housing prices appreciated by nearly twice as much as Canadian house prices, although the Canadian house prices have continued to appreciate for a longer period of time. Also, Wolf (2010) reports that Canada has not had the over-investment in housing that the U.S. had, primarily because the steady growth in housing investment in Canada has been largely due to strong employment and sustained income growth supported by rising commodity prices.

Second, Canada has also witnessed a decrease in the personal savings rate since the 1990s (Figure 24). Furthermore, as of the first quarter of 2010, Canada`s personal savings rate is 0.3 percent lower than the U.S., with the Canadian personal savings rate at 2.8 percent and the American savings rate at 3.1 percent for 2010Q1.

[30] All British Columbia MLS data is from the Canadian Real Estate Association and the British Columbia Real Estate Association produced by British Columbia Statistics (BC Stats), "BC Multiple Listing Statistics" on 18 Feb. 2010 and can be accessed from the website: http://www.bcstats.gov.bc.ca/data/dd/handout/mls.pdf.

Figure 24: Seasonally Adjusted at Annual Rates; Canadian Savings Rate as a Percentage: 1990Q1-2010Q1



Source: Statistics Canada, CANSIM using CHASS National Income and Expenditure Accounts

The low savings rate in Canada is a concern to the economy in the short and long-term. In the short-term, the low savings rate may be a warning sign that households are running up unsustainable levels of consumer debt on large purchases such as housing, leading to an increase in housing prices and creating an asset bubble. In the long-term, a low personal savings rate may be insufficient to support the level of investment required for long-run economic growth and may not be sufficient to cover retirement costs. Furthermore, Canada also has a trend of increasing consumer credit. Since 1993, consumer credit has continued on an upward trend[31], a warning sign Canadians may be spending beyond their means.

[31] Canadian consumer credit data was collected from Statistics Canada, CANSIM using CHASS National Income and Expenditure Accounts.

4.3 Risks to the Canadian Recovery

Although Canada is in fiscally better shape than many countries after the global financial crisis and has posted positive consecutive GDP growth since the third quarter of 2009[32], there are five potential downside risks to the strong Canadian recovery. First, a key factor that has helped Canada have a strong economic recovery is the strength of the global commodity markets. Since Canada is a small open economy and is dependent on exports, including commodities such as oil and gas, global commodity prices have a large effect on the strength of the Canadian recovery. Global commodity prices are largely tied to the Chinese economy as they are the leading importer of commodities. Consequently, a decrease in demand of commodity imports to China due to an economic slowdown or continued policy tightening in China to cool its housing market (Gyntelberg, Hordahl and King, 2010: p. 9) may have a significant downward pressure on global commodity prices, and thus, have a negative effect on the Canadian recovery. Second, again since Canadian growth is based on exports, a slow recovery or reduced demand for exports by our largest trading partner, the United States, will also have a detrimental effect on the Canadian recovery. Compounding this is the strength of the Canadian dollar relative to the U.S., which will also be an important factor affecting the strength of a Canadian export driven recovery.

Third, the continued increases in private debt levels pose a further risk to the Canadian recovery. The vulnerability of Canadian households to adverse shocks to wealth and income has increased due to the rise in aggregate debt levels relative to income, posing a risk to the economic recovery and financial system though a deterioration in the credit quality of loans to households ("Financial System Review," 2009: p. 4). As well, the Bank of Canada (2009) conducted a partial stress-test simulation to assess the potential impact on the Canadian household balance sheets of a more severe economic downturn than currently anticipated by introducing an explicit negative shock to employment. The results indicated that the associated rise in financial stress among households due to loss of employment and the duration of unemployment lead to significant losses of 10 percent of Tier 1 capital for financial institutions, even though a large share of mortgage debt is insured ("Financial System Review," 2009: p. 21-23). Furthermore, the *OECD Economic Outlook Report No. 87* (2010) suggests that the initial strength of the economic recovery is not sustainable as increased private consumption due to easy monetary conditions and strong household credit growth will not continue. The OECD Report (2010) warns that Canadian households have continued to

[32] Real gross domestic product data from Statistics Canada, Canadian economic accounts Table 1 and can be found by following the link: http://www.statcan.gc.ca/daily-quotidien/100531/t100531a1-eng.htm.

borrow throughout the recession, mostly in the form of mortgages, and the ratio of household debt to disposable income has reached a record high, as have real housing prices, and suggests that deleveraging is needed.

Fourth, in Canada, 50 percent of mortgages are insured[33] and out of the insured mortgages, 70 percent are insured by a crown corporation, the Canada Mortgage and House Corporation (CHMC) (Kiff, 2009: p. 5). The Canadian Bank Act prohibits most federally regulated banks from providing mortgages without mortgage loan insurance for amounts that exceed 80 percent of the value of the home or purchases with less than 20 percent down payment. However, by having CHMC Mortgage Loan Insurance, lenders will finance highly leveraged debt, allowing potential homeowners to finance up to 95 percent of the purchase price of a home for a premium[34] in case of default. The use of mortgage insurance backed by a crown corporation is a downside risk to the Canadian recovery because as housing prices increase, the potential downside of the asset bubble may be realized, decreasing the value of housing and increasing the level of defaults. Although CMHC provides protection against borrower default, a large increase in the level of defaults may dry-up CMHC funds and cause the burden of mortgage loans outstanding to fall on the federal government.

Large provincial debt is the final downside risk to the Canadian recovery. After running four years of consecutive surpluses, provincial, territorial and local governments recorded a combined deficit in 2009 of $9.7 billion due to a growth in expenditures five times the growth in revenues. Combined provincial and local governments with the largest deficit in 2009 were Ontario ($6.0 billion) and Quebec ($6.1 billion), followed by British Columbia ($2.6 billion)[35]. The high level of provincial, territorial and local government debt is a risk to the current federal fiscal situation in Canada as the total level of liabilities accumulated by the Canadian governments can be costly in the long-run without fiscal consolidation.

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[33] The number of mortgages insured in Canada is from the Canadian Mortgage and Housing Corporation (CMHC) by Executive Director of Policy and Research, Steve Mennill, in his speech titled, "Canada's Housing Finance System: An Overview," published on February 2010.

[34] Information on CMHC Mortgage Insurance is from their website under "Who Needs Mortgage Insurance?" or by following the link: http://www.cmhc-schl.gc.ca/en/co/moloin/moloin_002.cfm.

[35] Combined provincial and local government deficits is from Statistics Canada (2009), "Government Finance: Revenue, Expenditure and Surplus," or by following the link: http://www.statcan.gc.ca/daily-quotidien/090616/dq090616a-eng.htm.

5 Conclusion

The Canadian financial system fared far better relative to the American system during the financial crisis because the banking and mortgage sectors in Canada made responsible investment choices due to more prudent lending and borrowing standards. Although these responsible choices primarily stemmed from the conservative nature of the Canadian banking system, it was the sound regulatory structure and policy framework that prevented the financial crisis from overwhelming the Canadian financial system.

However, the previous financial crises reiterate two important lessons for Canada. First, financial crises such as the ones that occurred in Japan, Sweden and the United States illustrate the importance of having risk-based prudent regulation for large banks that may be deemed `too big to fail` in future crises. Since the six largest banks in Canada hold 90 percent of deposits, it is important to have strict regulations and a regulatory framework to diminish excess risks taking in order to decrease the potential for large banks to become insolvent. However, if insolvency was to occur, Canadian policy makers need to be aware of the policy options and fiscal implications that exist when addressing their insolvency. Thus, the examples of the U.S. and Japanese financial crises should serve as an illustration of the fiscal implications of bailing out 'too big to fail' banks and, in the case of Japan, on the growth of the economy after the financial crisis. As well, Sweden's financial crisis should serve as an example of the importance of swift policy action and the effective use of asset management corporations to remove toxic assets from the balance sheet of banks, restructure them and then reprivatize them.

Second, although Canada's fiscal position is stronger than that of the United States and Greece; the previous financial crises should also serve as a reminder of the importance of having a fiscally responsible household and public sector. A common trend of previous financial crises is the presence of asset bubbles due to increased private debt and large federal and regional public debt-to-GDP ratios. Thus, the current increase of private debt in Canada that is driven in large part by the rise of housing prices is the single largest downside risk to the Canadian recovery in the aftermath of the global financial. To avoid a housing bubble "trigger" such as that experienced recently in the US and Greece, policy makers will need to carefully monitor the contribution of an export driven recovery to employment and wage growth, and hence debt affordability, within the Canadian economy.

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