

OECD Economics Department Working Papers No. 1145

Deconstructing Canada's Housing Markets: Finance, Affordability and Urban Sprawl

Calista Cheung

https://dx.doi.org/10.1787/5jz0zbg20h34-en

OECD

Unclassified **ECO/WKP(2014)41**

Organisation de Coopération et de Développement Économiques
Organisation for Economic Co-operation and Development **21-Jul-2014**

English - Or. English

ECONOMICS DEPARTMENT

ECO/WKP(2014)41
Unclassified

DECONSTRUCTING CANADA'S HOUSING MARKETS: FINANCE, AFFORDABILITY AND URBAN SPRAWL

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By Calista Cheung

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ABSTRACT/RÉSUMÉ

Deconstructing Canada's Housing Markets: Finance, Affordability and Urban Sprawl

House prices have increased significantly in Canada over the past decade, driving household debt and residential construction activity to historical highs. Although macro-prudential tightening has slowed the pace of household borrowing in the last few years, house prices have continued to trend higher, and affordability remains a major challenge in urban centres. First-time home buyers must therefore spend more of their incomes to purchase a house and are vulnerable to future interest rate hikes. Overbuilding in the condominium sectors of some cities appears to be a source of risk, especially if a major price correction in these segments spills over into other markets. The country benefits from a sound and effective housing finance system, which performed well throughout the global financial crisis thanks to strong regulatory oversight and explicit government backing of the mortgage market. Nonetheless, the dominance of the crown corporation CMHC in the mortgage insurance market concentrates a significant amount of risk in public finances. Improving competitive conditions in the mortgage insurance market could help diversify these risks and reduce taxpayer contingent liabilities, while introducing coverage limits on loan losses would better align private and social interests. There may be a shortage of rental housing in several cities, especially in the range that low-income households can afford. Urban planning policies have resulted in low-density residential development which contributes to relatively high transport-related carbon emissions. Addressing these externalities requires stronger pricing signals for land development, road use, congestion and parking, combined with better integration of public transit planning. To prevent the marginalisation of low-income households, planning policies should support social mix and increase incentives for private-sector development of affordable housing. This Working Paper relates to the 2014 *OECD Economic Review of Canada* (www.oecd.org/eco/surveys/economic-survey-canada.htm).

JEL classification codes: E02, E44, E61, G21, G22, G23, G28, H21, H42, H71, R14, R21, R31, R38, R48, R52, R58

Keywords: housing, house prices, mortgage markets, housing finance, financial regulation, financial system risk, mortgage securitisation, macro-prudential regulation, household debt, subprime, affordability, rental markets, social housing, compact growth, urban sprawl, urban planning, property tax, land use, development charge, densification

****

Restructurer les marches canadiens du logement : financements, accessibilité financière et étalement urbain

Les prix des logements ont sensiblement augmenté au Canada au cours des dix dernières années, portant la dette des ménages et la construction de logements à des points hauts historiques. Bien que le durcissement de la politique macroprudentielle ait ralenti la croissance des emprunts des ménages ces dernières années, l'évolution à la hausse des prix de l'immobilier d'habitation s'est poursuivie, et l'accessibilité financière du logement demeure un problème majeur dans les centres urbains. Les primo-accédants doivent par conséquent consacrer une part plus importante de leurs revenus à l'achat de leur logement et sont exposés à de futures hausses des taux d'intérêt. La construction excessive de logements en copropriété dans quelques grandes villes semble constituer un facteur de risque, en particulier s'il y avait une correction majeure des prix sur ce segment qui se répercuterait sur d'autres compartiments du marché. Le pays bénéficie d'un système de financement du logement efficace et sain, qui a bien fonctionné tout au long de la crise financière mondiale grâce à un cadre solide de surveillance financière et à la garantie explicite de l'État dont bénéficie le marché hypothécaire. Néanmoins, la position dominante occupée par la Société canadienne d'hypothèques et de logement (SCHL), une société d'État, sur le marché de l'assurance prêt hypothécaire se traduit par la concentration d'un volume de risques important au niveau des finances publiques. Une amélioration des conditions de concurrence sur le marché de l'assurance prêt hypothécaire pourrait contribuer à une diversification de ces risques et à une réduction des éléments de passif éventuel assumés par les contribuables, tandis qu'une limitation de la couverture des pertes sur prêts permettrait d'obtenir un meilleur équilibre entre les intérêts individuels et collectifs. Il est possible que plusieurs villes pâtissent d'une pénurie de logements locatifs, en particulier dans la gamme des biens immobiliers accessibles pour les ménages à faibles revenus. Les politiques d'urbanisme se sont traduites par des zones d'habitation peu denses qui contribuent au niveau relativement élevé des émissions de carbone liées aux transports. Pour remédier à ces externalités, il faut renforcer les signaux-prix en matière d'aménagement foncier, d'utilisation des routes, de congestion et de stationnement, tout en intégrant mieux la planification des transports en commun. Pour empêcher que les ménages à faibles revenus ne soient marginalisés, il faudrait que les politiques d'aménagement favorisent la mixité sociale et incitent davantage le secteur privé à construire des logements abordables. Ce Document de travail se rapporte à l'*Étude économique de l'OCDE du Canada 2014* (www.oecd.org/eco/etudes/canada.htm).

Classification JEL : E02, E44, E61, G21, G22, G23, G28, H21, H42, H71, R14, R21, R31, R38, R48, R52, R58
Mots clefs : Logement, prix du logement, marché hypothécaire, financement du logement, réglementation financière, risque du système financier, titrisation de créances hypothécaires, réglementation macro-prudentielle, dette des ménages, prêts hypothécaires à risque (subprime), accessibilité, marchés locatifs, logement social, croissance compacte, étalement urbain, urbanisme, impôt foncier, utilisation du sol, redevance d'aménagement, densification

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Deconstructing Canada's housing markets: Finance, affordability and urban sprawl

By

Calista Cheung[1]

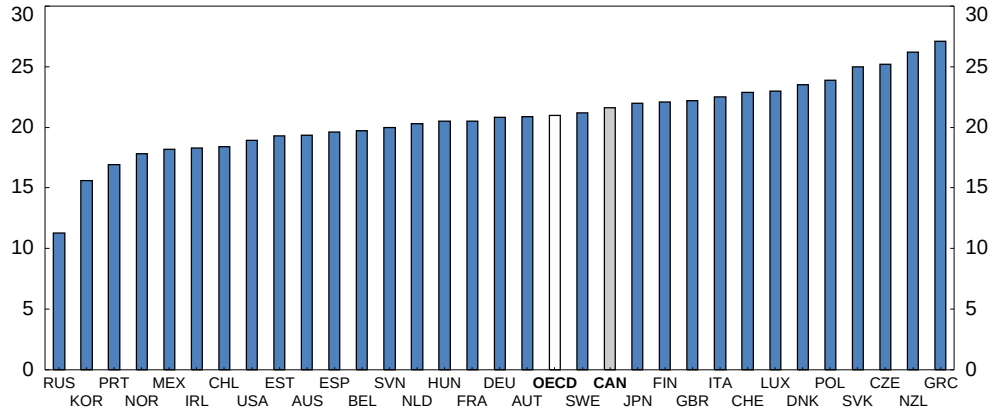
Canada experienced a housing boom over the last decade, as did many other OECD countries, spurred by strong economic and population growth and easing credit conditions. Real house prices have appreciated by 87% since 2000 and, unlike many other countries, generally remained high throughout the global financial crisis. Over this period Canada's homeownership rates rose more than in any other advanced country, from 66% in 2001 to 69% by 2011. Residential investment has expanded to near historical highs of 7% of GDP from 4.4% in 2000, raising doubts about the sustainability of the boom. Adding further to such concerns, Canada's house prices relative to incomes and rents sit among the highest in the OECD with respect to long-term averages. Such signals of overvaluation appear to reflect dynamics in only a few major cities, however, given the heterogeneous nature of housing markets across the country.

Overall, Canadian residents generally enjoy good quality and affordable housing: the share of household income spent on shelter costs is close to the OECD average (Figure 1), and a higher-than-average 90% report to be satisfied with their current dwelling conditions (OECD, 2013a). Rising house prices have not prevented homeownership rates from increasing over the last decade because low interest rates and a loosening of credit restrictions have increased households' borrowing capacity. Accordingly, the household debt-to-income ratio has surged to record highs, reaching 166% in 2013 Q3, up from 110% in 2000.

1. Calista Cheung was an economist in the Country Studies Branch of the Economics Department of the OECD, email: calistacheung@yahoo.com. This paper was prepared for the OECD *Economic Survey of Canada* published in June 2014 under the authority of the Economic and Development Review Committee. The author is thankful to Willem Adema, Rudiger Ahrend, Christophe Andre, Dan Andrews, Nicola Brandt, Boris Cournede, Robert Ford, Justine Garrett, Nathalie Girouard, Peter Jarrett, Isabel Koske, Pierre Leblanc, Tadashi Matsumoto, Alvaro Pereira, Angelica Salvi del Pero, and the Canadian government officials for their valuable comments and suggestions. Special thanks are due to Françoise Correia for excellent statistical assistance and Mee-Lan Frank for excellent technical preparation.

Figure 1. **Housing expenditures**

As a percentage of household gross adjusted disposable income,[1] 2011 or latest available year



Note: Housing expenditures include actual and imputed rents, expenditure on maintenance and repair of the dwelling, on water supply, electricity, gas and other fuels, furniture, furnishings and household equipment, goods and services for routine maintenance of the house.

1. Gross of depreciation but after taxes and transfers as well as social transfers in kind such as education and health care.

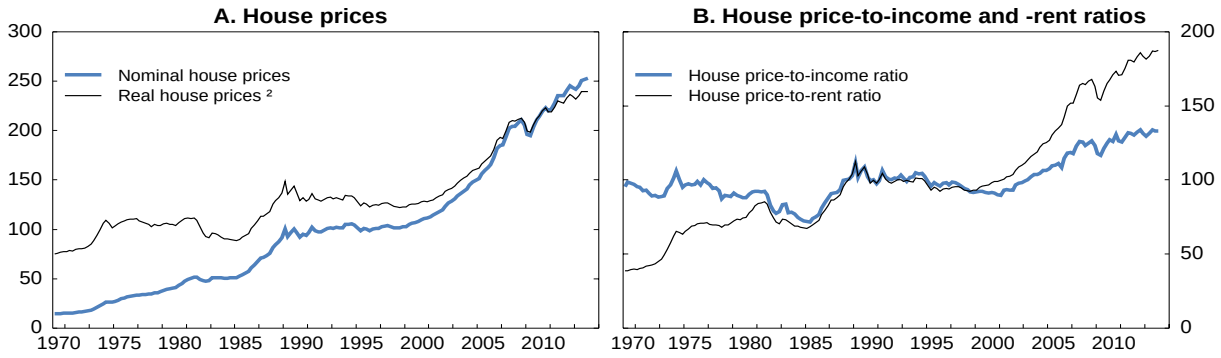
Source: OECD (2013), *How's Life? 2013 – Measuring Well-being*.

High house prices and household debt have raised concerns

Real house prices have generally trended upwards since 1970, punctuated by three periods of major appreciation: the early 1970s, when real house prices grew 45%, the late 1980s, when they soared by 68%, and the current episode which began in 2000 (Figure 2, Panel A). Empirical evidence suggests that much of the upward trend in Canadian house prices, at least over the past 30 years, can be explained by income and population growth (Peterson and Zheng, 2011). Credit conditions have also played an important role: mortgage interest rates have trended down over much of this period, and the three major upturns since 1970 have all been characterised by double-digit annual growth in mortgage lending. Homeownership rates reached 69% in 2011, up from 60% in 1971, with the steepest increase over the 1991-2006 period. The increase would have probably been stronger, were it not for the trend towards delaying family formation over this period.

Figure 2. **House price indicators**

100 = Long-term average[1]



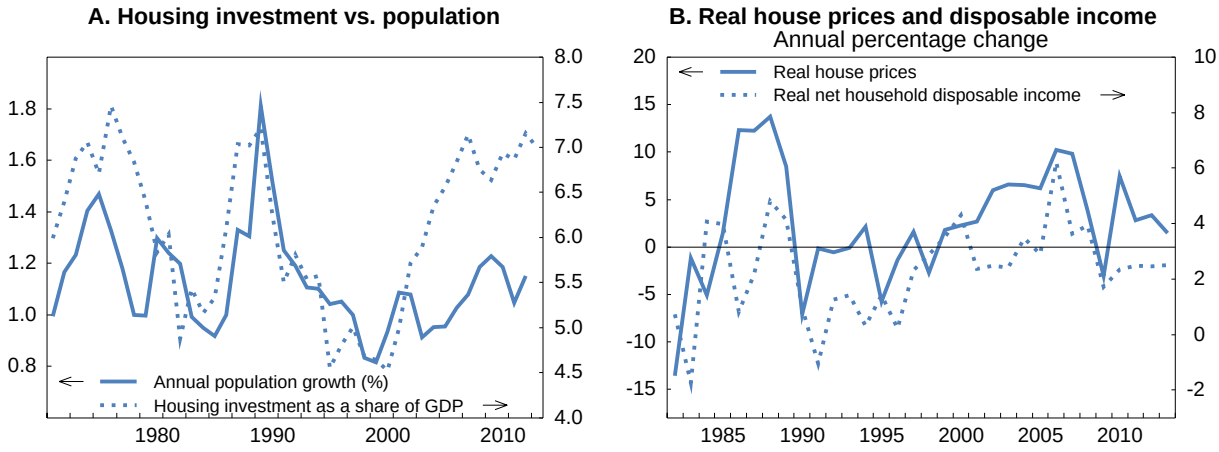
1. 1970q1 to 2013q4.
2. Deflated by private consumption deflator.

Source: OECD, House prices database, Teranet National Bank National Composite House Price Index.

As in many other OECD countries, preferential tax treatment for home ownership in Canada has probably helped amplify the effects of strong demand and cheap credit on house prices. Such tax advantages include untaxed imputed rents, a capital gains tax exemption on principal residences (including on death), and a GST/HST New Housing Rebate that reduces the effective rate of value-added tax on new qualifying homes from 5% to 3.2%. However, unlike many other countries, owner occupiers cannot deduct mortgage interest expenses from their taxable income, which offsets some of the bias. More generally, home owners cannot deduct housing expenses such that neither income nor the expenses associated with the properties are provided tax recognition. Tax allowances also exist for first-time homebuyers: the Home Buyers' Plan (HBP) allows such households to borrow up to CAD 25 000 from their untaxed Registered Retirement Savings Plans (RRSP) funds for a down payment on a home, and the First-Time Home Buyers Tax Credit provides them a tax credit of CAD 750. There is evidence that HBP tax expenditures disproportionately benefit wealthier households, given that low-income individuals are less likely to have any RRSP savings (Steele, 2007).

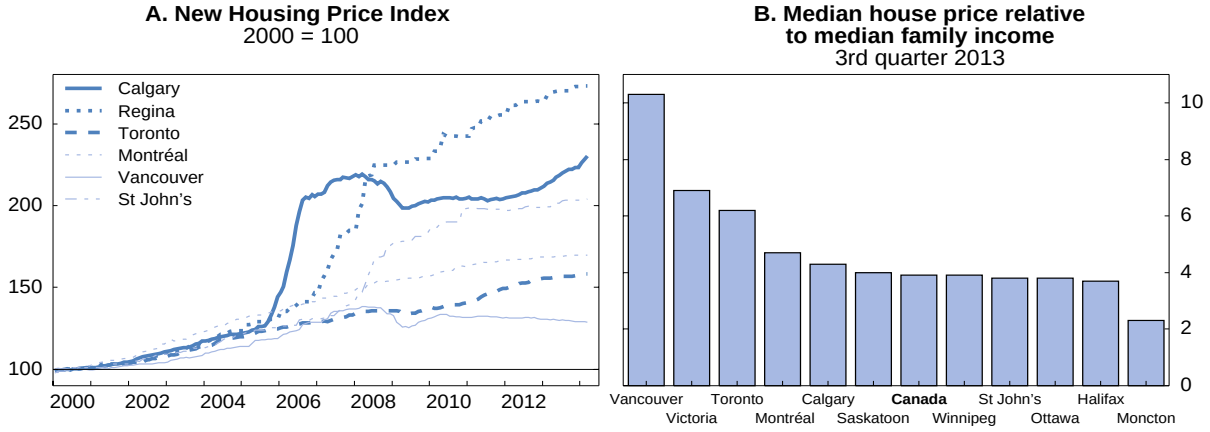
The current upturn appears to differ from previous ones in that rising population growth appears to have elicited a far larger response in housing construction as a share of GDP than in the past (Figure 3, Panel A), although some of this may reflect a catch-up from apparent underinvestment in the 1990s. It may also reflect the faster growth in the population aged 25-34, the group most likely to enter homeownership, in recent years. Between 2007-12, this population segment expanded by on average 1.8% annually, compared to 1.2% for the total population. Furthermore, house price increases have outpaced household income growth, despite this outsized supply response (Figure 3, Panel B). House price growth since 2000 has been broad based, although the magnitude of increase varies considerably across cities and dwelling types. In addition to a global low interest rate environment, the availability of cheap credit and strong economic growth, persistent increases in commodity prices and thus the terms of trade have also contributed to rising house prices in resource-based regions (Figure 4, Panel A), through higher incomes and thus demand but also through costlier construction materials and higher labour costs.

Figure 3. **Housing market dynamics**



Source: OECD, Economic Outlook 95 database.

Figure 4. **Housing market dynamics vary widely across the country**



Source: Statistics Canada and Demographia, *International Housing Affordability Survey*, 2014.

Despite declining slightly in 2009 during the global financial crisis, real house prices have since rebounded to new peaks, prompting much debate about whether a "bubble" has formed (e.g. Roubini, 2013; O'Brien, 2013). For example, analysis by TD Economics (2012) suggests prices had begun to outstrip fundamentals starting in 2006. By November 2013, Fitch Ratings estimated that house prices were still overvalued by as much as 20% (Fitch, 2013), while the IMF's 2014 Article IV report (IMF, 2014) concluded that house prices were 10% above levels justified by fundamentals. By contrast, other analyses conclude that house prices are consistent with fundamentals, including unusually low interest rates (e.g. Wiebe, 2014; Dunning, 2014).

Much of the concern over a potential bubble is prompted by record high house prices relative to incomes and rents. These ratios are among the highest in the OECD relative to their long-term averages (see Table 1 for the former). However, neither gives an accurate picture of affordability or sustainability: price-to-income ratios are commonly based on average measures, whereas homeowners typically have higher-than-average income levels. Looking at price-to-rent ratios may also be misleading due to a number of measurement issues (Box 1) and because rent controls in half of the provinces (Table 2) have restrained the rise in rents. Such metrics also ignore the fact that low mortgage interest rates have made owning much more affordable over the past decade. Nonetheless, the cost of owning a home relative to renting has risen substantially above its long-term average (Figure 5).

Table 1. **Price-to-income ratio**

Country-specific long-term average (1981 to 2013) = 100

	1981-85	1986-90	1991-95	1996-00	2001-05	2006-10	2011-13	2013q4[1]
Canada	**78.3**	**94.5**	**99.3**	**92.2**	**99.0**	**119.6**	**128.5**	**130.6**
United States	108.6	103.5	96.4	92.9	104.9	102.6	85.3	90.2
Japan	118.2	123.6	116.1	101.2	87.1	73.0	65.2	62.9
Germany	132.1	109.0	106.9	99.6	86.7	77.3	80.8	84.1
France	89.3	93.0	88.9	78.5	100.9	130.7	130.9	127.9
Italy	104.7	85.4	101.0	82.3	99.7	118.2	114.5	108.2
United Kingdom	81.0	102.2	80.2	78.5	113.6	131.3	122.0	124.2
Australia	77.1	86.6	91.5	89.1	117.1	126.3	120.6	126.9
New Zealand	n.a.	74.4	81.5	91.7	106.2	131.3	125.2	131.5
OECD	104.7	103.9	98.7	91.7	101.1	103.5	93.9	95.3

Note: Nominal house prices divided by nominal disposable income per head.

1. Or latest observation.

Source: OECD house-price database.

Box 1. **Why price-to-rent ratios may be overestimated**

In house price-to-rent ratios, the Teranet/National Bank index is the generally preferred measure for house prices, as it applies a repeat sales methodology to simulate a constant quality level and thus captures relatively pure price changes. However, many of the properties covered in the index may have undergone quality improvements due to renovations, which the measure does not adjust for (Dunning, 2014). Spending on home renovations has ramped up significantly since the mid-2000s to now account for 40% of residential investment, up from an average of 25-30% in the 1990s. Furthermore, the Teranet index covers only 11 major markets, which have generally experienced more rapid population and house price growth than the national average. As a result, the use of this index may overestimate the extent of national house price appreciation. In addition, the rent measure normally used in price-to-rent ratios is the rent component of the Consumer Price Index, which has some technical flaws that serve to underestimate true rent increases. For example, data prior to July 2009 assumed that rents remained unchanged when tenants moved; in reality, rents tend to increase with changes in tenancy, and one quarter of renters move each year (Dunning, 2014). Statistics Canada addressed this issue with methodological changes to the data from July 2009 onwards.

Source: Dunning, W. (2014), "How to Dissect a Housing Bubble". Will Dunning Inc., 12 March.

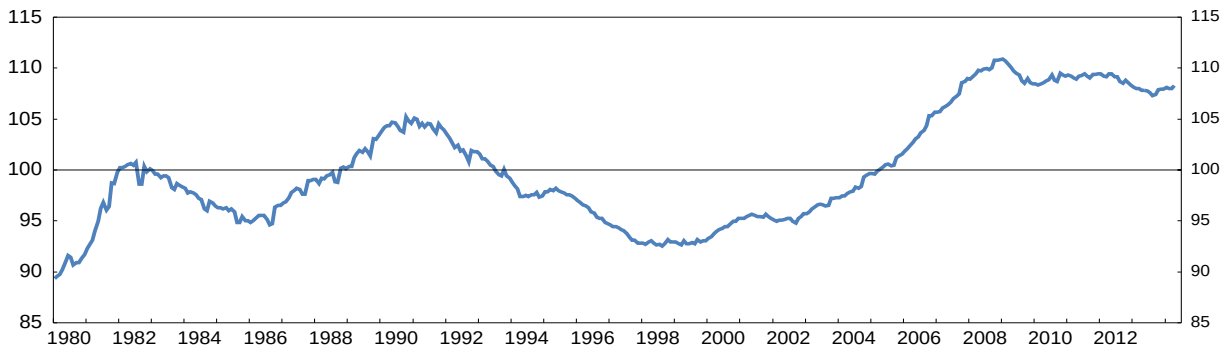
Table 2. **Provinces with rent controls**

Province	Regulations for rent increases
Ontario	Landlords can increase the rent for existing tenants with 90 days written notice once every 12 months according to provincial guidelines, which the government sets each year based on CPI inflation. To increase rent beyond the guideline, landlords must apply for permission to the Landlord and Tenant Board. There are no limits on rent increases when there is a change in tenancy.
Québec	Landlords can increase the rent for existing tenants once every 12 months. There are no limits on rent increases, but tenants may contest the adjustment by applying to the court. The landlord may increase the rent upon a change in tenancy but must provide the tenant a notice stating the lowest rent paid in the 12 months preceding the beginning of the lease. The tenant may contest the rent and ask the *Régie du logement* to fix its level.
British Columbia	Landlords can increase the rent once per year with three months' notice by a percentage equal to the inflation rate plus two percent. The government sets the maximum allowable rate of increase each year. Tenants cannot dispute the rent increase, unless it exceeds the allowable amount.
Manitoba	Landlords can increase the rent for existing tenants with three months' written notice once every 12 months according to annual provincial guidelines. The landlord may apply to the Residential Tenancies Branch for a larger increase upon demonstrating that the guideline amount will not cover the cost increases incurred. A tenant may contest any rent increase through the Residential Tenancies Branch.
Prince Edward Island	Landlords can increase the rent once per year with three months' notice by an annual allowable percentage set by the Island Regulatory and Appeals Commission each year. To increase rent above the allowable rate, landlords must get approval from the Director of Residential Rental Property. Landlords may not increase the rent for new tenants if a rent increase was already made in that year.

Source: CMHC.

Figure 5. **The cost of owning *versus* renting a home is high**

Index, 1990-2013 = 100



Note: Defined as the ratio of CPI "Owned accommodation" to CPI "Rented accommodation".

Source: Statistics Canada.

Housing market imbalances appear localised

In Canada, national house prices may be a poor signal of underlying market conditions, given the heterogeneous nature of its housing markets. An earlier study by the Bank of Canada found that housing markets across the country are segregated, with little long-run correlation in price movements among major urban centres (Allen et al., 2006). In the short run, however, house prices tend to co-move at the regional level (Cunninghan and Kolet, 2007). Contemporaneous correlations at the annual frequency indicate strong linkages exist among the eastern markets of Toronto, Hamilton, Windsor, Montréal and Québec City, as well as among some western cities (Table 3). Furthermore, recent analysis suggests that commodity price movements appear to influence house prices in western provinces but also in Toronto and Québec (Wiebe, 2013). Vancouver's prices were boosted by the 2010 Winter Olympics as well as by immigration-induced rapid population increases, as have those in Toronto and Montréal.

Housing valuations vary widely across cities and by type of dwelling. For example, across 35 Canadian cities included in the 2014 Demographia survey of housing affordability, median house prices ranged from 10.3 times the median household income in Vancouver, to 2.3 in Moncton (Figure 4, Panel B). The nation as a whole was considered "moderately" unaffordable with a median price-to-income multiple of 3.9, placing Canada as the seventh least affordable out of nine mostly English-speaking countries. Nonetheless, the study suggests almost 40% of the country's population lives in a city where house prices are seriously or severely unaffordable. Meanwhile, a recent study by BMO Capital Markets concluded that three-quarters of Canada's housing markets are affordable for the typical family, with mortgage payments and other housing costs below 40% of the median family income, and most would remain so if interest rates were to increase by two percentage points (Guatieri, 2013). The main exceptions are Vancouver and Toronto, where house price growth in the past few years has been driven entirely by single-family homes (Figure 6), suggesting that *ex ante* demand has outstripped supply in these markets. Meanwhile, prices for multi-unit dwellings in these cities have flattened in recent years, given the strong supply response in the condominium sector. Land-use constraints may be a contributing factor behind this divergence; this will be discussed below.

Another source of concern has been the surge in residential construction as a share of GDP towards the peaks hit in previous housing booms (Figure 3, Panel A). Empirical estimates by the IMF (2013) concluded that by mid-2012 Canada's housing stock was 1.5% in excess supply relative to its "equilibrium" level as determined by household formation, disposable incomes, construction costs, mortgage rates and house price growth. The stock of dwellings per household has indeed increased over the 2000s and appears to be at a 40-year high (Figure 7). Some of this may reflect a rising demand for vacation homes or investment properties: the share of households with secondary properties was steady over 1999-2005 but grew from 16.1% in 2005 to 18.4% in 2012 (Statistics Canada, 2014).

Overbuilding appears most evident in condominium markets in major cities. In cities such as Winnipeg, Québec and Saskatoon, stocks of newly completed but unsold apartments are over twice their long-term averages (Figure 8). In Toronto, although the inventory of unsold apartments has been at or below one month's supply for over a decade (CMHC, 2013), the number of apartments under construction spiked to a record high of over 58 000 by February 2014, about three times the long-term average (Figure 9). Between 2008 and 2012, condominium starts averaged 20 400 units annually, far higher than the estimated demographic requirement of 14 000-15 000 units per year (Dunning, 2013). The majority of these units are scheduled for completion in 2014-15. However, given an average completion rate of about 18 000 units per year, it is likely that capacity constraints will delay this schedule significantly (Dunning, 2013), easing downward price pressures.

Table 3. **Contemporaneous correlation of annual house price changes across Canadian cities**

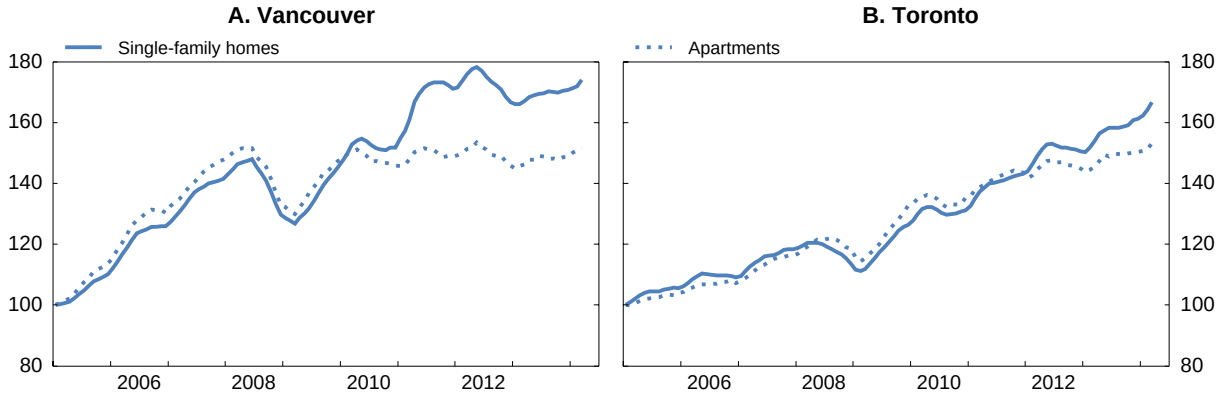
1985-2013

	Canada	Victoria	Vancouver	Calgary	Edmonton	Regina	Saskatoon	Winnipeg	Windsor	Hamilton	Toronto	Ottawa	Montreal	Quebec	Halifax	St. John's
Canada (average)	1.00															
Victoria	0.47	1.00														
Vancouver	0.71	0.80	1.00													
Calgary	0.54	0.36	0.44	1.00												
Edmonton	0.52	0.44	0.54	0.86	1.00											
Regina	0.16	0.07	0.21	0.18	0.36	1.00										
Saskatoon	0.36	0.15	0.34	0.42	0.67	0.85	1.00									
Winnipeg	0.42	0.13	0.28	0.44	0.50	0.76	0.76	1.00								
Windsor	0.55	0.16	0.28	0.12	0.07	-0.33	-0.18	-0.15	1.00							
Hamilton	0.90	0.30	0.43	0.40	0.34	0.03	0.22	0.33	0.65	1.00						
Toronto	0.89	0.18	0.44	0.21	0.13	-0.04	0.10	0.21	0.66	0.91	1.00					
Ottawa	0.54	0.44	0.39	0.13	0.15	-0.03	0.05	0.13	0.21	0.54	0.47	1.00				
Montreal	0.76	0.32	0.38	0.19	0.23	0.11	0.20	0.38	0.43	0.85	0.72	0.65	1.00			
Quebec	0.67	0.42	0.40	0.19	0.21	0.16	0.11	0.30	0.46	0.71	0.61	0.54	0.83	1.00		
Halifax	0.44	0.20	0.34	0.25	0.34	0.67	0.63	0.63	-0.15	0.29	0.27	0.30	0.44	0.38	1.00	
St. John's	0.11	0.17	0.15	-0.14	-0.03	0.62	0.29	0.45	-0.06	0.08	0.04	0.26	0.33	0.55	0.46	1.00

Source: Statistics Canada New House Price Index.

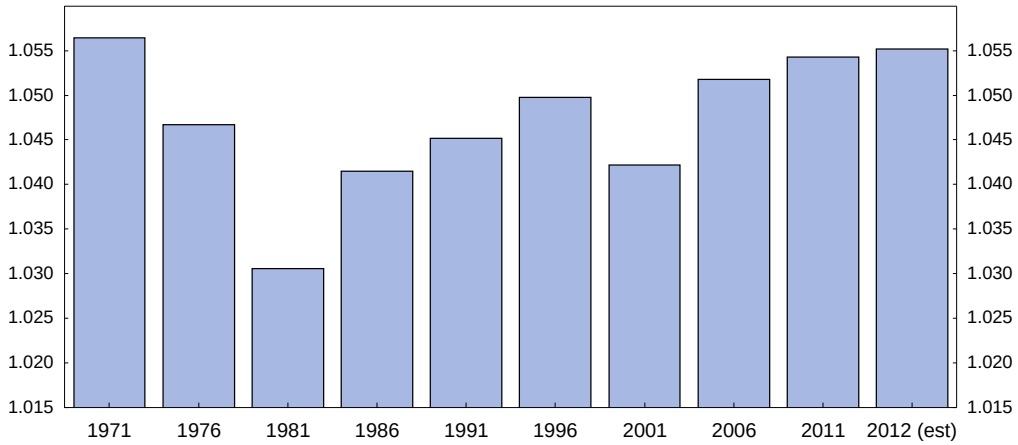
Figure 6. **Prices for single-detached houses *versus* apartments**

Index, January 2005 = 100



Source: Canada Real Estate Association.

Figure 7. **Dwellings per household**

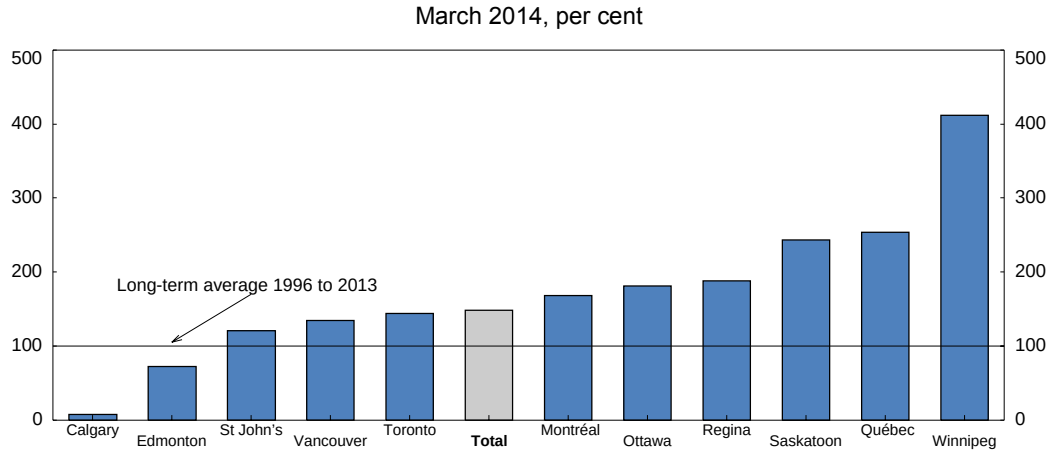


Note: Dwelling stock uses Statistics Canada data until 2000 and afterwards is estimated using CMHC data on housing completions, conversions and the long-term average rate of demolitions. For the 2012 estimate, the number of households is based on Statistics Canada's estimates of population growth and assumes average household size remained constant at 2011 levels.

Source: Statistics Canada, *2011 Census of Population*.

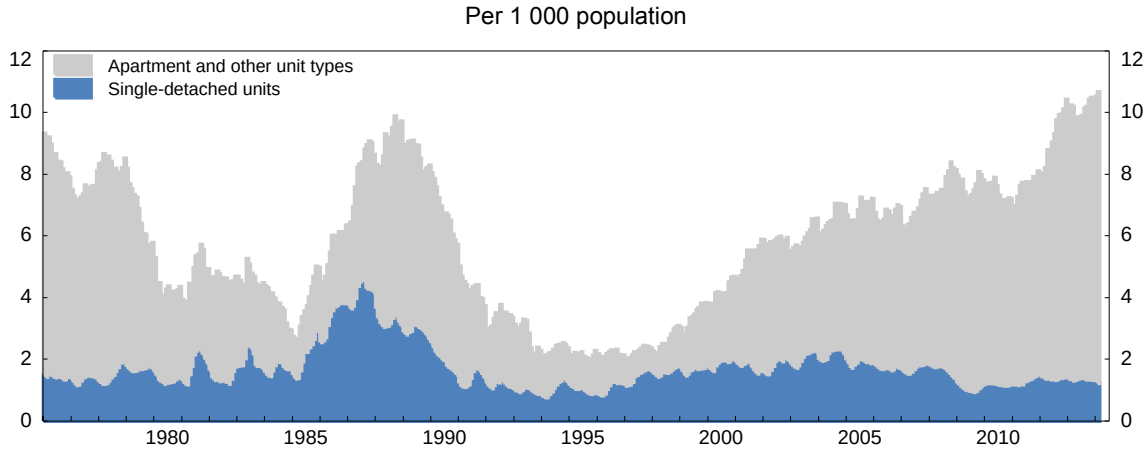
An excess of condominiums relative to demographic fundamentals may indicate they are increasingly demanded as investment properties, although data are lacking to confirm this. Population ageing and decreasing household size suggest that demand in the long term could increasingly favour apartment living. Furthermore, there has been a lack of investment in rental apartment buildings for many years: construction of new purpose-built rental housing trended down over the past few decades and remained flat over the 2000s. Condominiums have thus contributed an increasing share to the rental stock in all major cities and now account for 40-50% of the total rental supply in Vancouver and Toronto. Almost 30% of the entire condominium stock in Canada was being rented out in 2011.

Figure 8. **Stocks of unsold new apartments per 1 000 inhabitants relative to long-term average**



Source: Statistics Canada.

Figure 9. **Housing units under construction in Toronto**



Source: Statistics Canada.

To the extent that investment demand for condominiums reflects expectations of speculative gains, this market may be susceptible to shifts in investor sentiment. There has been much debate about the role of foreign investment driving the influx of condominiums in major cities like Vancouver and Toronto, and contributing to a rising stock of empty units. The evidence is largely anecdotal, however, given a lack of data. However, some studies that attempt to measure the degree of speculative investment in downtown Vancouver condominiums have found that, although almost half are investor-owned, perhaps only 5.5-8.5% sit empty all year round (Yan, 2009 and 2013).

Nonetheless, there are risks of a sharp price correction to the extent that demand is insufficient to absorb the huge supply of condominium units coming on stream in Toronto and given the large stock of unabsorbed units in other cities. Much of the condominium construction underway reflects demand from two to three years ago. Condominium developments typically require a majority of the units to be pre-sold before construction can begin. Conditional on a 65% presale rate, CMHC insures loans up to a maximum 85% loan-to-cost (LTC) ratio for condominium developments, but even those with only 30% presales can still obtain CMHC insurance (with lower LTC coverage). About 89% of the condominium units under

construction in Toronto were pre-sold by early 2013 (CMHC, 2013). However, given the tightening of mortgage insurance regulations over the last few years, there are signs that pre-construction buyers in Toronto are facing increasing difficulties obtaining loans to finalise their deals. Buyers of pre-construction units need only pay a deposit and demonstrate that they have been "pre-approved" for a bank loan but do not need to secure financing until the sale closes upon completion two to three years later. Many of these buyers have reportedly been forced to forfeit their deposits or sell their units before completion on assignment markets at discounted prices (Pigg, 2013). These problems appear to be limited to the luxury segment, however, which is a relatively small portion of the market.

Although bubbles are difficult to identify in real time, the main vulnerabilities appear to be concentrated in the condominium segment of selected major cities. However, risks remain that a major correction in these segments could spill over into other markets, or that external triggers such as an oil price shock could have wide reaching effects on Canadian housing markets. Linkages across housing market segments are likely to exist through the banking system: Canada's five major banks hold 65% of outstanding residential mortgages and lend across the country, so major losses experienced in one market segment could instigate a more general pullback in credit supply.

High debt levels increase household vulnerabilities

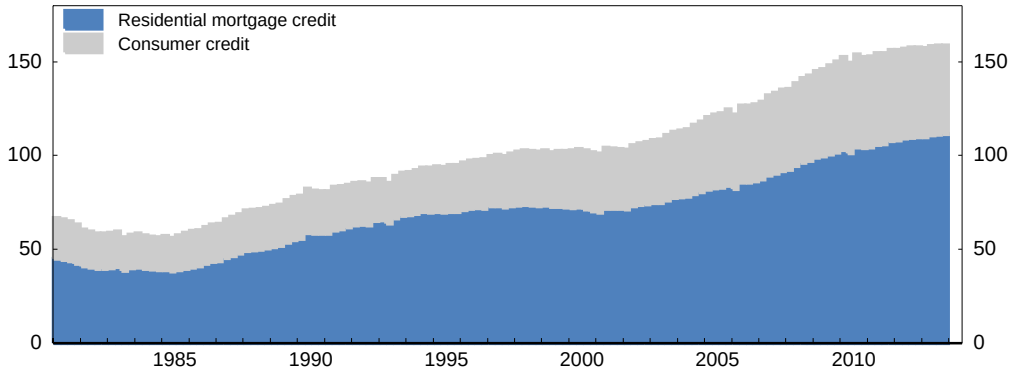
Regardless of whether or not a housing price bubble exists, very high household debt levels represent a major vulnerability. Household debt began trending upwards in the mid-1980s from a level of 60% of disposable income to reach a record high of 166% by mid-2013. Residential mortgage credit has driven most of the increase over this period (Figure 10). A Bank of Canada study suggested that home equity extractions have accounted for much of the growth in mortgage debt since 1999, increasing from 2.2% of household disposable income to peak at 9% in 2007, before easing to 8% in 2009 (Bailliu et al., 2011). Much of this increase came from net mortgage refinancing, whereby owners increase the size or term of their mortgage while remaining in the home. Meanwhile, mortgage debt associated with the purchase of newly constructed units grew only modestly from 2.3% of disposable income in 1999 to 3.4% in 2009.

Consumer credit has also grown substantially since the mid-1990s. Secured personal lines of credit (PLCs) backed by housing assets (including home equity lines of credit, or HELOCs) have been the predominant source of expanding consumer debt relative to income since the mid-1990s (Crawford and Faruqui, 2011). Secured PLCs grew from 11% of consumer credit in 1995 to almost 50% by end-2011, reflecting rising house prices (which increased collateral available) and stronger marketing of these products since the mid-1990s (Crawford and Faruqui, 2011).

Although growth in national house prices and mortgage credit has moderated since 2011, the household debt-to-income ratio has continued to increase. High levels of mortgage debt make households vulnerable to changes in house prices, interest rates and incomes. However, much of the debt is concentrated in wealthier households with the greatest capacity to meet debt payments: households in the top income quintile (earning over CAD 100 000 annually) hold over half of the total (Chawla and Uppal, 2012).

Figure 10. **Household debt**

As a percentage of disposable income

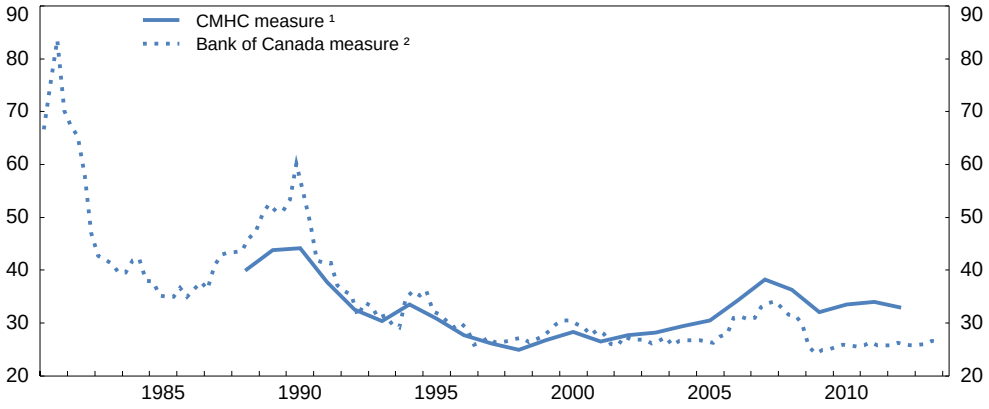


Source: Statistics Canada.

Mortgage debt service ratios currently remain below or near long-term averages, thanks to low interest rates (Figure 11). However, rising interest rates or any shock that causes a significant house price correction or job losses could place considerable strain on household and bank balance sheets. Since Canadian mortgages typically have fixed rates of no longer than five years, monetary tightening can have a large impact on household finances compared to the United States, for example, where rates are commonly locked in for some 30 years. Bank of Canada estimates suggest that if real mortgage interest rates were at longer-term norms of 4%, affordability would deteriorate to its worst level in 16 years (Carney, 2011). Others affirm that even an interest rate hike of 2 percentage points could push 10% of indebted households into what are commonly considered unaffordable (over 40%) debt-service ratios (Alexander, 2012). However, such estimates do not take into account the possibility that interest-rate hikes might be gradual and accompanied by higher income levels, which would mitigate the impact on household balance sheets.

Figure 11. **Mortgage payment affordability**

Per cent of personal disposable income per worker



1. CMHC, adapted from Statistics Canada (CANSIM) and the Canadian Real Estate Association (CREA). The monthly mortgage payment is calculated using the prevailing average Multiple Listing Service (MLS) price and the five year fixed mortgage posted rate prevailing in each period, assuming a 25% down payment and 25-year amortisation.
2. The Bank of Canada Housing Affordability Index is calculated using an average of the Royal Lepage Resale Housing Price and the New Housing Price Index, and a blended 5-year fixed and variable mortgage rate, assuming a 5% down payment and 25-year amortisation.

Source: Canada Mortgage and Housing Corporation, Bank of Canada.

Furthermore, lower-income households would be more vulnerable to a deterioration in macroeconomic conditions; a study by Meh et al. (2009) examining 2005 survey data revealed that among households with mortgages, those in the bottom income quintile spent over 70% of their incomes servicing mortgage obligations. Based on 2009 survey data, Hurst (2011) found that households with incomes below CAD 50 000 were six times more likely to be spending over 40% of their incomes on debt service, compared to those with incomes of CAD 50 000-80 000. Furthermore, such lower-income households had debt-to-income ratios over 160 percentage points higher than those in the next higher income bracket. This pattern of higher debt burdens among poorer households is not unusual in advanced economies, although only a handful have such data available (Girouard et al., 2006). However, many of these households may be self-employed or seniors with strong asset positions, who fund their housing costs by depleting assets (Conference Board of Canada, 2010).

Assessing financial system risks from housing

Concerns about Canada's housing markets commonly arise from comparisons with the US situation prior to the subprime lending crisis. Canada's household debt-to-income ratio and house price growth since 2000 are approaching those experienced at the height of the US boom, when measured on a comparable basis. Although the two housing markets are similar in many respects, overly relaxed lending standards played a critical role in the US housing boom and subsequent bust (MacGee, 2009). This section assesses factors behind the Canadian housing boom and concludes that a US-style crash is unlikely to materialise.

Factors driving the strength in housing markets before and since the crisis

Credit availability improved significantly over the early 2000s due to mortgage securitisation activities by the Canada Mortgage and Housing Corporation (CMHC), a federal crown corporation (Box 2). In particular, the CMHC launched its Canada Mortgage Bond (CMB) programme in 2001 through creation of the Canada Housing Trust as a special-purpose entity to buy mortgage-backed securities from banks, using the proceeds from CMB issuance. This programme let financial institutions move originated mortgages off their balance sheets, thus lowering their capital requirements and allowing them to lend more at lower costs (Walks, 2012b). An evaluation by KPMG (2008) reported that CMB issuance between 2001 and 2006 led to the creation of almost CAD 98 billion in credit, roughly 37% of the net increase in mortgage loans outstanding over this period. This programme also accounted for most of the growth in mortgage securitisation under the National Housing Act (NHA) over the early 2000s.

Box 2. **Canada's housing finance system compared to its US counterpart**

The typical residential mortgage in Canada has been a fixed-rate loan amortised over 25 years, with terms reset every six months to five years. This contrasts with the US market, where borrowers can lock in rates for 30-40 years. Similar to Canada, short-term (one to three years) variable-rate mortgages also dominate in countries such as Australia, Ireland, Spain and the United Kingdom (Lea, 2010). These differences exist mainly because much US mortgage lending is done by non-bank financial institutions that rely heavily on securitisation in the secondary market for funding. In most other countries including Canada, mortgage lending is concentrated in the large banks and funded to a great extent from retail deposits. Because the Canada Deposit Insurance Corporation guarantees retail term deposits only out to five years, attracting retail deposits beyond five years is more difficult (Kiff et al., 2010).

Mortgage insurance

Roughly 60-70% of home loans in Canada are insured against default, as compared to 15% in the United States prior to the financial crisis. Much of this difference reflects Canadian regulation, which requires federally regulated financial institutions (FRFIs) to insure all mortgages with greater than 80% loan-to-value (high-LTV) ratios. Mortgage insurance protects the lender against 100% of losses in the event that the borrower defaults, and covers the entire amortisation period. Mortgage lenders pay a premium to purchase default insurance on the entire loan – which varies according to characteristics of the loan, property and borrower – that they then charge to the borrower in the form of an upfront fee. By contrast, in the United States lenders are required to insure only high-LTV mortgages that are purchased or securitised by the two

government-sponsored enterprises (GSEs), and the insurance needs to cover only the portion of the loan that exceeds 70-80% of the property value. They pay monthly premiums and can cancel the insurance once the loan balance declines below 80% of the house value.

There are three providers of mortgage default insurance in Canada: the Canada Mortgage and Housing Corporation (CMHC), a federal crown corporation, and two private firms: Genworth Financial and Canada Guaranty. CMHC is the largest provider, with about 65% of the market. The federal government fully backs CMHC-insured mortgages, while guaranteeing 90% of the value of those provided by private insurers in the event of insurer insolvency (i.e. the government would honour lender claims for privately insured mortgages in default, less 10% of the original principal amount of the mortgage and any applicable liquidation proceeds). Mortgage insurance is also required for mortgages securitised through CMHC's securitisation programmes (see below). Since 1989, lenders have been able to purchase "bulk insurance" from CMHC on portfolios of conventional low-LTV mortgages, and this is widely used. Portfolio insurance is also available from the private insurers. In this case the lender pays the insurance premium. The two main reasons lenders buy bulk insurance are capital relief and the ability to use insured mortgages to access the National Housing Act Mortgage-Backed Securities (NHA MBS) and Canada Mortgage Bonds (CMB) programmes.

CMHC is governed by the *CMHC Act*, the *National Housing Act* (NHA), and the *Financial Administration Act*. Since 2012 it has been supervised by the Office of the Superintendent of Financial Institutions (OSFI), the federal financial regulator, and has recently been limited to insuring no more than CAD 600 billion of mortgages. It also provides a number of social services, such as funding affordable housing and housing for Aboriginals on and off-reserve.

Private mortgage insurers are also regulated by OSFI and since 2013 operate under the *Protection of Residential Mortgage of Hypothecary Insurance Act*, which limits their coverage to CAD 300 billion worth of mortgages outstanding. Private insurers pay a fee to benefit from the government guarantee, which up until 2013 went into a special fund. The government guarantee would have kicked in only upon the fund's depletion and covered the liabilities of private insurers only after insolvency. Since then, the fund has been eliminated, with the amounts held transferred to the regulatory capital base of the private insurers, and higher minimum capital test ratios have been applied.

Mortgage securitisation

CMHC operates two permanent securitisation programmes that help to enhance the supply of low-cost mortgage funding: mortgage-backed securities launched in 1987 under the authority of the National Housing Act (NHA MBS), and the Canada Mortgage Bonds (CMBs) introduced in 2001. Issuers must meet stringent eligibility requirements and pay a fee to CMHC, which guarantees the timely payment of principal and interest for all NHA MBS and CMBs. NHA MBS are backed by pools of residential mortgages insured by CMHC under the *National Housing Act* or by private mortgage insurers under the *Protection of Residential Mortgage or Hypothecary Insurance Act*. Selling NHA MBS provides an additional source of funding for mortgage lenders, reducing their reliance on retail deposits and lowering the cost of funding. Investors in NHA MBS receive monthly cash flows from the principal and interest payments of the underlying mortgages. Because the underlying mortgages are insured, investors face little credit risk but are subject to uncertain cash flows due to prepayment and interest-rate risk. Financial institutions can sell NHA MBS either to individual investors or to the Canada Housing Trust, a special-purpose entity run by CMHC that issues non-amortising CMBs. By converting the monthly cash flows of the NHA MBS into bond-like payments (with semi-annual coupons and a final principal payment), CMBs appeal to a broader investor base and enjoy a high level of liquidity, helping to further reduce the cost of funding mortgages (Kiff et al., 2010). The CMB programme has helped expand the range of mortgage products available to households; for example, the launch of a 10-year CMB in 2008 facilitated the offering of mortgages with terms longer than five years (CMHC, 2012).

In 2007, OSFI first authorised Canadian banks to issue covered bonds to meet mortgage funding needs. Covered bonds are secured by a segregated pool of assets, primarily residential mortgages, and are not guaranteed by CMHC or the government. However, up until 2012, CMHC-insured mortgages and NHA MBS were used as collateral for the majority of covered bond issuance. Because of a general reluctance to allow FRFIs to issue secured debt that would rank ahead of depositors, OSFI limits their use to 4% of total assets. The 2012 Budget introduced a legislative framework for FRFIs issuing covered bonds, which prohibited the use of insured residential mortgages as collateral.

Differences between CMHC and the US GSEs

CMHC runs its insurance operations on a commercial basis, but unlike the US GSEs (Fannie Mae and Freddie Mac), it aims not to maximise profits but rather to "earn a reasonable rate of return within its overall public mandate". This mandate includes providing financing options to underserved markets such as multi-unit rental buildings, retirement and long-term care facilities, and rural housing. CMHC also differs from the US GSEs in that its role in housing finance is to ensure a steady availability and choice of funding options. It has no special mandate to facilitate homeownership for any particular group, whereas the GSEs were required to allocate a minimum percentage of their financing activities towards facilitating homeownership for low- or moderate-income households (CBO, 2010).

Because CMHC fully guarantees both NHA MBS and CMB payments and the underlying mortgages are insured with government backing, the securitisation programmes have reduced the cost of mortgage funding dramatically. Since it is the borrower who pays for the insurance, but the lender who is repaid the full amount of the mortgage in the case of default, Canadian financial institutions face almost no risk when issuing insured mortgages (for portfolio insured loans the lender pays for the insurance). Until regulatory changes in 2010, this created incentives to insure a maximum amount of mortgages and then to repackage them into MBS that could then be moved off their balance sheets by selling them into the secondary market (Walks, 2012a).

Lending restrictions were loosened

Mortgage lending conditions eased significantly from 2003 to mid-2007, reflecting an expansion of products that became eligible for government-backed insurance (Table 4). In particular, CMHC began extending insurance to interest-only mortgages, and to self-employed borrowers with no income verification documents, similar to "Alt-A" mortgages in the United States. The maximum amortisation length for government-insured mortgages was also raised from 25 to 40 years. Some of these changes were motivated by increased competition from US insurance companies entering the Canadian market, which was eroding CMHC's market share. This followed the Minister of Finance's decision in 2006 to extend its government backing to more private mortgage insurers, which resulted in four US-based companies entering the market. This decision was an attempt to promote greater competition and choice in the mortgage market, to keep pace with rising house prices and demand (Mohindra, 2010). Three of these withdrew from the Canadian market in 2008 due to major losses incurred during the US housing crash.

Table 4. **Innovations in the mortgage insurance market from 2003-07**

Date	Measure
2003	– Genworth Financial broadened the eligible sources of funds for the minimum down payment, allowing it to be borrowed.
March 2004	– CMHC "Flex Down" programme broadened the eligible sources of funds for the minimum down payment (5%), allowing it to be borrowed.
March 2006	– CMHC started to insure mortgage loans amortised up to 30 years (as a part of a pilot project). – Genworth announced it would insure 30- and 35-year loans.
June 2006	– CMHC started to insure mortgage loans amortised up to 35 years. CMHC started to provide insurance on interest-only payments for up to the first 10 years of a mortgage loan (for borrowers with a proven history of managing their credit).
September 2006	– Genworth announced it would offer insured 40-year mortgages (with loan-to-value (LTV) ratios up to 100%), with interest-only payments for the first 10 years.
November-December 2006	– CMHC started to insure mortgage loans amortised up to 40 years; CMHC started to provide insurance on mortgage loans with LTV ratios between 95% and 100% ("Flex 100").
March 2007	– CMHC started to insure mortgage loans to self-employed people without traditional third-party income verification documentation ("Self-Employed Simplified").
July 2007	– LTV limit after which a loan has to be insured increased from 75 to 80%.

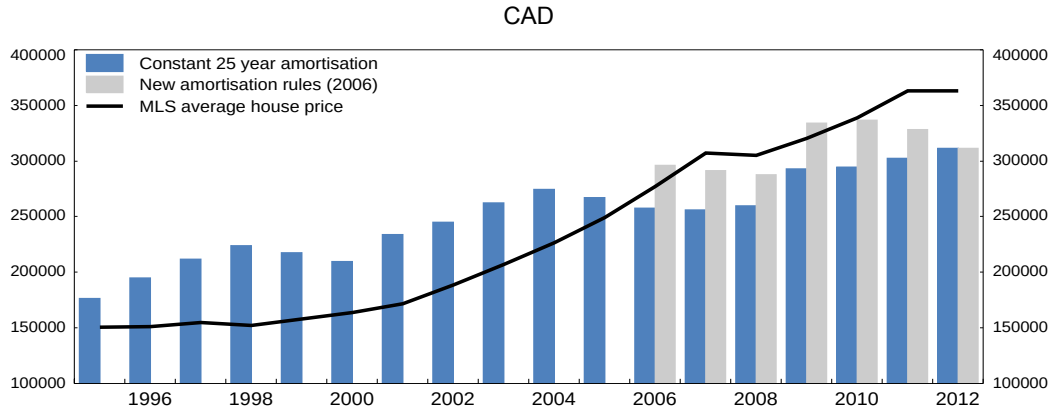
Source: CMHC, Genworth, IMF (2013).

These products expanded access to homeownership to a wider range of households, while significantly increasing the average household's capacity to borrow (Figure 12). Together with the CMHC's securitisation activities, they contributed to pushing up mortgage credit growth and house prices (Figure 13). Lengthening the amortisation terms on mortgages can adversely affect the social distribution of wealth, because it enables borrowers to take on larger debts, which bids up the price of housing for everyone, while increasing their interest payments over the lifetime of the loan (Walks, 2012a). Lenders and existing homeowners benefit from this change, at the expense of first-time homebuyers who end up paying more than otherwise to purchase the same house. The CMHC "Flex Down" programme, which

allowed banks to effectively lend the down payments to borrowers (through "cash-back" mortgages), had similar effects, as banks typically recovered the amount by charging higher interest rates over the first five years of the term and restricting portability during those years.

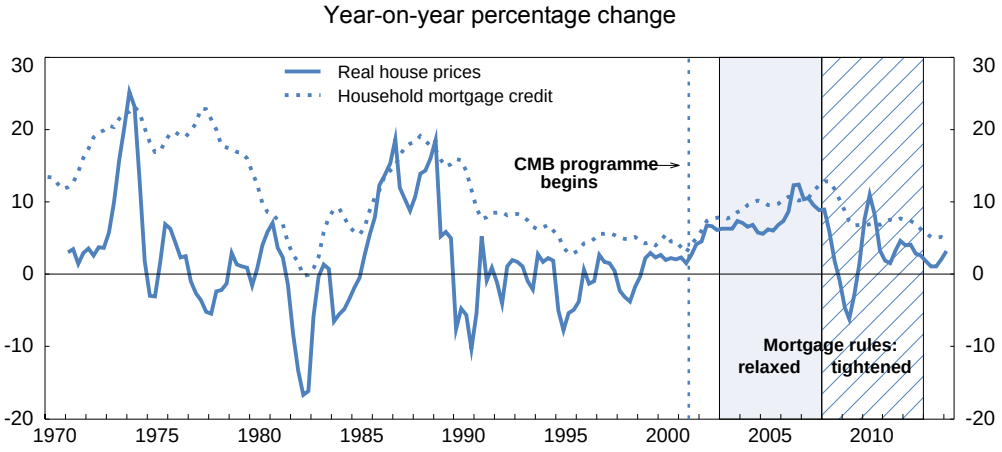
Banks are able to purchase the services of a computerised tool called Emili from CMHC, which assesses the risk of loans based on factors such as the estimated value of the home, buyer characteristics, average sales for the area and municipal property-tax assessments. Because Emili enables faster and cheaper mortgage approvals than sending an appraiser to physically look at the house, it became widely used. At the peak of the housing boom, some banks apparently relied solely upon automated assessments for a large share of their mortgages and refinancing (Robertson and Perkins, 2012). Data fed into the software can be flawed, however, as they rely heavily upon information provided by the seller, which may work towards raising the value of the home. Furthermore, physical characteristics of neighbouring homes may vary widely and provide inappropriate benchmark values. While on-site inspections can catch a lot of these flaws, biases may also exist within the appraisal industry, whereby mortgage lenders favour certain appraisers that push up the value of the property or enable a larger loan. Canadian financial institutions often keep lists of approved appraisers, a practice that has been illegal in the United States since the financial crisis (Robertson and Perkins, 2012).

Figure 12. **Effect of longer amortisation terms on the average household's capacity to borrow**



Source: Pomeroy (2013), "Speculators beware: You won't get rich flipping homes in the next decade", *CURE Policy Brief*, Issue #4.

Figure 13. **Real house price increases and household mortgage credit growth**

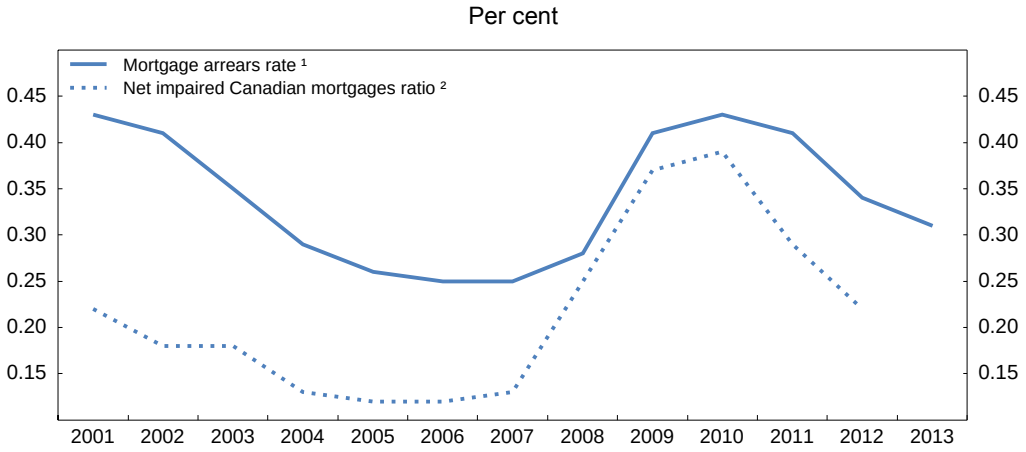


Source: Teranet National Bank National Composite House Price Index from 1999Q2, Department of Finance prior to 1999Q2 and Statistics Canada.

Strong financial oversight and government intervention supported housing throughout the crisis

In contrast to many other OECD countries that experienced housing booms over the past decade, house prices in Canada held up well throughout the financial crisis, with the Teranet composite index declining only 8.5% from peak to trough before resuming its upward trend. Mortgage arrears remained low throughout the crisis at less than 0.5% of all mortgages and fell to 0.3% in mid-2013 (Figure 14). In fact, the majority of insolvent individuals filing for bankruptcy and debt restructuring in 2007-09 were tenants (Allen and Damar, 2011). This suggests that housing debt played a smaller role than unemployment in driving insolvencies. As Australian, New Zealand and Norwegian housing markets also avoided busts, part of this strength may reflect the income advantage these economies have enjoyed from high commodity prices.

Figure 14. **Mortgage arrears rates remain low**



1. CMHC, adapted from Canadian Bankers Association by calculating the annual average mortgage arrears rate. Mortgage arrears rate is the number of mortgages in arrears as per cent of total number of mortgages, based on data from 9 banks. Arrears are defined as mortgages that are 90 days or more past due. The figure for 2013 is for June.
2. CMHC, adapted from annual reports from Bank of Montreal, Canadian Imperial Bank of Commerce, Royal Bank of Canada, TD Banking Group (as at 31 October of each year) by calculating the ratio. Impaired loans are residential mortgages that are 90 days past due, or 365 days past due if government-guaranteed, net of allowances for credit losses. The ratio is value of net impaired Canadian residential mortgages as per cent of total Canadian residential mortgages.

Source: Canada Mortgage and Housing Corporation.

The resilience of Canada's housing market throughout the financial crisis is often attributed to the relatively stringent regulation and conservative lending practices of the banking system, and explicit government backing of the mortgage market (Kiff et al., 2010; Mason and Simon, 2009). In Canada, the Office of the Superintendent of Financial Institutions (OSFI) is the single regulator in charge of supervising federally regulated deposit-taking institutions (FRFIs), insurance companies and private pension plans. About 80% of outstanding residential mortgages in the country are originated by OSFI-regulated lenders (Crawford et al., 2013); another 12.5% come from credit unions and *caisses populaires,* which are provincially regulated. As mortgages originated by unregulated lenders are primarily funded by FRFIs (in which case the mortgages must meet FRFI standards, including OSFI's Guideline B-20, discussed below) or through CMHC's NHA MBS and CMB programmes (in which case the mortgages must meet the rules for government-backed insured mortgages), these mortgages are also usually subject to federal government mortgage standards. This contrasts with the fragmented regulatory structure of the United States, which is unique, given its numerous specialised regulatory agencies. Having a single financial regulator with responsibility for bank and non-bank lenders can lower the chances of regulatory capture or arbitrage, or co-ordination failure (Lea, 2010). OSFI employs a principles-based

supervisory approach, which is intended to be broad-based and adaptive. It can issue guidance without need for new legislation or regulation, and has legal power to enforce compliance.

In all provinces except Alberta, bankruptcy laws provide lenders full recourse to borrowers' assets and future income in the event of default. These laws have discouraged strategic foreclosures, which are commonly believed to have played a role in the US housing crash, although recent evidence suggests this role was small (Gerardi et al., 2013). More importantly, the share of Canadian mortgage holders in negative equity positions has been negligible throughout the crisis, compared to almost one quarter in the United States at the end of 2009.

Whereas deposit-taking institutions play a dominant role in the Canadian mortgage market, they accounted for only 30% of residential loans in the United States before the crisis (Kiff, 2009). Canadian banks have been required to hold higher levels of capital than those imposed by the Basel Accord since 1997, at 7% for Tier 1 capital and 10% for total capital (compared to Basel requirements of 1% and 4%, respectively). In addition, Canadian regulations required common equity to account for at least 75% of Tier 1 capital and capped innovative instruments at 15%. It is likely that these stricter capital requirements limited banks' abilities to expand their balance sheets rapidly, while reducing the need to engage in wholesale borrowing (Ratnovski and Huang, 2009). However, an IMF study found that Canadian banks' pre-crisis simple capital ratios (i.e. total capital to total assets) and balance sheet liquidity were commensurate with their peers' in other OECD countries and that their key source of stability was instead their greater reliance on retail deposits rather than wholesale funding (Ratnovski and Huang, 2009).

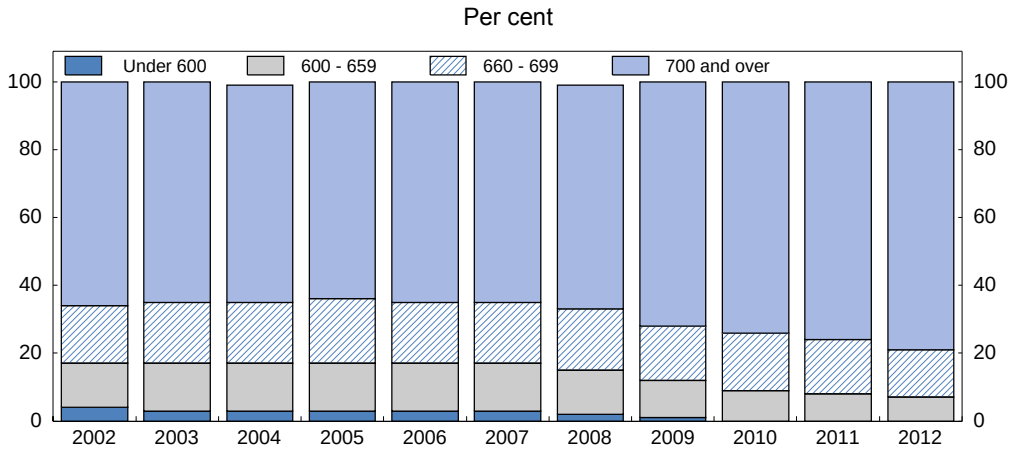
Retail deposits have long been the main source of mortgage funding in Canada. Mortgage securitisation has accordingly been limited, with no more than one-fifth of residential mortgages securitised prior to the crisis, compared to about 60% in the United States. Less than 2% of Canadian mortgages have been privately securitised, compared to 14% in the United States, although this market has virtually disappeared in both countries since the crisis (Kiff et al., 2010). It is commonly believed that increased securitisation was a major driver of the US subprime crisis. Because lenders that securitised their mortgages faced no loss in the event of default, this "originate to distribute" model reduced incentives to uphold underwriting standards and led to a deterioration in asset quality, as reflected in the growth in subprime lending. The sharp rise in delinquencies and eventually foreclosures in the United States over 2007-08 was concentrated in "non-prime" mortgages (Mayer et al., 2009). This includes loans targeted to borrowers with poor credit histories and high loan-to-value (LTV) ratios, as well as "Alt-A" mortgages provided to borrowers without full documentation of assets or income. US subprime mortgages were all privately securitised at first, but during the 2000s the GSEs steadily expanded their investments in subprime and Alt-A loans (CBO, 2010).

The important role of government-backed mortgage insurance in setting lending standards in Canada may have also helped limit the growth in subprime mortgages. Although such loans were available in Canada and grew rapidly in the pre-crisis years, most types of subprime mortgages were not eligible for government-backed insurance. This factor likely prevented the Canadian subprime market from expanding into the riskiest products available in the United States, such as negative-amortisation or NINJA (no income, no job, no assets) loans. In the United States such products extended credit to a new segment of homebuyers, pushing up prices beyond what could be supported by underlying incomes (Walks, 2012b). Although there is no uniform definition of a subprime loan, a commonly cited estimate suggests that prior to the financial crisis they constituted 5% of the stock of mortgages in Canada, compared to 22% in the United States (MacGee, 2009).

Even so, Canadian government-backed insurance began covering certain types of what are commonly labelled "non-prime" mortgages as from 2003, as discussed earlier and described in Table 4. It has been argued that Canada benefitted from being a late adopter of US mortgage-financing innovations

(MacGee, 2009). Although such innovations contributed to lowering lending standards and enticing many lower-income home buyers to take on unsustainable levels of debt in the United States, there is little evidence that this occurred in Canada. This is because CMHC and the private insurers generally required higher credit scores to insure the riskier mortgage products that became available during that period (Table 4). Canadian credit scores generally range from 300 to 900, and a score above 660 is typically needed to qualify for prime rates. During the 2000s, the share of CMHC-insured mortgages with credit scores below 660 remained steady and below 20% (Figure 15). By contrast, in the United States the share of first-time homebuyers with credit scores below 620 rose from about 20% to 28% between 2003 and 2006 (Marion, 2013). Moreover, in Canada much of the growth in household debt during this period reflected net mortgage refinancing activity of existing homeowners (Bailliu et al., 2011), rather than new entrants into the ownership market. Furthermore, it appears that wealthier households accounted for the majority of new owners between 2001 and 2011: among Canadian households headed by individuals younger than 35, homeownership in the top two quintiles increased at twice the rate as in the bottom two quintiles (Crawford et al., 2013).

Figure 15. **Distribution of credit scores for approved high-ratio CMHC-insured mortgages**



Source: Canada Mortgage and Housing Corporation.

Despite these comparative strengths in the financial system, Canadian banks nevertheless experienced funding pressures during the financial crisis, and the government intervened directly by committing to purchase up to CAD 125 billion worth of NHA MBS from financial institutions. Beginning in October 2008, this Insured Mortgage Purchase Programme (IMPP) was conducted through a competitive auctioning process managed by CMHC, which ended in March 2010 with CAD 69 billion worth of NHA MBS having been purchased. CMHC estimates that the programme will have generated about CAD 2.5 billion in net revenues by the time it ends in 2014-15 (CMHC, 2012). The IMPP thus helped maintain the supply of longer-term credit throughout the crisis, at no financial cost or significant additional risk to taxpayers, since the underlying mortgages were already contingent liabilities of the federal government.

Regulations on mortgage financing have been strengthened since the crisis

The government has implemented a series of measures since 2008 to cool the housing market and contain risks to financial stability through tighter prudential regulations on government-backed mortgage insurance (Table 5). These include raising the minimum down payments required, bringing the maximum amortisation period on mortgages back down to 25 years (from 40), imposing maximum LTVs of 95% (80% for investment properties and mortgage refinancings), and tightening loan eligibility criteria.

Government-backed insurance was withdrawn for home equity lines of credit and for home purchases above CAD 1 million.

These measures appear to have been effective: household borrowing, housing starts, home sales and house price appreciation have all moderated since mid-2012. Analysis by TD Economics (2012) reveals that the tightening of mortgage insurance rules curbed household credit growth by 2-3 percentage points on average from 2008-12 and also reduced home sales by 17% by end 2011 relative to what models would have predicted. It suggests that the shortening of amortisation terms had the largest dampening effect on housing demand, equivalent to a cumulative hike in interest rates of almost 2 percentage points. More recent analysis by the IMF (2014a) finds that the largest effect came from tightening LTV requirements for new mortgages and loan refinancing. However, while the impact on sales and credit growth has been persistent, the immediate drop in house prices after each stage of tightening has proven to be short-lived (Figure 13). House prices and resale activity rebounded anew in 2013, though that may reflect some temporary demand brought forward in anticipation of future mortgage rate increases, due to rising long-term bond yields over the summer.

Table 5. **Regulatory tightening on mortgage insurance since 2008**

Date	Measure
October 2008	– Maximum amortisation for new government backed insured mortgages set at 35 years. – Maximum LTV reduced from 100 to 95%. – Credit score floor at 600 (with some exceptions). – New loan documentation requirements.
April 2010	– Maximum LTV for insured refinanced mortgages lowered from 95 to 90%. – Minimum down payment on non-owner-occupied properties raised from 5 to 20%. – More stringent eligibility criteria introduced (all borrowers required to meet the standards for a five-year fixed-rate mortgage, even if they choose a mortgage with a variable interest rate and shorter term).
Mar/April 2011	– Maximum amortisation for new government-backed insured mortgages cut from 35 to 30 years. – Maximum LTV for refinanced mortgages lowered from 90% to 85%. – Government-backed insurance withdrawn on non-amortising lines of credit secured by houses (HELOCs).
July 2012	– Maximum amortisation for new government-backed insured mortgages cut from 30 to 25 years. – Maximum LTV for refinanced mortgages was lowered from 85% to 80%. – Maximum gross mortgage debt service and total debt service ratios fixed at 39% and 44%, respectively. – Government-backed insurance no longer available on homes with a purchase price greater than CAD 1 million.
October 2012	– Incentives or rebates from financial institutions no longer accepted as part of the down payment (i.e. “cash back” mortgages). – Documentation and verification of income and employment status required. – Banks prohibited from using government-backed insured mortgages as collateral for covered bond issuance.
Budget 2013	– Lenders prohibited from bulk insuring mortgages with LTVs below 80%, unless they are part of a CMHC securitisation programme. – Lenders prohibited from using insured mortgages in any non-CMHC sponsored securitisation.
May 2014	– Government-backed insurance withdrawn for second home purchases and for self-employed individuals without third-party income validation.

Source: CMHC, Genworth, Walks (2012a), Finance Canada.

The rule changes return mortgage finance regulations roughly back to where they were in the early 2000s, but with credit standards slightly tighter than those prevailing before the easing period began (Walks, 2012a; TD Economics, 2012). Banks appear to have reduced their risk exposures substantially: the share of CMHC-insured high-LTV mortgages going to borrowers with credit scores below 660 declined from 17% in 2007 to 7% in 2012 (Figure 15). The corresponding gain has gone to households with credit scores above 700. Although the changes may have made it more difficult for first-time buyers to enter the market in the short term, it is expected that the reduction in borrowing capacity should ease upward pressure on house prices and eventually lead to improvements in affordability. Furthermore, an annual report released by the Canadian Association of Accredited Mortgage Professionals suggested that first-time buyers still accounted for 57% of home purchases year-to-date in November 2013 (Dunning, 2013). This share is similar to that found over 2010-11, based on an earlier survey by Altus Group (2011), which suggested first-time buyer intentions were below the 2002-09 average.

More changes may need to be considered if vulnerabilities continue to grow via household debt rising faster than incomes. For example, maximum LTV ratios for first-time home buyers (currently at 95%) could be lowered further, as recommended by the IMF (2014a). Alternatively, to reduce household exposure to future interest rate hikes, the authorities could impose an interest rate floor on all income tests to qualify for mortgages, as suggested by Alexander (2012). This minimum could be set to the long-term average mortgage rate, which would not change the actual transaction rate but would help ensure that borrowers do not face difficulties in making their debt payments when interest rates rise. This would, however, reduce the effectiveness of monetary policy in stimulating the economy in downturns.

In addition to these regulatory changes, in 2011 OSFI introduced a revised Minimum Capital Test (MCT) guideline for private mortgage insurers, using a risk-based formula to set minimum capital levels and defining the types of capital that could be used. That year the government also introduced a new legislative framework to formalise existing mortgage loan insurance arrangements with private insurers and CMHC. This framework included the Protection of Residential Mortgage or Hypothecary Insurance Act applied to private mortgage insurers and regulations that came into force on 1 January 2013 (Box 1.2). These regulations included minimum criteria for the designation of approved/qualified lenders and the types of loans eligible for CMHC and private insurance.

Several measures have been introduced to strengthen the governance and oversight of CMHC. In response to recommendations by the Financial Stability Board`s peer review report for the authorities to enhance disclosure and reporting of mortgage market data and developments (Financial Stability Board, 2011), CMHC began publishing quarterly financial reports in 2011 Q3. The 2012 Budget placed CMHC`s commercial activities under formal OSFI oversight and provided the Minister of Finance legislative and regulatory authority over CMHC`s securitisation programmes and any new commercial programmes. CMHC was also given an additional mandate "to ensure its commercial activities promote and contribute to the stability of the financial system, including the housing market" (Finance Canada, 2012). In practice, however, CMHC had long been targeting capital levels that were twice the MCT, and its risk-management practices had traditionally conformed to OSFI regulations. On 30 May 2014, CMHC discontinued its Second Home and Self-Employed Without 3rd Party Income Validation mortgage insurance products. As a result of changes to CMHC's mandate to contribute to the stability of the housing market, CMHC is undertaking a review of its mortgage loan insurance business. This is the first set of changes resulting from this review. Effective 1 May 2014, CMHC increased its homeowner mortgage loan insurance premiums to reflect its increased capital targets.

In June 2012, OSFI issued a new "Guideline B-20" setting out principles for prudential residential mortgage underwriting practices by FRFIs. These build upon the Financial Stability Board's *Principles for Sound Residential Mortgage Underwriting Practices* published in 2012. The guidelines state that loan decisions should be based primarily on borrowers' demonstrated capacity to make debt payments and rely

less on collateral values. To address some of the potential biases in property appraisals discussed earlier, it also advises banks to conduct in-person appraisals and not to depend on any single method for property valuation. These guidelines also recommended third-party appraisers be "independent from the mortgage acquisition, loan processing and loan decision process". In April 2014, OSFI released draft B-21 underwriting guideline for mortgage insurers. These guidelines formalise several rules that are already standard practice, including to exercise due diligence in assessing lenders' underwriting practices. They also include one new requirement for mortgage insurers to begin publicly disclosing data on their loan portfolios, including breakdowns of loan-to-value ratios, amortisation periods and delinquency rates. This is a welcome change that will help fill some gaps in the data needed to properly assess housing-market risks.

The housing finance system appears structurally sound

The relatively strong performance of the housing and banking sectors throughout the global financial crisis indicate that Canada has an effective housing finance system that has generally supported stable access to homeownership. Although insufficient regulatory oversight of mortgage insurance and lending practices during the boom period contributed to pro-cyclical increases in leverage and house prices, the authorities have since taken steps to address systemic weaknesses.

Bank loan losses have remained low, and the majority of residential mortgages are held on originating banks' books rather than securitised, which should generally incentivise banks to employ strong underwriting standards. Furthermore, since January 2011, International Financial Reporting Standards (IFRS) no longer allow off-balance-sheet treatment of mortgage assets sold through CMHC securitisation programmes and require FRFIs to keep securitised mortgages on their balance sheets. The change requires lenders to hold capital against securitised assets.

Retail deposits continue to provide the main source of mortgage financing, which was a source of stability throughout the financial crisis, as discussed above. Although it is not clear why Canadian banks depend more on retail depository funding than others, it may reflect in part the structure of the banking sector. The dominance of the six large banks that are highly profitable and face little external competition may serve to reduce pressures to expand market share and take risks (Ratnovski and Huang, 2009).

The extensive use of mortgage insurance in Canada provides some useful functions in the financial system and the economy more broadly. One is that it provides an outside review of lender practices (Lea, 2010). It can also promote stability by reducing pro-cyclicality: private insurers have incentives to rein in high-risk lending at the top of economic cycles and to ensure credit continues to flow at the bottom (Joyce and Molesky, 2009). Mortgage insurance also helps expand the availability of mortgage funding by guaranteeing loans that can then be sold into securitised pools on secondary markets. It also expands access to homeownership by transferring risks of extreme events away from lenders. This enables them to accept lower down payments without taking on additional risk, thereby allowing a greater share of the population to purchase homes. However, increasing homeownership rates may have costs, in the form of lower labour mobility, for example.

The requirement in Canada to insure all high-LTV ratio mortgages helps to promote a sustainable mortgage insurance market by limiting opportunities for adverse selection. In the absence of such a rule, lenders could choose to insure only mortgages of a certain risk group, such as those with weaker or marginal credit scores (Joyce and Molesky, 2009). Such practices could make it difficult for mortgage insurers to diversify risks and to charge affordable premiums. However, this requirement effectively necessitates some government participation in mortgage insurance provision. This is because mortgage insurance is subject to catastrophic risks due to the high correlation of house price declines in a crisis,

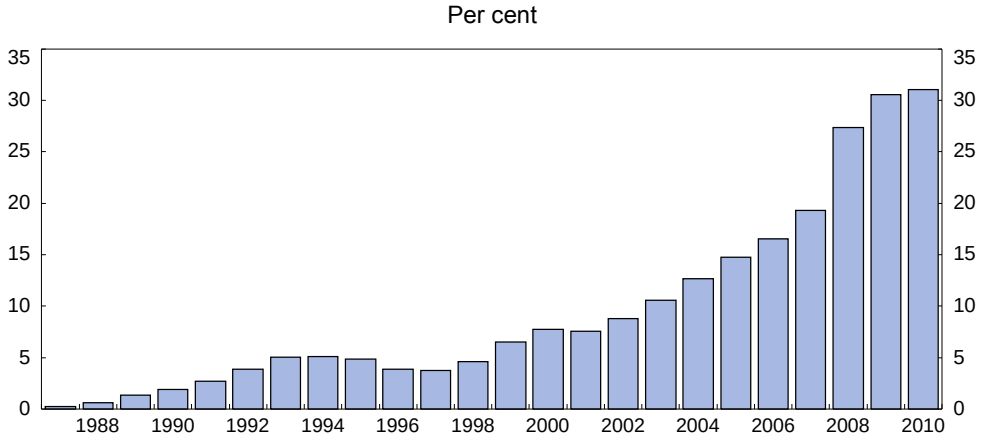
which can prompt massive defaults. Under these conditions, the availability of private mortgage insurance can decline during a crisis when it is most needed.

Widespread failure is not likely to occur unless pervasively weak mortgage origination standards have passed contagion from the banking sector to the insurance sector (BIS, 2013). In this regard Canada sits in a relatively favourable position, benefitting from both strong mortgage origination and insurance underwriting standards. Lenders face strong incentives to uphold underwriting standards as a condition to maintaining their status as a CMHC-approved mortgage lender qualifying for government-backed insurance. However, this equilibrium can become unstable if regulatory deficiencies emerge, due to persistent pressures on mortgage lenders and insurers to lower their underwriting standards to increase profits. Evidence of such destabilising pressures appeared in 2011, when signs emerged that Canadian financial institutions had progressively loosened standards on mortgages and home equity loans, for example by allowing borrowers to bypass income-verification procedures (Mayeda, 2012). The release of OSFI`s B-20 Guidelines the following year addressed these slippages. However, the incentive to exploit regulatory arbitrage opportunities underscores the importance of structuring the system in a way that aligns private- with public-sector interests.

Demand for mortgage securitisation should continue to be monitored

Securitisation of government-insured mortgages has grown substantially since 2007 – with the size of NHA MBS liabilities more than doubling by 2012 (Figure 16). A spike in growth between 2008 and 2010 reflected government purchases of NHA MBS via the IMPP programme. NHA MBS now account for more than one-third of all residential mortgages outstanding, up from one-fifth in 2007, and constitute the largest component of the Canadian shadow banking sector (Gravelle et al., 2013). The funding cost advantage provided by the NHA MBS and CMB programmes have supported the growth of a group of small non-traditional lenders, whose funding models rely more on capital markets than retail deposits. This group consists of trust companies, non-depository specialised mortgage lenders and aggregators; the latter are often subsidiaries of foreign financial institutions that engage in purchasing insured mortgages from smaller lenders for securitisation (Bank of Canada, 2013). The top nine of these non-traditional lenders

Figure 16. **Share of outstanding residential mortgages securitised into NHA MBS**



Note: Data are shown only up to 2010 due to changes in the accounting of NHA MBS on balance sheets after Canada's adoption of the International Financial Reporting Standards in 2011, which make data after 2010 difficult to compare with the past.

Source: Canada Mortgage Housing Corporation.

accounted for 15% of total NHA MBS issuance at end-2012, more than double their share in 2007 (Gravelle et al., 2013). In general, they have higher leverage and greater exposure to rollover and interest-rate risk, and would be most vulnerable to an external shock. Furthermore, many of these entities specialise in non-prime lending, which is estimated to have rebounded slightly since the crisis to account for about 7% of total residential mortgage growth (Tal, 2012).

To limit the federal government's exposure to NHA MBS, the 2013 budget prohibited the use of government-insured mortgages in securitisation programmes beyond those run by CMHC. An annual cap was introduced on the amount of NHA MBS that it guarantees, set at CAD 85 billion in 2013. Following unexpected growth in demand for the securities, with banks already issuing CAD 66 billion by July, an additional limit was imposed in August 2013 rationing no more than CAD 350 million per month to each individual lender. The 2014 budget reduced the cap further to CAD 80 billion and introduced a CAD 40 billion cap on CMBs.

Covered bond issuance has also surged since the programme was introduced, rising from CAD 2.8 billion in 2007 to CAD 66 billion by late 2012. Most of these covered bond programmes had used government-backed insured mortgages as collateral, which has been prohibited since 2012.

Because of the government's backing, growth in NHA MBS issuance entails little risk, especially because the majority of financial institutions issuing them are now subject to OSFI's B-20 guidelines for underwriting standards for mortgage insurance. Nevertheless, the growth in mortgage securitisation more generally may contribute to greater instability in the financial system by increasing its complexity and making it more difficult to properly evaluate and price risks. It also strengthens the interconnections between macroeconomic, financial-, household- and public-sector risks (Gravelle et al., 2013).

Furthermore, the growing importance of non-traditional lenders in the mortgage market may also present risks. Among the top nine non-bank issuers of NHA MBS, four are not regulated by OSFI, while another two are foreign bank branches supervised by OSFI but not subject to its capital or liquidity requirements. While non-traditional entities have funded only about 5% of total outstanding mortgages through NHA MBS over the last few years, those not regulated by OSFI accounted for the fastest growing share in 2013 (Bank of Canada, 2013). Some are regulated at the provincial level, but provincial regulators may lack the capacity and resources for rigorous supervision, and few have adopted mortgage underwriting guidelines equivalent to OSFI's B-20 (IMF, 2014a). As recommended by the IMF (2014b), greater cooperation and information sharing between OSFI and its provincial counterparts would be beneficial. Recent research on the US housing crisis suggests that regulatory gaps between banks and non-depository mortgage companies contributed to deteriorating mortgage lending standards (Demyanyk and Loutskina, 2012). This occurred because inconsistent coverage and enforcement of regulations created opportunities for bank holding companies to engage in riskier activities through their mortgage subsidiaries, which were subject to little regulation. Non-bank mortgage lenders originated about half of all mortgages in the United States before 2006 and dominated its subprime market. Although there is no evidence that this has occurred in Canada, where this sector plays a much smaller role, a closer monitoring of this rapidly growing segment is needed.

Adjustments to reduce taxpayer risks and improve competition

Canada's housing finance system is unusual in the extent of its government involvement: while mortgage insurance programmes operate in over 30 countries worldwide, among which about two thirds are government-sponsored (Blood, 2009), only a handful rely extensively on publicly provided mortgage insurance (BIS, 2013). Furthermore, in Canada the government guarantee covers 100% of CMHC-insured mortgages, not just the first 10-30% of the losses as in most other countries.

CMHC's dominant role concentrates a significant amount of risk in public finances. The government guarantee may distort bank lending in favour of residential mortgages over other types of assets, creating inefficiencies in resource allocation. It may also expose taxpayers to more risk than is necessary for a liquid and efficient market. As the US experience demonstrated, federal backing facilitates lending but can encourage actuarially risky behaviour in search of profits and subject taxpayers to excessive risks, although there are considerable differences between CMHC and the GSEs (Box 2).

Relatively strong prudential regulation has helped curb excessive risk taking in Canada thus far, suggesting no need for major reforms. However, minor changes such as introducing a deductible for mortgage insurance could help strengthen the financial system further by building in incentives to maintain discipline in loan screening and to control adverse-selection problems (BIS, 2013). For example, reducing insurance coverage to 80% of loan losses would retain non-negligible risk at the lender level and thus better align public and private interests at both the insurer and lender levels. However, the authorities should carefully assess a number of implications for the housing finance system: for example, impacts on borrowers through possible credit rationing and interest-rate differentiation, CMHC securitisation, capital and liquidity requirements for lenders and competition in mortgage lending.

Increasing competition in the mortgage insurance market could also help diversify financial-market risks away from CMHC and reduce potential taxpayer liabilities. Although there are two other private insurers in the market (Genworth and Canada Guaranty), the system does not provide a level playing field, given CMHC's advantage of 100% government backing in the unlikely event of capital exhaustion, compared to only 90% for its private competitors. This means that lenders can hold less capital against mortgages insured by CMHC relative to the private firms, an advantage that has limited their market shares. CMHC takes on additional risks by operating in markets not served by the private sector, such as rural properties and nursing homes, but it is not clear whether the extra costs involved offset the competitive advantage it enjoys over private insurers.

The federal government does have sizeable contingent liabilities associated with both CMHC and private mortgage insurers. Yet CMHC does regular internal stress testing and participates in periodic IMF exercise. It also subjects itself to OSFI supervision (as do the private insurers) to ensure it is acting in a safe and sound manner and had over CAD 14 billion in capital at end-2013. Like the private insurers this is more than double the OSFI requirement. The government has also taken several steps to scale back its exposure to housing markets and encourage a greater private-sector role in mortgage markets. These include setting annual caps on the amount of NHA MBS it would guarantee and introducing a "risk fee", as of January 2014, on CMHC's mortgage insurance activities. The latter requires CMHC to pay the government 3.25% of its premium income and 10 basis points on new portfolio insurance (which covers low-LTV loans) written. This exceeds the 2.25% charge on premiums that private mortgage insurers must pay to benefit from the government guarantee. For 2014, CMHC reduced the amount of portfolio insurance it would issue each year, from CAD 11 billion to CAD 9 billion. Finally, in its 2014 budget the government also announced plans to tie portfolio insurance to the use of CMHC securitisation vehicles and prohibit the use of government-backed insured mortgages as collateral in securitisation vehicles that are not sponsored by CMHC.

Further moves should be pursued to gradually increase the private-sector share of the mortgage-insurance industry, including reducing the cap on the total mortgage amount CMHC can insure (currently set at CAD 600 billion, with CAD 557 billion in force at end-2013). Eventually, if warranted by a corresponding increase in private-sector mortgage insurance activity, as well as potential house price increases, the cap on the total mortgage amount private providers can insure could be raised (currently CAD 300 billion, with CAD 164 billion in force at end-March 2013).

The government should also consider whether in the longer term it would be more efficient and transparent to separate and privatise the insurance arm of CMHC. Doing so would shift the government's role to one of guaranteeing only against catastrophic risks, where public intervention is most justified. This would not affect the government's ability to regulate minimum prudential standards for mortgage insurance and lending. Instead of using CMHC as the main lever, the government could continue to exercise this control through eligibility requirements for all insurers to benefit from the government guarantee. The focus of the publicly owned CMHC would then shift entirely towards its other functions in funding social housing, operating its securitisation programmes and providing high-quality research, analysis and data on Canada's housing markets. Given the systemic importance of CMHC, such a regime shift would need to be conducted gradually and transparently, following proper consultation with all major stakeholders. The government would need to consider measures to ensure continued provision to "underserved" markets, such as multi-unit residential and rural properties. The government would also need to carefully consider its ability to achieve its housing-finance and financial-stability objectives in the context of a potentially smaller market share for CMHC.

Affordability has worsened disproportionately for low-income households

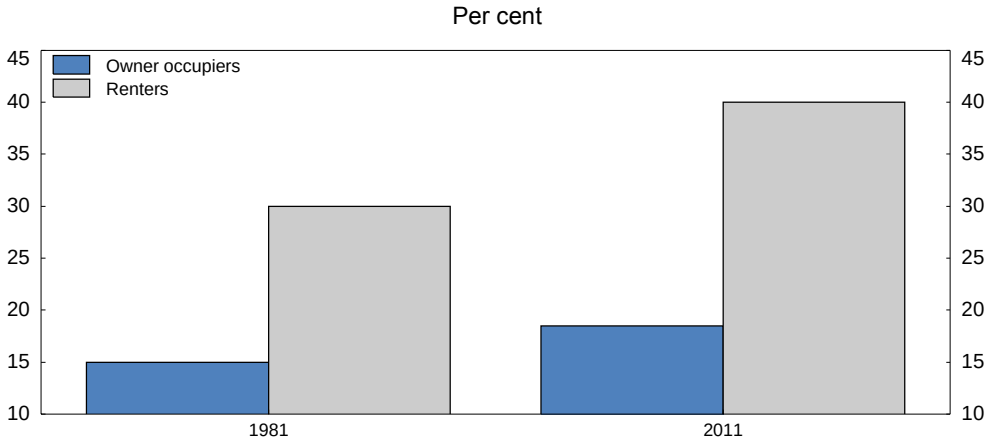
Rising house prices relative to incomes has inevitably led to worsening affordability, especially for those in lower income brackets. Using CMHC's definition of affordability, which entails spending no more than 30% of pre-tax income on shelter costs, the 2011 National Household Survey revealed that one quarter of all households lived in unaffordable housing, up slightly from about 22% in the 1981 census (although the samples are not strictly comparable). CMHC assesses that as of 2010, 13.2% of urban households were in "core housing need", up slightly from 12.8% in 2006, but below the 1991 level of 13.6%. A household is said to be in core housing need if both its dwelling is below acceptable standards and its income is insufficient to obtain acceptable housing. Acceptable housing is defined as shelter that meets three conditions: *i*) sufficient bedrooms for the household type; *ii*) does not require major repairs; and *iii*) can be obtained by spending less than 30% of before-tax household income. The most expensive markets have the highest rates of core housing need: 20% of households in Vancouver and 18% in Toronto. Furthermore, core housing need is significantly worse for Aboriginal households, especially those living on reserve, affecting one third of all Aboriginal households in 2006, up from 28% in 2001.

The proportion facing affordability problems has grown significantly faster for tenant households over this period, from 30% in 1981 to 40% in 2011 (Figure 17). Much of this increase occurred during the 1990s when real house prices were flat, which may reflect cutbacks to social housing programmes. The incidence of affordability problems among homeowner households grew much less, from 15% to 18.5%. Renters (who tend to have lower average incomes than owner occupiers) make up about one-quarter of all households living in private dwellings, but account for half of those with affordability challenges.

Social housing accounts for about 5-6% of Canada's dwelling stock and has not expanded significantly since the early 1990s, when the federal government transferred most programme delivery to provinces and territories. Much of the social housing stock is thus ageing and in need of serious repair and maintenance. About 80% of the existing social housing stock is now administered by the provincial and territorial governments, and programmes generally target households in core housing need. With the introduction of the Affordable Housing Initiative (AHI) in 2001, the federal government shifted away from the delivery model of long-term ongoing subsidies towards up-front capital contributions, with matching funding from the provinces/territories and sometimes third parties (municipal government, private developers or the non-profit sector). This programme ended in 2011, by which time it had provided CAD 1.2 billion in federal funding to create over 52 000 new low-income units. The AHI was replaced by the Investment in Affordable Housing (IAH) framework in which the federal government has committed CAD 716 million in funding over 2011-14, again matched by provinces and territories to provide a wide range of social housing approaches. Provincial and territorial governments have full responsibility for the

design and delivery of the programme, which may include new construction, renovations, rent supplements and shelter allowances. In addition to on-going funding, the federal government has made one-time investments in affordable and social housing. In 2006, CAD 1.4 billion was allocated over three years for three affordable-housing trusts. In 2009, as part of the stimulus spending following the economic downturn, the federal government invested more than CAD 2 billion over two years for new construction and the renovation of existing social housing.

Figure 17. **Share of households spending above 30% of pre-tax income on shelter costs**



Note: Shelter costs for owner households include, where applicable, mortgage payments and costs of electricity, heat, water, othermunicipal services, property taxes and condominium fees. For tenant households, they include rent and costs of electricity, heat, water and other municipal services.

Source: Statistics Canada.

The expiry of federal-provincial-territorial operating agreements on much of the public housing stock over the coming decade will challenge the viability of a considerable share of social housing units. These arrangements were established to cover operating expenses and service mortgage debts on public housing units built from the 1950s to the early 1990s. The subsidies were designed to expire once mortgages matured, as it was assumed that rental revenues would be sufficient to finance operations and capital replacement. However, as social housing has become increasingly targeted at those in need and with rents geared to income, revenues have not kept pace with increasing operating costs (Pomeroy, 2011a). One study estimated that potentially one third of existing social housing units could be at risk when the federal subsidies end (Pomeroy, 2006). While provincial and territorial governments appear willing to provide the necessary subsidies to continue operating these properties, many will face shortfalls in funding the necessary capital repairs. Initiatives by the federal government since 2009 will help address some of these needs, namely the completion in 2011 of the delivery of some CAD 2 billion in social housing investments as well as CAD 2 billion in low-cost loans for housing-related municipal infrastructure, and the extension of the IAH from 2014 to 2019. In addition, the federal government is expected to save over CAD 500 million annually by 2020 from expired subsidy arrangements (Pomeroy, 2011a); some of these savings could fund renovations and energy retrofitting of public housing projects that are in need of repair but otherwise operate on a viable basis.

There may be a shortage of affordable rental housing

Tenants in the private market have accounted for a shrinking proportion of all households at 31% in 2011, down from 40% in 1971, as homeownership rates have risen. Correspondingly, the share of rental housing in the total dwelling stock has been on a steady decline since peaking at 42% in 1972, and had

contracted to 37% by 2000 when Statistics Canada stopped producing this series. Since then, new rental units have accounted for only 10% of all housing starts, roughly half their share in the early 1990s.

This trend has raised concerns about potential shortages of rental housing. Maintaining a dynamic stock of good-quality and affordable rental housing is important for supporting labour mobility and immigration as well as good social, health and educational outcomes. This decline can be explained by rising home ownership as well as substantial growth in condominium development, which is targeted at owner occupiers but has become a primary source of new rental supply in many cities. Condominium buildings compete for the same multi-residential zoned land as rental apartment buildings.

Private developers have favoured condominium development over purpose-built rental buildings because of the higher returns and lower risk involved. Condominium units can be presold, whereas purpose-built rental buildings must be fully constructed before being rented out. These buildings are longer-term investments that depend on the future appreciation of rent levels, which is subject to provincial rent-control regimes. While rent control was present in all provinces in 1975, most provinces have at least partly deregulated in this area over the past two decades and generally restrict rent increases only for existing tenancies (Pomeroy, 2011b). Currently Ontario, Quebec, British Columbia, Manitoba and Prince Edward Island), which together cover almost 80% of Canada's population, still regulate rent increases. Nevertheless, the apparent emergence of rental supply shortages, as discussed below, is not limited to provinces with rent control.

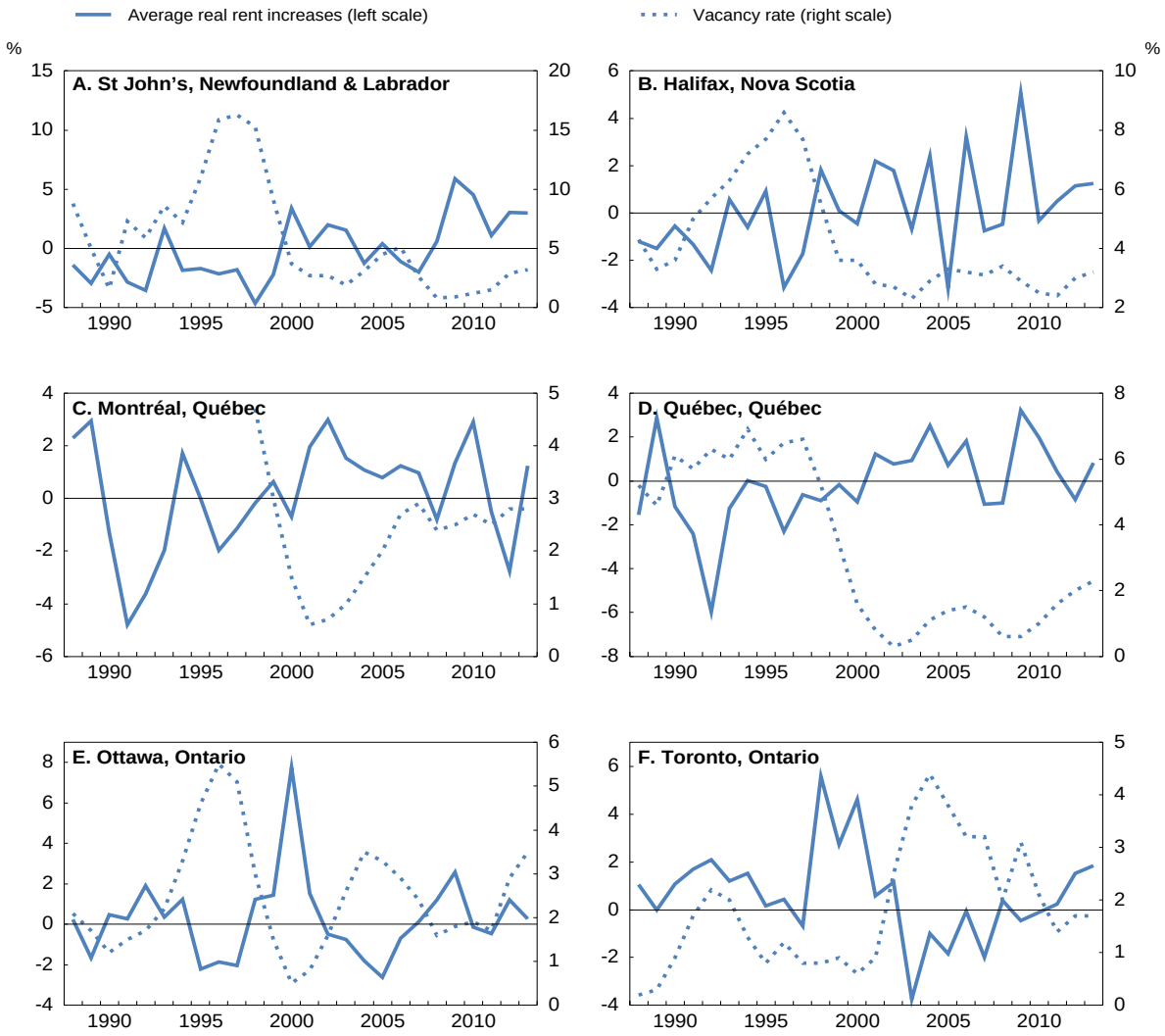
There may be several other reasons why rental building construction has fallen behind condominium development. One factor is the preferential tax treatment of owner-occupied housing, which is not subject to tax on imputed rents or capital gains upon sale, whereas investors in rental property are taxed on rental income and 50% of capital gains at their marginal income tax rate. Increasing expectations of capital gains may have made these tax biases more important over time. Perhaps most importantly, multi-unit rental buildings often face disproportionately high property tax rates relative to ownership housing. Although municipalities in some jurisdictions, such as Ontario, have discretionary authority to equalise property tax rates across the two types of housing, doing so can be politically costly. This contributes to encouraging the conversion of rental buildings into condominiums, which are taxed at a lower rate (Ontario Housing Supply Working Group, 2001). Furthermore, CMHC charges higher mortgage insurance premiums (4.5%) on 85% or more LTV loans for multi-unit rental housing compared to similar loans for owner occupiers (1.75%).

Because of these factors, condominium markets have tended to set the price for multi-residential zoned land sites in major cities, crowding out purpose-built rental production. In some cities the stock of purpose-built rental units has shrunk significantly, as older buildings are demolished and replaced with condominiums. While growth in the condominium sector has probably alleviated any lack of supply in the primary rental market, cities that have not experienced major condominium development have seen vacancy rates decline to very low levels and rents that have increased faster than CPI inflation. Based on rough approximations of the "natural" vacancy rates in 12 major cities (Box 3), it appears that supply shortages may have developed in the primary rental markets of Toronto, St. John's, Winnipeg, Saskatoon, Regina, Calgary and Edmonton. Although primary rental markets do not include condominium rental units, adjusting vacancy rates to incorporate this supply does not change the picture very much; in many cases it worsens it, because condominium rental vacancy rates are even lower. However, the condominium data do not include the potential supply from newly completed but unsold units, which appear very high in some cities.

Box 3. **Assessing local shortages in the supply of rental housing**

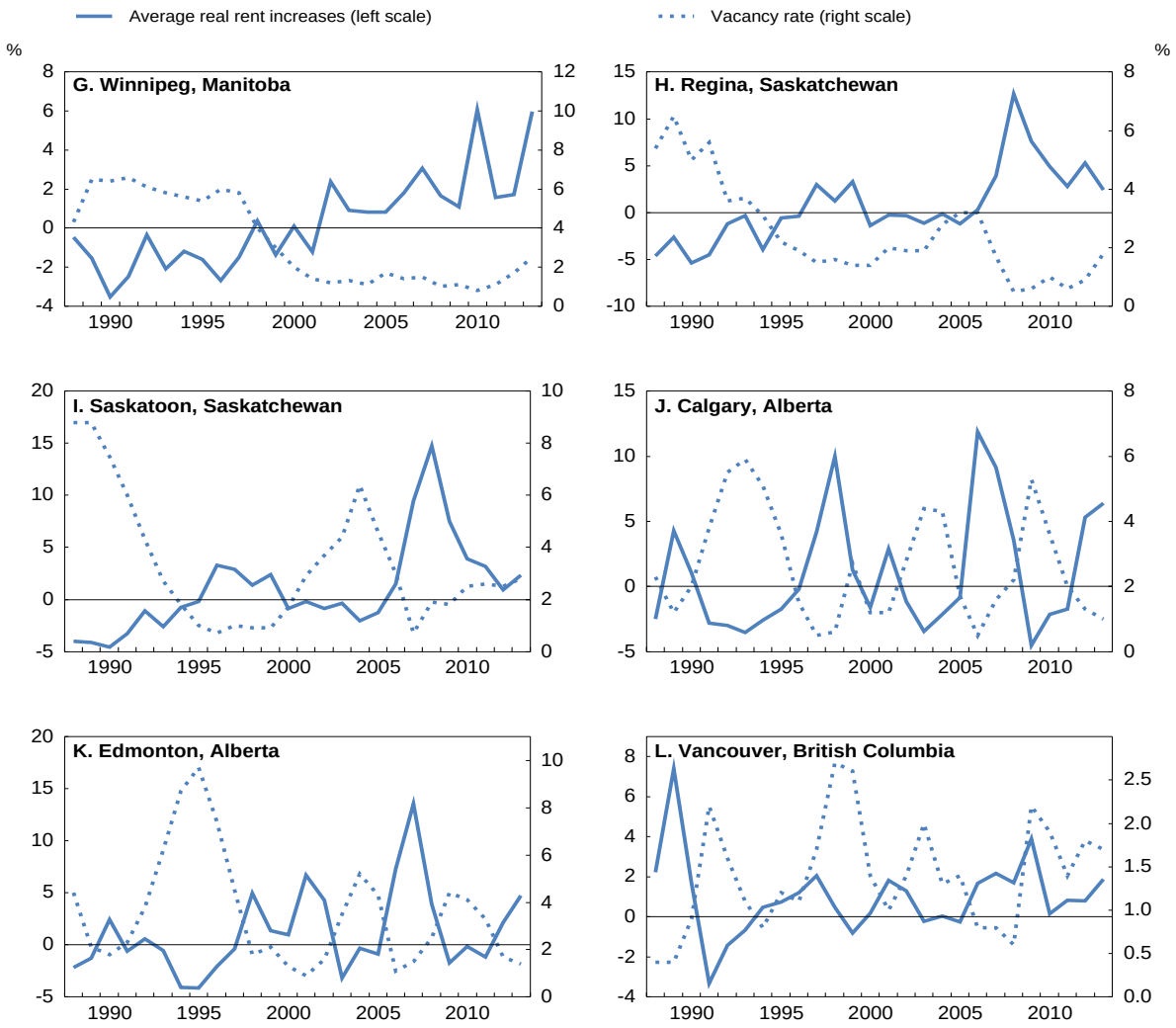
In private rental markets a supply deficiency can be identified when vacancy rates decline below their equilibrium or "natural rate", which is the rate at which the market balances and the change in real rents is zero. The natural vacancy rate is likely to vary by region and over time depending on factors such as socio-demographic change, government regulations and apartment search costs. For example, rent controls exist in five provinces, which may prevent rents from responding completely to market forces. Nonetheless, in most of Canada's major cities, a negative correlation is visible between average vacancy rates and real annual rent increases (Figure 18), although some exceptions are in Québec City, where provincial rent controls are stricter, and Halifax.

Figure 18. **Average of real rent increases and vacancy rates by major cities**



Box 3. **Assessing local shortages in the supply of rental housing** (*continued*)

Figure 18. **Average of real rent increases and vacancy rates by major cities** (*continued*)



Source: Statistics Canada.

An approximate natural rate can then be roughly identified as the level below which real rent increases are observed. For example, examining historical real rent fluctuations since 1990 suggests the natural vacancy rate may be about 2% in Calgary, Edmonton, Toronto and Ottawa, but closer to 4% in Winnipeg, 5% in St. John's, and 1% in Vancouver. This crude approximation suggests that by 2012 rental housing supply shortages may have developed in 7 of the 12 major cities across the country: Toronto, St. John's, Winnipeg, Saskatoon, Regina, Calgary and Edmonton. It should be noted that the data shown here are for the primary rental market and thus exclude rental supply from condominiums and the secondary market (e.g. basement suites) due to lack of data on these markets before 2006.

Condominiums tend to have higher rent levels than comparable units in purpose-built rental buildings, but their contribution to the supply of high-end rental housing helps attract wealthier tenants out of older rental units, which should relieve pressure on the existing stock and benefit tenants across the income spectrum. Nonetheless, a lack of renewal in the low-cost rental stock may be contributing to shortages in

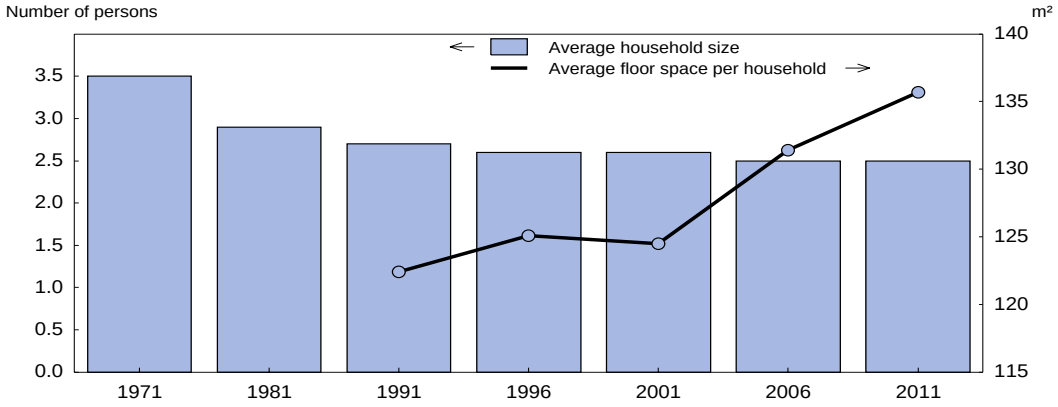
units that low-income households can afford. CMHC data shows lower vacancy rates at the cheaper end of the rent range in some cities, including Calgary, Ottawa, Québec, Regina, St. John's, Saskatoon and Winnipeg.

In addition to condominiums, other dwelling types in the secondary market are also an important source of supply of rental housing. This includes all rented dwellings within structures of less than three units, such as rented houses, duplex apartments, and secondary or basement suites, although data on this segment are less reliable and their vacancy rates are unavailable. Nevertheless, data collected by CMHC suggest that the secondary market beyond condominiums constitutes about a third or more of the rental supply in cities such as Calgary, Regina and Saskatoon. However, condominium and other secondary rental dwellings represent a less secure form of housing, since individual owners may remove them from the market at any time.

Urban planning policies have contributed to very high transport emissions and social exclusion

Residential development patterns in many urban areas of Canada have traditionally relied on single-use zoning models and low-density neighbourhoods that are costly to integrate with public transit systems. The vast majority of the country's population growth has occurred in these low-density outer suburbs. Like most other OECD countries the size of built-up urban areas in Canada has been expanding outward at a faster pace than population growth (OECD, 2013b), which is commonly identified as sprawl. Sprawl involves uncontrolled expansion of urban development characterised by low density, segregated land use and insufficient infrastructure provision. Although this pattern of development has probably facilitated more rapid housing supply responses to demand pressures from population growth, it signifies a trend of each person consuming more land. Furthermore, the average size of Canadian homes has been increasing over at least the past two decades, despite the shrinkage in average household size (Figure 19).

Figure 19. **Larger houses for smaller households**

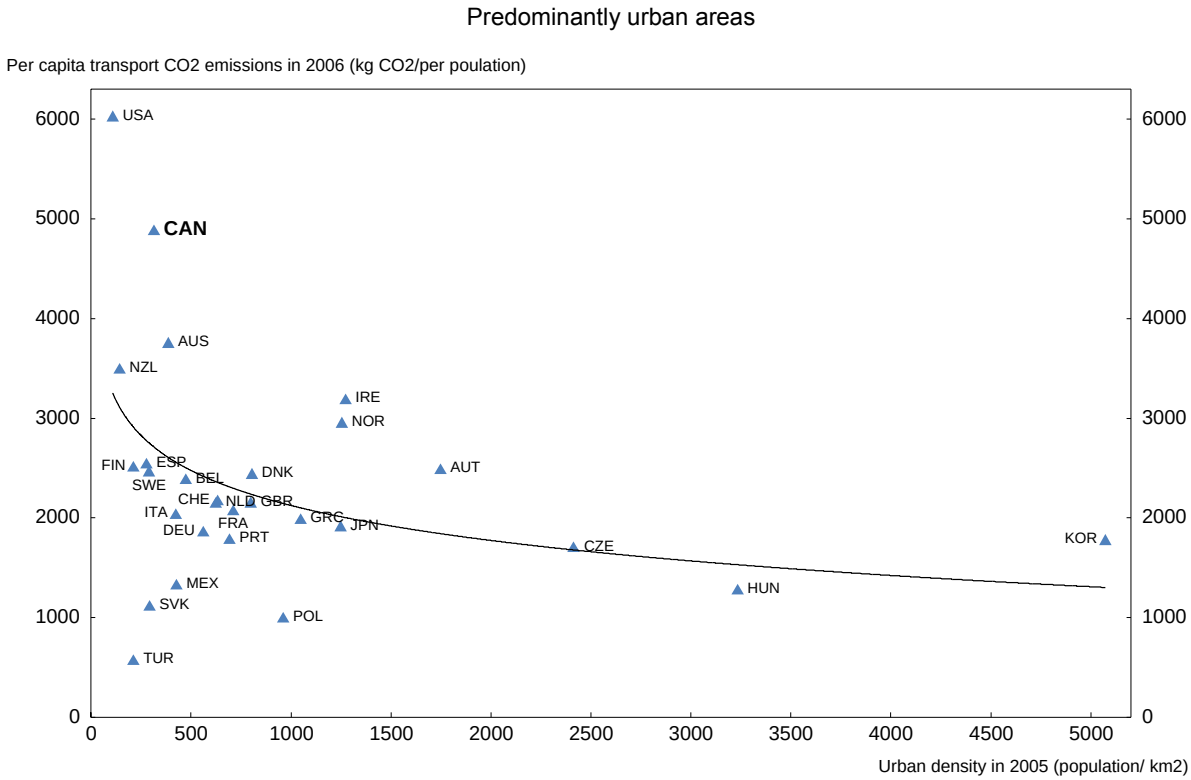


Source: Statistics Canada, Natural Resources Canada.

Building residential neighbourhoods that are separated from sources of employment and whose density is too low for public transit to be economical creates a high dependence on private automobile use. Work by the OECD (2012) shows that low-density urban areas tend to be associated with greater automobile dependency and higher CO_2 transport emissions per capita. Indeed, road transport emissions per capita in Canada's urban areas are the second highest in the OECD and are higher than similarly dense urban areas in other OECD countries (Figure 20). This may in part be because Canada's automobiles tend to be less fuel efficient on average than those in European countries (IEA, 2012). A study by Gordon (2013) suggests that 93% of the population growth in Canadian census metropolitan areas between

2006 and 2011 took place in suburbs where households depend predominantly on automobiles to commute to work. Transportation accounts for almost two-thirds of the greenhouse gases directly emitted by Canadian households (Blais, 2011). The location of dwellings with respect to amenities, schools, employment opportunities and public transit, as well as the availability of cycling and walking paths, determine the distances households need to travel and the mode of transport they choose. As of 2011, almost three-quarters of commuters in Canada drove a vehicle to work, and this proportion had increased in almost all major cities since 2006, despite higher gasoline prices (Statistics Canada, 2013). Average commuting distances have also increased on average since 1996. Urban sprawl may entail other social costs, such as greater traffic congestion, higher obesity rates, reduced mobility for those unable to drive, the loss of agricultural or forestry land and social segregation.

Figure 20. **CO_2 emissions per capita in transport and urban density, 2005-06**



Source: OECD (2012), *Compact City Policies: a comparative assessment*.

The majority of households choose where to live based on the cost of the home (Burda, 2012), and houses tend to be priced more affordably at greater distances from the city centre. This may explain the long-term trend observed in Toronto that households with the lowest incomes have gravitated towards suburbs with the poorest access to transit and services (Hulchanski, 2010). Reduced mobility may narrow the range of jobs that such households can access, contributing to poverty traps (Demographia, 2014). Furthermore, many households fail to account for the higher transportation costs involved with commuting from more distant suburbs. These expenses often outweigh the savings from lower house prices, especially if more than one car is needed, even before considering the time lost in traffic or environmental costs (Miller et al., 2004).

Cheaper houses at the urban fringe reflect in part policies that undercharge low-density land development relative to its true cost. This undercharging occurs in many forms. For one, building low-density housing on urban fringes typically involves higher infrastructure costs per household than

developing the same number of units at higher density. This is because the costs of many key infrastructure elements, such as pipes and roads, depend on the distances covered (Thompson, 2013). Developers cover some of the infrastructure costs through "development charges", which are typically passed through to the property price, but many costs are left to the municipality. Furthermore, many municipal governments base development charges on the average cost of providing infrastructure across all neighbourhoods, rather than based on the marginal cost of new developments (Blais, 2010; Slack, 2002). As a result, lower-density housing that is more expensive to service is under-priced, at the expense of higher-density dwellings, which are overcharged.

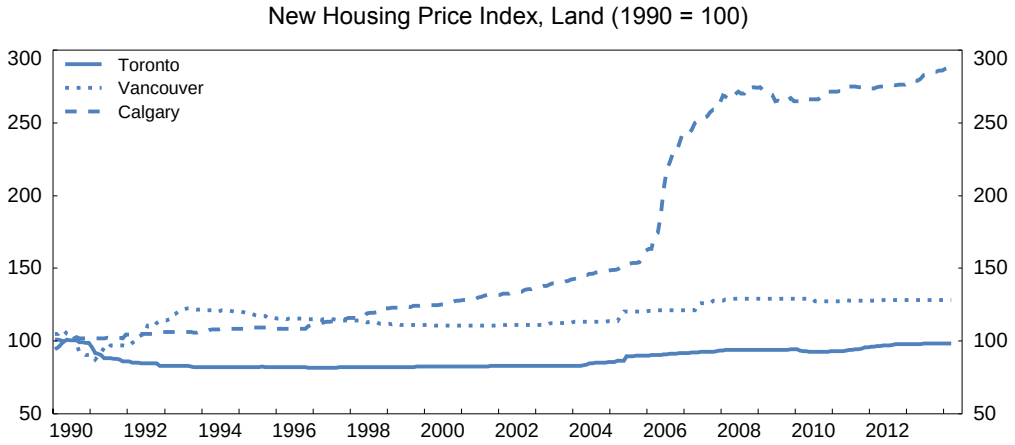
Second, because most road use is free of charge, taxpayers have effectively subsidised long-distance car commuting and continue to do so through ongoing public expenditures on road maintenance, repair, policing and so on (Thompson, 2013). Canadian governments spend almost four times more on roads each year than on public transit, and the revenues collected from road users through fuel taxes, permit, license and other fees cover only about half of these expenditures (Thompson, 2013). Land space for parking also tends to be heavily subsidised, particularly in suburbs where shopping malls and business parks often provide large parking lots free of charge. Third, house prices in outer suburbs do not incorporate the environmental costs of longer car commuting distances, although properly pricing such externalities is difficult.

Many provinces and metropolitan areas across Canada have long recognised the economic, social and environmental costs of urban sprawl and have released regional growth plans that aim to manage development in more sustainable, compact forms. Such plans are designed to guide municipal land development, infrastructure and transport planning decisions. For example, the province of Ontario introduced the Growth Plan for the Greater Golden Horseshoe in 2006, which identifies urban growth and employment centres, densification targets and greenbelt areas of protected countryside. The Plan mandates 40% of new development to occur within existing urban boundaries, allowing for a significant amount of greenfield development. In Vancouver, efforts to achieve "compact growth" date back several decades, and land development has long been constrained by natural barriers as well as the Agricultural Land Reserve, a provincial zone of protected farmland. The 2011 Regional Growth Strategy of Metro Vancouver formally defines an urban containment boundary that will remain fixed over time and outlines plans to target growth in designated urban centres and "frequent transit development areas".

Municipal planning approaches to development vary widely across the country, however. For example, a comparative analysis of urban development patterns found that between 1991 and 2001, Vancouver accommodated 80% of residential growth within its existing urbanised area, while this share was only 44% in Toronto and 22% in Calgary, with the remainder occurring at the urban fringe (Burchfield et al., 2010). In general, these patterns appear to correspond with the emphasis each city's planning policies have placed on urban containment and how consistently these policies have been applied over time, as well as topographical differences. In particular, Calgary has few physical or policy limits on outward urban expansion.

Policies that restrict the supply of urban land can help promote more efficient and compact growth but may also push up land prices within the containment area. For example, Grimes and Liang (2007) find that Auckland's Metropolitan Urban Limits have boosted land prices 8 to 13 times above land just outside the boundaries. Indeed, land-use restrictions are often blamed for worsening affordability in major cities such as Vancouver and Toronto (Dunning, 2011; Demographia, 2014). At first glance, however, land-use restrictiveness does not appear to be the main cause of diverging land price trends across Vancouver, Toronto and Calgary since 1990 (Figure 21); these are mainly due to the dominant influence of oil prices

Figure 21. **Land prices**



Source: Statistics Canada.

on land values in Calgary. Nevertheless, there are signs Ontario's Growth Plan for the Greater Golden Horseshoe may have created expectations of future land shortages and led to land hoarding (Burda, 2013; Dunning, 2011). In certain parts of Toronto, land has become scarcer in highly desirable locations as infill opportunities become exhausted (Burda, 2013). Furthermore, densification targets in Vancouver and Toronto have probably encouraged the expansion of high-rise condominiums in downtown cores, while limiting growth in single-detached homes. In Vancouver, the share of single detached dwellings in total housing starts has declined to 20% since late 2010, compared to a long-term average of about 40%. Correspondingly, single-family house prices have increased significantly over this period, whereas condominium prices have hardly risen (Figure 5).

Policies to promote greener and more socially inclusive residential development

Increasing the efficiency of land use through more compact development may help improve environmental and social outcomes. This should involve improving price signals to ensure that house prices better reflect the public costs incurred to service them. As discussed earlier, low-density development may contribute to higher transport emissions per capita, but these environmental externalities may be difficult to price accurately. Nevertheless, it would be worthwhile to reform development-charge regimes to ensure that developers and residents share the true cost of infrastructure provision. While this would ideally involve charging the marginal cost of each individual project, setting area-specific development charges would be easier to implement and more transparent (Thompson, 2013). This would lower the charges to developers building in established neighbourhoods with capacity for densification or near existing public transit routes. It would also involve greater use of congestion and road charging as well as higher parking fees. Such price signals would need to be combined with more integrated urban planning systems to ensure mixed land use and the sufficient provision of public transit linkages, open space, bicycle paths and sidewalks.

However, the environmental and social benefits to urban containment should be weighed against the potential costs of densification such as overcrowding, higher house prices, traffic congestion and smaller living spaces. As urban cores reach their capacity for densification, planning efforts should be directed towards improving the "employment densities" of predominantly residential suburbs (Blais, 2010) – as well as their walkability and transit connectivity – to reduce the need for long car commutes into downtown cores. For example, Metropolitan Vancouver has been moving towards such a "polycentric" system, with multiple urban centres to relieve land pressures on the downtown core.

Efforts to increase densification often meet barriers in the form of opposition from existing homeowners. In the cities of Toronto and Vancouver (as well as many US cities), municipal authorities often use "density bonusing" (called "Section 37 agreements" in Toronto and "Community Amenity Contributions" in Vancouver) to facilitate community acceptance of densification. These instruments allow developers to build above a zone's density or height restrictions in exchange for cash contributions towards various social amenities, which could include a new community centre or childcare facility, or transit improvements. These practices can help mitigate some of the negative perceptions existing residents may associate with densification by providing visible improvements in their community infrastructure. However, these policies would benefit from a more systematic and transparent approach in how they are used, as they have been criticised for being negotiated in an *ad hoc* manner and with questionable motives (Moore, 2013).

Although better price signals could correct some of the under-pricing of low-density suburban homes, housing will inevitably remain more expensive in mixed-use, walkable neighbourhoods with greater transit connectivity. To ensure that low-income households are not marginalised to suburbs with poor transit access, planning systems may need to incorporate policies to support social mix. In Canadian cities such policies commonly include controls to protect the low-cost dwelling stock, inclusionary zoning or density bonusing. In the latter case developers are permitted to exceed height restrictions in exchange for allocating a certain proportion of units to low-cost housing. Inclusionary zoning is a planning tool that requires a share of new housing to be affordable to low-income households. However, evidence suggests that none of these tools have had much success in adding significantly to the low-cost housing stock (Conference Board of Canada, 2010).

In cities such as Toronto and Vancouver municipal governments rezoned all single-family neighbourhoods in the 2000s to allow homeowners to rent out secondary/basement suites within their properties or "laneway" houses. Laneway houses are smaller detached dwellings usually located in the backyard of a single-family lot with access to a back lane. While secondary suites existed before, many were unauthorised and illegal. Encouraging such forms of housing has been a major part of the City of Vancouver's housing affordability strategy, since their rents tend to be lower. It has increased the supply of lower-cost rental housing through a softer, less visible form of densification, while helping homeowners pay down their own mortgages and increasing the social diversity of single-family neighbourhoods. Furthermore, because many secondary suites allow access to a yard, they may be more appealing to families than conventional rental apartments. These benefits suggest it would be worthwhile for other cities facing shortages of affordable rental housing to legalise secondary suites and laneway houses in all single-family zones, although homeowner resistance has been a major obstacle to change in many municipalities across Canada. Furthermore, many have remained unauthorised and may therefore not comply with building and safety codes. Despite legalisation in many neighbourhoods, many homeowners may prefer to keep their secondary suites undeclared to avoid taxation associated with owning a rental property, including on their rental income as well as of any capital gains on the future sale of their home.

Another programme introduced by the City of Vancouver in May 2012, the Rental 100 Program, has already proven effective in stimulating a significant amount of purpose-built rental housing construction. It provides a package of incentives to developers constructing 100% rental buildings, including waivers of development charges, reduced parking requirements and speedier permit processes. However, to prevent developers from targeting the luxury-end market, the municipal government began imposing caps on the initial rents that could be charged for the units at the end of 2013; it remains to be seen how this change will affect take-up.

Policies to increase incentives for private-sector development may offer an effective and efficient way to increase the supply of affordable housing. For example, the US government provides a Low-Income Housing Tax Credit (LIHTC) to developers of affordable housing projects, which funds most

US low-income housing and is often regarded as highly effective and efficient. The LIHTC provides tax credits to housing developers who then sell them on to investors in exchange for equity finance. Investors can then claim them on their tax returns each year for 10 years. Properties must be rented to households with incomes below 60% of the average income in the region, with rents set at no higher than 30% of income for a period of 30 years. The government sets annual limits on the amount spent on LIHTC, and funds are competitively allocated. It would be worth evaluating the costs and benefits of introducing such a programme in Canada. If public resources are constrained, the federal government could consider funding the programme through savings from eliminating the First-Time Home Buyers Tax Credit and Home Buyers' Plan. As mentioned earlier, research suggests that the latter programme tends to be regressive in practice (Steele, 2007).

Policy recommendations to address Canada's housing market challenges

Policies to strengthen stability in the housing finance system and reduce taxpayer exposure

- If household debt-to-income ratios continue rising, consider further regulatory measures, such as imposing a minimum interest rate floor on income tests to qualify for mortgages, to ensure that new homebuyers are able to make payments in a higher interest-rate environment.
- Undertake closer monitoring of activities in the unregulated mortgage lending sector to improve understanding of risk exposures. Increase cooperation and information sharing between federal and provincial financial regulators.
- Consider changes to the housing-finance framework to cover only partial loan losses, e.g. 80-90%, to retain some risk at the lender level and better align private and social interests.
- Continue to increase the private-sector share of the market by gradually reducing the cap on the Canada Mortgage and Housing Corporation's insured mortgages. In the long run, consider privatising the insurance arm of CMHC. This would allow the government to scale back its guarantee of CMHC to match the level and conditions applied to private mortgage insurers, and apply the same legislative framework of private mortgage insurers to CMHC.

Policies to improve the social and environmental impact of residential development

- As long-term federal subsidy agreements on the public housing units expire, devote some of the savings towards a renovation and energy retrofitting programme for viable social housing projects.
- Consider increasing incentives for private-sector development of affordable housing.

At the regional/municipal government level:

- Reform development charge regimes to ensure developers are charged the true cost of providing infrastructure to the area being developed. Make greater use of road-use charging and parking fees, and increase integration of public transit planning with land development decisions.
- Remove property tax rate differentials that disadvantage multi-residential rental properties relative to owner-occupied housing.
- Continue efforts to legalise and encourage secondary suites and laneway housing in single-family residential zones.
- In areas of rapid house price appreciation, increase incentives for private-sector development of rental housing in appropriate areas through tools such as development charge waivers, reduced parking requirements and expedited permit processing.

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