# Bank of Canada's Response to 2008 Financial crisis and how proper banking regulations helped prevent collapse in the Canadian banking sector.

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#### Introduction

The 2008 subprime crisis was one of the worst economic crisis since the great depression. The crisis started in the United States and quickly the shocks spread across the world. This paper will attempt to discuss the effects financial crisis on the Canadian economy, actions Bank of Canada took to tackle the crisis and how proper banking regulations prevented Canada from seeing a major financial collapse like the United States.

The crisis originated in United States during 2007 where banks and other financial intuitions were involved in subprime lending practices on a large scale, but it soon became a worldwide crisis when the investment bank Lehman brothers declared bankruptcy in September 2008 (Economist, 2013).

#### The situation in Canada

The crisis brought forth recession in major financial markets across the world and Canada was no exception. Data from Bank of Canada show that the economy had shrunk by 3% in 2009 than projected trends (Bank of Canada, 2009). Yet, Bank of Canada did predict an improvement of 2.5% in GDP (in USD\$) in 2010, and 4.7% recovery in 2011 and reality was not far from this (Bank of Canada, 2009). Report from Bank of Canada also shows that there was a steep decline in investments and exports during this period (Boivin, 2011). In Canada, the household balance sheets declined by 8.7% between 2007 and 2009 compared to the United States who observed a drop of about 26.6% (Statistics Canada: Canada Yearbook, 2011). In 2008, Canada observed the slowest growth rate of GDP 0.5% since 1991 (Statistics Canada: Canada: Canadian Yearbook, 2009).

During the summer and fall of 2008 the subprime crisis led investors to also be concerned about Asset backed commercial papers (ABCP) in Canada. Market participants were concerned Page | 3

about the financial health of their counterparties due to mounting losses from trading. This lead to rising Haircuts in the commercial paper market (Bank of Canada, 2010). In Canada, the immediate effects were most acute in the market for the short-term debt of banks and corporations. The ABCP market froze and the Canadian-bank issuers of ABCP were forced to take back these securities back onto their balance sheets (Bank of Canada, 2010). This caused a sharp decline in liquidity in commercial paper and repo markets. This meant that banks and other financial intuitions were finding it difficult to meet their short-term obligations. Bank of Canada responded with the traditional tool of lowering interest rate in the overnight market, but that proved to be not enough. Then Bank of Canada entered into purchase and resale agreements (PRA) to ensure smooth flow of credit in financial markets (Bank of Canada, 2010). These actions helped Bank of Canada maintain the overnight rate close to its target rate.

Despite this sharp downturn in the economy, Canada recovered faster than any other G7 countries (Bank of Canada, 2009).

## **Actions by Bank of Canada**

Expansionary monetary policy and fiscal policy was undertaken by Canada to address the challenges posed by the crisis. Firstly, fearing such a crisis might occur, Bank of Canada, the European Central Bank and Federal reserve of U.S. attempted to provide more liquidity in the world financial markets by extending the securities eligible for Purchase and Resale agreement in December 2007 (Bank of Canada, 2007). These transactions would temporarily add assets to Bank of Canada's balance sheet, offsetting the anticipated seasonal increase in demand for bank notes (Bank of Canada, 2007). The new securities that were eligible included securities issued by the provincial governments and Bankers' acceptances and bearer deposit notes, not exceeding 180

days (Bank of Canada, 2007). Purchase and Resale agreement is an open market operation in which the central bank purchases securities that are repurchased by the seller in the following day (or very short maturity period); this is designed to lower the overnight interest rates and increase the money supply (Investopedia, 2018). Similar actions were adopted by European Central Bank, USA and other members as a measure to stabilize financial markets under the G7 plan of actions meeting; which included expanding the list of securities that can be eligible as collateral by commercial banks who engage in daily trading operated by Payments Canada (Bank of Canada, 2007). This included certain kinds of Asset Backed Commercial Paper (ABCP), bearer deposit notes and U.S. treasury bonds (Bank of Canada, 2007). The purpose of this can be seen as a signaling effect. If a large institution like Bank of Canada views ABCP as acceptable collateral it might serve to reduce speculation and volatility in financial markets. Given market conditions, Bank of Canada announced another purchase and resale facility (Bank of Canada, 2009).

After the collapse of Lehman brothers on September 15, 2008, Bank of Canada, ECB and Swiss national bank agreed on a credit swap facility of \$10 billion with the United States Federal Reserve on September 18 (Bank of Canada, 2008). Credit default swap (CDS) is when the borrower (in this case Bank of Canada) makes periodic payments to the issuer (in this case the Feds) in exchange for the CDS; in return the Feds agree to pay Bank of Canada the principal and the interest rate payments of that security in the event of the buyer (Bank of Canada) defaulting (Investopedia, 2018). This measure was taken by Bank of Canada to mitigate the risk within the commercial banking sectors within Canada. Bank of Canada and the federal reserve agreed to a reciprocal currency exchange of \$10 billion U.S. dollars (Bank of Canada, 2008). This was mainly done as a precautionary measure should Canadian commercial banks require U.S. currency given developments in the global financial markets. Given the seriousness of the crisis, in two weeks

time the Bank of Canada and Federal reserve decided to expand the Swap facility from \$10 billion to \$30 billion (Bank of Canada, 2010).

In an effort to stabilize and facilitate financial intuitions, Bank of Canada decided to lower the overnight interest rate on April 2009 to 0.25% (Bank of Canada, 2009). As part of this decision Bank of Canada made couple key changes to the operating framework of the implementation of monetary policy; firstly Bank of Canada lowered the operating band to 25 basis point (compared to the regular of 50 basis points), secondly the target for the overnight rate was set between 0.25% and 0.5% (Bank of Canada, 2009). Through these adjustments Bank of Canada set the effective lower bound at 25 basis points on the overnight interest rate, to preserve the effective functioning of the market. 0.5% would be the rate at which the bank lends to other bank should the need for overdraft rise, 0.25% is the rate which LVTS participants can earn should they deposit money in their Bank of Canada account (Bank of Canada, 2009). This was a conditional commitment subject to economic conditions.

Following in the footsteps of Bank of Canada, the ECB, Bank of Japan and Bank of England also lowered the effective overnight target interest rate in order to promote liquidity in financial markets (*refer to Appendix A*). The Federal reserve had to take one step further and keep the fed funds rate between 0 and 0.25% between the start of the crisis in 2008 till 2015 (St. Louis Federal Reserve, n.d.). When monetary policy is being conducted at such low interest rates (effective lower bound), there is uncertainty about inflation expectations. This also means that the bank will be in need of using unconventional monetary policy measures. While such measures were undertaken by the Federal reserve, the Bank of Canada saw relatively fewer application of unconventional monetary policy tools during the subprime crisis.

Towards the fall of 2009, the Canadian economy had already started showing signs of recovery. On September 2009, Bank of Canada upon seeing improvements decided to retract decision that would allow ABCPs to be accepted as collateral (Bank of Canada, 2009). In January 2009, Bank of Canada announced the expiation of the credit swap facility with the United States Federal Reserve (Bank of Canada, 2010). All these show that the Canadian economy is improving and that the Bank of Canada expects further improvements in the future. In April 2010, Bank of Canada declared that it would still keep overnight interest rate target at 0.25% but removed the conditional commitment they had previously placed on it (Bank of Canada, 2010). This further shows that the bank is observing improvements in the Canadian economy and is taking measures to curb any chances of the economy overheating. By summer of 2010, the Bank of Canada had increased overnight target rate to 1.00% and established a 50-basis point operating band again (Trading Economics, n.d.). Due to the financial crisis, Bank of Canada saw a huge rise in the size of their balance sheet. From 2008 to 2009, the Bank of Canada balance sheet expanded from \$53.7 billion to \$78.3 billion (Bank of Canada, 2008).

Despite all the volatility in financial markets, Canada did not experience a collapse in housing prices nor did it see job losses on a large scale like the United States (Herle, 2011). In addition, the Canadian economy improved fairly faster. This clearly reflects the difference in Canadian policies and an effective intervention to help a market in crisis when comparing to the US policy performance. This begs the question, why was Canada able to whether the storm? Why didn't any Canadian bank fail like the U.S.? I would argue that the key factor lies in proper financial regulations.

#### **Financial Regulation in Canada in contrast to the United States**

Canada has a much smaller baking sector compared to the United States. While the U.S. has thousands of banks, the "big 6" banks in Canada hold 93% of the market share (Haltom, 2013). Having a smaller number of banks helps with coordination and make it less challenging to provide regulatory oversight. The Office of Superintendent of Financial Intuitions (OSFI), the overseer of financial institutions in Canada reserves the right to intervene and take any kind of action (Brean, Kryzanowski, & Roberts, 2011, p. 252). This allows for stability even in times of crisis.

Banks and other deposit taking financial intuitions have been subject to regulator ceiling in Canada since the 1980s (Bank of Canada, 2009). Tougher regulations meant that Canadian financial intuitions face higher capital requirements and leverage restrictions which serves to disincentivize excessive risk taking and off-balance sheet activity. Canadian banks, in the 1980s were required to have 40:1 asset-to-equity ratio and in 2000 it was brought down to 23:1 (Bank of Canada, 2009). The United states has a very fragmented banking system, and until the repeal of Glass-Segall act of 1999, they weren't even allowed to have branches in other places besides the place of origin (with a few exemptions) (Haltom, 2013). The OSFI are allowed to oversee the entire commercial banking sector in Canada, but in the U.S., banks are subject to state regulation which are sometimes not in line with Federal regulations (Brean, Kryzanowski, & Roberts, 2011). This ambiguity in regulation has spillover effects in the financial markets. Due to having an implicit guarantee by the central bank Canadian banks were able to lend more (i.e. increased leverage) as a proportion of their assets, which allowed Canadian banks to take bolder than its American counterparts (Brean, Kryzanowski, & Roberts, 2011). However, it should be noted that this occurred in the centralized federal oversight, where regulators have the authority to intervene (Brean, Kryzanowski, & Roberts, 2011). This allowed banks to focus on long-term profits and growth due to the stability provided by the 'conservative policies' by regulatory body. Here we see that Canada traded governmental supervision in exchange for stability.

Since the 1980s, financial intuitions have been subject to the rules of internationally recognized "Basel accords"; current standards are outlined in "Basel II" acknowledged in 2010 (Brean, Kryzanowski, & Roberts, 2011). Although Canada, U.S subscribes to the "Basel II" accords, their capital requirements are much stricter than required; Canada nor U.S. allows for a leverage ratio greater than 20:1 (Brean, Kryzanowski, & Roberts, 2011). Upon looking at *Appendix* B we see that Canadian banks operated fairly below the maximum OSFI threshold. This means they were exposed to less credit risk. Banks try not to operate too close the OSFI limit because OSFI demands that banks must demonstrate that they do not have any undue risk concentration before increasing their leverage and the case for increasing leverage must be linked with good credit and low risk activities such as residential mortgages and well-secured repos (Bank of Canada, 2009). The relatively stricter constraints on leverage at the start of the financial crisis meant that Canadian banks faced less pressure to deleverage than some of their international counterparts, thereby mitigating the procyclical movements in the current downturn (Bank of Canada, 2009) (Appendix C). Upon looking at Appendix C we observe that banks in Canada had much less leverage compared to U.K. or U.S. investment banks. Since the start of the financial crisis, the leverage ratio has moved within a narrow range in Canada (Appendix D). In Appendix D we observe the average buffer between actual leverage and its limit over time. The buffer has a moderate negative correlation with a simple indicator of cyclical credit conditions, indicating some tendency to decline during boom periods (Bank of Canada, 2009). The buffer in Appendix D shows how Canadian banks behave with respect to economic conditions. Elsewhere, capital injections have led to sharp reductions in leverage at the US investment banks (Bank of Canada, 2009). The

key differentiator is that American regulations are completely silent on off-balance sheet activities (or shadow banking) where as Canadian regulations include a large portion of shadow banking activities (Brean, Kryzanowski, & Roberts, 2011).

Another key feature of the financial crisis was mortgages or specifically mortgage backed securities (MBS). Nowhere did Canada's structural and regulatory difference manifest themselves more clearly then in mortgage finance. Canadian banks usually hold on to mortgages than sell them unlike American banks (Haltom, 2013). Less than one third of Canadian mortgages were securitized compared to over two thirds of the U.S. mortgages (Haltom, 2013).

It can be argued that having proper regulations in the shadow banking sector meant that Canadian banks could not duplicate the situation in the American markets. Also, having regulation acts as an incentive for banks to keep these MBSs safe to avoid potential governmental intervention. Less than 3% of mortgages in Canada were classified as sub-prime prior to the crisis, in contrast to the U.S. who had over 20% mortgages that were classified as subprime (Haltom, 2013). Tighter regulations meant that Canadian banks could not give loans and mortgages to just anyone. In Canada, banks cannot offer loans to anyone without a 5% down payment, and the mortgage must be insured if the borrower puts less than 20% in down payment (Haltom, 2013). Canadian mortgage holders are required by law to repay full amount of their mortgage even in the event of default, this is enforced through asset seizure or wage garnishing (IMF Canada: Selected issues, 2011, pp. 15-16). Having such an extreme measure can act as an incentive to not default on mortgages even when the prices drop. In the United States, bank can seize assets but cannot intervene in a person's wage earnings (Brean, Kryzanowski, & Roberts, 2011). Another factor that provides stability is the mortgage market is that by law property owners are required to insure,

their mortgage if the mortgage loans represent over 80% of the property value (IMF Canada: Selected issues, 2011, p. 17).

Loans that are insured through the Canadian Mortgage and Housing Corporation (CMHC) have a 100% government guarantee (IMF Canada: Selected issues, 2011, p. 17). This means that the bank will still receive money even if the original borrower defaults. This means that this is essentially 'risk free' and can be perfect for securitization. It also should be noted that CMHC is a crown corporation but a commercial one with profit maximizing motives (IMF Canada: Selected issues, 2011, p. 17).

The CMHC has about 70% of the market share for mortgage insurance in Canada (IMF Canada: Selected issues, 2011, p. 17). This essentially means Canada has intuitions like Freddie Mac and Fannie Mae expect they are fully owned and backed by the Canadian government, so that in the event of any volatility the Canadian government can step in and correct the market. So, these mortgages are the perfect for securitization. Its safe and has the governmental backing. In the U.S., such a guarantee on securitized mortgages did not exist. Although, it was implicitly thought that U.S. government would save Freddie Mac and Fannie Mae, there was never any explicit guarantee which made the situation in the aftermath of the 2008 crisis even more complicated.

It would be incorrect to say that Canada did not "bailout" banks but the extent of intervention by the government and Bank of Canada was very less due to tight regulations in place. During the financial crisis the Canadian government issued the Insured Mortgage Purchase Program (IMPP), which was a loan to CMHC for \$125 billion to finance MBS from Canadian banks (Nadeau, 2009, p. 3). This was funded through the issue of bonds (Nadeau, 2009). This allowed banks of off-load the "hard-to-sell" MBS from their balance sheet and the MBS would

just be purchased by the CMHC. Unlike the Troubled Asset Relief Program in the U.S. these MBS that CMHC was buying was already insured either privately or through CMHC meaning they already contain implicit guarantee of the government (Nadeau, 2009).

A study by Bank of Canada found that shadow banking activities account for about 40% of the Canadian economy, where as in the U.S. it comprises nearly double that number of banking activities in the economy (Haltom, 2013). A significant portion of such activities in undertaken by banks in Canada, where it is regulated by guarantees such as Lender of Last resort (Haltom, 2013). In the U.S., only banks can have the Federal Reserve support, therefore Feds needed to further access their decision to save non-bank financial intermediaries like AIG (provided they were solvent) (Karnitschnig, 2008). In Canada, banks carry out most of the financial transaction who have Lender of Last Resort option from the Bank of Canada. Regulations are also revised every five years to account for innovation and any new emerging risks (Haltom, 2013). In additions to that, Canada saw a much smaller housing boom than the U.S which helped minimize the effects of the crisis (Haltom, 2013).

It is clearly observable how in moment of crisis conventional regulations come into play. Through the use of these conservative business practices we see that the Canadian banks prefer stability over the long run as opposed to financial innovation over the short run. Stricter regulatory oversight has meant that shadow banking activities such as sub prime mortgage lending has not been very successful in the Canadian financial markets. Proper regulations have prevented excessive central bank intervention in financial market in Canada during 2008 crisis, but lack of regulations left Federal Reserve with no choice but to take extreme measures of intervention during 2008 crisis. Ultimately, proper regulatory oversight is essential to the functioning of any markets.

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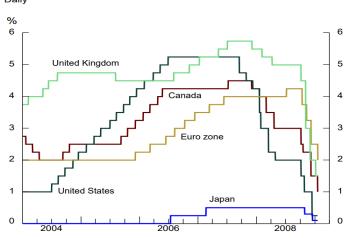
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#### Appendix A

Chart 1
Official Policy Rates

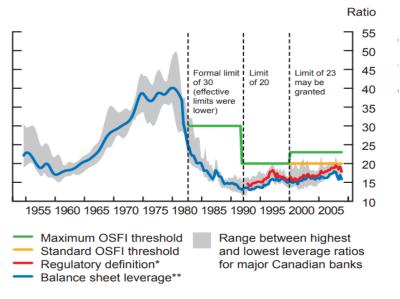


Sources: Bank of Canada, U.S. Federal Reserve, Bank of Japan, Bank of England, and European Central Bank

Source: https://www.bankofcanada.ca/wp-content/uploads/2010/03/update220109.pdf

#### Appendix B

Chart 1: Leverage history of major Canadian banks



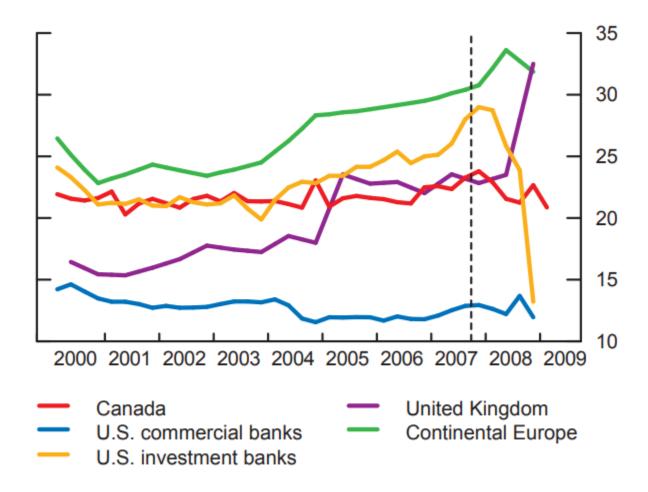
On-balance-sheet assets plus certain off-balance-sheet items as a ratio of regulatory capital

Source: https://www.bankofcanada.ca/wp-content/uploads/2012/01/fsr-0609-crawford.pdf

 $<sup>^{\</sup>star\star}$  On-balance-sheet assets to shareholders' equity plus subordinated debt Source: OSFI

### Appendix C

# Chart 3: Banking sector leverage\*



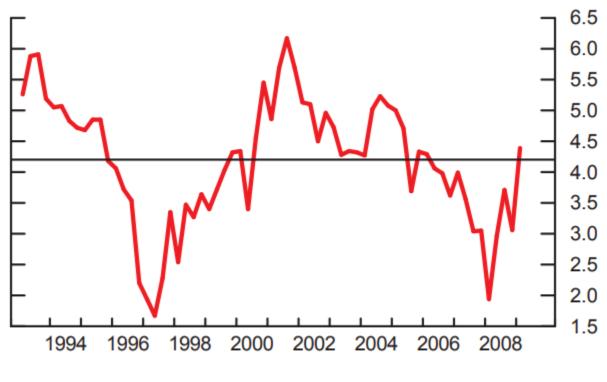
<sup>\*</sup> Ratio of on-balance-sheet assets to total shareholders' equity Sources: Bloomberg and bank financial statements

Source: https://www.bankofcanada.ca/wp-content/uploads/2012/01/fsr-0609-crawford.pdf

### Appendix D

# Chart 4: Average buffer between actual leverage and its limit varies over time

Major Canadian banks



Average over period

Source: OSFI

Source: https://www.bankofcanada.ca/wp-content/uploads/2012/01/fsr-0609-crawford.pdf