Canadian Perspective on the Global Financial Crisis of 2008

Briefing Note

Ocotober 27, 2008

Highlights

The fundamentals for economic growth in the United States deteriorated significantly in recent months. The development of the sub-prime market is usually listed as the prime reason for the crisis in the U.S. housing market. However, excess housing inventory caused house prices to decline, consequently reducing the willingness of homeowners to hold on to their property. The increased number of mortgage delinquencies and foreclosures that followed put downward pressure on consumption as household wealth declined.

Bank losses accumulated and capital levels at these financial institutions depleted, leading to the collapse of major banks, such as Washington Mutual, Wachovia and Lehman Brothers. The liquidity crunch that followed reduced business investment, put additional pressure on global stock markets and further reduced household wealth and also made it difficult for businesses to finance their daily operations. The U.S. Federal Reserve and the Treasury Department responded by lowering interest rates and implementing fiscal stimulus packages.

The changes due to the financial crisis in the U.S. are expected to have the following impact on:

Calgary economy:

- fall in oil prices
- delays in starting construction on oil sands upgraders
- slight increase in the unemployment rate
- an increase in the demand for university education
- an increase in the demand for housing and falling family wealth
- reduction in RRSP values
- delayed retirements
- decrease in retail sales.

The City of Calgary:

- greater public scrutiny of project spending
- decreased transit ridership
- increased police requirements
- reduced building permit fees
- downward pressure on intergovernmental grants to municipalities.

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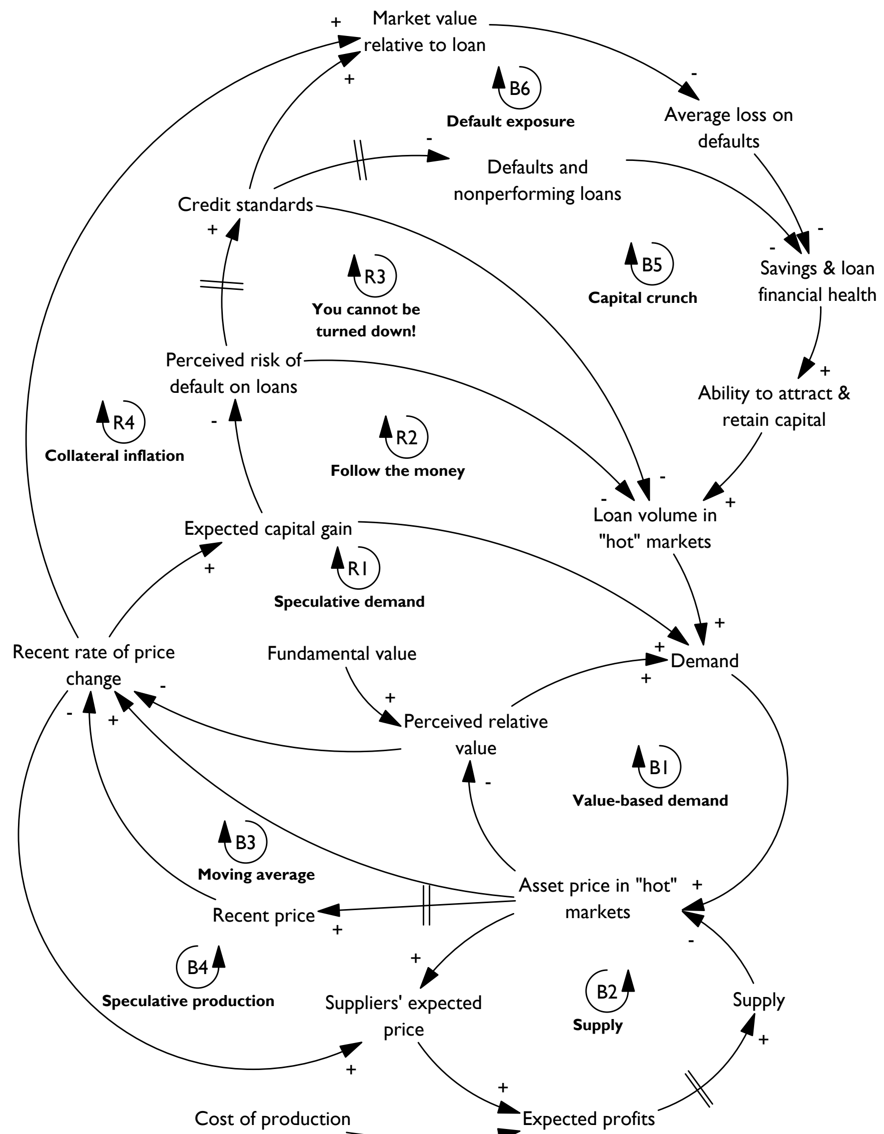
THE CITY OF CALGARY
LAND USE PLANNING & POLICY

This brief contains a description of the problem, its origin, how it evolved and why it has reached crisis proportions. We then present a note on the current attempts at solving the problem and an analysis of whether or not those solutions will work, a view on how all this is affecting the Canadian banking sector and the world economies, and close with a comment on likely impacts to the Canadian economy.

How It All Started

The faltering housing market in the U.S. had a dramatic impact upon global financial systems, much greater than anyone expected. The financial crisis now sweeping the globe gained widespread attention in July of 2007 when French banks announced that 3 hedge funds were closing and that investors could not get their money out. It was the first international investment failure as a result of the wavering U.S. housing prices. History will record that this was neither the biggest failure nor the last. This crisis has snow-balled despite several claims that “this is the end of the downturn”, and hit markets in the fall of 2008 with dramatic declines in world stock prices, commodity prices, declines in values of investments, bankruptcies, bail-out packages and nationalizations of banks and pension funds.

To fully understand how the global financial crisis developed requires a brief lesson in banking. Traditionally, banks take deposits and lend the money out to make profits off interest charges. In the U.S. banks are required to keep a proportion of deposits on hand and can lend out the rest. The “reserve margin”



Source: *Sterman, J.D. Business Dynamics: Systems Thinking and Modeling for a Complex World.* Boston: McGraw-Hill.

is generally 10 per cent, so banks keep 10 per cent of deposits on hand and lend out 90 per cent. This creates a nice snow-ball effect. When banks lend out the 90 per cent the borrower is forced (by the banks) to open a new account to hold the borrowed funds. That money now shows up on the banks balance sheet as another deposit, and the same 10 per cent rule applies, and the process starts anew. For every $1 deposited in a bank, $10 in total new loans is generated.

The "American dream" is to own your own house. Social policies and programs exist in the U.S. to assist people in achieving that dream. One of those policies is the practice of trading mortgages. People take out mortgages at their local banks or financial institutions and the banks trade the mortgages as if they were ordinary commodities. The practice of trading mortgages lets banks retain deposits on their books but get rid of liabilities so they are free to lend anew and the amount of money in the American economy available for lending increases.

Around 1992 investment banks got into the game of buying mortgages and re-packaging them and re-selling them, for a profit of course.

Every time the mortgages were sold, re-bundled and resold new deposits appeared in the financial institution that did the selling, and the same 10 per cent / 90 per cent rule applied to those deposits. As a result, the process of "securitization" allowed investment houses and banks to literally print money.

In the early 2000's there was some political pressure in the U.S. to increase the availability of affordable housing and pressure was put on financial institutions to lend to people who would not qualify for mortgages under existing rules. Facing this political pressure banks saw a possible solution. If house prices kept increasing people could buy now with no money down, make small payments, sell the house in a few years for a tidy profit and then they would qualify for a normal mortgage on a different property. To facilitate this solution banks invented the "ARM", the "adjustable rate mortgage". The ARM mortgage allowed the borrower to pay only a fraction of the interest that accrued in the first 3 to 5 years. When the mortgage came up for renewal the accumulated but unpaid interest would be added to the principal and the

Table 1: Factors influencing the U.S. housing markets

	5-year avg.	2005	2006	2007
The economy (per cent)	2.9	3.1	2.9	2.2
Employment change (per cent)	1.4	1.8	1.9	1.1
Personal income (per cent)	5.7	6.1	6.4	5.8
Employment-to-population ratio (dmnl)	47.9	47.8	48.3	48.4
Prime business loan rate (per cent)	6.1	6.2	8.0	8.1
Housing starts growth (per cent)	-3.7	6.3	-12.6	-25.8
Existing house price change (per cent)	N/A	N/A	0.6	-0.8
Inflation (per cent)	2.9	3.4	3.2	2.9

new payments would be based on the new higher principal amount. The "sub-prime" mortgage market came into existence.

In addition to people who did not qualify for a standard mortgage there were two other groups of consumers involved. Some lending institutions engaged in what has been called "predatory lending practices". They deceived consumers and hid details about how payments would skyrocket in a few years if they refinanced into an ARM. Additionally, political pressure was leveled to increase home ownership among minorities. Many ARM mortgages were granted to recent and even illegal immigrants to shift home ownership demographics as a matter of policy. Some of these people had limited understanding of what they were signing.

Housing demand in the United States grew steadily from the late 1990s into the first part of the 2000s, supported by low financing rates, healthy employment and income growth and population increase. Many years of low financing gave rise to market distortions such as the subprime market; which fed the demand for housing and drove house prices to higher levels.

The housing market as in all other markets is influenced by both supply and demand side factors. The supply side factors are important in that they show that the market experienced a number of material and information delays which made adjustments slow and painful.

The unbalanced relationship between supply and demand (figure 1) exerted upward pressure on house prices. This induced a strong supply response, as building permitting, housing starts and housing construction soared. Higher house prices caused the average mortgage payments to increase, consequently this reduced the number of families qualified to finance the purchase of a house. The affordability problem was exacerbated by the increase in the lending rates as the Federal Reserve tried to control inflation. Also, individuals in the sub-prime market were faced with higher mortgage rates as their contracts came up for re-negotiations.

Over time, the combined effects of increasing supply and falling demand resulted in a growing inventory of unsold houses. Consequently, house prices began to fall. This increased the number of foreclosures as house prices fell below the mortgage levels. Increased foreclosures added to the stock of unsold houses which further depressed houses prices. The housing market became trapped in a vicious circle.

ARM mortgages were a ticking time-bomb. The more ARM mortgages were made available the more demand for houses was satisfied. The system succeeded as long as house prices kept increasing. When house prices didn't rise as much as they needed in order to make this scheme work consumers got a nasty surprise in the mail; notices saying that they had to begin paying amounts that were completely beyond their reach. Many people simply walked away from their homes rather than make the outrageous new mortgage payments. In 2006 0.58 per cent of American homes were under foreclosure. In 2007 foreclosure rates almost doubled and 2.2 Million houses were foreclosed. Rates for 2008 are not yet available, but it is estimated that upwards of 5 Million houses will be foreclosed as a direct result of resetting ARM mortgages.

On the supply side, falling house prices halted various forms of construction activities.

Low house prices reduced builders' profits expectations. Consequently, residential building permit values de-

clined for several months and this caused a continuous decline in the number of houses started. Consequently, construction employment has fallen for several months.

The depth and length of the housing crisis was greatly affected by the nature of houses; which are durable and therefore once produced remains for several time periods. The delays on the supply side further contributed to the crisis. The price signals were generally distorted and did not accurately reflect the amount of goods that were available for sale in a given period. Houses are produced by a supply chain beginning from the planning stage to the permitting to construction to completion. As a result, it was always possible to overestimate or underestimate the supply demand/balance. Table 1 shows the performance of some of the factors that influenced the U.S. housing market between 2005 and 2007.

When mortgages are foreclosed banks take possession and sell the properties. In a market where the outstanding mortgages are higher than the value of the homes someone has to make up the loss. In most U.S. states that responsibility falls on the borrower but those people couldn't pay and have responded by declaring bankruptcy, leaving the state if they dealt with a state-specific bank, or leaving the country. In reality banks are on the hook and they won't know how much they've lost until they are able to sell the houses.

With mortgages in default, the value of the "mortgage pools", "CMOs" and "tronches" are all very difficult to value and no-one wants to take the risk investing in them. To make matters worse, accounting rules say that investments must be valued at market prices (the "mark-to-market rule") so when mortgages defaulted en masse investors in mortgage pools, CMOs and tronches had to write-down the value of these investment to zero.

These investments were insured, but insurance companies didn't understand that when mortgages defaulted they would take mortgage pools, CMOs and tronches with them. Claims skyrocketed and insurance companies refused to pay or claimed bankruptcy. A lot of deposits disappeared overnight and the 10 per cent / 90 per cent rule kicked in. No longer did banks and investment houses have the deposits on hand to back up loans. Not only could they not make loans but many had to recall loans to get their reserves up to the regulated minimum. Some couldn't get there and went bankrupt starting with Lehman Brothers, some got bailout packages like AIG, some were bought out and some had to reorganize. The financial machinery that created and sustained the securitization of mortgages fell apart.

The failure of these financial institutions resulted in a dramatic drop in stock prices worldwide. The more failures there were the more banks refuse to lend and this sent even greater ripples throughout the global economy. Business and consumer spending fell to significantly low levels. Against this background, the price for oil and oil commodities fell sharply. Global stock markets plummeted and previously forecast economic growth rates simply became unachievable without financing available.

Bailout Package

At about $150,000 each, the 5 Million foreclosed homes add up to about $750 Billion dollars, the size of the proposed U.S. bailout package. The U.S. proposed solution is that with $750 Billion gone from the bottom of the securitization chain all that is needed is an injection of money into the bottom of the chain. The plan is the money will replace the mortgage losses and allow banks to begin lending again. The hope is that banks will then re-enter the securitization game and market value of the bundle of the mortgage pools, CMOs and tronches will be replaced.

The problems with this plan are twofold: a) The U.S. institutions that practiced securitization on a wholesale scale either no longer exist or are no longer participating in derivatives markets. b) Almost all U.S. lending institutions participated in the securitization of mortgages to some extent and all have balance sheets reeling from the collapse of mortgages, mortgage pools, CMO's and tronches. American banks are currently very risk adverse to reentering the securitization market. As a result, the $750 Billion bailout package will likely only replace the value of the foreclosed mortgages but not the value lost on mortgage pools, CMOs or tronches.

We can only provide a preliminary estimate of the total financial loss to the American economy from the failure of mortgage pools, CMOs and tronches. U.S. housing prices have fallen by 20 per cent since the peak in 2006, so assuming banks take a loss of only 25 per cent on the current 5 million foreclosed houses, that there are no more foreclosures, that all sales happen soon and the sales revitalize the mortgage pool CMO and tronch markets, then total financial losses to the American financial sector could total a whopping $94 thousand billion (trillion), or about 6.5 years of output in the entire U.S. economy.

A possible but by no means worst-case scenario would include: there are no more foreclosures, the 5 million foreclosed houses sell slowly but at well below 2006 prices and the revenues don't enter what's left of the securitization markets. In that case the American financial losses could add up to $368 thousand billion (trillion), or 26 years of output in the entire U.S. economy.

Although this is a staggering amount of money it doesn't necessarily mean that a depression or even a prolonged recession is looming. The securitization process is rampant in the U.S. and world economies. Derivative markets continue to offer investment products. Although it seems unlikely that derivative markets in mortgages can be revived any time soon, it is possible that the bailout package could be used to make investments in other derivative markets. With careful investing in products and services that show potential for growth in the "real" economy like in engineering and technology it is possible to re-start the securitization process in a manner that will not lead to another crash. It remains too early to see how deep any coming recession may be but the longer intervention is delayed the more pronounced a downturn will be.

Canadian Banking Perspective

No Canadian bank, trust, or mortgage company has failed in the last 12 years (CDIC). In the U.S. a total of 65 have failed in the past 12 years while 15 have failed so far in 2008 including such powerhouses as Washington Mutual and IndyMac (FDIC) but not including Lehman Brothers which was classified as an investment house and not a bank.

Canada has more stringent banking rules than the United States. Canadian banks are prohibited from playing the "securitization" game that was played in the United States (Securities Dealing Restrictions (Banks) Regulations, SOR/92-364, s. 2). This limits Canadian banks exposure to derivative investments that resulted in a domino effect of collapsing deposits when U.S. mortgages defaulted. It also prevents this sort of financial crisis from originating in Canada.

This is a double-edged sword. Canadian banks have been shown by this financial melee to be the strongest in the world simply because they don't play the derivative game. Other nations are seriously looking at Canadian banking

regulations to bolster confidence in their own banking systems. A tightening of rules around derivative trading would limit opportunities for securitized markets around the world, which would limit the U.S. ability to jump-start its economy with a small $750 Billion investment.

In the U.S., banks are required to hold 10 per cent of deposits, but the reserve requirement is different in different countries. In Jordan the reserve requirement is 80 per cent while in central Europe the rate drops to 2 per cent. Canada, Australia, the UK, Sweden, New Zealand, and Mexico have no reserve requirement. Unlike America, if deposits ever did suddenly disappear in Canada there is no legal requirement for banks to cease lending activities.

Global Perspective

Canadian banks hold $1.4 Trillion in deposits. This amount to about $41,000 per Canadian, which is roughly equivalent to the GDP per capita produced in the Canadian economy per year. U.S. banks and holding companies have $7,025 Trillion in deposits. This amounts to just over $18,000,000 per capita which is roughly equal to 500 times the per capita GDP produced in the U.S. economy per year. This significant difference in deposits, is created by the derivatives markets and is used by U.S. investors to make investments around the globe. $368 Trillion in deposits are currently in doubt in the U.S., approximately 5 per cent of all U.S. deposits. No one knows exactly which deposits are included in the 5 per cent category, including foreign institutions which hold U.S. deposits on their books.

Foreign banks and investment houses have also played the securitization game. With U.S. deposits in question, and adhering to their domestic reserve requirement rules several foreign banks have already failed. The most spectacular failure was in Iceland, where the top 3 banks heavily invested in securities and derivatives to the point where their combined assets before the crisis dwarfed the size of the domestic economy, much like the situation in the U.S.. When the U.S. deposits failed all three banks failed and the Icelandic government was forced to nationalize them. Now facing a national debt that is completely beyond the ability of the nation to pay Iceland is seeking investment from Russia. If new investment can not be secured it is likely Iceland will default and no-one will be willing to take the risk to invest in Iceland for many years. This is all the more important because Iceland is the world's leader in greenhouse gas reduction technology with their use of geothermal energy.

Iceland is one of the smallest European countries, with a population of only 200,000, and limited resources but other European countries are facing similar financial fallout from the U.S. mortgage mess. In the U.S., $750 Billion of questionable mortgages has transformed through the derivative markets to at least $94 Trillion in questionable deposits, perhaps as much as $368 Trillion. In Europe, the starting point is not the $750 Billion in failed U.S. mortgages but the $94 Trillion in questionable U.S. investments. Through their own derivative markets and banking systems the value of deposits in question has multiplied just as in the U.S. banking industry. In response, the European Union has announced its own $2.4 Trillion bailout package, but this whopping bailout sum is dwarfed by the size of the initial shock to their financial markets not to mention the multiplied total impact. At best this bailout can buy some time to stem the tide of financial failures until the U.S. bailout replaces the initial shortfall and, hopefully, re-invigorates derivative trading.

Impacts to the Canadian Economy

In addition to restrictive banking rules Canada has stringent foreign investment rules. The rules are convoluted

and voluminous, which alone restricts investment because it makes it difficult to do tax planning while investing in Canada. Subject to numerous prohibitions, restrictions, exemptions and international treaties, any foreigner investing more than 10 per cent of the value of a Canadian company will be subjected to Canadian income tax rules for the profit on their Canadian investment (likely in addition to income tax they will have to pay to their own domestic governments). This restricts the investment available to Canadian businesses much to the chagrin of some industries that have called for greater foreign investment (Airlines, Uranium production, Electricity generation and transmission) but has acted as the Canadian Shield protecting Canadian businesses from the investment crunch now facing the rest of the world. Businesses in Europe and the U.S. are finding it difficult to finance operations with global banks and investment houses being unable to provide financing. Canadian business exposure to such a phenomenon is limited to merely 10 per cent of their needed investments and only if they have accessed foreign markets. The vast majority of employment in Canada occurs in small businesses which do not attract any foreign investment. The only corporate exposure in Canada to global investment is concentrated in relatively few firms, typically with significant assets of their own and who can access Canadian banks and investment brokers, albeit at slightly higher costs. To ensure this process continues the Government of Canada recently announced a mere $25 Billion investment in Canadian banks and went to great lengths to emphasize this was not a bailout like the U.S. and Europe.

The financial crisis has resulted in two global issues that are impacting the Canadian economy. Global auto sales are down and commodity prices are softening.

Commodity prices, particularly oil, showed dramatic gains in the first half of the year and have now fallen. In spite of the dramatic recent drop one must not forget that Canadian firms made a lot of money during the price spike and that commodity prices remain well above where they were in 2007. Additionally, recent softening in the Canadian dollar further increases the profitability of Canadian exporters. It is a quiet fact that Canadian firms will do quite well in 2008 and should proceed through a healthy 2009 bemoaning what could have been if prices stayed high. That being said, some industries face hard times.

With auto sales falling the economy in Ontario is suffering unemployment. Rationalizations in the U.S. auto industry are likely and this will likely reduce the Canadian manufacturing sector in southern Ontario for some years to come. It doesn't just affect Ontario though. Rationalizations mean that dealerships across the country will likely close, with the result of some reduced employment and some increases in dedicated retail space availability. This also means we should expect some reduced choice in automobiles.

The softwood lumber industries concentrated in BC and northern Alberta saw significant increases in demand as a result of the U.S. housing boom. With oversupply now rampant in the U.S. market construction has slowed to a snails pace and the Canadian softwood industry should expect significantly dropping prices compared to 2007. This has two impacts; first a significant proportion of the BC economy relies on the lumber industry so we should expect the BC economy to waver in 2009. Second is the impact on housing costs. Reductions in lumber prices will have an impact on the cost to construct single family, duplex, and smaller multi-family developments. Other cost reductions, compared to mid-2008 levels, can be expected from declining prices in concrete, oil based products, metals and fuel . With all these cost reductions combined, Canadians should expect house prices to soften over 2009 settling at early 2007 levels before normal investment gains

return to the market. This should have a positive effect on housing affordability.

Overall, the majority of Canadian forecasters are still predicting growth in Canadian GDP throughout 2009, albeit at a slightly slower pace than they were forecasting a few months ago. There are only a few forecasters predicting a Canadian recession, and those forecasters cite conditions outside Canada and not anything internal to the domestic economy for their expectations. Employment in Canada continues to rise but recent trends show an increase in part-time employment over full time jobs.

Most importantly, the general sentiment over the Canadian economy is not one of panic, but one of relief that we can take a breather and regroup after a few exceptionally hectic years before the next growth cycle kicks in.

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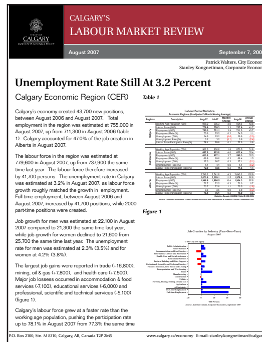

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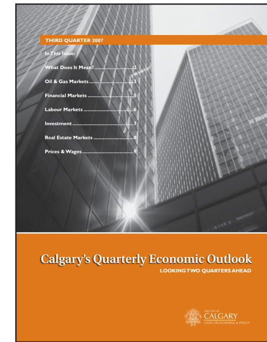

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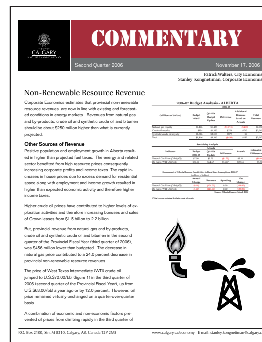

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