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Tsur Somerville

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* Real Estate Foundation Professorship of Real Estate Finance, Sauder School of Business, University of British Columbia, 2053 Main Mall, Vancouver, BC, V6T 1Z2, Canada. Tel: (604) 822-8343, Fax: (604) 822-8477. Email: tsur.somerville@sauder.ubc.ca

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Centre for Urban Economics and Real Estate
Sauder School of Business
University of British Columbia
2053 Main Mall
Vancouver, BC V6T 1Z2
Tel : 604 822 8399, email: Jessie.lam@sauder.ubc.ca
Web: cuer.sauder.ubc.ca

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Introduction

Many have laid the dramatic downturn in the world economy over the past year at the feet of excess in housing markets, and in particular the US housing market.[1] In the housing market, the role of government, is inescapable, with the takeover by the US government of US secondary mortgage market giants Fannie Mae and Freddie Mac underscores the close relationship between government policy and the operation of housing markets.[2] Finger pointing for the problem in housing markets is following a familiar blame game based on political philosophy, reflecting either not enough government oversight or that government policies effectively mandating Freddie and Fannie to facilitate the extension of mortgage credit to "underserved" markets laid the groundwork for the sub-prime problems.

In Canada, while suffering angst and concern as the US downturn spreads north, many pundits and commentators have congratulated the country for avoiding the speculative excess of the US. It is true that subprime lending is not nearly as widespread in Canada as it was in the US and Canadian debt instruments backed by sub-prime mortgages have not failed due to a wave of borrower defaults.[3] However, the absence of securitized sub-prime debt has not prevented countries such as Span and Ireland from

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[1] The are growing voices (Krugman, Paul, "Revenge of the Glut," *New York Times*, March 2, 2009) who note that the US sub-prime crisis in just a small element of a general global problem with cheap debt.

[2] Freddie Mac is the Federal Home Loan Mortgage Corporation (FHLMC) and Fannie Mae is the Federal National Mortgage Association (FNMA). Both are referred to as government sponsored enterprises (GSEs), private corporations with a federal charter, and what had been interpreted as an implicit guarantee on the part of the US Government to back their debt – a guarantee which on September 7, 2008, turned out to be explicit, when the corporations were placed in conservatorship. The event followed losses both entities incurred on the portfolio of loans they hold, especially below prime mortgages.

[3] Estimates for 2007 place subprime lending at 5 percent of the Canadian market compared to over 20 percent in the US, and only 1/5 of these loans were variable rate (Benjamin Tal of CIBC Worldmarkets quoted August 31, 2007 http://www.cbc.ca/news/background/personalfinance/mortgage-meltdown.html last checked 9/15/08. Defaults remain quite low. However, concern about product quality has paralyzed the ABCP market where most of the sub-prime loans were securitized.

severe downturns in their housing markets with associated financial system distress. Furthermore, the absence of a financial catastrophe is not the same as good health, nor does it mean the current market arrangements are serving Canadians well. Prices in Canadian housing markets peaked later than they did in the US, so it is far from clear that we know at this date the effect the unraveling of our housing boom will have on the financial system.[4]

Crisis do offer the opportunity for intervention and reform that does not occur during calmer times when issues are less pressing. The objective of this report is to evaluate the federal government's involvement in the housing market through the National Housing Act (NHA) and the Canada Mortgage and Housing Corporation (CMHC). The question here is whether CMHC in its current role is delivering the best value to Canadians. CMHC is involved in a extremely wide set of activities and a complete evaluation of all of these activities is beyond the scope of this analysis. The main focus here is to evaluate whether there is an economic rationale for CMHC's principal market activities, mortgage insurance and mortgage-backed securities.

It is worth noting the role CMHC has played since its inception 1946 in improving the access of Canadians to quality, affordable housing. Over the years CMHC has built and financed social housing projects, fostered research in building products and techniques, and supported a range of research into topics of relevance to housing Canadians. Through CMHC, the Canadian government has brought homeownership to Canadians who prior to CMHC programs allowed under the NHA may not have been able to become owners.

[4] Prices in Alberta markets peaked in mid 2007, well those in other Canadian cities peaked in the second and third quarters of 2008 (see http://cuer.sauder.ubc.ca/cma/index.html for house price data).

Government Involvement in the Housing Market

CMHC is the primary vehicle for the federal government to act in the housing market. The economic justification for this involvement must rely on some type of market failure that motivates a government intervention in private housing markets. CMHC intervenes in both rental and ownership markets. Since the focus of this paper is two particular activities that principally affect home ownership, the economic justification for CMHC's involvement in the housing market will address whether there are grounds from an improvement in welfare for government involvement in subsidizing or promoting ownership.

The major justification for homeownership in the literature centers on positive local neighbourhood and community externalities from homeownership. There are several levels of externalities, ranging from adjoining houses, to the neighbourhood, to smaller but more far-reaching consequences. The latter relates primarily to better outcomes for children, where the primary beneficiary is the child, but there are society wide benefits of ill-defined magnitude.

The first class of externality relates to property quality. Owner-occupiers have longer tenures than do renters as well as greater tenure security. [5] Consequently, they benefit more from any investment in the physical property than do renters as they get the consumption benefits and capture any effects on asset values. This incentive translates in the data to greater levels of both activities in owner-occupied units (Harding, Miceli, and Sirmans (2000). Since neighbouring houses are positively affected by the condition of a house there are these immediate spillovers.[6] Gould, et. al. (2001) provide evidence of this type of effect for the subsidy of owner-occupied housing in depressed neighbourhoods.

[5] Renters tend to be younger, when households are more mobile, and have lower transactions costs for moving than do owners.

[6] This is consistent with the findings of consistent spatial spillovers in house values (Small and Steimetz 2006)

A second class of externalities relates to the effects on children. Benefits to a owner's own children have some element of spillovers as society at large will benefit if they are better educated, healthier, more engaged in society, and more law abiding. Green and White (1997) find that controlling for sample selection in terms of who chooses to own or rent, the children of homeowner's stay in school longer and the rates of teen pregnancy are lower. These effects are strongest at lower levels f income, where programs promoting homeownership are likely to have their largest marginal effect, with an estimated dollar benefit of homeownership (1997 $US) of $31,000 per household. The health literature also notes the relationship between house quality and health outcomes (see Dales and Miller 1997 for an example), which increasing evidence suggests will be better for owner-occupiers, even controlling for income and self-selection bias.

There are well-documented differences between renter neighbourhoods and owner neighbourhoods in crime and other social demographic characteristics (see Glaser and Sacerdote, 1999; and Sampson and Morenoff, forthcoming). These in turn have important effects on health, education and personal social outcomes (Leventahl and Brooks-Gunn 2000). While these may well just be a function of income or selection, Hoff and Senn (2005) present a theoretical model where homeowners and renters with the same preferences and abilities can segregate into distinct with different neighbourhood outcomes. The latter provides an explanation beyond income and self-selection to explain these differences.

The housing literature has many papers that look at the decisions of individual households and find higher rates of social outcomes and community engagement. The research outlining many of the benefits are summarized in Coulson (2002a and 2002b) and Megbolugbe and Linneman (1993). In one of the better constructed studies, DiPasquale and Glaeser (1999) find that investments in social capital are higher for homeowners. While much of this results from the longer tenure of owners, there remains in their analysis a statistically different from zero relationship between ownership and these outcomes, even after controlling for selection bias and length of

tenure. In aggregate, this body of research does make a compelling case for providing some type of encouragement for owner-occupancy.

A second argument for government intervention into housing markets is based on housing's role in the macroeconomy. This presupposes market level externalities associated with some operation of housing markets. A number of papers have identified changes in residential investment as either an important leading indicator of changes in GDP (Green 1997) or the principal source of the business cycle (Leamer 2007).[7] What follows then is the argument that governments should take action to stabilize housing markets and thus reduce the harm from volatility in the macroeconomy because housing cycles have a disproportionately large affect on the business cycle.

It s worth noting that there is a literature that suggests that homeownership is over-encouraged. This results because homeownership forces households to mix their consumption and investment decisions.[8] Consequently, individuals hold too much of their wealth in real estate.[9] The portfolio imbalance documented at the macro-level is exacerbated at the local level because housing market (financial wealth) outcomes are correlated with local labour market outcomes (return to human capital). Thus subsidizing or promoting housing leads to too high a consumption of housing and a diversion of resources and capital into housing, that is problematic for both the aggregate economy, less investment in productivity enhancing areas, and individuals.

The presence of a wide variety of contracts that would enable renters to match the tenure security and flexibility of owners might address many of the benefits of homeownership. This suggests that intervention to promote ownership might be

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[7] Other treatment include theoretical work on the transmission mechanism between housing market shocks and economy wide shocks (Iacoviello 2005) or examples of real estate and housings role in driving economic events (Case 2000).

[8] Brueckner (1997) provides a nice treatment of this effect.

[9] Recent work by Flavin and Yamashita (2002), Cocco (2004), Cauley, Pavlov, and Schwartz (2007) focus on how the inclusion of housing in the portfolio causes deviations from the optimal portfolio and the effects of changes in the investment opportunities, including heding housing risk on choices.

dominated by intervention to ensure contract variety. However, the latter seems to be fundamentally more difficult and challenging to achieve, as it is not clear why the market would have failed to deliver such a product if households indeed desired it at the price at which landlords would have provided it. Also, if households have a preference for ownership over renting, and this is achievable in significant enough numbers and tied to age, income, and household size, there will be the differences in the stock of owner and rental houses that we observe.

In aggregate, the literature suggests that some amount of intervention in housing markets is warranted. What it does not indicate is the optimal type or extent of intervention. So for instance, while enabling homeownership may be desirable, subsiding all levels of consumption of owner-occupied housing is not. This differentiates between policies that help first time buyers overcome credit market imperfections from down-payment constraints and those that reduce the cost of owning a house at all levels of consumption, such as the across the board exemption of implicit rent from taxation, lowered borrowing costs for all levels of borrowing. The analysis that follows will make the presumption that the objective of a government should be to promote ownership, but at the lowest possible level of intervention.

Recommendations

It is difficult to contemplate changes and reforms to CMHC without involving changes to the National Housing Act (NHA). The recommendations made here do differentiate between those that CMHC might be able to undertaken without an act of Parliament and those that would require legislation. There are two areas where changes can be made: CMHC's involvement in the secondary market and CMHC's dominant position, as a crown corporation, in mortgage insurance.

Compared to the US, securitization remains underdeveloped in Canada. The policy objective should be to expand the secondary market while maintaining the focus on the objectives of increased liquidity, capital, and stability for residential mortgage finance. Because of the heavy presence of a small number of national banks in portfolio lending and investment banking, solely relying on the private market may not provide the best mechanism for mortgage securitization in Canada.[10] As well, one clear lesson from the sub-prime meltdown and Fannie and Freddie fiasco is that private markets are volatile. The importance of stability in itself may be sufficient to justify a continued role

[10] The growth in securitization outside of CMHC has principally been in sub-prime mortgages many of which were securitized in the asset back commercial paper market. As of June 2007, CMBS and MBS made up nearly 24 percent (for multi-seller conduits) of the $115 billion ABCP market. (http://www.bmonesbittburns.com/economics/focus/20070831/feature.pdf). For December 2007, NHA MBS was $160 billion while non-government non ABCP MBS was $25 billion (Bank of Canada, *Financial System Review*, June 2008)

for a public secondary market institution.[11] Consequently, CMHC should retain an important role in the secondary market.[12]

Mortgage securitization by CMHC has not had a particularly large direct effect on mortgage rates.[13] Major effects are more likely to come from more significant changes in the structure of the mortgage industry, from an increased role of mortgage brokers and more origination by firms other than the large national banks. To encourage this, CMHC should be allowed to securitize non-NHA mortgages, immediately increasing the potential size of the MBS market and opening up new sources of funds to non-portfolio lenders. As well, the determinants of what constitutes an approved lender should be relaxed, so that the onus is on mortgage insurers to guarantee loan quality. CMHC should be encouraged to broaden as much as possible the sources of loans to be packaged for securitization, subject to a risk weighting treatment that uses insurance, not necessarily NHA based insurance, to address default risk. From a policy perspective, more aggressive action by CMHC to promote long term fixed rate mortgages would offer Canadian consumers more choice. This could be achieved by having the Canada Housing Trust (CHT) develop a program to issue Canada Mortgage Bonds (CMB) backed by 30 year fixed rate mortgages. The pre-payment challenges for these securities would be no different than those faced in the US,

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[11] Australia has developed a MBS without government involvement. However, there is pressure there to follow the Canada Housing Trust model. The UK is the other major country with an active secondary market that exists without government involvement.

[12] In many ways the recommendations presented here are a call for CMHC to be able to more aggressively pursue the objectives that motivated the creation of the Canada Mortgage Bonds (CMB) program (see KPMG, *Canada Mortgage Bonds Program Evaluation*, June 2008, prepared for CMHC, http://www.cmhc.ca/en/hoficlincl/in/camobo/loader.cfm?url=/commonspot/security/getfile.cfm&PageID=178515)

[13] The estimated net effect if a lowering of rates by 3 bp (*Canada Mortgage Bonds Program Evaluation*, June 2008), the estimates of the effect of Freddie and Fannie on rates ranges between 12 and 25 bp (Passmore, Sherlund, and Burgess 2005 and VanOrder 2007).

where the vast majority of securitized mortgages are long term, fixed rate, and borrowers can pre-pay at anytime without penalty.

Among the lessons from the Fannie and Freddie debacle are that encouraging profit seeking behaviour while providing guarantees against losses is problematic. Much attention in the downfall of Freddie and Fannie has focused on their portfolio acitivites, rather than securitization. Many have tied Freddie and Fannie's financial troubles to their trading on their portfolio and holding of sub prime loans in that portfolio and Alt-A, actions that reflect both profit chasing and complying with Congressional demands that they extend more credit to "underseved markets."[14] To help avoid similar problems CMHC should continue to operate subject to the restrictions that prevent them from purchasing loans and holding unsecuritized loans in a portfolio.[15]

The challenge in continuing to allow a government entity to have a central role in the mortgage market is how to encourage private entrants who can be expected to be better at both innovation and efficiency. While NHA mortgage-backed securities and increasingly Canada Mortgage backed Bonds (CMB) are the dominant forms of CMHS's mortgage securitization, the rapid growth in the CMB program has not prevented the growth in private mortgage backed securities.[16] To continue to encourage this growth in private market activity, limits should remain in place on the type of products CMHC can create directly or through the Canada Housing trust (CHT), ideally limiting them to simple pass throughs and bonds, leaving more complex collateralized mortgage obligations (CMOs) and other tranched products to the private market.

Mortgage insurance is the area where the most dramatics changes in CMHC's role need to be made. It is difficult to construct the economic efficiency or welfare argument for why Canada needs a crown corporation to have a 70 percent market share of this industry. The industry functions elsewhere outside Canada almost exclusively

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[14] *New York Times*, 9/8/08. http://www.nytimes.com/2008/09/09/business/09future.html?em

[15] Whether retaining the current legal requirements that result in the loans that back the NHA-MBS and thus the CMB not be formally held by CMHC or CHT is a matter for operating efficiency and beyond the scope of this work.

[16] *Canada Mortgage Bonds Program Evaluation*, June 2008

with private providers, making Canada the exception.[17] Although there are two private firms in the market, the current construct in Canada does not allow for true competition because CMHC has more favourable support from the government, 100 percent guarantee against losses versus 90 percent for private firms, faces less regulation, and has access to information that private competitors do not. CMHC as a securitizer with an in-house mortgage insurance division is not a level playing field for private providers of mortgage insurance.

The current requirement that all loans by federally chartered lending institutions with a loan to value (LTV) ratio of 80 percent or higher carry mortgage insurance (MI) effectively requires some government role to ensure the availability of high LTV mortgages. There are several different approaches that could address. Instead of mandatory insurance, capital requirements for mortgage loans could vary with loan and borrower characteristics, ideally with a more sophisticated metric than just the loan to value ratio. The reduction in capital requirements awarded with insurance could vary with the degree of protection and the riskiness of the loan, creating a more sophisticated and flexible system than the current mandatory insurance with pricing for insurance tied to LTV alone. Alternatively, the government through CMHC could serve as re-insurer or buy default swaps with private insurers, introducing more competition at the consumer level.

The remainder of the report is laid as follows. I first present the motivation for seeking change that the current system could better serve Canadian borrowers. What follows after that are two more detailed sections, one on securitization and one on mortgage insurance, that seek to lay out conditions in these areas and ask what is the appropriate role for the state.

Motivation

[17] In the US FHA's share of mortgage originations is below 10 percent. In Canada, CMHC has an approximately 70 percent share of insured mortgages, which are approximately 50 percent of the market

Do Canadian households pay more than they should to achieve homeownership compared to household's elsewhere? A simple comparison of rates suggests that Canadian borrowers pay more for their mortgages than do borrowers in the Australia, the UK, and the US. Table 1 presents data on bond yields and posted mortgage rates form Aug. 25-26, 2008. For a 5 year fixed rate mortgage with pre-payment penalties, the spread for Canadian mortgages was 373 basis points, compared with 318 in Australia and 189 in the UK. A 30 year fixed rate mortgage in the US, which would be prepayable at anytime without penalty, has a spread of 194 basis points. The 5 year equivalent in Canada carried a spread of 473 basis points. Variable product spreads are more moderate.

Table 1: Mortgage Spreads

	5 year	10 year	30 year
Australia			
Fixed rate mortgage (prepayment w/ penalty)	8.90		
Bond Yield/Bank Rate	5.72	5.8	
Spread	3.18		
United States			
Fixed rate mortgage (open/prepayable)		5.85	6.33
Bond Yield/Bank Rate	3.04	3.78	4.39
Spread		2.07	1.94
United Kingdom			
Fixed rate mortgage (prepayment w/ penalty)	6.43	6.59	
Bond Yield/Bank Rate	4.54	4.6	4.43
Spread	1.89	1.99	
Canada			
Fixed rate mortgage (prepayment w/ penalty)	6.85	7.65	
Bond Yield/Bank Rate	3.12	3.59	4.04
Spread	3.73	4.06	
Spread Adjusted*	3.10	3.43	
Fixed rate mortgage (open/prepayable)	7.85		
Spread	4.73		

Loan rates for Australia, Canada, and UK, are HSBC posted rates. For Canadian pre-payable (open) it is VanCity. US rates are national averages for conforming FRM loans. US 10 year rate is a 15 year fixed rate mortgage. Variable rates are listed as spreads over central bank rates: Australia (Australian Reserve Bank cash rate target, Canada (Bank of Canada overnight rate), UK (Bank of England bank rate), US (discount window).
*Adjusted spread applies the average difference between 2005 and 2008 of 63 bp between Bank of Canada listed and average 5 year mortgage rates to the spread

The table does come with a number of caveats about the difficulty in making international comparisons with posted rates. First, the range for posted rates varies by

country.[18] Second, posted and actual rates can vary significantly depending on how possible it is to negotiate, high in Canada low in the US.[19] Third, there may be other fees, particularly points in the US, that vary by country.[20] Finally, the spread mixes mortgage competition with banking system issues, as it does not control for differences between the yield on government bonds and lenders effective cost of funds. However, at the end of the day, for borrowers it is this aggregate spread that matters.

At the same time, Canadian borrowers take more risk and have less product choice. With short mortgage terms, borrowers rather than lenders are carrying interest rate risk and more liquidity risk. Outside of Alberta, mortgage loans in Canada give the lender recourse to other assets, so relative to US borrowers, whose mortgages are non-recourse, Canadian borrowers carry a greater potential cost to defaulting on their mortgages. Quantifying choice is difficult, but a casual on-line survey mortgage products, reveals far more choice in products in Australia, the UK, and the US, then in Canada. At some point it can be argued that there is too much choice given people's ability to process information, but it seems unlikely that Canadian mortgage markets have reached that point. Most striking is the absence of long term fixed rate mortgage products, especially with reasonable pre-payment terms, though the 10 year Canada Mortgage Bond is a step in the direction of addressing this absence.

Mortgage insurance rates in the US and Canada appear to be more similar than are mortgage spreads. However, the structure of the fees for mortgage insurance works

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[18] In Australia posted rates for an owner-occupied unit, 5 year fixed rate loan range by 190 bp from to 7.99 to 9.89 percent (www.apimagazine.com.au/rates/wwwmort.htm), while for Canada the range was 160 bp from 5.25 to 6.85 (www.canadamortgage.com/ratesShow/Shopwrates.cfm) both for 9/16/08. Using the midpoint of these ranges would yield a gross spread of 322 bp for Australia versus 293 bp for Canada, improving the relative position of Canada, but still significantly above the US and UK.

[19] If we assume that for Canada the average rate is more comparable with posted rates in other countries and use the average difference between the two for 2005-08, then the spread for Canada reduces to 310 basis point, similar to Australia.

[20] Taking a house in Seattle, WA with 30 year posted rates of 6.57 percent, a range for loans without points is 5.75 to 6.85 percent. This does not the observation that spreads in the US are much lower than in Canada.

against Canadian borrowers. Table 2 presents some comparisons between CMHC rates and those for MGIC in the US for a 95 percent loan-to-value (LTV) ratio loan. In the US mortgage insurance can be paid monthly with the mortgage and can be dropped once the LTV reaches 78 percent.[21] In Canada the fee is paid up front. If house prices are rising at more than 3.9 per cent per year, then the total amount paid for insurance in the US will be less than the amount paid in Canada because of the ability to cancel the insurance once a suitable LTV has been reached. This is a rate below the historic rates of growth in many Canadian cities.[22] This does not include amortization of the loan, with amortization, the termination point would be at 43 months, resulting in savings to the US borrower of $1,170 dollars over their Canadian counterpart.

Table 2: Mortgage Insurance Fees

MGIC Rate		
Rate	0.67%	Of total loan amount, per month
Annual	$2,345	
Monthly	$195	
Coverage	30%	
CMHC		
Rate	2.75%	Of total loan amount
Amount	$9,625	
Non discounted break even	49	In months
Implied price growth rate	3.90%	Annual rate

Source for MGIC rate calculation: http://www.mgic.com/education/calculatingrates.html

Higher priced mortgages and more expensive mortgage insurance have not given Canadians borrowers any offsetting advantages. Table 3 presents homeownership rates for the US and Canada. Until recently, Canada has had a 1.5 to 2 percentage point lower homeownership rate. Though since the age distribution in Canada is older, an age

[21] The Homeowner's Protection Act (HPA) of 1998 includes provisions for early termination of PMI. http://www.frbsf.org/publications/consumer/privatemortgage.pdf

[22] See Somerville and Swann (2008)

adjusted homeownership rate would show an even larger gap between the two.[23] The surprising result is the recent closing of the gap, as we might be able to explain the lower Canadian rate because of higher mortgage rates and the absence of tax deductions for mortgage interest and property taxes on a principal residence in Canada.

The Canadian system has also not brought greater affordability. Figure 1 compares affordability numbers in the US and Canada. The figure shows the relationship between housing payments and income, so higher numbers reflect less affordability. The relationship is between payments for the median home and median income. Figures for Canada come from the RBC Economics; those for the US are calculated from data in the Joint Center for Housing Studies' annual report *State of the Nation's Housing*.[24] The figures move fairly closely together as interest rates and housing markets in the US and Canada track each other relatively closely. Affordability in Canada remains consistently lower, though they come close in 2006 at the peak of the US housing boom.

[23] Homeownership rates rise with age until after age 75. With an older population, Canada should have a lower age adjusted homeownership rate than the US as the unadjusted rates are similar even though more Americans are in younger age groupings.

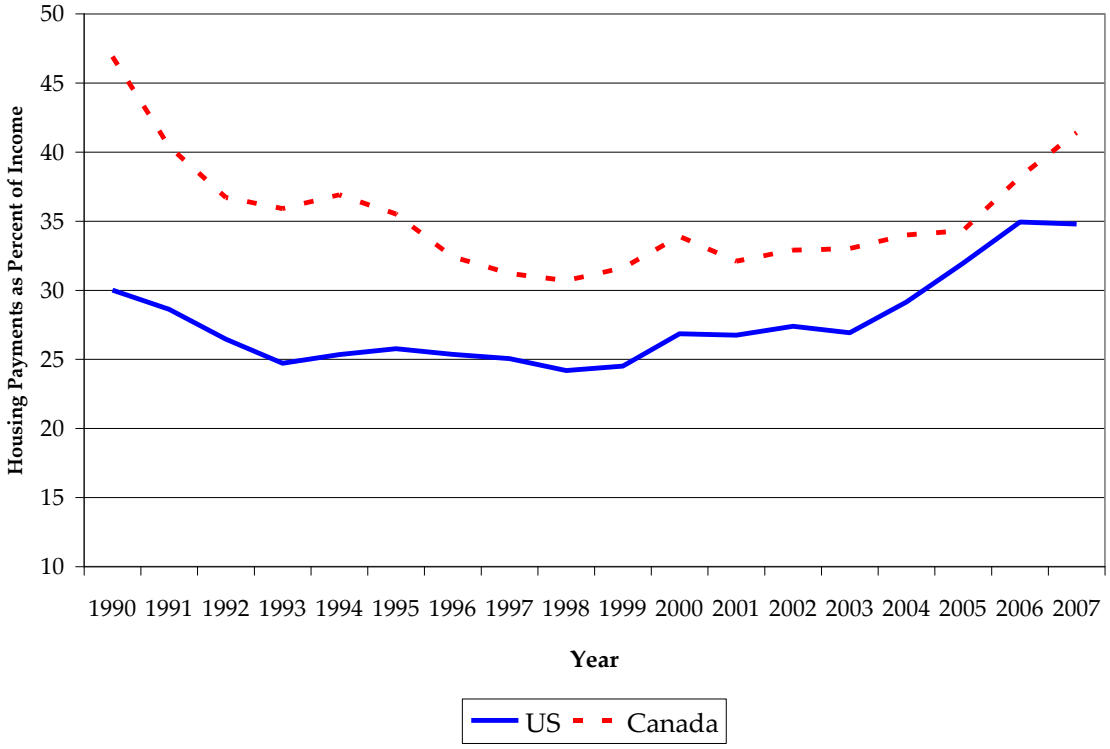
[24] Various adjustments are made to make the RBC data and Joint Center data comparable. RBC prices are adjusted to reflect Canadian Real Estate Association median sales price (the variable used for the US data); the US data adjusted to reflect the income for a typical household (their calculations are separate for renters and owners); and US annual costs are raised by 2.25% of the house price to reflect the average expenditure in Canadian cities, as a percentage of house price on taxes, insurance and maintenance (Somerville and Swann 2008).

Table 3: Homeownership Rates

Year	USA	Canada
1990	64.0	
1991	64.1	62.6
1992	64.2	
1993	64.5	
1994	64.0	
1995	64.7	
1996	65.4	63.6
1997	65.7	
1998	66.3	
1999	66.8	
2000	67.4	
2001	67.8	65.8
2002	67.9	
2003	68.3	
2004	69.0	
2005	68.9	
2006	68.8	68.5
2007	68.3	

Sources; Joint Center for Housing Studies (US), Statistics Canada (Canada)

Figure 1: Housing Affordability



While the Canadian housing finance system has served Canadians well, opening up home ownership opportunities, simple comparisons with the US and other countries suggests that conditions could be better; there could be more options, allowing Canadians to pay less for their mortgage debt.

Mortgage Securitization

The market for residential mortgage backed securities in Canada has not developed as much as that in the US. Part of the reason is that enabling legislation came later in Canada, so that the NHA MBS program was not launched until 1987. As well, the presence of national lenders, lenders making loans with shorter terms, and a less developed mortgage broker system has meant less supply of mortgages to be securitized. Table 1 gives volumes of mortgage debt securitized and shows that while Canada lags behind the US, it has been increasing rapidly. Much of this growth has

come since 2001 with the introduction of Canada Mortgage Bonds to provide a vehicle for investors that is not subject to the unusual pre-payment patters of NHA MBS.[25]

Table 4: Mortgage Debt Securitized

Year	Total ($bil) USA	Total ($bil) Canada	Per Capita USA	Per Capita Canada
2001	1,355	9	4752	287
2002	1,857	23	6449	722
2003	2,717	33	9355	1034
2004	1,882	38	6418	1180
2005	2,155	46	7284	1425
2006	2,045	58	6845	1791
2007	1,868	86	6192	2602

Sources: Inside Mortgage Finance, CMHC, Statistics Canada, Census Bureau. US is agency and non-agency, Canada is NHA MBS

These differences in volume are reflected in the total share of mortgages securitized, which as Figure 2 shows is much higher in the US: 60-75 percent. What is most noticeable for Canada is that this amount has risen from below 10 percent in 2001 to almost 40 percent in 2007. What these gross numbers to not reveal is the stark differences in the distribution of securitization in the two countries. Figure 3 shows the shares of originations by class for the US and dramatizes the dramatic growth in non-agency originations in 2004-06. Ginnie Mae (actually part of the US Government) and the two government sponsored enterprises (GSEs) had 80 percent of securitized issuances in 2001, a number that fell to 44 percent in 2006 before recovering to 63 percent with the collapse of the sub-prime market in 2007.

Figure 2: Share of Mortgages Securitized

[25] See KPMG *Canada Mortgage Bonds Program Evaluation* June 2008 for a more detailed explanation.

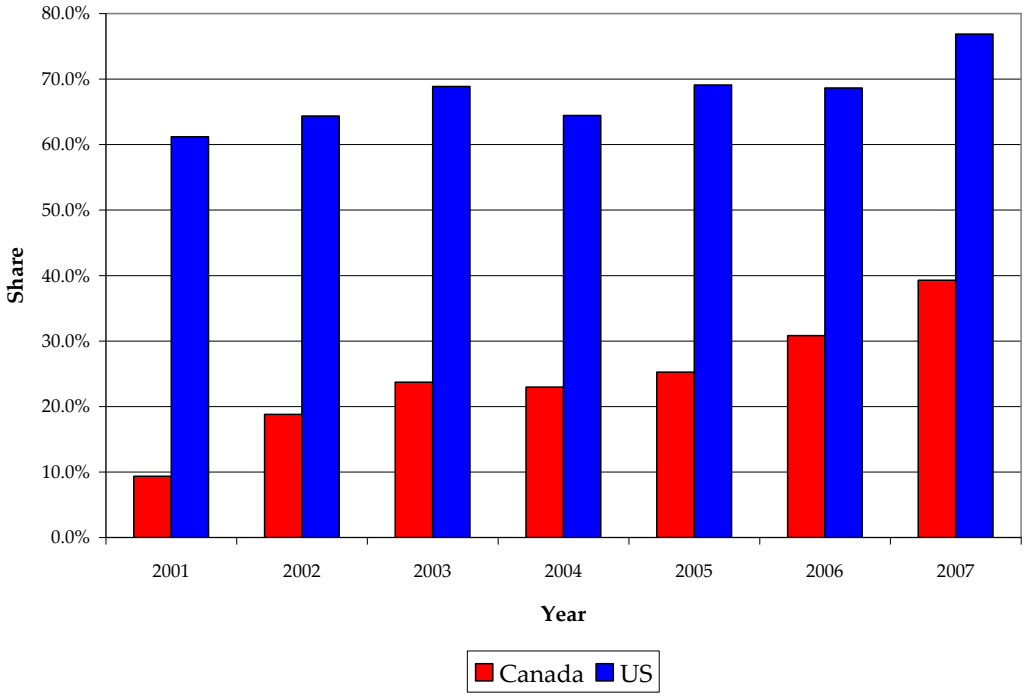
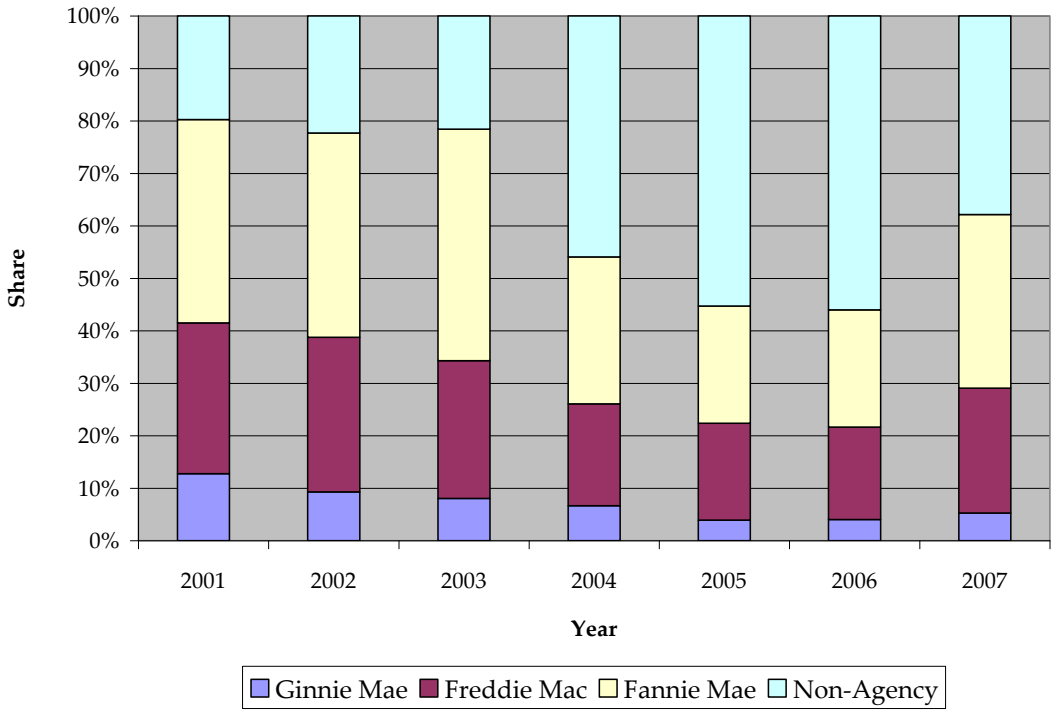


Figure 3: US Share of Mortgages Securitized



The drop in agency share reflects the growth in sub-prime and Alt-A lending. Table 5 shows the growth of the section from almost 10 percent of dollar volume of mortgage originations in 2001 to a peak of 33 percent in 2006, and if we had home equity line of credit loans to this (HEL) the increase is from 15 percent to almost 50 percent of originations.

Table 5: Share of the Dollar Volume of Total Single-Family Mortgage Originations by Market Segment (US)

Year	FHA/VA	Conv/Conf	Jumbo	Subprime	Alt-A	HEL
2001	7.9%	57.1%	20.1%	7.2%	2.5%	5.2%
2002	6.1%	59.1%	19.8%	6.9%	2.3%	5.7%
2003	5.6%	62.4%	16.5%	7.9%	2.2%	5.6%
2004	4.6%	41.4%	17.6%	18.5%	6.5%	11.3%
2005	2.9%	34.9%	18.3%	20.0%	12.2%	11.7%
2006	2.7%	33.2%	16.1%	20.1%	13.4%	14.4%
2007	4.9%	47.3%	14.3%	7.9%	11.3%	14.4%

Source: *Inside Mortgage Finance*

Canada has not see anywhere near this kind of growth in non-traditional securitized residential mortgage debt. Instead the major changes have been the growth of lending by the major banks, principally as they absorbed the trusts, and the domination of the securitized mortgage market by loans insured under the NHA. Table 6 presents mortgage debt outstanding by type. Of securitized mortgage debt, it is NHA MBS, overwhelmingly through CMHC, that dominates this sector, with an 89 percent share in 2008. Figure 3 displays the shares for these groups. In comparison with the US, in Canada portfolio lenders remain extremely important holders of debt and securitized debt is heavily concentrated in NHA insured issues, principally CMHC pools and in Canada Mortgage Bonds.

Table 6: Mortgage Debt Outstanding by Source (Canada) ($ Billion)

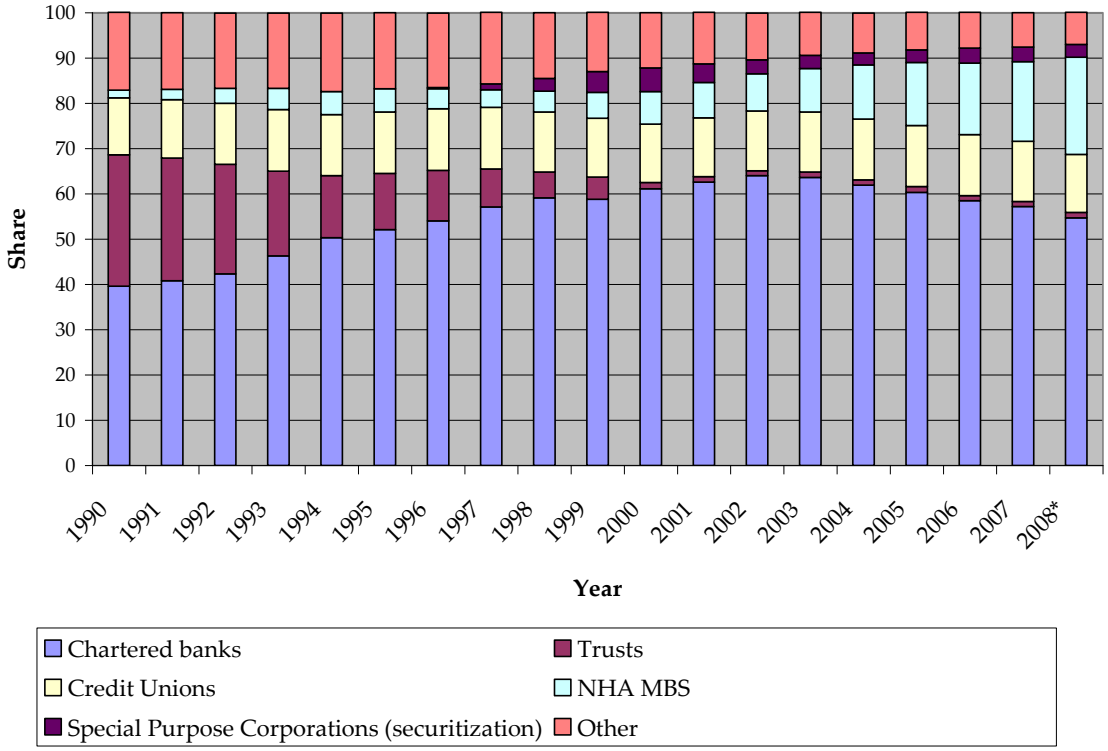
Year	Total	Chartered banks	Trusts	Credit Unions	NHA MBS	Special Purpose Corporations (securitization)	Other
1990	243.7	96.5	70.6	30.6	4.1	0	41.9
1991	263.9	107.7	71.5	34	6.2	0	44.5
1992	286.1	121.1	69.3	38.6	9.5	0	47.6
1993	307.9	142.6	57.7	41.9	14.5	0	51.2
1994	327.8	165	44.9	44.4	16.8	0	56.7
1995	339.9	177.1	42	46.2	17.4	0.1	57.1
1996	354.2	191.4	39.7	48.2	15.7	1.1	58.1
1997	374.2	213.5	31.5	50.8	14.5	4.7	59.2
1998	392.7	232.2	22.4	52.2	17.9	11	57
1999	409.9	241	19.9	53.3	23.5	18.7	53.5
2000	429.3	262.3	6.1	55.4	30.8	22.5	52.2
2001	446.1	279.3	5.2	58	34.6	18.1	50.9
2002	479.4	306.7	5.5	63.3	39.3	15	49.6
2003	518.8	329.7	6	69.1	49.8	14.9	49.3
2004	569.7	352.6	6.8	76.6	68.5	15	50.2
2005	627.5	378.3	7.9	84.5	87	17.7	52.1
2006	694.3	406	7.8	93.6	109.6	22.6	54.7
2007	773.4	442.1	8.6	102.5	136.4	24.9	58.9
2008	863.6	472.5	10	110.2	185.9	23.9	61
Growth							
1990-2008	254.4%	389.6%	-85.8%	260.1%	4434.1%		45.6%
1998-2008	119.9%	103.5%	-55.4%	111.1%	938.5%	117.3%	7.0%

Source: Bank of Canada, CMHC. 2008 numbers are through June

A major difference between the US and Canada that these figures highlight is the role of mortgage brokers. In the US, they are the dominant originators of mortgage loans, most of which are then securitized. In Canada this share only in 2007 exceeded 30 percent for

the first time, though some percentage of mortgage broker originated loans are from the large banks.[26]

Figure 3: Share of Mortgage Debt Outstanding (Canada)



The comparison between the US and Canada highlights both differences in the scope of secondary market activity and the composition of the players. Van Order (2000) presents a theoretical model that differentiates between two approaches to mortgage finance; portfolio lenders, who dominate in Canada, and secondary market capital, which has its greatest share in the US. He demonstrates how both can co-exist and that the relative shares for each depends on the risk distribution and the fixed costs for setting up secondary market. Given the similarity in the underlying economies between the US and Canada, Courchane and Giles (2002) point to differences in government policy intervention in housing markets and housing finance between the US and Canada

[26] CMHC, 2007 Survey of Mortgage Consumers, http://www.cmhc.ca/en/hoficlincl/moloin/cosu/upload/2007-Mortgage-Consumer-Survey.pdf

to explain the differences in outcomes such as yield spreads and the degree of securitization. For Canada, the question of interest here is whether the current system is acceptable, and if not what changes need to be made. Explicitly, should there be less of a government role through CMHC and does Canada need more or less securitization?

A comparison around the world reveals that outside of Australia and the UK, there is an active government hand in encouraging securitized mortgage debt. As Figure 4 shows, this comes via a state role to provide some form of insurance or actual conduit involvement. The prominence of the state's role is likely to stem in part from the explicit policy objective to increase homeownership and stabilize mortgage markets.

The major benefit from government involvement in securitization is unlikely to be from any cost savings. A number of studies have attempted to determine the effect of the implicit government guarantee (made explicit September 7, 2008) to Freddie and Fannie on the cost of mortgage debt. The standard approach has been to use the difference between rates on mortgages that conform to Freddie and Fannie guidelines on size (conforming) with those that do not (jumbo). Ambrose, LaCour-Little, and Sanders (2004) and Passmore, Sherlund, and Burgess (2005) both find that it may be that as little as half of the rate differential in Freddie and Fannie borrowing costs is actually passed on to borrowers.[27] For Canada, KPMG (2008) reports that the effect of CMB on mortgage rates "was not sufficiently large to be identified" (p. 38). At a maximum it would reduce the costs of mortgages for some borrowers by 18 basis points. They found no evidence that adding adjustable rate mortgages to the pool of eligible loans lowered the spread on these products to consumers.

[27] The upper bound for Ambrose, LaCour-Little, and Sanders (2004) is 95 percent, in their case 50 percent is the lower bound.

Figure 4: Government Involvement in Mortgage Securitization

Country	Type of Involvement	Rationale
Canada	State owned mortgage insurer and guarantor (CMHC)	Improve securitization model Promote competition Increase supply and lower the cost of mortgage funding
Australia	Enablement; state-owned mortgage insurer sold in 1997	Market allocation of resources
Denmark	Mortgage bond legislation	Improve CoMB quality, safety and use; indirectly increasing supply of funding
Finland	Mortgage bond legislation; Partial (20%) guarantees on loans securitized through Housing Fund of Finland	Improve CoMB quality, safety and use; indirectly increasing supply of funding Facilitate homeownership
France	Mortgage bond legislation Guarantee Fund for Social Home Ownership (FGAS)[35] Guarantee for CRH bonds (temporary)	Improve CoMB quality, safety and use; indirectly increasing supply of funding Expand homeownership for lower income households Facilitate development of a mortgage securities market (1985) – withdrawn after 3 years
Germany	Mortgage bond legislation State-owned development bank (KfW) provides credit default swaps	Improve CoMB quality, safety and use; indirectly increasing supply of funding Facilitate removal of risk from bank balance sheets by providing a stronger counterparty for CDS and reduce capital requirements on retained assets
Hong Kong	State owned mortgage insurer and conduit (HKMC)	Reduce bank exposure to real estate through off-balance sheet finance; standardize MBS and improve attractiveness for investors
Japan	Stated owned guarantor and issuer (GHLC)	Transition from past direct funding model; increase volume of securitization and non-govt. supply of mortgage funds
Netherlands	State owned mortgage insurer (NHG)	Expand access to homeownership and replace local government guarantees with a national program
Spain	Mortgage bond legislation Covered bonds and RMBS accepted as collateral by Central Bank (note generally the case with covered bonds)	Improve CoMB quality, safety and use; indirectly increasing supply of funding Improve liquidity of the securities
Sweden	Mortgage bond legislation State owned mortgage bank (SBAB) State-owned mortgage insurer (BKN)	Improve CoMB quality, safety and use; indirectly increasing supply of funding Transformed direct lender
UK	Enablement	Market allocation of resources
US	Public mortgage insurance (FHA, VA) Public guarantor (GNMA) Govt.-backed Liquidity facility (FHLB) Govt.-backed conduits (Fannie Mae, Freddie Mac)	Expand homeownership Facilitate securitization of FHA loans Improve liquidity of mortgage assets and lenders Expand the secondary mortgage market; improve the affordability of mortgages

Source: *Canada Mortgage Bonds Program Evaluation*, June 2008

Using a more explicit test of welfare Gerardi, Rosen, and Willen (2007) look at changes in the sensitivity of current housing consumption to permanent income and find that they cannot reject that GSE activity levels have no effect on capital market imperfections for first time borrowers and low income households. However, they do suggest that the global growth in the US secondary market in the mid to late 1980s did lead to clear efficiencies in mortgage finance.

In summary, the argument for government delivery of MBS cannot really be supported by saying it lowers the costs of funds relative to private provision. This does depend on the assumption, that in the absence of a public provider, the private sector would deliver the product. A simple comparison across counties also indicates that there is little clear aggregate benefit from public provision of securitization. Australia, with an entirely private system has roughly the same level and a similar growth path for MBS as does Canada (from $A 10 billion in 1995 to $A 160 billion in 2004).[28] As noted above, while private provision in Canada of MBS has a much smaller share, it is growing.

A number of conditions in Canada do suggest problems with privatization of CMHC's role in mortgage securitization. First, the recent events in the US do remind us that private markets are volatile. If indeed one of the goals of mortgage securitization is to increase stability of mortgage markets by broadening the source of capital, private delivery is likely to lead to more volatility. Second, the structure of the financial industry may mitigate against pure private provision of MBS achieving a number of benefits of MBS. In Canada, the largest banks have the majority of origination and through their investment bank arms would be the dominant players in securitization in the absence of CMHC. Thus, if a major benefit of MBS comes from supporting a broader scope of sources of mortgages and an aggressive mortgage broker industry, private provision of MBS in Canada may not achieve this as the major banks would have incentives to exclude smaller lenders and mortgage bankers to protect their dominant

[28] Bailey, Davies, and Smith (2004).

market position in portfolio lending. If one believes that the efficiencies gained from specialization are at the heart of the affordability benefits of mortgage securitization, then privatization in Canada may not achieve this. One of the claims by KPMG (2008) in evaluating the CMB program is that it has preserved the market share for smaller lenders and increased the role of aggregators who repackage mortgages from smaller lenders and brokers for sale to CHT. Thus, a privatization of mortgage securitization in Canada is unlikely to result in an increase in activity because there is not a channel to bring capital to borrowers without passing through the portfolio lenders.

Table 1 compares spreads across Australia, Canada, the UK and the US. The countries differ in their mix between public and private provision of MBS. In Australia and the UK, all private, in the US mostly mixed, and in Canada public (CMHC) has the dominant share. Spreads would appear to be uncorrelated with the private mix. On the other hand, they may well be related to the degree of competition. In Canada, the large banks dominate mortgage lending and investment banking. In Australia there are concerns about competition and officials are examining the CMHC/CHT model as a mechanism to introduce more capital to non-bank lenders. [29]

Trying to find a mid-point for an institution between public and private is problematic. The recent US government bailout and takeover of Fannie Mae and Freddie Mac is a vivid reminder of the dangers of mixing private for profit incentives with government protection against risks. The September 8, 2008 takeover demonstrated that such a mixed arrangement amounts to "socializing losses and privatizing profits." Freddie and Fannie could aggressively pursue portfolio trading for profits without paying a higher cost for the debt that financed this activity.

As was noted above, Canadian borrowers lack a long term FRM option. In a period of declining government borrowing, the argument can be made that there may well be demand for long term Canadian dollar debt, a demand that could be met with mortgage instruments. To some extent the Canada Housing trust is seeking to meet this

[29] ABC News, posted May 15, 2008 http://www.abc.net.au/news/stories/2008/07/14/2303311.htm last reference 9/15/08.

demand with development of 10 year Canada Mortgage Bonds. The critique is not what is being done, but that not enough is being done. As long as CMHC cannot access non-NHA insured mortgages, and has strict guidelines for approved lenders, as opposed to using strict criteria for pool evaluation and aggressive use of automated credit scoring techniques, the supply of loans that CMHC may securitize will be limited. In fact, if NHA insured loans are approximately 50 percent of the market, the difference between securitization levels in the US and Canada simply reflect the constraint on CMHC to only half of the mortgages originated.

The challenge is how to prevent moral hazard confronting CMHC and still allow for private market efficiencies. Keeping the regulations that prevent CMHC from acquiring its own portfolio of loans, would prevent some of the problems that have overtaken Freddie and Fannie, where the problems they currently face stem from profit seeking behaviour in portfolio acquisition and trading rather than securitization. Keeping the organization to pass throughs and mortgage backed bonds, would permit the private market to purse more esoteric derivative securities.

The principal conclusion is that Canada needs more securitization, not less. But the structure of the mortgage industry in Canada, with large share held by a small number of national portfolio lenders, is likely to militate against a successful private presence in this sector. Consequently, allowing CMHC to expand its role in securitization, while placing limits on product and activities that will allow for private market activity and reduce the ability to engage in risky activities would seem to be the second best solution.

Attaining these goals will require an act of Parliament. The limits on CMHC's behaviour stem from the enabling legislation. Any expansion in its scope cannot occur with changes that govern the types of eligible loans and the criteria on approved lenders. However, one activity that CMHC should be able to purse through the NHA MBS program or through the CHT is the development of longer term mortgages. The argument that because of pre-payment, investors will not accept MBS product backed by longer term securities is difficult to accept given the overwhelming share of fully pre-

payable mortgages in the pool of securitized mortgages in the US. And in Canada, unlike the US, government surpluses suggest a growing absence of supply of high quality long term debt.

Mortgage Insurance

Since the late 1980's the provision of mortgage insurance (MI) in Canada has either been a CMHC monopoly or quasi duopoly with CMHC having an at least 70 percent share of the market. Part of this is historical. Following the collapse the private mortgage insurance providers in the late 1980's and early 1990's, the legal requirement that all high LTV mortgages issued by federally chartered lenders carry insurance demanded the availability of MI. CMHC met this demand, with the 100 percent backing of the federal government. Through 2006 and into 2007 it seemed that there existed the potential for increased competition as three private US providers (AIG, PMI, and MGIC) expressed an interest to enter the Canadian market. However, there financial problems stemming from the increases in delinquencies in the US market combined with the July 9, 2008 Canadian government announcement of changes in the rules for government guaranteed mortgages reversed this process, leaving the original two (CMHC and Genworth) and AIG the remaining new entrant.

The absence of meaningful competition in the Canadian mortgage insurance business stems from the competitive advantages afforded to CMHC by law. These were recently outlined by PMI and Genworth in their submissions[30] to the Competition Policy Review Panel. The two firms pointed to: i) the federal government's guarantee of 100% for CMHC-insured loans, compared with 90% for loans insured by private companies, which means that lenders can hold less capital for mortgages insured by CMHC, ii) CMHC controls the decisions about which lenders are acceptable and which lines of

[30] PMI Canada, *Submission to Competition Policy Review Panel* (Jan. 11, 2008), http://www.ic.gc.ca/epic/site/cprp_gepmc.nsf/vwapj/PMI_Mortgage.pdf/$FILE/PMI.Mortgage.pdf, and same date Genworth Financial Canada,, January 11, 2008, *Submission to Competition Policy Review Panel Consultations*; http://www.ic.gc.ca/epic/site/cprp_gepmc.nsf/vwapj/Genworth.pdf/$FILE/Genworth.pdf.

business private insurers can undertake with approved lenders, iii) to participate in the MBS program, private insurers must submit sensitive documentation to CMHC, and iv) private insurers face additional regulation and supervision from the Office of the Superintendent of Financial Institutions. Without changes to the rules of the game, private insurers are unlikely to gain much market share at CMHC's expense.

There is no apparent reason why the mortgage insurance industry in Canada needs to be dominated by a government supported insurers. A wide variety of countries provide mortgage credit enhancement without government provision. The main need, under current rules, is that mortgage insurance be available. This could be achieved without having a government insurer by the government continuing to provide some guarantee against losses, currently 100 percent for CMHC and 90 percent for PMI providers, either explicitly or by guaranteed re-insurance.

In some ways the current system of mortgage insurance is akin to the roles of Freddie and Fannie in the US. For profit firms and a crown corporation are encouraged to pursue profits. However, the ultimate risk is held by tax payers because of the government guarantee. And unlike most other countries, the guarantee here extends to the entire mortgage, and not to the first 20-40 percent of the losses. Thus, the government role in Canada may well be exacerbating risk because insurers do not face the same concerns about market conditions and loan risk given the government guarantees.

To ensure the availability of high LTV loans some type of government role in mortgage insurance is needed. One argument for government intervention in mortgage markets is the desirability of homeownership. The absence of wealth for a downpayment is a significant barrier to homeownership. Thus, allowing high LTV loans has a greater justification on welfare grounds than does an across the board reduction in the cost of funds that encourages the over consumption of housing. However, because of the catastrophic nature of the risk of default, like natural disasters, losses in MI are concentrated in areas with negative economic shocks, which reduce incomes and lower house prices, market cycles are likely to make insurance for high

LTV periodically prohibitively expensive. Table 7 shows, a number of Canadian markets have correlations of nominal house appreciation of 0.5 or more, raising the likelihood that any mortgage insurance business in Canada will suffer from correlated market downturns.

Table 7: Correlation in House Price Growth Rates

	Calgary	Edmonton	Halifax	Montreal	Ottawa	Regina	Toronto	Vancouver	Winnipeg
Calgary	1.00	**0.74**	**0.53**	0.38	0.13	0.32	0.40	0.48	0.44
Edmonton		1.00	0.49	0.20	0.06	0.24	0.08	0.29	0.27
Halifax			1.00	0.19	**0.75**	0.15	0.29	0.26	0.43
Montreal				1.00	0.18	0.32	**0.74**	**0.51**	**0.64**
Ottawa					1.00	0.05	0.30	0.28	0.27
Regina						1.00	0.46	0.16	0.68
Toronto							1.00	0.37	**0.58**
Vancouver								1.00	0.17
Winnipeg									1.00

Encouraging multinational firms who can diffuse country specific catastrophic risk is one way to deal with this problem. However, as long as CMHC retains a large market share and clear government granted competitive advantages this is unlikely to occur.

There are alternatives to guarantee the presence of MI that do not require the existence of a crown corporation directly providing insurance to borrowers. These include the government continuing to provide some guarantee against losses, though at level less than the current 100 percent for CMHC and 90 percent for private providers to avoid encouraging actuarially risky behaviour on the part of insurers, the government through CMHC providing re-insurance to private providers or purchasing credit default swaps. A more aggressive approach would allow for a change in the regulatory regime on lenders to allow for self insurance of mortgage debt or to tie capital requirements for lenders to the riskiness of their portfolio rather than require a blanket coverage of 100 percent insurance on the complete amount lent on all loans to all borrowers where the

LTV is 80 percent or higher. This would enable lenders to find greater efficiencies in the construct of their portfolios.

Concluding Comments

Canadians have a right to be justifiably proud of their housing finance system. It has served them well and for the most part avoided the problems with excessive risk and speculative lending and investment exposed in the subprime crisis in the US.

This does not mean that there are not grounds for improvement. Most notable is that on an international basis Canadians are paying more for mortgages where borrowers bear much of the risks directly or through the government's guarantee and receiving relatively little product choice. One possible way to address this would be to allow and encourage CMHC to expand its role in mortgage securitization. The reason for CMHC to pursue this activity is a combination of the high cost of instability in housing markets for macroeconomic stability and that in a financial system dominated by a small number of large banks, the benefits of increased competition and specialization that can emerge from securitization are unlikely to manifest themselves.

At the same time, CMHC's mortgage insurance activities should be privatized, with a reduction in the scope of the taxpayer guarantee to all providers. Introducing a system that allowed for more flexibility, rather than a blanket requirement for insurance on all mortgages with an LTV of 80 percent or higher and then a government guarantee on 90 percent or more of the funds lent, would afford the possibility of a more efficient and flexible system of credit enhancement with less taxpayer and system exposure to moral hazard.

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