

When Risk-Sharing Increases Risk:  
Analysis of the Government of Canada Mortgage Risk-Sharing Proposal

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## **Introduction**

We are responding to the call from the Government of Canada for information and feedback on whether a proposal that would require mortgage lenders to retain and manage a portion of loan losses on insured mortgages that default would enhance the current housing finance system. The goal of the proposal, as stated, is a “system that supports the appropriate assessment and pricing of risks by all parties in order to further strengthen the housing finance system, enabling it to continue to meet the needs of Canadians and support a strong economy.”

While the goals of improved underwriting and reduced taxpayer exposure are clearly desirable, we find it unlikely that the proposed risk-sharing will achieve them. On the contrary, we believe risk-sharing is likely to introduce more financial stability risks.

Specifically, the proposed risk-sharing would worsen the business cycle by inducing lenders to adjust lending standards and costs procyclically. In the growth phase of the cycle, it would give market share to less risk-averse lenders and nonregulated lenders (mortgage investment companies and private lending) who underprice risk and are minimally capitalized. It may also concentrate lending into currently low loan loss markets, such as Toronto and Vancouver. In the declining phase of the cycle, all lenders are likely to increase their mortgage rates and restrict lending in response to an actual or expected increase in losses and the cost of the deductible to them. This is likely to occur just as lending is necessary and in the aggregate less risky. The result would be greater macro instability and house price volatility, and an increase in lending costs and a decrease in loan availability over the cycle.

Moreover, as indicated in the call for comments, this proposal would be accompanied by an unavoidable and inefficient increase in lending costs for many lenders and, subsequently, in borrowing rates. As demonstrated below, we estimate these costs to be substantial, especially for credit unions and regional lenders who would be penalized purely based on size and concentration and irrespective of whether their business practices are sound or not.

The current housing finance system in Canada has features that have prevented unregulated and aggressive lending practices from spreading. For instance, only traditional mortgage products are

insurable, with clear and precise underwriting guidelines. Recent mortgage insurance changes, such as higher qualification mortgage rate and expanded capital requirements for mortgage insurance, have further tightened underwriting standards. These changes are only now impacting lending.

In addition to the above highly desirable features of the current Canadian mortgage system, mortgage insurers themselves are capitalized to withstand an extreme stress event over the life of the mortgage. Lenders, on the other hand, focus their capital reserves on the term of the mortgage, which is typically 5 years, as determined by Basel III, and only as part of an overall reserve calculation. These discrepancies would add to the financial system risks if risk-sharing is implemented.

Therefore, we believe risk-sharing would not strengthen the housing finance system, but rather undermine its stability.

## **1 Risk Sharing Impact on Housing Market and Financial Stability**

### **Consultation Document:**

*“The Government of Canada is seeking input on the potential impact that lender risk sharing could have on lender decisions to extend credit and handle mortgage defaults under a range of economic conditions, as well as overall impacts on housing market and financial stability.”*

*“Rebalancing some of this risk towards the private sector could further incentivize and strengthen risk management practices, and as a result further mitigate taxpayer exposure.”*

*“Private mortgage insurers in Canada are federally regulated and required to hold prudential capital to allow them to withstand severe but plausible stress events, in order to safeguard financial stability and protect taxpayers. CMHC also holds capital to withstand similar potential stress events.”*

*“Lender risk sharing would aim to rebalance risk in the housing finance system by requiring lenders to bear a modest portion of loan losses on any insured mortgage that defaults, while maintaining sufficient government backing to support financial stability in a severe stress scenario and borrower access to mortgage financing. This would protect key aspects of the current system that have supported economic and financial stability.*

*A lender risk sharing policy would seek to ensure that the incentives of all parties to an insured mortgage loan are aligned towards managing housing risks, supporting the appropriate assessment and pricing of risks.*

*Lender risk sharing could lever the detailed information available to many lenders about borrower risk characteristics to better align mortgage pricing and supply to inherent risks and further strengthen Canada’s housing market and financial system. This could foster innovative risk management, such as market solutions to efficiently manage and distribute housing risk across various private housing finance participants, and better support the drivers of economic growth in the long run.”*

*“In Canada, the housing finance system currently helps to constrain these amplifying or “procyclical” economic effects. This occurs because lenders are largely protected from insured mortgage default risk in a downturn, thereby supporting continued credit intermediation that minimizes the extent of the potential downturn. Meanwhile, government-set eligibility criteria for insured mortgages and guidelines by prudential regulators on prudent underwriting and capital requirements limit the extent to which lenders can sustain credit expansion in an economic upturn, when the rapid expansion of credit may be most attractive.*

*While lenders and mortgage insurers currently underwrite insured mortgages more stringently than required by government-set boundaries, lender risk sharing could potentially strengthen systemic risk management and lead to more timely actions to manage housing vulnerabilities than government-set parameters or mortgage insurer risk underwriting alone. This could potentially reduce the frequency and depth of buildups in housing risk, further limiting procyclicality in the financial system and economy. Information is also needed on the impact of*

*scaling back government support for insured mortgage lending on bank behaviour during a housing downturn.”*

### ***1.1 Risk-sharing would increase lending procyclicality***

The stated policy goal of the proposed change is to improve the pricing and assessment of risk by all parties over the economic cycle. However, the new market signal provided to lenders, under the proposed policy, is likely to evoke a behavioral response by lenders that will undermine this goal. What lenders will observe in economic expansions is better loan performance and lower loan costs, due to the proposed deductible. Because lender information is loan specific, lenders are not likely under normal circumstances to observe the increased risk for the entire market. For example, individual lenders (unlike insurers) may not know of the increased risky lending of other firms into this market that may be increasing liquidity, prices, and risk exposure. The structure of housing markets is such that lending losses decline as a bubble develops and peaks. During the downturn, losses increase and can be predicted to do so. The rational lender response to heightened actual and expected losses under the proposed regime would be to decrease lending procyclically.

The procyclical tendencies of risk-based lending have been well documented in the literature. Pavlov and Wachter (2004) demonstrates how lenders' underpricing of mortgage default risk can lead to inflated housing prices and how this underpricing of risk evolves. These results hold even when all participants in both equity and debt markets are fully rational. Furthermore, the model allows for management compensation that is aligned with maximizing shareholders' value. Empirical work (Pavlov and Wachter 2009) confirms these results and shows outcomes for 19 historical incidents of 20% or more national-level real estate price declines around the world.

Mortgage insurers can avoid procyclicality in several ways. First, they have information on the lending activity of all players. Second, mortgage insurers have national books while many lenders have small and/or regional books of business. Third, mortgage insurers are solely focused on residential mortgage risk and subject to regulation that tailors their reserves specifically to mortgage default risk and particularly the risk associated with severe and prolonged economic downturns.

The current market structure delivers efficient lender risk sharing due the market-wide nature of the risk and the benefits of risk pooling. Both of these mechanisms point to the conclusion that a switch away from the current market-wide pooled risk to the proposed lender risk sharing mechanism would shift risks away from the institutions most competent and capitalized to handle adverse economic events specific to the mortgage lending industry. Since mortgage lenders are almost always highly levered and focused on the customers they serve, rather than the entire market, even a modest deductible can generate procyclical behavior especially from less risk adverse firms who are induced to expand their lending and market share, as discussed below.

### ***1.2 Aggressive lenders gain market share and exit in downturns***

The response to the market signal of declining loan losses in a rising market does not have to be uniform among lenders for it to result in more lending to riskier (rising) markets and less lending when markets turn. In a competitive environment, aggressive lenders who underestimate the risk of the market or who are less risk-averse and short term focused (as discussed in our research noted above) would offer the most competitive rates and gain market share. These institutions would increase lending into the riskiest markets either because they consciously choose to take on more risk or because they underestimate the risk. This mechanism generates financial instability since aggressive lenders would represent a larger part of the mortgage finance system, especially in over-valued markets. These aggressive lenders will withdraw lending when markets are in decline, since they are less well capitalized, worsening procyclicality.

### ***1.3 Under-capitalized lenders gain market share and exit in downturns.***

Loss deductibles may provide perverse incentives for minimally capitalized lenders. A highly exposed lender, that becomes aware of an increase in market risk either through new analysis or through rising default losses, might very well choose not to mitigate risk. In fact, such a lender may very well increase exposure in an effort to gain market share and increase short-term profitability. Such a lender may do so with the expectation to leave the business if mortgage losses mount. We document this behavior in a forthcoming working paper (Pavlov and Wachter, 2017). The presence of such lenders, even if they have a small portion of the market, further adds to the increased cyclicity and undermines the stability of the financial system. What magnifies

this effect is the fact that such lenders, similarly to lenders who under-estimate the risk, would enjoy lower costs and a competitive advantage in a rising market because they have less capital and because they are not fully exposed to the potential risk-sharing losses. Thus, under-capitalized lenders would gain market share, particularly in over-valued markets. The result is that the decline in lending during the downturn that would destabilize markets, even in the absence of such lenders, would be worsened.

#### ***1.4 Risky products gain popularity***

The current mortgage insurance pricing makes it uneconomical for private lenders to offer bundled mortgage products and other risky lending products. However, if in response to the proposed risk-sharing the cost of mortgage insurance increases or its benefits decrease, lenders might find it economically feasible to offer bundled products. For instance, a lender might offer a loan at 80% loan-to-value ratio, combined with a “piggy back” loan for additional 10%. The “piggy back” loan would be subordinate, so it would have a higher interest rate. Nonetheless, given the increased mortgage insurance costs we estimate below in table 2 and further discuss in section 2.2, such an arrangement may very well become feasible. Such second lien lending reduces transparency in the overall housing finance system. It is difficult to track such loans and they are not subject to regulatory oversight even though they can increase the default risks on the first mortgage. The proliferation of bundled products would undermine the goal of increasing financial stability.

#### ***1.5 Risk-sharing would not alleviate any agency conflicts / moral hazard***

One of the main goals of any risk-sharing system, within the mortgage finance system or in the financial system in general, is to mitigate any potential agency conflicts and moral hazard between mortgage insurers and lenders. First, we are not aware of any specific evidence that Canadian lenders are subject to moral hazard under the current system. To the contrary, anecdotal evidence suggests that lenders use the same underwriting procedures both for loans they retain and for loans they insure and/or securitize. More specifically, the Canada Financial System Review (June 2016) offers evidence that insured and uninsured mortgages have very similar characteristics. For instance, Box 1 of the report documents that the proportion of mortgages with loan-to-income ratio of 450 percent or more is the same for insured and

uninsured loans. Furthermore, the growth in high loan-to-income ratio loans has actually been higher for uninsured loans.

Beyond the lack of direct evidence for moral hazard within the current Canadian mortgage system, evidence from the performance of loans originated in the United States prior to the 2008 financial crisis suggests that agency securitization did NOT introduce moral hazard. Specifically, Keys et al. (2012) finds that observable and known risk characteristics explain the full performance difference between securitized and portfolio loans. In other words, there is no meaningful private information, not already observable in common underwriting variables, that the originations used to select loans for various funding channels. This is despite the fact that originators were not subject to any risk-sharing in most securitization deals.

The findings of Keys et al. suggest that any concerns regarding the riskiness of certain mortgage originations in Canada can be addressed through modification of observable underwriting criteria. In fact, recent changes in the minimum underwriting requirements for insured loans mandated by the Federal Government have already taken this approach. Lenders do not use any additional information to modify their underwriting even if they have no exposure. Therefore, there is no information or know-how that risk-sharing would bring to bear on the underwriting process.

In short, both direct origination evidence from Canada and historical observed loan performance data from the U.S. do not suggest in any way the presence of moral hazard, and certainly do not point to any gains that risk-sharing might bring in this regard.

#### ***1.6 Fully rational lenders would respond to housing market momentum in market expansions and declines.***

Because housing markets are highly influenced by momentum, even perfectly rational lenders would adjust their lending standards in a procyclical way. Once a housing market experiences a decline, this trend almost always persists over an extended period of time. It is then only rational to reduce lending activity in a declining market.



To illustrate the potential impact of momentum on housing markets, we analyze the Teranet house price indices at a monthly frequency. Specifically, we estimate the following auto-regressive model of home price changes by city and for the nation:

$$R_{i,t} = \alpha_i + \beta_i R_{i,t-1} + \varepsilon_{i,t}$$

where  $R_{i,t}$  denotes the percent change in the index for city  $i$  at time  $t$ ,  $\alpha_i$  and  $\beta_i$  denote the estimated model parameters for city  $i$ , and  $\varepsilon_{i,t}$  denotes a random error. Table 1 reports the estimated auto-regressive coefficients,  $\beta_i$ , and its t-statistic for the 12 largest cities and for the nation.

**Table 1: Auto-regressive coefficient for an AR(1) process of home price indices**

	Coefficient	t-stat
National	0.81	22.64
Victoria	0.42	8.59
Vancouver	0.78	21.34
Calgary	0.59	15.87
Edmonton	0.81	22.92
Winnipeg	0.51	10.96
Hamilton	0.47	8.62
Ottawa	0.52	8.94
Toronto	0.72	17.26
Montreal	0.49	9.21
Quebec City	-0.07	-1.42
Halifax	0.15	3.35

The coefficients are positive and highly significant for all but one of the indices. For instance, the estimated coefficient for Vancouver is 78%. This implies that if the Vancouver housing market experiences a 1.34% decline in a month, as was the case in November, 2016, the probability that the market continues to decline the following month is 94%. The probability that the market continues the decline lower three months into the future is 57%. These findings suggest that real estate markets can easily enter extended periods of decline even if funding for mortgage loans is provided in a stable manner. Any variation in lending standards that responds to the local market

cycles, either due to the biases discussed above or due to rational lender response, would magnify this cycle and cause longer and deeper downturns. We discuss the failure of pooled insurance and the resulting increased instability of housing markets in Pavlov, Wachter, and Zevelev, 2015. This research points to sharp regional disparities that result from risk based pricing; the behavioral response by risk based pricing lenders in withdrawing lending to regions in downturns; and the heightened regional risk that results. This undermines the regional stability that market-wide insurance provides.

## **2. Supply and Pricing of Insured Mortgages**

### **Consultation Document:**

*“The Government of Canada is seeking input on the changes in costs that mortgage lenders and insurers would expect to face under lender risk sharing and how they would expect to be managed, both at origination and at subsequent decision points such as renewal, or the management of defaults. In addition, the Government of Canada is seeking views on how borrowers may respond to these changes.”*

*“Currently, mortgage interest rates are broadly homogenous across Canada, including across a range of risk factors. Mortgage rates are largely a function of lenders’ cost of funding as opposed to the riskiness of borrowers. Although mortgage insurance premiums vary by loan-to-value ratio, they currently reference few other loan risk characteristics.*

*Under lender risk sharing, mortgage lenders’ exposure to loan losses would rise, increasing their expected losses. As a result, for prudentially-regulated lenders, their capital requirements would also rise. In contrast, mortgage insurers expected losses would be lower, which would result in lower total capital requirements for mortgage insurers. This would alter the costs that lenders and mortgage insurers would expect to face in originating an insured mortgage, with potential impacts on both mortgage supply and pricing and mortgage insurance premium pricing.”*

*“A modest level of lender risk sharing is expected to have limited impacts on average lender costs. Preliminary analysis suggests the average increase in lender costs over a five year period could be 20 to 30 basis points<sup>6</sup>, based on a level of lender risk sharing that would be equivalent under either approach to a first-loss approach of between 5 per cent and 10 per cent (i.e., of outstanding loan principal of defaulted loans). However, these costs could vary by loan, with potentially greater impacts for loans with elevated risk characteristics (e.g., loans with lower credit scores in a region with historically higher loan losses).”*

## **2.1 Risk-based pricing would exclude certain regions and sectors.**

To attract better performing loans, lenders will be incentivized to price those loans that are expected to perform better at lower rates. This departure from uniform pricing across regions and borrowers would have important consequences for access to loans by market sectors, including by region.

First, the incentive to adopt loan-level pricing would have minimal effect on rates in rising real estate markets where observed loan losses are limited. In fact, lending is likely to increase to those markets which regulators are most concerned about due to their low current level of observed loan losses. However, risk premiums would increase in weaker markets and weaker market sectors, with higher levels of observed loan losses and loss severities.

Moreover, a downturn, even if localized and limited to a specific market segment, would force risk premiums to increase, especially for the regions and segments already under stress. This outcome is the result of rising risk premiums for weak and declining markets put into place by all lenders. This tendency would take all concerns we raised in Section 1 above and magnify them for regional markets. The result of procyclical lending that responds to local housing market cycles could be devastating for these markets and economies.

Second, and, as discussed further below, many rural areas and smaller markets are served predominantly by provincially-regulated small lenders. Since these lenders do not have the benefit of national-level diversification (which are significant as shown below in Section 3 and

Table 3), and resulting capital reserving benefits, their costs would increase in response to their size rather than lending risk.

Therefore, many smaller markets would see increases in borrowing costs regardless of their riskiness or stage in the market cycle.

**Table 2: Lifetime cost of capital for the mortgage deductible for a \$300,000 insured mortgage<sup>1</sup>**

(1) Credit Score	(2) Typical Credit Score Mix	(3) Credit Score Multi- plier relative to 730 score	(4) Lifetime capital required	(5) Mortgage Insurer's Lifetime Cost of Capital for Deductible Portion @ 13% WACC After Adjustment for Unearned Premiums	(6) Big Bank Lifetime Cost of Capital for Deductible @ 15% WACC	(7) Mortgage Finance Company Lifetime Cost of Capital for Deductible @ 20% WACC	(8) Increase in Lifetime Capital Cost (Mortgage Bank) Due to Risk Sharing Relative to Mortgage Insurer
< 600	0.27%	4.6	53,999	6,812	8,100	10,800	3,988
[600,620)	0.40%	3.2	37,565	4,676	5,635	7,513	2,837
[620,640)	0.81%	2.8	32,869	4,065	4,930	6,574	2,509
[640,660)	1.23%	2.5	29,347	3,607	4,402	5,870	2,262
[660,680)	1.86%	2.1	24,652	2,997	3,698	4,930	1,934
[680,700)	2.62%	1.7	19,956	2,386	2,993	3,991	1,605
[700,720)	3.68%	1.4	16,434	1,929	2,465	3,287	1,358
[720,740)	8.55%	1.0	11,739	1,318	1,761	2,348	1,030
[740,760)	8.08%	0.9	10,565	1,166	1,585	2,113	947
[760,780)	11.87%	0.7	8,217	860	1,233	1,643	783
≥ 780	60.63%	0.6	7,043	708	1,057	1,409	701
	100 %						
Portfolio Weighted Average			9,613	1,042 (35 bp)	1,442 (48 bp)	1,923 (64 bp)	881 (29 bp)

<sup>1</sup> Assumes the following mix by LTV, less than 80%: 1.53%; 80% to 85%: 4.04%; 85% - 90%: 26.13%, 90 – 95%: 68.30%.

## **2.2     *Rates would increase for most borrowers***

The combined effect of the proposed risk sharing and the new OSFI rules taking effect January 1, 2017 is that lenders need to adjust their capital reserves based on the credit score of each borrower. For instance, a mortgage loan extended to a borrower with credit score of 600 to 620 would require 3.2 times higher reserve than the standard reserve. A loan extended to a borrower with credit score above 780, on the other hand, would require reserve of only 60% of the standard reserve.<sup>2</sup> This risk-based reserve requirement would increase the cost of lending to riskier borrowers, and reduce the cost of lending to borrowers with high credit scores.

The interaction between the new OSFI rules and the proposed risk-sharing is of particular interest. For instance, Table 2 summarizes the increased costs associated with the higher capital requirements for the 15% proportional deductible for various types of lenders by credit score of the borrower and assuming a distribution of LTV ratio that matches our recent historical experience. Note that the increased cost is only for the deductible portion, not for the entire mortgage.

Column 5 of Table 2 reports the increased cost to mortgage insurers. Because mortgage insurers have lower targeted cost of capital than mortgage finance companies, credit union and banks, their increased cost is relatively modest. Mortgage insurers' cost of capital is estimated at 13%, in part because they can use unearned premiums to cover part of the total capital requirements. Therefore, for borrowers with credit scores in the 760 to 780 range, for instance, the increased lifetime cost of the 15% portion for a mortgage insurer is estimated at \$860 on a \$300,000 mortgage. The analogous cost is \$1,233 and \$1,643 for a major bank and a mortgage finance company, respectively, as reported in Columns 6 and 7 of Table 2.<sup>3</sup> In other words, a credit union or mortgage finance company under these assumptions has costs associated with the 15%

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<sup>2</sup> A full description of the capital requirements is provided by OSFI at <http://www.osfi-bsif.gc.ca/Eng/Docs/cptins.pdf>

<sup>3</sup> Mortgage finance companies, such as Equitable Group, First National, and Home Capital, are broadly defined as lenders who are not fully regulated at the federal level; they are not provincially regulated as credit unions, and they rely primarily on the NHA mortgage-backed securities program for their funding.

proportional deductible that are twice as high as the costs for a mortgage insurer under the new OSFI rules.

The last column of Table 2 reports the difference in lifetime capital costs on the 15% deductible between mortgage insurers and a credit union or a mortgage finance company for all credit score categories. This calculation assumes that credit unions and mortgage finance companies will have to hold the same level of assets as mortgage insurance companies for the deductible portion of the losses. The differences are substantial, exceeding \$2000 for borrowers in the 640 – 660 range and lower. If a credit union or a mortgage finance company is to recover these costs, it would need to recover an additional 75 basis points of the mortgage balance over the life of the mortgage just to cover the difference in costs between them and mortgage insurers on the 15% risk-sharing. Put differently, the borrowing costs would need to go up by 75 basis points in this case, either through an upfront fee, a higher interest rate, or a combination of the two. Even using the weighted average increase of \$881, which is heavily influenced by high credit score borrowers, the lifetime increase in costs is 29 basis points. Note this increase is not related to any enhancement of the risk coverage in any way for the lender or the borrower. It is instead solely due to the inefficient allocation of risk under the proposed risk-sharing mechanism.

Table 2 and the subsequent cost increase estimates are all based on the assumption that the increased capital requirements for lenders would be fully offset by an equivalent reduction in capital held by mortgage insurers. This assumption is unlikely to hold in reality. The proposed risk-sharing mechanism calls for mortgage insurers to pay out 100% of any deficiencies due to default and collect the lenders' share of losses after the fact. Since this collection is subject to uncertainty, especially in rare tail events for which mortgage insurance is designed, mortgage insurers are not going to be able to reduce the capital they hold in an equivalent amount. Therefore, some, even most, of the additional capital costs faced by lenders would translate into a direct increase in lending costs, with little offset in lower insurance premiums.

Further due to the fact that mortgage insurers' capital reserve costs would not decline sufficiently to offset the increase of capital reserve costs at the lender level, the administrative costs of underwriting and follow-on potential resolution servicing would remain unchanged regardless of

the risk-sharing. In other words, the insurer costs related to capital and administrative expenses, would remain constant and only the costs related to the claim coverage would decline marginally.

Higher lending costs aside, the increase in total capital requirements for many lenders may impede their ability to serve their customers over the long run. Assuming total market size of 1.3 billion dollars, market share held by and credit union and mortgage finance companies of 20%, proportion insured mortgages for credit unions and mortgage finance companies of 80%, and projecting a constant age distribution of mortgages going forward, the credit unions and mortgage finance companies would need over one billion dollars of additional capital reserves to cover the 15% proportional loss deductible. To put this in perspective, the total market capitalization of the three largest mortgage finance companies, Equitable Group, First National, and Home Capital, is 4.4 billion dollars. The additional capital requirement would apply only to new loans, so the lenders have some time to raise this capital. Even so, they would have to increase their capital by a third or more just to keep their current business in place. Any originations growth would require additional increases in capital. It is simply not clear that the Canadian financial marketplace would support this kind of increases in capital at a reasonable cost. More likely, the lenders would have to scale back their lending and increase its cost so that they can meet their capital reserve requirements.

Finally, all of the above analysis is focused on the 15% proportional loss deductible option. The consultation document also describes a 5% first-loss risk-sharing arrangement. Since we do not yet have any directive from OSFI on how the capital requirement would be computed in the first-loss case, computing the additional costs is more difficult. Nonetheless, the two general principles described above are still in place for both scenarios. First, some of the risk capital would be held by institutions less equipped to handle extreme events and which have higher cost of capital. Second, the increased capital requirement for lenders would be offset only partially, if at all, by a reduction in risk capital held by mortgage insurers. With this in mind, the cost increases due to risk-sharing are likely to be of the same magnitude regardless of the exact arrangement considered.

The impact of the proposed risk-sharing on costs and capital requirements is likely to be especially significant for relatively smaller lenders and for the borrowers they serve. Many credit unions and mortgage finance companies may be unwilling or unable to continue lending to lower credit score borrowers. Considering that these borrowers are the ones most stretched when buying a property, chances are this segment of the market may be completely priced out of lending markets, particularly during downturns.

### **2.3     *Regional rates would increase the most in a downturn***

The combination of the proposed risk-sharing and the OSFI rules requiring higher reserves for lower credit score borrowers, which we have shown has a larger impact on weak regions, would also be especially taxing for regions experiencing an economic downturn. Since the effective cost of capital for lenders is procyclical, i.e., higher during economic downturns, both the level and the variation in borrowing costs would increase during downturns, exactly at the time when many borrowers would likely be facing a decline in their credit score. This would be magnified further if lenders also revise their risk assessment and/or exit the particular market, as discussed in Section 1 above.

The increase in lender cost of capital during downturns is well documented in the literature. For instance, Behn, Haselmann, and Wachtel (2016) identify a clear trend for lenders to restrict lending during downturns, in part due to increases in their own cost of capital. Repullo and Suarez (2013) examine procyclical lending and discuss in detail how lenders may not be able to access capital markets during an economic downturn. Not being able to access the capital markets is equivalent to setting the cost of capital to prohibitively high levels. This is particularly true for smaller and/or concentrated lenders.

In other words, the differences in capital costs between mortgage finance companies and mortgage insurers discussed in Section 2.2 above would be magnified in an economic downturn, and the variation in borrowing costs among borrowers with different credit score would also increase.



The variation in credit scores over the economic cycle is well documented. For instance, Hughes (2008) reports that both the average and the extremes of credit scores are procyclical. This is not surprising, as defaults and delinquencies occur at the highest rates during downturns. Overlaying this procyclicality with the increase in the cost of capital for lenders points to a worrisome scenario in which lender costs increase, lender's assessment of risk changes, and credit scores decline all at the same time. While the current system ensures that lending is available throughout the business cycle across regions at constant terms, risk-sharing, even modest one, would link various aspects of the business cycle together into a highly procyclical evolution of borrowing costs across regions.

## **2.4     *Default management***

Mortgage insurers are very well equipped to deal with mortgage defaults. Due to their experience over the years, they have the data and the technology to identify the cases in which extension is justified from the cases in which foreclosure is necessary. Individual lenders have limited information and access only to their own historical experience, and may incorrectly respond to underperforming loans given the overall condition of the market.

Importantly, mortgage insurers are able to fully consider the consequences of each individual foreclosure decision on the entire market. They may find it optimal to work out a particular loan in order to minimize the losses to the entire portfolio. Individual lenders, especially those who are likely to exit the business in a downturn, do not have the information or the incentives to consider the entire market. Foreclosures may increase as a result in specific markets with further consequences for market instability.

These differences in information and incentives could generate a disagreement between mortgage insurers and individual lenders on the appropriate action on each particular loan. If lenders have funds at risk, they would likely take on a more active role in the process and be less willing to agree to insurer-proposed workouts or other actions. This would not only be inefficient, but also create disparities in how otherwise identical borrowers are treated in a downturn.

### 3 Lender Competition

#### **Consultation document:**

*“The Government of Canada is seeking input on the adjustments lenders would anticipate in response to lender risk sharing in a competitive environment and how they would expect to manage the changes.”*

*“Lenders originating a loan portfolio with more concentrated risk exposures could face higher loss exposure and have a lower ability to diversify risks. Small lenders with fewer or less cost-competitive funding sources may also be less able than large lenders to absorb or pass on increased costs.*

*In addition, the existing approach lenders use to calculate regulatory capital requirements may influence the costs they would face for loss exposure under a lender risk sharing policy. For example, lenders using a standardized regulatory capital approach may have less variation in costs on a loan-by loan basis, and a higher overall level of regulatory capital on their loan portfolio, given a loan portfolio with similar risk characteristics as other lenders. This may affect the way they price and compete for insured mortgages under a lender risk sharing policy.*

*The potential impact on the business models of non-prudentially regulated lenders, which do not take deposits and do not have regulatory capital requirements, could also vary. These lenders fund their lending activities primarily through the sale of mortgage loans to regulated financial institutions or through government-sponsored securitization programs. This “originate-to-distribute” business model is consistent with operating in volume with low margins and low costs.*

*Lenders have a range of options for managing their exposure to default risk under lender risk sharing. For example, lenders may keep risks on their own balance sheets and pay insurers the periodic risk-sharing fee, or they may sell insured mortgages at a price that reflects the expected exposure to risk.”*

### 3.1 *Regional lenders would be penalized.*

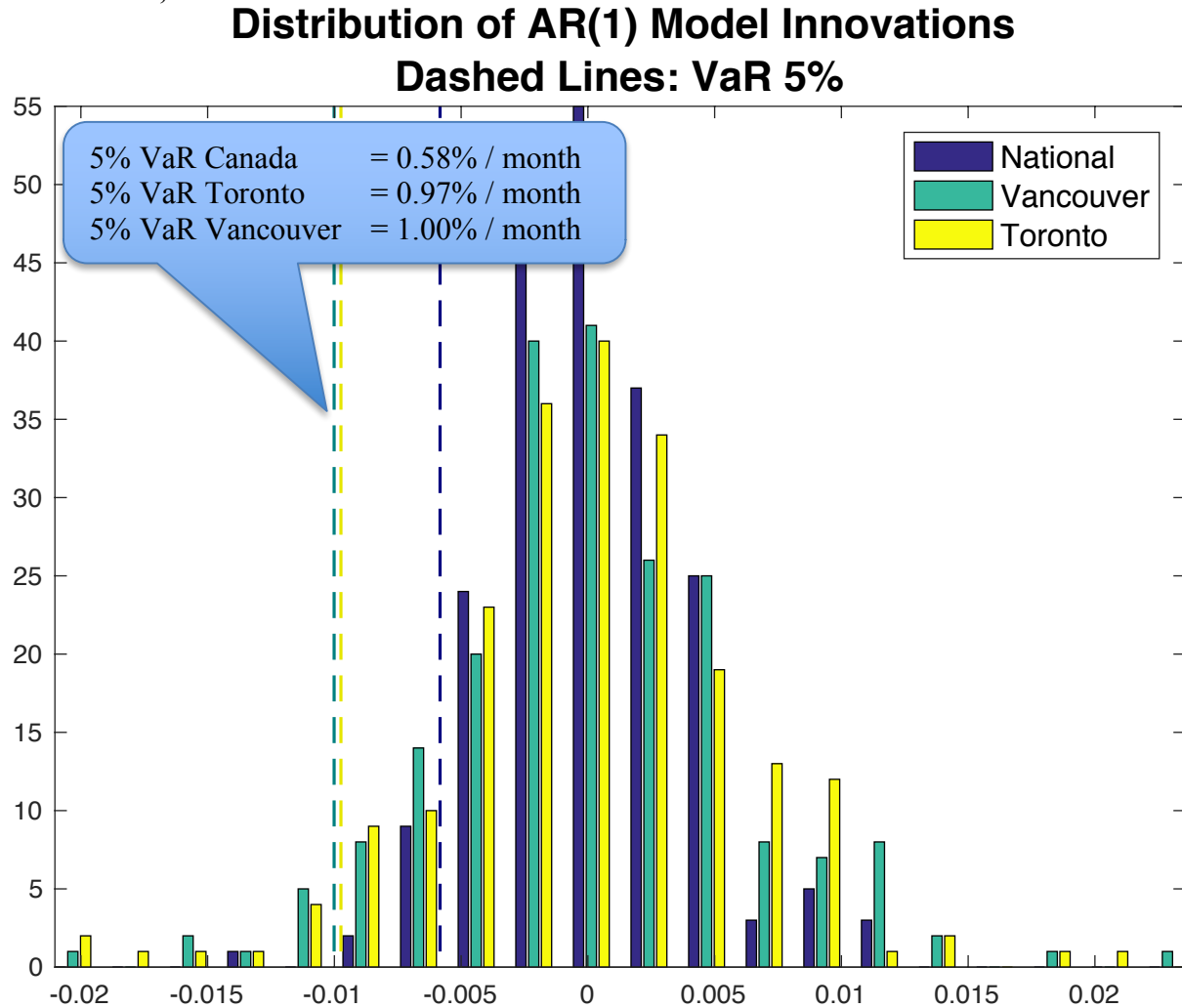
Regional credit unions and mortgage finance companies would be penalized, even if they are prudent. A mortgage loss deductible would put regional lenders at a substantial disadvantage by increasing their costs and ultimately reducing competition. Since economic performance across the Canadian provinces and regions is not highly correlated, a large national lender or mortgage insurer can take advantage of diversification and allocate only a modest risk capital to meet potential deductible obligations. However, regional lenders would be fully exposed to the economic fortunes of their immediate markets, and would need to put aside substantially larger reserves relative to the size of their loan portfolio. This would put them at a disadvantage for no reason other than their market focus, especially during local market downturns.

Consider, for instance, the distribution of *unexpected* changes in home prices across the country. To derive this distribution, we use the model presented in Section 1.4 to filter out the predictable components of the real estate markets. The impact of this predictable component is discussed above in Section 1.4. To analyze the *unexpected* percent changes in home prices we analyze the residual from the model,  $\varepsilon_{i,t}$ . This residual captures the changes that surprise both for borrowers and lenders, above and beyond the predictable changes.

To illustrate our point, we compute the five and ten percent Value-at-Risk (VaR) measures for each city and for the nation. The VaR measures of risk is important because it often is an essential component in determining capital requirements for lenders. Even if VaR does not in some cases determine the capital requirements directly, it certainly influences the cost of funds equity and debt investors require. Banks with more extreme VaR would have to hold more capital, pay higher rates on their bonds, or both.

Figure 1 depicts the entire *unexpected* monthly price change distributions for Toronto, Vancouver and all of Canada. Table 3 lists the Value-at-Risk measures for all cities considered.

**Figure 1: Distributions of the *Unexpected* monthly home price changes for Toronto, Vancouver, and the Nation**



**Table 3: Value-at-Risk measures for Canadian cities and Canada as a whole**

	VaR 5%	VaR 10%
Canada	0.58%	0.47%
Victoria	1.82%	1.38%
Vancouver	1.00%	0.70%
Calgary	1.37%	1.09%
Edmonton	1.23%	0.85%
Winnipeg	1.05%	0.72%
Hamilton	1.25%	0.99%
Ottawa	1.21%	0.78%
Toronto	0.97%	0.69%
Montreal	1.11%	0.84%
Quebec City	1.65%	1.19%
Halifax	1.78%	1.16%

The distributions of the unexpected home price changes depicted above clearly demonstrate how a single city, even a major city such as Toronto or Vancouver, is far more likely to experience a substantial price decline than the entire nation. For instance, the 5% Value-at-Risk measures indicate that Vancouver and Toronto have a 5% probability of experiencing an unexpected home price decline of 1% or greater in any one month. The corresponding figure is cut nearly in half to only 0.58% decline for all of Canada.

The above analysis illustrates how a regional lender, even one operating in a major city, has to allocate nearly twice as much capital reserves for unexpected future losses as a lender who operates across Canada to obtain the same level of safety against real estate price shocks. A lender operating in relatively smaller cities, such as Victoria or Halifax, would have to reserve three times as much as a lender operating across Canada to have the same loss exposure.

The above reserve ratios would be in place while holding all other aspects of their loan portfolios constant. However, a regional lender is actually even more exposed because their deposit base is

concentrated. When a region suffers an economic downturn, this region is likely to see real estate price declines as well as deposit withdrawals as local residents attempt to compensate for lost income opportunities.

In short, local lenders would see their risks, and therefore reserve requirements and costs, increase even if their lending practices are prudent and their region is not experiencing any difficulties at the moment. Their costs would increase simply because their loan and deposit base is concentrated. This, in turn, would undermine their ability to serve the needs of their local markets.

### **3.2 *Risk-sharing puts deposits at risk***

The proposed risk-sharing puts deposits and deposit insurance funds at risk, especially for small lenders. Current mortgage insurers are capitalized and well-equipped to appropriately handle extremely rare events. Lenders, especially smaller lenders, would not have the capital to handle such events.

This problem is most severe for provincial deposit guarantee funds. Not only is their exposure concentrated, but provincial deposit insurance entities are less likely to have the size or the capital to manage and mitigate this exposure. Moreover, this exposure is likely to grow when the provincial economy is in downturn, thus greatly limiting the ability of the provinces to meet their often unlimited deposit insurance obligations.

To illustrate this point, consider the correlations in GDP growth across all Canadian provinces reported in Table 4. While most correlations are positive, they are generally in the 30 – 60 percent range, suggesting that diversification of exposure to different economic regions is beneficial. Concentrated lenders face higher deposit withdrawal risks, coupled with deposit insurance that is funded by the very same economy. Adding additional mortgage risk, which is also concentrated in the same market, compounds the risk smaller lenders and their deposit insurers face.

**Table 4: Correlations in annual GDP growth across Canada**

	Canada	NF	PEI	NS	NB	QC	ON	MN	SK	AB	BC
Canada	1										
Newfoundland	0.58	1									
PEI	0.32	0.26	1								
Nova Scotia	0.38	0.4	0.07	1							
New Brunswick	0.33	0.39	0.62	0.46	1						
Quebec	0.91	0.48	0.35	0.35	0.41	1					
Ontario	0.95	0.54	0.44	0.54	0.45	0.88	1				
Manitoba	0.69	0.26	0.01	0.36	-0.03	0.59	0.66	1			
Saskatchewan	0.26	0.2	0.2	-0.07	0.02	0.18	0.17	0.34	1		
Alberta	0.67	0.38	0	0	-0.18	0.46	0.52	0.54	0.22	1	
BC	0.73	0.34	0.07	-0.14	0.07	0.62	0.57	0.43	0.17	0.64	1
Yukon	0.07	-0.1	-0.09	0	0.07	0.14	0.03	0.08	-0.05	-0.19	0.12

This potential increase in taxpayer liability and direct lender exposure creates the very real possibility for ex-post bailouts. As we discovered during the 2008 U.S. financial crisis, as well as the subsequent crisis in Europe, there are typically strong political pressures to use taxpayer funds to rescue failing financial institutions, even of modest size, in a downturn. Such ex-post unexpected bailouts are not only costly for taxpayers, but also create moral hazard and precedent that the proposed risk-sharing mechanism is presumably designed to mitigate.

#### **4 Agreement structure and impact on securitization: Counter-party risk for mortgage insurers**

##### **Consultation Document:**

*“Preliminary analysis indicates that a benefit of the proposed arrangement is that it could preserve the current structure of insured lending and securitization. This includes preserving the full government backing of government-sponsored securitization programs, comprised of National Housing Act Mortgage-Backed Securities and Canada Mortgage Bonds, which facilitate the supply of funding for mortgage lending in Canada.”*

Under the proposed risk sharing, mortgage insurers would still be responsible for covering 100% of loan losses and would have the right to claim the deductible on a quarterly basis from the mortgage lender. This would force the mortgage insurers to price-in counter-party risk in their premiums. Since some mortgage lenders are not equipped to handle rare events, this counter-party risk is substantial.

First, this undermines the presumed reduction in taxpayer exposure. Second, such a system would require the lenders to reserve capital for their deductible, but would not free up the equivalent capital at the insurer level. In other words, the lenders would have to absorb the additional costs associated with their deductible, but would not receive an offsetting discount from the insurers.

Consider, for instance, our analysis of increased lending costs presented in Section 2 above. The last column of Table 2 reports the increase in cost from shifting 15% of losses to the lenders, assuming mortgage insurers are able to pass through full credit for the drop in their costs. As discussed in Section 2.2, the costs under the 5% first-loss deductible mechanism are likely to be of similar magnitude. Regardless of the exact implementation, the assumption that mortgage insurers would be able to reduce their capital reserves and pass the savings to the lenders is unlikely to hold. If mortgage insurers are required to make payments on the mortgage-backed securities and collect a portion of the losses from the lenders at the end of each quarter, as is currently proposed, they would face counter-party risk from the lenders. In other words, mortgage insurers would realize that in the extreme events that they are capitalized for they would not be able to collect the deductible from the lenders. In this case, the increase in lending costs reported in Table 2 would increase further, possibly reaching levels as high as those reported in column 6. The combination of higher reserve requirements, higher cost of capital for credit unions or mortgage finance companies, and the inability of mortgage insurers to give credit for the risk taken on by the lenders would generate an increase in costs of 65 basis points or more over the life of a typical mortgage. This increase in cost does not reflect any



enhancement in risk coverage, and would only be due to the proposed risk-sharing structure. Therefore, the proposed structure of the risk-sharing arrangement adds an additional layer of costs and uncertainty on top of the procyclicality and cost increase arguments presented earlier. Risk-sharing would increase the costs to lenders but is unlikely to reduce the costs to insurers by a similar amount. While a small change may appear to be unlikely to destabilize the securitization system, in fact, the insurance and securitization system is likely to be weakened and put under stress especially during downturns, with negative consequences for the stability of the system over the cycle.

## **5. Conclusion**

Therefore, our view is that altering the Canadian housing finance system as proposed is the wrong remedy. The research evidence is that individual lenders do not in fact better price risk retained in their portfolios. The proposal would neither reduce the risk in the housing finance system nor mitigate the potential taxpayer exposure. On the contrary, particularly during downturns, taxpayer losses will increase due to decreases in lending that worsen and prolong housing recessions. More generally, the proposed changes are likely to worsen taxpayer exposure to risk and stimulate the spread of procyclical lending practices, worsening region-based risks, and ultimately increase the exposure of all participants to extreme real estate market events and create systemic risk that is currently not present.

The current Canadian mortgage finance system has many strengths and is specifically designed to prevent the rise of risky lending products and provide stable funding over the business cycle for all regions. It also has seen a number of substantial recent changes either directly or indirectly through local or federal regulation of the real estate markets. These changes have not yet worked through the system, and their full consequences are not yet known. In our view, the proposed changes to the housing finance system, given their potential to introduce procyclicality, would put both the financial system and the housing markets at risk.

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