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# **Mortgage insurance: market structure, underwriting cycle and policy implications**

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# Mortgage insurance: market structure, underwriting cycle and policy implications

## Executive summary

The events of the last few years, particularly those in the global financial crisis that began in 2007, indicate that mortgage insurance (MI)<sup>1</sup> is subject to significant stress in the worst tail events. This report examines the interaction of mortgage insurers with mortgage originators and underwriters, and makes a set of recommendations directed at policymakers and supervisors which aim at reducing the likelihood of MI stress and failure in such tail events. A summary of these recommendations follow:

1. Policymakers should consider requiring that mortgage originators and mortgage insurers align their interests;
2. Supervisors should ensure that mortgage insurers and mortgage originators maintain strong underwriting standards;
3. Supervisors should be alert to – and correct for – deterioration in underwriting standards stemming from behavioural incentives influencing mortgage originators and mortgage insurers;
4. Supervisors should require mortgage insurers to build long-term capital buffers and reserves during the troughs of the underwriting cycle to cover claims during its peaks;
5. Supervisors should be aware of and take action to prevent cross-sectoral arbitrage which could arise from differences in the accounting between insurers' technical reserves and banks' loan loss provisions, and from differences in the capital requirements for credit risk between banks and insurers;
6. Supervisors should be alert to potential cross-sectoral arbitrage resulting from the use of alternatives to traditional mortgage insurance; and
7. Supervisors should apply the FSB Principles for Sound Residential Mortgage Underwriting Practices<sup>2</sup> ("FSB Principles") to mortgage insurers noting that proper supervisory implementation necessitates both insurance and banking expertise.

<sup>1</sup> MI is also called mortgage default insurance, mortgage credit insurance, mortgage guaranty insurance, mortgage indemnity insurance and lenders' mortgage insurance. MI protects lenders against losses when loans default – ie when outstanding debt exceeds the foreclosure proceeds. The borrower pays the insurance premium, but the lender is the policy beneficiary, and the amount of loss coverage is usually capped as a proportion of lost loan principal. For example, if the insurer covers the lender down to 75% of the original purchase price, and the homeowner puts 5% down, the maximum claim amount is 20% of the purchase price or 21% of the loan amount. MI policies exclude losses caused by fire, earthquakes, floods, windstorms, and defective titles. Lenders normally require borrowers to purchase separate insurance against these other risks (Jaffee, 2006).

<sup>2</sup> Available at [www.financialstabilityboard.org/publications/r\\_120418.pdf](http://www.financialstabilityboard.org/publications/r_120418.pdf).

## Introduction and background

Mortgage insurance is used to protect mortgage lenders (ie originators and/or underwriters) by transferring mortgage risk, and notably tail risk, from lenders to insurers. Insurers by their nature provide services for events in the tail of distributions, whereas the banking sector tends to provide services closer to the mean of distributions. The events of the last few years, particularly those in the global financial crisis that began in 2007, indicate that MI is subject to significant stress in the worst tail events. In the worst cases, failure of a mortgage insurer may occur leading to resolution of the insurer, whereby some of the most extreme tail risk may revert to the lender at the very time that the insurance would be most needed, potentially creating systemic risk. At its most fundamental level, this report examines the interaction of mortgage insurers with mortgage originators and underwriters, and makes a set of recommendations directed at policymakers and supervisors which aim at reducing the likelihood of MI stress and failure in such tail events.

The original impetus for this work can be traced back to the Joint Forum's Review of the Differentiated Nature and Scope of Financial Regulation ("DNSR" – January 2010).<sup>3</sup> This background is explained in Annex A.

As is often the case, making recommendations about interactions is fraught with difficulty: any complex system tends to react to changes in ways that are not always predictable. Nonetheless, the Joint Forum has considered the effects of the crises over the last few years and endeavoured to identify steps that should help mitigate some of the problems and help to ensure consistently strong standards where MI is used.

## Market structure overview

MI provides additional housing finance flexibility for lenders and consumers by expanding the "underwriting envelope" usually along the loan-to-value (LTV<sup>4</sup>) dimension (Blood, 2001). Even though MI is available in many countries, it is currently used extensively in only a few: Australia, Canada, France, Hong Kong, Netherlands, and the United States. In a number of countries, MI is either mandatory for high LTV loans, incentivised by capital requirement relief on the underlying mortgages, or the government participates in its provision:

- In Canada and Hong Kong, MI is required on high LTV loans made by regulated deposit-taking institutions, while in the United States, the government-sponsored housing enterprises (GSEs) require MI on loans they purchase that have LTV ratios above 80%.
- In Australia, Canada, France, Mexico, Spain, and the United Kingdom, MI is (in effect) incentivised through a lowering of risk-weights for the capital requirements of lenders, although this has not necessarily led to significant MI use.
- The governments of Canada, Hong Kong, Indonesia, Mexico, the Netherlands, and United States participate in the provision of MI. In many countries, the government or government agency is in fact the dominant or sole provider of MI. In some countries that dominance is in certain sectors and socially targeted, such as the US Federal Housing Administration (FHA) that

<sup>3</sup> Available at [www.bis.org/publ/joint24.htm](http://www.bis.org/publ/joint24.htm).

<sup>4</sup> Discussion of LTV ratios needs care as there is no single definition of value in use around the world.

specialises in subprime loans.<sup>5</sup> In other countries, such as Canada, the government provides a back-stop guarantee against mortgage insurance obligations.

The Joint Forum surveyed various jurisdictions to discover the types of insurance generally sold with mortgages: the reason was that both the terminology, and the purpose, of the protections differed in different regions. When examining the cross-sectoral intersection of products and risks, the Joint Forum considered the entire expected payment stream from the borrower to the lender: this of course consists of both interest and principal. Different products protect the interest income stream (or the interest and amortisation of principal) and the default risk on the principal (with interest arrears sometimes added to the principal).

Please refer to Annex B for greater detail on the market structure in various jurisdictions.

Because mortgage default risk is inherently correlated with the housing market and the broader economic environment, the efficacy of MI can decline during a crisis precisely when it is most needed. For example, the US MI industry was severely affected by the recent global financial crisis. Two of the five big US mortgage insurers (PMI and Republic) are under orders of supervision (proceedings in a spectrum of preventative regulatory actions), and the other three are sub-investment grade, whereas all five were investment grade prior to the crisis.<sup>6</sup>

Furthermore, because insurers bear substantially all of the loss-given-default on foreclosed loans, their losses are more sensitive to mortgage default than for the original lenders. This is especially the case given the common practice of only insuring loans with high LTV ratios.

Typical policies limit losses by insuring only losses in excess of certain LTV ratios. In some countries, MI coverage is limited to losses up to the first 10% to 30% of outstanding balance.<sup>7</sup> Coverage limits are useful in incentivising prudent lender loan screening and monitoring and controlling adverse selection problems. The adverse selection problem relates to the superior information that lenders may have on borrowers' repayment capacity (D'Sousa and Sinha, 2006). The structure of the premium payments varies by country. In some countries, the MI premium is paid as a single up-front payment (or capitalised over the life of the loan), while in other countries the premium is paid directly by the borrower on a monthly basis so long as the loan is active and the LTV remains above a particular limit like 80%.

Strong prudential supervision of MI is essential. In this regard, mortgage insurers are usually regulated and supervised separately, by legal entity, by the local insurance supervisor. Also to contain the risk, in many countries mortgage insurers are required to be monolines (see Appendix B).<sup>8</sup> While one could make a monoline argument for other types of insurance, the potential for catastrophic mortgage losses sets MI apart (Jaffee, 2006).

<sup>5</sup> Other than the United States, other countries where a government-related institution provides "socially targeted" MI include Algeria, Belgium, France, Kazakhstan, Hong Kong, Lithuania, Mali, The Netherlands, The Philippines, South Africa, and Sweden (Blood, 2009a).

<sup>6</sup> By 2012, Genworth, MGIC and Radian were rated B by S&P, and Ba1, B1 and Ba3, respectively, by Moody's. In Mexico, all but one foreign mortgage insurer or re-insurer withdrew from the market following the crisis.

<sup>7</sup> In some markets, such as Australia and Canada, mortgage insurance covers 100% of the loan balance, but in other countries insurers may not cover the entire loan, instead insuring only the highest layers of the loan.

<sup>8</sup> Monoline insurers can write only one kind of insurance (MI in this case) and apply their capital only to claims on that line (Jaffee, 2006).

## Summary of February 2012 MI roundtable

As an adjunct to the Joint Forum Plenary meeting in Miami in February 2012, the Joint Forum sponsored a roundtable discussion on MI with representation from industry, regulation and academia. Themes and lessons from the discussion included:

- In jurisdictions where it is used, MI may constitute a positive part of a safe mortgage system. Where wrongly or poorly used, however, it may mask risks.
- MI is subject over the years to occasional catastrophic loss. In such circumstances, there is a significant possibility that insured losses may exceed the insurer's resources leading to insolvency. Maintenance of a monoline system protects the overall financial stability of the insurance sector: problems in MI are ring-fenced against other general insurance risk. Nonetheless, whether monoline or not, if mortgage insurers fail, the credit risk will revert to, and crystallise in, the banking sector.
- It is likely that wide-scale failure will only occur if weak and pervasive mortgage origination standards have previously passed contagion from the banking sector to the insurance sector. Otherwise failures are likely to be occasional and idiosyncratic.
- Alignment of interests between the government and private sectors is important. Some of the problems arising in the financial crisis were due to misalignments of interests, and public sector incentives can heighten risk concentrations.
- Political will is needed to create appropriate macro-prudential and counter-cyclical measures, which during boom times may seem to be the opposite of otherwise desirable social goals such as increasing public ownership of housing. Such measures may include loan to value restrictions, restrictions on ownership, debt to income limits and restrictions on source of down payments. These measures may be introduced in response to the identification of a growing risk rather than being part of the standard operating environment.
- Mandatory MI is used in some jurisdictions. It is one possibility that avoids adverse selection although it must be recognised as an extreme answer to this issue.
- MI is less necessary and less beneficial in jurisdictions where mortgage origination is characterised by low loan-to-value ratios (and therefore high down payments).

The issue of recourse or non-recourse loans<sup>9</sup> within the United States received much press coverage during the financial crisis. While throughout the US, states with non-recourse and anti-deficiency laws are in the minority, it happened that some of the greatest difficulties in the housing markets were in states such as California and Florida that do have non-recourse laws. Such laws tend to increase the risk inherent in loans to the lenders, and by extension to the mortgage insurers who insure the highest LTV layers.

<sup>9</sup> A non-recourse mortgage loan is a loan secured by the real property, but for which the borrower is not personally liable. If the loan defaults, the lender's recovery (or the mortgage insurer's subrogation) is limited to the property value.



## The Differing Roles of Governments in MI Markets

MI provides additional financing flexibility for lenders and consumers. As mentioned at the roundtable, MI is less necessary and therefore less beneficial in jurisdictions where mortgage origination is characterised by low loan-to-value ratios (and therefore high down payments). Government policymakers should consider whether MI can be used prudently in conjunction with LTV requirements to meet housing goals and needs in their respective markets. In some countries the use of MI is achieved by direct participation and in others through indirect incentives.

For example, the Canadian MI market is dominated by a single public insurer (Canada Mortgage and Housing Corporation - CMHC) and a small number of private firms. To make it possible for private mortgage insurers to compete effectively with CMHC, the Canadian government guarantees the obligations of private mortgage insurers to lenders through legislation that protects lenders in the event of default by the insurer. The government's backing of private insurers' business is subject to a deductible equal to 10% of the original principal amount of the mortgage loan. Loans insured by government-backed mortgage insurers must adhere to specific underwriting parameters established by the government. Through this institutional arrangement, the government influences sound mortgage underwriting practices for the industry. A similar proposal is one option under a report to US Congress "Reforming America's Housing Finance Market".<sup>10</sup>

In some countries, capital relief is applied to mortgages covered by government guarantee schemes aimed at providing incentives for lenders to serve more vulnerable categories. Although these schemes, which are in place in a few jurisdictions especially in Europe (eg France, Netherlands), provide protection to lenders against borrowers' default, they are different from "mortgage insurance" in the common usage of the term.

## Regulatory framework that applies to mortgage insurers

The Joint Forum investigated the types of insurers that provide MI, and whether they are monolines. A monoline requirement protects the remainder of the insurance sector from an adverse event in mortgage insurance. On the other hand, a monoline mortgage insurer and the mortgage originators have increased risk due to the lack of diversification. Views differ regarding which outcome is preferable.

The Joint Forum also looked at whether mortgage insurers are regulated under the normal insurance prudential rules in the jurisdiction, or whether specialised rules are applied. While MI underwriters can be regulated under normal insurance prudential rules, for the most part additional specialised rules are required to recognise the risks posed by MI.

## Mortgage underwriting standards and the underwriting cycle

The Joint Forum considers certain types of loans to be considerably more risky than others, and these may concentrate risk both in the banking and the insurance sectors. For example, negative amortisation loans or 100% LTV loans are likely to be high risk, although these may in the future be addressed by the FSB Principles (recommendation 6.3) with respect to absolute minimum standards. Jurisdictions should consider whether such loans should qualify for MI, or should only qualify with special conditions or in

<sup>10</sup> Option 3 in "Reforming America's Housing Finance Market, A Report to Congress" February 2011 by the Department of the Treasury and the US Department of Housing and Urban Development

specific targeted circumstances. Nonetheless, the Joint Forum recognised that there may be circumstances where such loans are judged to be appropriate for MI coverage. Examples include very high closing cost loans and loans to enable labour mobility where homeowners have negative equity.

There are both macro- and micro-prudential aspects that might be examined with respect to what is generically regarded as MI. From a micro-prudential standpoint, the behavioural issues touched on earlier are relevant: there is a danger that the existence of MI may lead both the lender and the insurer to relax standards because “the other party is looking at it” – precisely counter to the benefits of a second pair of eyes. From a more macro-prudential standpoint, there are dangers that over-concentration of default risk in mortgage insurers may exacerbate systemic or near-systemic problems in the underlying market.

These behavioural issues are likely to be key in identifying and dealing with problems arising in the MI arena: by the time the financial statements of a mortgage insurer begin to indicate serious problems, there is likely to already be a significant pipeline of losses. If on the other hand the behavioural issues that lead to such losses can be identified, it is likely that any such problems could be mitigated far earlier in the process.

It is worthwhile considering four extreme cases, and then considering how migrations are likely to occur between the situations. The four situations are where the originator/lender has strong or weak underwriting, and the mortgage insurer has strong or weak insurance underwriting standards. This can be shown in a matrix as follows, together with a high level summary of the expectations under each of the four circumstances.

	Originator standards strong	Originator standards weak
MI under-writing strong	Few if any problems; but behaviourally may be an unstable equilibrium, with both tempted to lower standards to pick up profitability	Originator will have difficulty obtaining MI, possibly leading to losses to the originators. Pressure on Mlers to lower standards
MI under-writing weak	Relatively few problems while the originator standards remain strong, but with a tendency to migrate such that the originator takes advantage of the naive insurance capital.	Serious problems with MI: excess losses are concentrated in the Mlers, with the potential that the originators will not recover from the insurance.

From a supervisory point of view, ideally both origination and mortgage underwriting standards should be strong. Nonetheless, supervisors need to be aware that it is also likely to be a somewhat unstable equilibrium with both originators/lenders and mortgage underwriters tempted to lower their standards to increase business volume thereby taking advantage of an apparently stable market which, though profitable, does not generate high returns. This equilibrium might also be further weakened where changing macro-economic forces add to these behavioural trends – unless these forces are mitigated by prudential requirements (see Box 1 above dealing with Governments’ role in the MI market).

Over time, migration to neighbouring matrix elements can occur. If the originators/lenders lower their standards while the mortgage insurers maintain their high underwriting standards, MI will be scarce. This scarcity, however, is likely itself to create pressure. That pressure may influence mortgage insurers to lower their standards on a net basis, either by a weakening of pre-existing mortgage underwriting standards, or the entrance into the market of new MI underwriters convinced that they spot an opportunity. Brokers will then tend to discover the MI underwriters with the comparatively weaker standards, leading to business being placed with those companies. Alternatively, the pressure may create a regulatory arbitrage resulting in alternatives to MI being utilised such as piggy-back loans, financial guarantees, securitisation or credit default swaps (CDS). Either case may cause a further migration – whether directly or indirectly – to the worst scenario, where both originator/lender and mortgage insurer underwriting standards are weak. In the recent financial crisis, it could be argued that the MI

underwriters did not lower their underwriting standards while the originators/lenders, nonetheless, utilised alternatives and the resulting housing bubble caused significant losses for MI underwriters.

On the other hand, MI underwriters may lower their underwriting standards while the originators/lenders maintain high standards. This is unlikely to cause immediate problems, as the originators/lenders' standards would effectively protect the mortgage insurers from themselves. However, under such circumstances, the originators/lenders may begin to take advantage of the naïve insurance capital while weakening their previously high standards.

As such, we can see plausible reasons why over time there may be a migration from the strong/strong scenario to the weak/weak. It is clear that either the weak/weak scenario or a migration thereto was representative, for example, of the overall markets in the United States in the run-up to the financial crisis beginning in 2008. A weak/weak scenario is of course the worst case scenario both from a regulatory standpoint and for the stability of the economy as a whole, with the possibility of systemic effects.

A weak/weak scenario is likely to migrate to a strong/strong scenario as corrections are applied. Hence overall we can construct a plausible set of stories that would create a cyclical overlaying the matrix as follows:

	Originator standards strong	Originator standards weak
MI under-writing strong	Few if any problems; but behaviourally may be an unstable equilibrium, with both tempted to lower standards to pick up profitability, volume or market share	Originator will have difficulty obtaining MI, possibly leading to losses to the originators. Pressure on Mlers to lower standards
MI under-writing weak	Relatively few problems while the originator standards remain strong, but with a tendency to migrate such that the originator takes advantage of the naïve insurance capital.	Serious problems with MI: excess losses are concentrated in the Mlers, with the potential that the originators will not recover from the insurance.

It is not clear that experimentation by mortgage insurers and originators that moves outside of the top left hand matrix element ("strong/strong") to either strong/weak or weak/strong should always be prevented by policymakers and supervisors. Rather further migration into weak/weak should be constrained.

The aim should be to shorten the cycle by creating incentives that would move insurers and originators back to strong/strong from strong/weak or weak/strong such that the weak/weak quadrant is not entered (or if it is only for very short periods):

	Originator standards strong	Originator standards weak
MI under-writing strong	Few if any problems; but behaviourally may be an unstable equilibrium, with both tempted to lower standards to pick up profitability, volume or market share	Originator will have difficulty obtaining MI, possibly leading to losses to the originators. Pressure on Mlers to lower standards
MI under-writing weak	Relatively few problems while the originator standards remain strong, but with a tendency to migrate such that the originator takes advantage of the naive insurance capital.	Serious problems with MI: excess losses are concentrated in the Mlers, with the potential that the originators will not recover from the insurance.

## Recommendations for policymakers and supervisors

### 1. Policymakers should consider requiring that mortgage originators and mortgage insurers align their interests.

Outcomes should improve if as many of the parties as possible share the financial consequences of a transaction. Policymakers should consider various means of aligning interests. For example, an effective means of aligning financial interests in the insurance sector is partial risk retention. Also, the FSB Principles' recommendation 3.2 that down payments are substantially drawn from the borrower's own resources helps align the interests of the lender and the borrower.

Jurisdictional banking and insurance supervisors should also consider jointly collaborating to investigate whether there may be any sharing mechanisms that would be viable and useful in their jurisdiction. When losses are shared, it is important that claims costs are controlled by the party with the greatest exposure. In most cases, this will be the mortgage insurer.

### 2. Supervisors should ensure that mortgage insurers and mortgage originators maintain strong underwriting standards

There will always be pressures on mortgage originators or mortgage insurers to lower their underwriting standards. Lower standards by a single player in either sector will increase the pressure on other parties within that sector to lower their standards. Lower standards in one sector will in turn increase the pressure on the other sector to lower its standards ultimately resulting in a potential crisis. Supervisors must therefore remain vigilant to ensure that strong underwriting practices are maintained by all parties and that the underwriting cycle does not enter the weak/weak quadrant described above. Supervisory examinations should verify such practices. Where supervisors do not have the legal authority to do so, supervisory powers should be requested. Relevant policymakers should also ensure that supervisors have the appropriate legal authority to be able to make such verifications.

### 3. Supervisors should be alert to – and correct for – deterioration in underwriting standards stemming from behavioural incentives influencing mortgage originators and mortgage insurers.

Behavioural incentives such as tensions between the sales force and the administrative functions are a recurring concern that should be monitored: volume, which may incentivise front office personnel especially during good times, may come at the expense of good controls in the back office. Such incentives can affect both originators and mortgage insurers. Supervisors and mortgage insurers

should be alert to such behaviour as it can influence the overall quality of risks offered, and therefore ultimately underwriting standards and the underwriting cycle across both sectors.

As sound residential mortgage underwriting practices are fundamentally linked with responsible conduct of business, supervisors should consider whether behavioural incentives are appropriately aligned with the fair treatment of consumers.<sup>11</sup>

For example, originators may have significant market power and, in some jurisdictions, be able to demand commission or other sales incentives in return for recommending or selecting a specific mortgage insurer. A bundled distribution and lending model contains significant distortions and potential conflicts of interest. Supervisors may need to address the incentives that may be created by such remuneration practices by, for example, requiring choices of mortgage insurer to be provided to the homeowners, or other actions.

**4. Supervisors should require mortgage insurers to build long-term capital buffers and reserves during the troughs of the underwriting cycle to cover claims during its peaks.**

Long term capital buffers are needed in dealing with the tail event losses of MI. MI tends to have a relatively consistent level of risk for many years, and then is subject to (typically short) extreme tail events creating much worse loss experience. This cyclicity then repeats over a long cycle. In the United States for example, approximately 75 years had elapsed between two severe financial crises; however, less severe cycles of 10 to 20 years are common in many countries. Higher capital standards in normal times will provide additional resources to mitigate the effect of the serious downturns when they occur.

In addition, supervisors could regularly require mortgage insurers to run specific stress tests or other capital adequacy tests against their portfolios. Such stress tests are helpful in assessing an insurer's solvency position as a result of certain stresses. They also help supervisors compare the abilities of insurers individually, as well as collectively, to withstand a specific stress scenario.

In the United States, supervisors required that so-called contingency reserves be set up at mortgage insurers that would prevent otherwise distributable profits being declared as dividends for 10 years. Half of each premium dollar earned goes into the contingency reserve and remain unavailable for a 10-year period unless losses in a calendar year exceed 35% of earned premiums, depending upon the state. These contingency reserves play the same role as a capital buffer and allow insurers to build reserves during the normal part of the risk cycle to cover claims during peak years. Different approaches are needed in other jurisdictions where the MI product differs, and in the United States these provisions may require recalibration based on recent experience.

In light of concerns arising from the financial crisis, US state insurance supervisors have adopted a charge "to determine and make a recommendation ... on what changes are necessary, if any, to the solvency regulation of mortgage insurers, including changes to the Mortgage Guaranty Insurers Model Act". It is expected that this work will consider a broad range of financial solvency-related issues, including but not limited to leverage and capital statutory standards, accounting and loss reserving methods, and reinsurance requirements for such insurers.

<sup>11</sup> The G20 High-Level Principles on Financial Consumer Protection, developed in conjunction with the FSB, provide guidance in this regard. Principle 3, dealing with Equitable and Fair Treatment of Consumers, states that: "*All financial consumers should be treated equitably, honestly and fairly at all stages of their relationship with financial service providers. Treating consumers fairly should be an integral part of the good governance and corporate culture of all financial services providers and authorised agents. Special attention should be dedicated to the needs of vulnerable groups.*" See [www.financialstabilityboard.org/cos/cos\\_111104a.htm](http://www.financialstabilityboard.org/cos/cos_111104a.htm)

To the extent that alternatives to mortgage insurance arise, supervisors should consider whether there is a need for equivalent capital buffers for those alternatives.

**5. Supervisors should be aware of and take action to prevent cross-sectoral arbitrage which could arise from differences in the accounting between insurers' technical reserves and banks' loan loss provisions, and from differences in the capital requirements for credit risk between banks and insurers.**

While IFRS and US GAAP requirements for insurance contracts and financial instruments were not yet finalised at the time of this report's publication, it would appear that there may be differences between the timing and level of losses depending on whether a loan loss provision is recognised or the same potential loss is evaluated under the insurance contracts standard. This may particularly be the case for expected losses on a portfolio where no specific defaults have been identified: IASB's financial instrument impairment is projected to use a loss provision based on expected lifetime losses on loans expected to become impaired in the next 12 months, whereas insured loans would be reserved at a full lifetime loss level (equivalent to the second level of impairment under the IASB's current tentative decisions regarding financial instrument impairment). Supervisors need to be aware of this issue, and monitor it as the accounting standard setters move towards concluding the Insurance Contracts and Financial Instrument standards. Depending on the conclusions, supervisors should take action to prevent any related cross-sectoral arbitrage arising from these accounting differences. Further, different measurements of credit risk in the capital requirements for banks and mortgage insurers may be another source of cross-sectoral arbitrage which should be mitigated by supervisors.

**6. Supervisors should be alert to potential cross sectoral arbitrage resulting from the use of alternatives to traditional mortgage insurance**

Alternatives to MI may exist for the mortgage originator. Examples include:

- capital markets products (eg structured finance and credit derivatives);
- lender self-insurance; and
- structured loan arrangements, in which loans of senior and junior priority are originated simultaneously, with the junior loan providing the credit enhancement on the senior loan.

To the extent that such alternatives exist or are used, supervisors should be alert to, and prepared to adjust for, any cross sectoral arbitrage that may arise.

Supervisors should seek to mitigate cross sectoral arbitrage. For example, one way to mitigate regulatory arbitrage between types of guarantee and business sectors is to ensure that capital requirements that apply to the lender/originator and the guarantee provider, when considered in conjunction, are:

- equivalent,
- indexed to the actual risk level observed by them, and
- not dependent on the type of guarantee used by the originator or on the business sector.

**7. Supervisors should apply the FSB Principles for Sound Residential Mortgage Underwriting Practices to mortgage insurers noting that proper supervisory implementation necessitates both insurance and banking expertise.**

If the FSB Principles are fully applied, supervisors expect that a number of the most systemic or potentially systemic problems that may occur in MI are likely to be mitigated significantly. Moreover, a number of the FSB Principles should be applied by mortgage insurers themselves. For example, FSB Principles 5.1 and 5.2 require lenders to carry out appropriate due diligence on both the borrower and the mortgage insurers. Mortgage insurers, likewise, should ensure that lenders are undertaking effective verification of income and other financial information, maintaining reasonable debt service coverage and appropriate gross and net LTV ratios, while making reasonable inquiries themselves regarding these

issues. Application of these principles would not prevent problems ever arising at a mortgage insurer, but any such problems would be more likely to be resolvable within the usual supervisory framework without significant market disruption.

## Annex A

### Background to the work – regulatory and supervisory impetus

The purpose and mandate of this work was “to take stock of the structure of the MI market and assess the regulatory framework for mortgage insurers both from quantitative and qualitative perspectives. In particular, the idea is to explore linkages between and across firms involved in underwriting mortgage loans and the potential systemic effects such relationships may have on the financial system. The main efforts of the work-stream will focus on research, and interviews and other discussions with supervisors and market participants. From these interactions it is hoped to obtain the following information:

- Provide an overview of the markets, business model, and risk management practices.
- Determine mortgage underwriting standards required by mortgage insurers.
- Take stock of the regulatory and supervisory framework that applies to mortgage insurers.
- Compile any lessons learned from the global financial crisis that began in 2007 (eg diversification assumptions, systemic risk concentrations, incentive misalignment between mortgage insurers and originators/underwriters), and thereby identify gaps in regulatory and supervisory oversight.
- Assess reforms underway to enhance the regulatory framework for mortgage insurers.”

The Joint Forum’s DNSR stated in January 2010 that MI was “not a substitute for sound underwriting practices, but should be taken into consideration when determining the soundness of an underwriting program.” It stated that “MI provides additional financing flexibility for lenders and consumers, and supervisors should consider how to use such coverage effectively in conjunction with LTV requirements to meet housing goals and needs in their respective markets. Supervisors should explore both public and private options (including creditworthiness and reserve requirements), and should take steps to require adequate MI in instances of high LTV lending (eg greater than 80% LTV).”

Subsequent to the recommendations in the DNSR regarding mortgage origination, the FSB undertook its *Thematic Review of Residential Mortgage Underwriting and Origination Practices* (17 March 2011), which was later followed by its *Principles for Sound Residential Mortgage Underwriting Practices* (April 2012). The Thematic Review’s **Recommendation 5** forms the basis of the mandate of the Joint Forum mortgage insurance workstream:

Regulators and supervisors should ensure that mortgage insurers, where active, are appropriately regulated and robustly capitalised in order to avoid regulatory arbitrage. The Basel Committee on Banking Supervision (BCBS) and the International Association of Insurance Supervisors (IAIS) should jointly consider conducting a study of the regulatory framework for mortgage insurers.

Lenders putting their own balance sheet at risk generally have greater incentives to ensure sound underwriting standards, especially if they are prudentially supervised. Mortgage insurers can potentially serve as a ‘second pair of eyes’ that reinforces prudent lending practices. On the other hand, mitigating default risk may generate moral hazard and induce a relaxation of lending policies. Since mortgage insurance results in the concentration of mortgage default risk in a small number of entities, it is essential that they be appropriately regulated and rigorously supervised so that the use of mortgage insurance does not reduce the total amount of capital in the financial system, and that mortgage insurers do not rely solely on the lender itself to underwrite to their specified standards (eg “delegated underwriting”). The effectiveness



of insurance or guarantee coverage should be regularly monitored, especially in stressed periods, through indicators such as payout ratios and indemnification delays.

The FSB Principles for Sound Residential Mortgage Underwriting Practices (April 2012) includes a section on prudent use of mortgage insurance:

*Mortgage insurance is used in some jurisdictions as a form of credit support for mortgage loans, and a way to provide additional financing flexibility for lenders and borrowers.*

**5.1 Jurisdictions should ensure that where mortgage insurance is used, it does not substitute for sound underwriting practices by lenders.** Lenders should conduct their own due diligence including comprehensive and independent assessment of the borrower's capacity to repay, verification minimum initial equity by borrowers, reasonable debt service coverage, and assessment of the value of the property. In addition, mortgage insurers should have their own prudent underwriting practices consistent with the Principles in this framework. In summary, mortgage insurance should not be considered as an alternative for due diligence.

**5.2 Jurisdictions should ensure that lenders carry out prudent and independent assessments of the risks related to the use of mortgage insurance, such as counterparty risk and the extent and details of the coverage of the mortgage insurance policies.** The effectiveness of mortgage insurance depends on the financial strength of the provider and a clear understanding of the policy coverage, which should be frequently monitored and assessed by the lender.

**5.3 Jurisdictions should ensure that all mortgage insurers be subject to appropriate prudential and regulatory oversight and, where used, represent an effective transfer of risks from lenders to insurers.** However, in the case of government entities, comprehensive regulatory oversight may suffice. Through the use of mortgage insurance, credit risks, particularly those for high LTV loans, are transferred from lenders to insurers. Given that credit risks are often concentrated within a smaller number of institutions, jurisdictions should carefully monitor mortgage insurers' exposure to such risk concentrations.

## Annex B

### Overview of individual country MI markets

The following table summarises some of the specificities of MI offerings and usage in various countries, followed by some selected specific country reports on MI structure:

Country	Origin	Coverage	Monolines Only?	Required?	Capital Relief?	Premia
<b>Australia (3)</b>	1965	100%	Yes	No	30% RW reduction	0.8% to 3.20% upfront
<b>Canada</b>	1954	100%	Yes	LTV > 80% for < C\$1mil	0% to 5% RW	1.75% - 2.90% upfront
<b>France (1)</b>	1993	100%	No	No	Rating dependent	2.00% + 0.15% annual
<b>Germany</b>		10% - 25%	No	No	Rating dependent	
<b>Hong Kong (1)</b>	1999	10% - 25%	Yes	Yes (LTV>70%)	No	
<b>Netherlands (1)</b>	1957	100%	No	No	0% RW	0.70% upfront
<b>United Kingdom</b>	1980s	< 20%	No	No (2)	Rating dependent	
<b>United States</b>	1956	20% - 30%	Yes	LTV>80%	50% RW	
(1) Public-private						
(2) In the UK, signposted, in guidance, as a potential credit risk mitigant for some smaller building societies						
(3) In Australia capital relief is not provided for IRB banks.						

## United States

### Mortgage Insurance Regulatory Structure (Source: Financial Analysis and Examinations Department, NAIC):

#### Background

The NAIC Mortgage Guaranty Insurance Model Act 630-1 ("Model") was created for the purpose of providing for the effective regulation and supervision of mortgage guaranty insurers. The Model defines mortgage guaranty insurance as insurance against financial loss by reason of nonpayment of principal, interest, or other sums agreed to be paid on any note secured by a mortgage, deed of trust, or other instrument constituting a lien or charge on real estate. Mortgage guaranty insurance may also cover against financial loss by reason of nonpayment of rent under the terms of a written lease.

As of April 2012, eight states have adopted the most recent version of the Model in a substantially similar manner. An additional twelve states have adopted an older version of the Model, legislation, or regulation derived from other sources such as bulletins and administrative rulings.

#### Current state of the Mortgage Guaranty Industry

As a result of the downturn in the housing market, the mortgage guaranty industry continues on a depressed note. Although signs of improvement in the housing industry may signal increased premiums production, stricter mortgage underwriting standards may have a contrary effect on mortgage guaranty premium production. In addition, record unemployment and poor overall economic conditions add further pressures to the depressed real estate market and mortgage guaranty activity. As of year-end 2011 there were a total 39 active mono-line writers of mortgage guaranty products within 11 insurance groups. Of these 11 insurance groups, six groups account for 94.5% of gross mortgage guaranty premiums. Currently, S&P's highest rating of a mortgage guaranty insurer is "AA-" for only one company.

Gross premiums written for mono-line mortgage guarantors have fluctuated over the past five-years from low of USD 5.3 billion in 2011 to a high of USD 7.4 billion in 2008. Gross paid losses peaked in 2010 at USD 12.9 billion (77.4% of which was reported within the six largest guarantors) compared to USD 2.8 billion for 2007. Contingency reserves were nearly exhausted over the past five years, totalling USD 615 thousand at year-end 2011 compared to USD 13.4 billion in 2007.

### Regulation based on the Model

#### Capital Requirements

A mortgage guaranty insurance company shall not transact the business of mortgage guaranty insurance unless, if a stock insurance company, it has paid-in capital of at least USD 1,000,000 and paid-in surplus of at least USD 1,000,000, or if a mutual insurance company, a minimum initial surplus of USD 2,000,000. A stock company or a mutual company shall at all times thereafter maintain a minimum policyholders' surplus of at least USD 1,500,000.

#### Geographic Concentration

Mortgage guaranty insurers are not allowed to insure loans, by a single risk, that are in excess of 10% of the company's aggregate policyholders' surplus and contingency reserves. Also, mortgage guaranty insurers are prohibited from having more than 20% of total insurance in force in any one Standard

Metropolitan Statistical Area, as defined by the United States Department of Commerce. Both of these provisions take effect only after a mortgage insurer has possessed a certificate of authority in a state for a time period of three years.

### Coverage Limitation

Coverage provided by mortgage guaranty insurers, net of reinsurance ceded to a reinsurer in which the company has no interest, is limited to 25% of the entire indebtedness to the insured. In the event of default, the mortgage guaranty insurer has the option of paying the entire indebtedness to the insured, therefore acquiring title to the real estate.

### Policy Form and Premium Rates

All policy forms and endorsements shall be filed with and be subject to the approval of the commissioner. In addition, each mortgage insurer shall file with the department the rate to be charged and the premium to be paid by the policyholder.

### Outstanding Total Liability

Mortgage guaranty insurers are prohibited from having an outstanding total mortgage guaranty in-force liability, net of reinsurance, in excess of twenty-five times of aggregate policyholders' surplus and contingency reserves. In the event that a mortgage guaranty insurer exceeds this threshold, the company must cease writing new mortgage guaranty business until the situation is corrected. Total outstanding liability is calculated on a consolidated basis.

### Unearned Premium and Loss Reserves

Mortgage guaranty insurers shall compute and maintain unearned premium reserves along with adequate case basis and other loss reserves that accurately reflect loss frequency and loss severity. Case basis and other loss reserves shall include components for claims reported and for claims incurred but not reported, including estimated losses on:

1. Insured loans that have resulted in the transfer of property that remains unsold;
2. Insured loans in the process of foreclosure;
3. Insured loans in default for four months or for any lesser period that is defined as default for such purposes in the policy provisions; and
4. Insured leases in default for four months or for any lesser period that is defined as default for such purposes in policy provisions.

### Contingency Reserves

Each mortgage guaranty insurer shall establish a contingency reserve out of net premium remaining (gross premiums less premiums returned to policyholders net of reinsurance) after establishment of the unearned premium reserve. The mortgage guaranty insurer shall contribute to the contingency reserve an amount equal to 50% of the remaining unearned premiums. Contributions to the contingency reserve made during each calendar year shall be maintained for a period of 120 months. An exception allows for releases to be made by the company, from contingency reserves, in any year in which the actual incurred losses exceed 35% of the corresponding earned premiums. However, releases are not allowed without prior approval by the commissioner of insurance of the insurance company's state of domicile.

Extract from the NAIC Center For Insurance Policy Research paper “Financing Home Ownership: Origins and Evolution of Mortgage Securitisation - Public Policy, Financial Innovations and Crises” dated 12 August 2012.<sup>12</sup>

### Mortgage Insurers

The financial crisis found private mortgage insurers exposed on the front lines as they were directly underwriting the risk of borrowers defaulting on their mortgage loans. Particularly, since mortgage insurers provided coverage on high loan-to-value mortgages with very thin equity slices, they were vulnerable to potential losses in the event of rising delinquencies and defaults. While mortgage insurers avoided many of the now worst-performing loans during the credit boom, they still added significant exposure to mortgage risk, including material subprime exposure.

Mortgage insurers’ shift toward “affordability” products and subprime loans increased their exposure to the rise in mortgage defaults during the crisis. Insurance for adjustable rate products jumped from 13 percent at year-end 2001 to about 25 percent at year-end 2006, while subprime loans made up about 12 percent of the industry aggregate risk-in-force.<sup>13</sup>

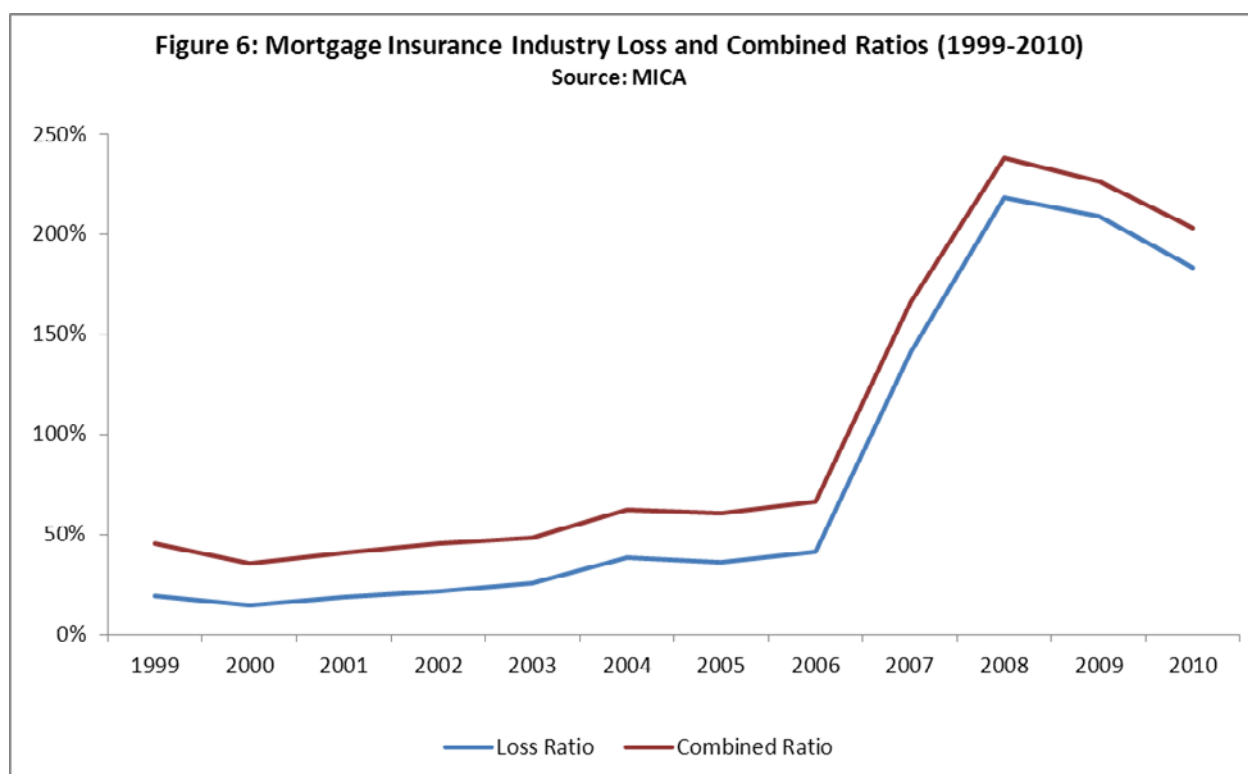
The private mortgage insurance industry recorded its best year in terms of new insurance volume in 2007, with total new insurance written exceeding \$300 billion for the first time.<sup>14</sup> A short two years later, new insurance written had declined to \$81 billion as the market for mortgage insurance shrunk, following the collapse of the housing market and the subprime crisis. As home prices plummeted, the wave of mortgage defaults and home foreclosures weakened mortgage insurers’ capital position and resulted in substantial losses. Having to set aside substantial capital to cover future claims severely constrained mortgage insurers’ ability to write new business. The very challenging market conditions that the mortgage insurance industry experienced since the eruption of the crisis are reflected in the sharp rise of the industry’s loss and combined ratios (Figure 6). The industry’s loss ratio (losses over net premiums earned) jumped from 41 percent in 2006 to a record high 218 percent in 2008<sup>15</sup> (Figure 6).

<sup>12</sup> See [www.naic.org/documents/cipr\\_120812\\_white\\_paper\\_financing\\_home\\_ownership.pdf](http://www.naic.org/documents/cipr_120812_white_paper_financing_home_ownership.pdf)

<sup>13</sup> Moody’s Investors Service. 2007. “An Examination of Subprime Mortgage Risk Exposure Among the US Mortgage Insurers.” *Moody’s Special Comment*, Report Number: 103493.

<sup>14</sup> Mortgage Insurance Companies of America (MICA). 2011. “2011–2012 Fact Book & Member Directory.”

<sup>15</sup> Mortgage Insurance Companies of America (MICA). 2011. “2011–2012 Fact Book & Member Directory.”



Although market and economic trends appear to have generally stabilised in the last couple of years, this trend has not yet helped mortgage insurers to materially improve their financial situation. As Table 3 shows, losses paid are still very high compared to 2007, even though there was some minor improvement recorded in 2011. Poor industry results could be partly attributed to the losses of two insurers, PMI Mortgage Insurance Co. (PMI) and Republic Mortgage Insurance Co. (RMIC), which were placed under state supervision due to mounting losses and the resultant capital shortfalls.

	<u>Direct Losses Paid</u>	<u>Assumed Losses Paid</u>	<u>Gross Losses Paid</u>
2011	\$10,416,059,973	\$2,198,227,551	\$12,614,287,524
2010	\$10,570,222,861	\$2,281,222,154	\$12,851,445,015
2009	\$6,933,566,984	\$1,154,718,899	\$8,088,285,883
2008	\$4,793,009,346	\$690,608,943	\$5,483,618,289
2007	\$2,453,039,848	\$391,867,064	\$2,844,906,912

Mortgage guarantors' reported losses in 2011 were still at high levels, stressing their already weakened capital positions. According to Standard & Poor's, the losses generated from the insurers' 2005-2007 books of business still outweigh any profits that have resulted from newer, higher credit quality business.<sup>16</sup>

The underwriting experience for mortgage insurers over the past five years (2007-2011) is shown below in Table 4. Premiums in 2007 and 2008 climbed to historical highs, buoyed by the rapidly

<sup>16</sup> Standard & Poor's. 2012. "U.S. Mortgage Insurer Sector Outlook Remains Negative – And The Clock's Ticking." *RatingsDirect on the Global Credit Portal*, March 1, 2012.

expanding housing market. With the collapse of the housing market, underwriting slumped by almost 30 percent between the peak year (2008) and 2011 (Table 4).

Table 4: Mortgage Insurance Premiums Written Source: NAIC				
	<u>Direct Business</u>	<u>Assumed From Affiliates</u>	<u>Assumed Non-Affiliates</u>	<u>GPW</u>
2011	\$4,575,007,663	\$665,025,082	\$11,363,025	\$5,251,395,770
2010	\$4,877,789,480	\$699,799,425	\$25,782,747	\$5,603,371,652
2009	\$5,435,412,551	\$822,166,447	-\$314,224	\$6,257,264,774
2008	\$6,428,269,678	\$969,194,059	\$41,176,274	\$7,438,640,011
2007	\$6,152,079,536	\$815,329,378	\$30,708,553	\$6,998,117,467

The cushion provided by contingency reserves that mortgage insurers are required to maintain against catastrophic losses during an economic crisis has thinned considerably over the last five years. These reserves are built during good times and drawn only in the event losses exceed certain statutory thresholds or otherwise directed by state regulators. Although the structure of capital requirements for mortgage insurers was more stringent, it still proved inadequate given the wholesale meltdown. What once was a very comfortable cushion seems to be near depleted through the financial crisis and needs to be built back up. The aggregate contingency reserves of the mortgage insurance industry shrunk more than 95 percent in the period between 2007 and 2011 (Table 5).

Table 5: Mortgage Insurance Contingency Reserves Source: NAIC	
	<u>Contingency Reserves</u>
2011	\$614,919,737
2010	\$615,085,780
2009	\$2,883,196,988
2008	\$7,142,932,962
2007	\$13,414,066,415

As of March 2012, both Standard & Poor's and Moody's have rated mortgage insurers BBB (Baa) and below while they have maintained a negative outlook for the industry for the rest of 2012 and possibly well into 2013 (Table 6). Credit rating agencies believe that new business writings will not be sufficient to offset expected losses into 2013.

**Table 6: Mortgage Insurance Company Credit Ratings**

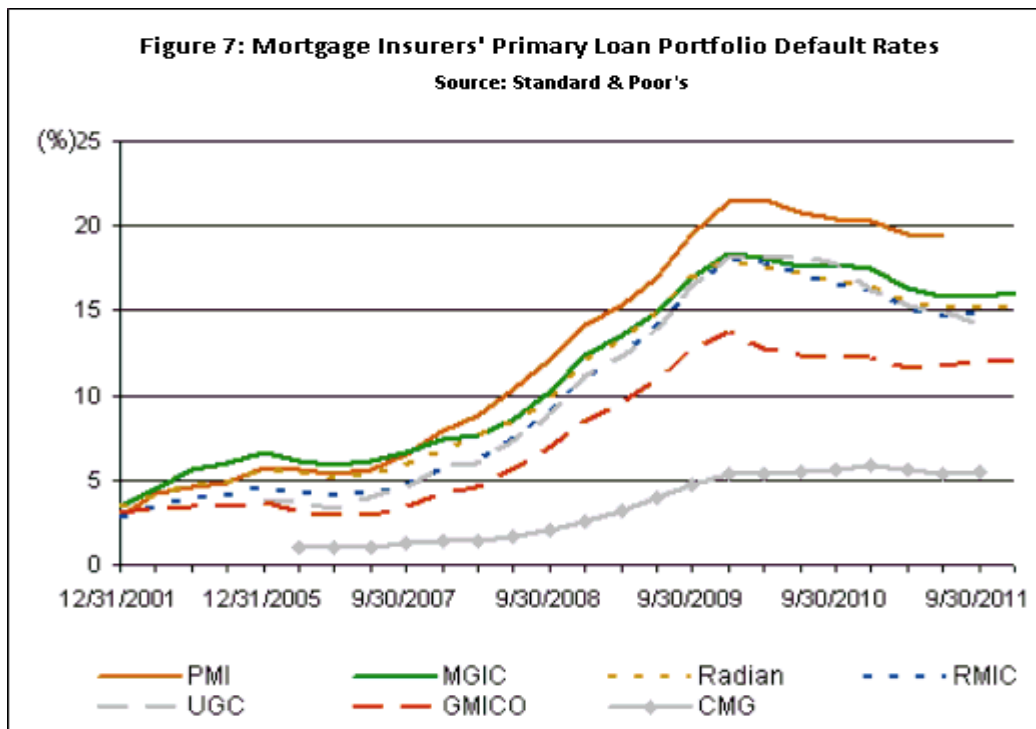
Sources: Standard & Poor's, Moody's

Company	Financial Strength Rating (March 2012)		Financial Strength Outlook (March 2012)	
	S&P	Moody's	S&P	Moody's
Genworth Mortgage Insurance Corporation (GMICO)	B	Ba1	Negative	Negative
Mortgage Guaranty Insurance Corp. (MGIC)	B	B1	Negative	Negative
PMI Mortgage Insurance Co. (PMI)	Regulatory Supervision	Caa3	N/A	Negative
Radian Guaranty Inc.	B	Ba3	Negative	Under Review for Downgrade
Republic Mortgage Insurance Company (RMIC)	Regulatory Supervision	Withdrawn	N/A	N/A
United Guaranty Residential Insurance Co. (UGRIC)	BBB	Baa1	Stable	Stable
CMG Mortgage Insurance Co. (CMG)	BBB	N/A	Negative	N/A

Although the 2005–2007 vintage loans in mortgage insurers' books have shown some signs of delinquency burnout, default rates have remained at elevated levels, causing significant losses<sup>17</sup> (Figure 7). While in the medium term the run-off of the legacy risk will help improve the quality of mortgage insurers' portfolios, rating agencies expect default rates to remain at these high levels even beyond 2013.

<sup>17</sup> Standard & Poor's. 2012. "U.S. Mortgage Insurer Sector Outlook Remains Negative – And The Clock's Ticking." RatingsDirect on the Global Credit Portal, March 1, 2012.





At the same time, as the economy and the housing market recover, the performance of at least the better-capitalised insurers should show gradual improvement. The mortgage insurance industry's future prospects hinge, in great part, on the changes in the mortgage finance system, and especially on the future status and role of the GSEs. For the time being, given mortgage insurers' weakened position, the market still largely relies on the Federal Housing Administration for insurance.<sup>18</sup>

The possible winding-down of GSEs' operations could potentially shift credit risk to the private sector, which might enhance mortgage insurers' role in the housing finance market by increasing the reliance on mortgage insurance.<sup>19</sup> On the other hand, the issuance of the credit risk retention proposal in 2011,<sup>20</sup> allowing the exemption of qualified residential mortgages (high credit quality) from risk retention requirements if they include a 20 percent down payment (allowing mortgage originators to avoid retaining a portion of the risk being securitised), could adversely impact the mortgage insurers' current business model.<sup>21</sup>

<sup>18</sup> Standard & Poor's. 2012. "U.S. Mortgage Insurer Sector Outlook Remains Negative – And The Clock's Ticking." RatingsDirect on the Global Credit Portal, March 1, 2012.

<sup>19</sup> Moody's Investor Service. 2012. "US Mortgage Insurers: Negative Outlook." Industry Report Number: 139915. March 7, 2012.

<sup>20</sup> U.S. Securities and Exchange Commission. 2011. "Credit Risk Retention." 17 CFR Part 246. Release No. 34-64148; File No. S7-14-11.

<sup>21</sup> Standard & Poor's. 2012. "U.S. Mortgage Insurer Sector Outlook Remains Negative – And The Clock's Ticking." RatingsDirect on the Global Credit Portal, March 1, 2012.

## United Kingdom

### Mortgage Insurance Regulatory Structure

#### Background

In the UK, mortgage insurance is treated no differently to other lines of insurance. Firms wishing to offer mortgage insurance are therefore required to be authorised and regulated by the UK Prudential Regulation Authority (PRA) and Financial Conduct Authority (FCA). Authorised firms are subject to wide-ranging high level standards, eg in respect of systems and controls, reporting, adequate resources, and the fitness of specified individuals within the firm. In addition, firms need to comply with detailed standards on both prudential and conduct issues. Like the high level standards, these are specified in rules (known collectively as the Handbook<sup>22</sup>). Within this framework, there are no specific loan criteria that mortgage insurers must adopt where insurance cover is to be offered.

Since 2001, there has been a wide-ranging review by the FSA (the predecessor to the PRA and FCA) of the way in which insurance firms, including mortgage insurers, are regulated. The overarching objective of the new regime is that insurance firms are soundly managed, adequately capitalised and treat their customers fairly.

All insurers are subject to individual capital guidance (ICG). Firms submit their own confidential Individual Capital Assessment (ICA) calculations to the PRA, who then review them and issue the ICG. If the PRA is happy with a firm's ICA calculations, it will issue no additional ICG. However, if the PRA believes that a firm has not adequately assessed all the risks to which it is exposed, it will issue additional ICG, to be added to the ICA that the firm has calculated.

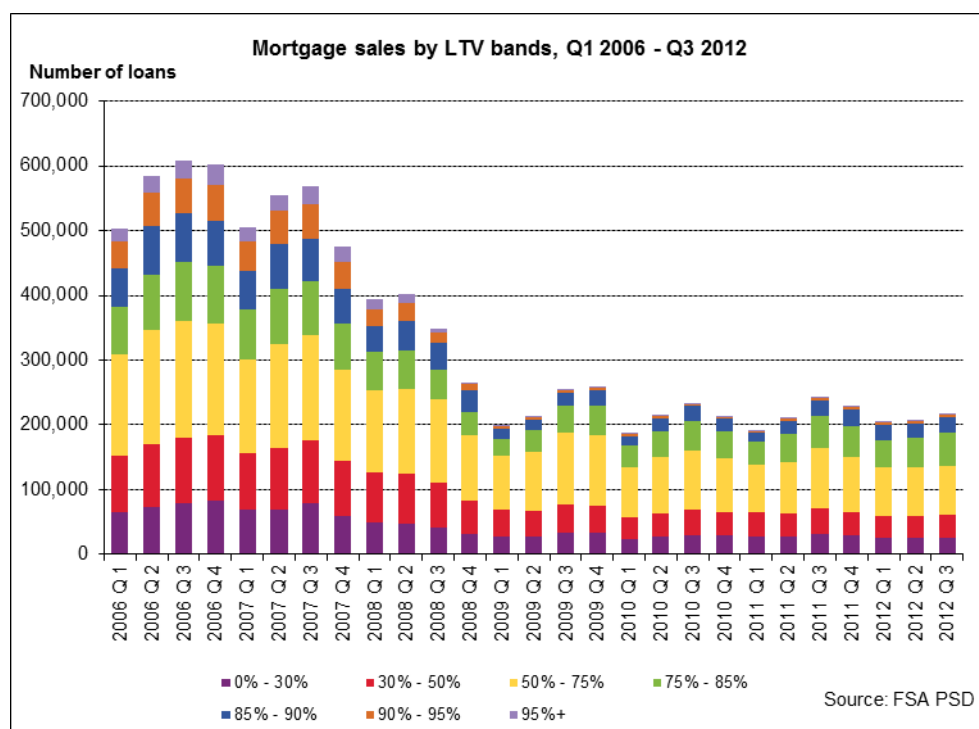
National requirements for mortgage insurers are likely to change with the implementation of Solvency II, which is a fundamental review of the capital adequacy regime for the European insurance industry. Solvency II aims to establish a revised set of EU-wide capital requirements and risk management standards.

#### Current state of the mortgage guarantee industry

Previously, mortgage insurance played a significant role in the major expansion of credit to the housing market that occurred in the late 1980s. It was not the only factor (for example, there was government Income Support for Mortgage Interest payments), but it is generally considered to have encouraged the generous extension of credit by reducing the incentives for banks to make appropriate lending decisions. At that time many mortgages were being offered with very high LTV ratios. The subsequent spike in mortgage possessions and arrears between 1989 and 1995 was seen by many as an inevitable consequence of this development.

Typically, the insurance is provided for loans at higher LTVs (75 - 95%), and since the financial crisis mortgage lending in the UK at these levels has been greatly curtailed (see [www.fsa.gov.uk/static/pubs/other/psd-mortgages-2012.pdf](http://www.fsa.gov.uk/static/pubs/other/psd-mortgages-2012.pdf), chart extract below). There is little publicly available data on the value of mortgage insurance being written, but the indications are that the market is currently very limited in size.

<sup>22</sup> See <http://fsahandbook.info/FSA/html/handbook>.



There are no regulatory requirements for any mortgage lending to be covered by mortgage insurance. For smaller building societies, guidance issued by the PRA simply identifies the potential role for mortgage insurance as a credit risk management tool where lending in volume at higher LTVs.

## France

### French residential loans secured by a guarantee

Real estate loans in France are less risky than in some other European countries given the common restrictive practice that banks grant loans with terms such that households should not spend more than 35% of their disposable income on servicing their debts. Another important aspect is the fact that the vast majority of French housing loans have fixed rates.

The IMF, in its 2011 Article IV report,<sup>23</sup> underlines that French “bank lending practices are sound” because they “are based on the borrower’s capacity to service the loan until maturity, and therefore on the stability of the borrower’s income. This method of lending criteria is thus independent of changes in home prices and the resulting wealth effect, unlike the United States and the United Kingdom, as well as Spain, Denmark, and the Netherlands. (...) Against this background, residential mortgage loss rates incurred by lending institutions have been structurally low in France.”

Although no credit is granted only because of a security (the credit decision is always based on an analysis of the personal situation of the borrower), most loans are additionally secured either by a guarantee or a mortgage.

<sup>23</sup> See Box 7 in [www.imf.org/external/pubs/ft/scr/2011/cr11211.pdf](http://www.imf.org/external/pubs/ft/scr/2011/cr11211.pdf)

In addition, loans are granted only to borrowers who have purchased additional insurance, known as "borrower insurance". These contracts cover the risk of default due to death, disability or illness of the borrower (and seldom unemployment risk). These guarantees are usually granted by dedicated insurers, rather than by MI themselves.

It is important to note that as long as customers are liable on all their assets, the guarantor may recover the debt by seizing all the assets of the borrower, which reduces moral hazard.

In the event of default, the corresponding loan is transferred by the bank onto the balance sheet of the residential property loan guarantor, which takes over the recovery process. This enables bank partners to maintain commercial ties with the client while avoiding the adverse effects inherent to lengthy court proceedings (foreclosure).

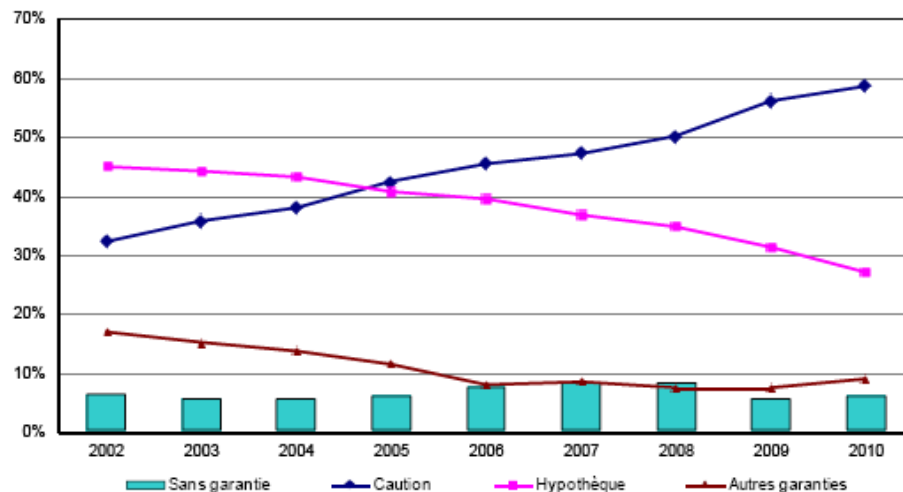
Furthermore, the criteria used to obtain a guarantee are more restrictive than in case of mortgage financing; in particular, they are centered on the solvency of the issuer instead of the property value. In addition, the guarantee financing is mainly used for the best borrowers as banks wish to have them benefited from the low administrative charge associated with it.

Since a mortgage is more costly to borrowers than guaranteed loans in France, mortgage loans are reserved to those borrowers that do not qualify for a guarantee based on the due diligence of the guarantor. Accordingly, guaranteed loans are therefore in general less risky than mortgage loans.

In fact, the risk on guaranteed loans is lower than the direct risk on the guarantor because it is more fragmented and because the risk occurs only in the case of default of both the borrower and the guarantor. The portion of home loans secured by a guarantee issued by a loan guarantor has significantly increased over the last few years; it represents more than 59% of home loans produced in 2010, versus only 42% in 2005 and 30% in 2000. By contrast, the share of home loans secured by a mortgage has decreased from 45% in 2002 to 28% in 2010.

This evolution is due to a number of factors, explained below; it can be illustrated by the following study of the ACP (mortgage loans in pink and guaranteed loans in blue).

#### Nature of guarantees by origination year



Source: annual inquiry of the French banking and insurance supervision authority (ACP)

## Who provides the guarantee?

Loans are generated by the retail arms of the French banks and guaranteed by a separate (in-house or external) residential property loan guarantor.<sup>24</sup>

Guarantors may operate similarly under a banking or an insurance license. The guarantees provided are very similar in both cases, and those granted by companies operating under a banking license represent the bulk of the market.

## How does the guarantee work?

If the bank considers that the solvency of the borrower is good, the bank passes the request to the guarantor. If, after a second check by the guarantor, the solvency of the borrower is considered as satisfactory, then the guarantor will propose to guarantee the loan. These double-checks permit recording a very low risk of default on borrowers.

To benefit from the guarantee, the borrower needs to pay an upfront insurance premium to the guarantor. This premium may be refundable if no losses occur.

The main mechanism is insurance mutualisation of the credit risk amongst all the beneficiaries of the guarantees. Mutualisation is less efficient in times of economic distress, which means that the main risk for MI is default correlation. However, the near-compulsory coverage of death, illness and disability risks, and occasionally of unemployment risk (see above) greatly reduces the probability of occurrence of many defaults at the same time.

Guarantors provide a full recovery service to lenders: the guarantee offers a complete financial hedging of the lender disconnected from the value of the property and a full recovery service. All the recovery costs are charged to the borrower.

Lending banks recover 100% of the home loan plus all costs and expenses. Risk retention can also be used as a way to avoid moral hazard.

Since the guarantee does not depend on the value of the property, guaranteed home loans are significantly more secure for the bank than mortgage loans during a crisis in the home loan market inducing important devaluations of property values similar to the US mortgage crisis. Moreover, the recourse to mortgage exposes both borrower and lender to heavy costs and long delays of recovery.

## Market structure

It is somehow difficult to describe comprehensively the French mortgage guarantee market and at the same time restrict it to licensed insurers. In fact, the guarantees granted by MIs can equally be offered by institutions operating with a banking license.

The market players are:

- Banks in-house loan guarantors operating under a banking license;
- External loan guarantors operating under a banking license;
- Independent Insurers;
- Insurers part of a financial conglomerate;
- Mutuals offering these guarantees to their members.

<sup>24</sup> Banks have extensive recourse to residential property loan guarantors through the recovery process (including foreclosure, if needed).

- State guaranteed schemes (FGAS)

The bulk of the market relies on the first two guarantors. There is only one external guarantor in France, which covers more than two-thirds of the new loans alone each year.

The total amount of loans granted in 2011 is EUR 157 billion, and less than 10% is the guaranteed by MI (with insurance license).

There are few market participants (very few “independent” insurers with a significant business volume, a single insurer member of a financial conglomerate, and less than ten mutuals - often with a small volume of written premium).

The global premium written by MIs in 2011 is under EUR 350 million.

## Capital Requirement

Insurance companies engaged in the business of MI are subject to the European directive Solvency I capital requirements.

## Netherlands

### National mortgage guarantee in the Netherlands

Borrowers taking out a mortgage in the Netherlands for the purchase, construction or refurbishment of their primary residence can choose to take out a loan incorporating a national mortgage guarantee, or NHG (in Dutch, “Nationale Hypotheekgarantie”).

Initially, the municipality guarantee, introduced in 1956, only covered subsidised newly built homes. The guarantee system evolved and expanded over time until it had a major overhaul in 1993. The Home-ownership Guarantee Fund (“WEW”), a private institution, was established in 1993 by the Ministry of Housing, Spatial Planning and the Environment (“VROM”) and the Association of Netherlands municipalities (“VNG”). On 1 January 1995, the current NHG was introduced, to be administered by the WEW. The WEW is wholly responsible for the NHG. It draws up regulations for issuing the NHG, which require the approval of the Minister of VROM and the VNG.

In 2010, the WEW had a fund of EUR 634 million to cover losses on a guaranteed amount of more than EUR 126 billion (0.51% of the fund’s total exposure). In addition to this fund, the WEW has liquidity support from the participating municipalities and the Dutch government.

Unemployment, divorce or disability are the main reasons for mortgage payment problems. The borrower may be forced to sell the property, with the risk that the returns are not sufficient to cover the outstanding loan. The WEW will pay out any remaining shortfall to the lender, following enforcement of the mortgage and sale of the property, either via auction or a private sale, if an NHG was taken out by the borrower. If the borrower has acted in good faith and the borrower has done everything in his or her power to minimise the loss, the WEW will not pursue the borrower for the shortfall of debt met by the NHG.

At present, the borrower has to pay an upfront fee of 0.7% (as of July 2012) of the mortgage amount for the NHG. Lenders offer a discount on the interest rate, up to an estimated 0.6%, for NHG loans. This discount, and the fact that costs for acquiring the NHG are tax deductible, mean that it is more economical for an eligible borrower to get an NHG loan than a non-guaranteed loan.

NHG loans are desirable for banks as well, although margins on NHG loans are typically lower than other mortgages. Firstly, they provide a cheap hedge for credit risk on these loans and secondly the regulatory capital requirements for the loans are zero, due to the implicit Dutch state backing for the guarantee scheme.

For mortgage lenders the NHG covers the residual losses they incur on a loan. This cover extends to outstanding principal, unpaid interest and repossession costs as well as other costs. Although the NHG covers all of the above items, the extent of coverage decreases over time. Irrespective of the loan type, the guarantee amortises on a monthly, 30-year annuity basis. For life insurance and investment loan types of mortgage repayment, the WEW takes into account the accumulated capital build-up in the attached policy when determining the loss on a mortgage. WEW will only pay out the full claim if the loan complies with all of the conditions that apply to an NHG guaranteed mortgage. In case of operational errors by the lender, possibly at the origination of the loan, the WEW may pay out less than the claim or reject it completely.

A loan can only be eligible for an NHG when it complies with a set of uniform rules. At origination of the mortgage, the lender is responsible for checking that the loan meets all the rules. If it qualifies, various reports are produced to process the application, including the form that will eventually be signed by the lender and forwarded to the NHG to register the mortgage and establish the guarantee.

The main condition for borrowers to be eligible for NHG is that the mortgage – including purchase costs and additional expenses such as taxes, notary costs, commission and any refurbishment costs – must not exceed EUR 320,000. In addition, the upper purchase price limit for the house (existing or new) is set at EUR 296,296 (because additional costs are assumed by the NHG to be 8%).

With respect to the type of mortgage repayment, a part of the loan can be interest-only, with a maximum amount of 50% of the purchase price of the house.

In addition, there are restrictions on the borrower's gross debt-to-income ("DTI") ratio. Debt is the sum of gross mortgage and other debt payments. Dividing this by the gross income results in the DTI ratio. The maximum allowable DTI depends on income, interest rate and age of the borrower. Allowable DTI ratios are based in part on information provided by the National Institute of Budget Information ("NIBUD"). NIBUD performs research on the necessary daily living expenses of consumers and calculates the "woonquote" (home expenses to income ratio). For all mortgage repayment types, the NHG affordability calculation is based upon an annuity payment, even, for example, if part of the loan is on an interest-only basis. The term used is equal to the mortgage maturity with a maximum of 30 years. The interest rate applied can vary between the actual rate (should it be fixed for more than five years) or a stressed 6% rate for those loans that reset within the next five years.

## Australia

### Lenders mortgage insurance

#### Background

Australia has a long history of lenders' mortgage insurance (LMI) being used as a credit risk transfer mechanism to support higher risk mortgage lending.

Lenders mortgage insurers (LMIs) are regulated by the Australian Prudential Regulation Authority (APRA) under the *Insurance Act 1973* and the *Insurance Regulations 2002*. This includes prudential standards made by APRA under the *Insurance Act 1973*. LMIs are also required to comply with reporting standards made by APRA under the *Financial Sector (Collection of Data) Act 2001*. Similarly, the overwhelming majority of mortgages in Australia are provided by banks and other institutions (collectively authorised deposit-taking institutions or ADIs) regulated by APRA under the *Banking Act 1959* and the *Banking Regulations 1966*. APRA also makes prudential standards and reporting standards for ADIs.

## LMI policy

An LMI policy is an insurance policy that provides cover to a lender in the event of default by the borrower on the insured loan where there is a shortfall on the amount realised from the sale of the property securing the loan. The premium is charged as a single premium upfront, with the premium usually based on the loan-to-valuation ratio (LVR) and sum insured.<sup>25</sup> Although a contract between lender and insurer, it is common practice for the cost of LMI cover to be passed to the borrower, typically capitalised into the value of the loan. In general, higher risk loans (characterised by LVRs above 80 per cent) have benefited from protection in the form of mortgage insurance. Broadly 20% to 30% of mortgage loans are originated with a LVR higher than 80% within Australia.

## Industry overview

There are currently six active LMIs in Australia, four of which are captive LMIs. As at 30 June 2012, the six active LMIs had total assets of AUD 7.5 billion and total liabilities of AUD 3.3 billion. The majority of liabilities are insurance liabilities of AUD 1.7 billion. The APRA capital base of the LMIs was AUD 4.8 billion against a minimum capital requirement for the industry of AUD 3.2 billion, resulting in a solvency coverage ratio of 149%.

The LMI gross earned premium reported for the 12 months to 30 June 2012 was AUD 851 million, and gross claims expense was AUD 400 million for the same period.

Results for individual LMIs have been mixed due to the varying impact of floods, regional economic slowdown in certain areas and deterioration in prior year losses.

## Recent history 2007-2011

2007/8: The two major market participants are wholly-owned subsidiaries of US mortgage insurers that have come under market pressure from the deterioration in the US mortgage market. Claims experience in Australia is readily manageable and LMIs continue to report solid underwriting profits that support the strong capital base of the industry. The major rating agencies downgrade the two US owned LMIs and their parents due to reported group losses, whilst also acknowledging the strength of the Australian subsidiaries.

2008/9: The sector is exposed to the risk of higher claims as the economy slows, and to the risk that foreign reinsurers withdraw from the Australian market. Stress on the US parents of the two major LMIs in Australia leads to the sale of one LMI subsidiary to a major local insurer. Notwithstanding these risks, the LMI sector in Australia remains robust. LMIs tighten underwriting and credit standards on new business, particularly with respect to high LVR business and 'non-standard' loans (ie those without full income verification), and premium rates rise. LMIs increase claims provisions, expecting higher unemployment to result in increased claims, but to this point stresses in the residential mortgage market have been readily manageable compared to US and European experience. APRA's supervisory activities in this sector expand to include assessments of the adequacy of the stress-testing that LMIs are undertaking in the current environment.

2009/10: Despite the challenging global backdrop and a fall off in premium income, LMIs report an improvement in underwriting and operating performance and a stronger capital base. Mortgage defaults rise but remain relatively low. There is early evidence of some unwinding of the tightening of

<sup>25</sup> The cost of LMI will vary depending on the amount of the loan and the LVR. Based on an average loan of A\$282,800, an LVR of approximately 95% (currently the maximum offered by most lenders) would attract a LMI premium of approximately AUD 7,050 using the largest LMI provider's calculator (note that such high LVR loans are not common). However, the same loan size but with an LVR of 85% will only attract a LMI premium of AUD 2,400 using the same calculator.



underwriting standards noticed in the previous year. After a several year period of increases to claims provisions, some LMIs begin to make releases from reserves in the second half of 2009/10.

### Industry landscape

The extent of reliance on LMI cover is a matter for individual ADIs but heavily influenced by APRA's prudential requirements.

For those ADIs using the standard Basel II approach for capital adequacy, 'standard' home loans (ie those with full income verification) which have an LVR above 80% and are covered by LMI qualify for a concessional risk weight (roughly a 30 per cent capital reduction due to LMI). Non-standard home loans also qualify for a concessional risk weight regardless of LVR (similarly about a 30% capital reduction for LMI, but off a higher base to allow for the lack of income verification).

For ADIs using approved internal models under Basel II, APRA's requirement for a 20% loss given default (LGD) floor has, to a significant extent, reduced the explicit regulatory incentive for ADIs to seek LMI cover. Nevertheless, such ADIs still see the benefit of LMI as a risk transfer mechanism and thus continue to buy LMI protection for their high LVR loans. It is also relevant to note that ratings agencies and investors also influence LMI utilisation by modelling ADIs to the extent such ADIs seek to use securitisation and covered bonds to fund their mortgage books.

There has, however, been a tentative shift among a few of the largest banks over recent years to write home loans at LVRs up to 85% without LMI cover but to charge borrowers a higher fee to compensate for the greater risk. This has occasionally been characterised as 'self-insurance' as the additional fee charged bears some resemblance to the quantum of the one-time premium charged when obtaining LMI cover. At this stage, this practice is not a material part of the Australian domestic market.

With respect to securitised mortgages, the majority of deals done in Australia have historically benefited from blanket or pool-based LMI cover. Typically, the policies provide 100% loss coverage against the loan balance, unpaid interest, and enforcement and liquidation costs. Historically, for a securitisation deal with 100% mortgage insurance, the mortgage insurance was the primary form of credit enhancement, particularly on junior tranches. In some cases, loans subject to securitisation may also have been covered by individual mortgage insurance policies (also known as 'primary mortgage insurance') as part of a lender's routine underwriting process. A topical issue currently being widely discussed is the view of the major ratings agencies that transactions without additional credit enhancement (other than LMI) may be downgraded. This has led to the development of mezzanine tranches so that the rating of the most senior tranche does not depend on the rating of the LMI provider.

Notwithstanding the support afforded to ADIs by LMI cover, ADIs must undertake their own assessment of a loan's credit quality. The typical approach in Australia is that the lender receives the application, evaluates it, and approves it, contingent on the approval of the mortgage insurer. An exception is loans written under 'open policy'. In an open policy, any loan written within insurance policy guidelines is automatically covered. The insurer does not review or verify the documentation or underwriting for each borrower but, rather, relies on the fact that the lender has accurately represented that the loan complies with policy guidelines. In such cases, APRA, in its role as prudential supervisor of both the ADI and LMI sectors, seeks to ensure that robust underwriting and audit arrangements provide assurance that, as much as possible, 'claims certainty' is achieved and maintained.

### *Proportion of mortgage books subject to LMI*

The two dominant mortgage insurers typically offer protection on loans with LVRs up to 95% although this can increase to 97% with the capitalisation of the insurance premium. On an exceptions basis, and sometimes as a result of legacy arrangements, a small number of loans with LVRs of up to 100% may be

underwritten. APRA has generally observed that the appetite for underwriting no deposit loans has been minimal in recent years.

The proportion of mortgage loan books subject to LMI varies depending upon an ADI's circumstances, market positioning, strategy and risk appetite. For the major Australian banks the proportion of domestic residential mortgages covered by LMI ranges from 14 per cent to almost 30%.

## Regulation in Australia

Insurers wishing to write LMI must be monoline insurers in Australia, although the LMI may be part of a wider group. All insurers, whether LMI or otherwise, are subject to minimum standards with respect to governance, risk management, capital and other regulatory requirements.

There is no requirement to maintain a 'contingency reserve', however the Maximum Event Retention (see details below) results in LMIs maintaining a significant amount of capital in preparation for the impact of a severe economic downturn.

## *Capital requirements*

### *Current*

The current minimum capital requirement is broadly composed of an insurance risk charge, investment risk charge and concentration risk charge. The latter constitutes the most significant aspect of the capital requirements for LMIs (approximately 85% of the total capital requirement). It is known as the Maximum Event Retention (MER) and the methodology is defined for LMIs in Australia, governed under *Prudential Standard GPS 116 Capital Adequacy: Insurance Concentration Risk Charge* (GPS 116). The maximum event scenario for LMIs takes the form of a specified three-year economic downturn (the prescribed stress scenario), where prescribed probability-of-default and LGD factors are applied to the sum insured of each loan based on LVR, standard/non-standard categorisation and the age of the loan. The calculation factors are calibrated to ensure that LMIs meeting the minimum APRA requirements could manage a nationwide housing downturn that is more severe than worst-case historical Australian experience (estimated to occur with a frequency of 0.4% per annum). The LMI is able to reduce the impact of the stress scenario for any reinsurance arrangements. In setting the capital requirements for LMIs, APRA gives due consideration to the capital requirements for mortgage business in the ADI industry.

### *Life and general insurance capital review*

APRA has recently completed a significant review of the capital standards for life and general insurers (LAGIC) which introduced some changes to the capital requirement for LMIs although the foundations of the calculation remain the same. The changes under the LAGIC review will be effective from 1 January 2013.

For the most significant component of the capital requirements, the MER above (and renamed Lenders Mortgage Insurance Concentration Risk Charge) an LMI applies the same stress scenario outlined above, however APRA has amended some of the factors to calibrate it, and it will change to a frequency of 0.5% per annum (consistent with the rest of the capital framework). The other significant change is to allow LMIs to deduct any provisions already on the balance sheet from the outcome of the stress so as to remove any double-counting (and reduce pro-cyclicality). The LMIs are still able to reduce the outcome of the stress scenario for any reinsurance arrangements.

## Scenario and stress testing

APRA originally stress tested LMIs in 2004, after a banking stress test showed a significant transfer of risk across to the LMIs under the stress scenario. In December 2010, APRA undertook another stress test of the banking sector. Similar parameters were then applied to a stress test of the major LMIs.

# Canada

## Background

The current mortgage and mortgage insurance market in Canada was created by the National Housing Act (NHA) in 1954. Prior to that mortgages required a minimum 20% down payment and usually more. One third of the money for mortgages was provided by the government and two thirds was provided by lending institutions, mainly life insurance companies. The 1954 National Housing Act (NHA) and related changes to the Bank Act (i) introduced mortgage insurance through the Canada Mortgage and Housing Corporation (CMHC), (ii) permitted chartered banks to provide mortgage loans and (iii) established a secondary market for mortgage loans. These changes increased the supply of money for mortgages and increased the supply of homes for Canada's growing population.

The initial program was restrictive and only applied to new homes. There was a single premium for all loans above an LTV of 75% where mortgage insurance was compulsory. As needs have changed the program has evolved. Some of the more significant changes are the following:

- Existing homes were made eligible for mortgage insurance in 1960. In the original legislation only new homes were eligible.
- Private insurers were permitted to offer mortgage insurance in addition to CMHC.
- The limit for compulsory mortgage insurance was increased to LTV's above 80% from the original 75%.
- The maximum LTV on purchase transactions was increased over time to 100% in some cases but has recently been reduced to 95%.
- Premiums now vary by LTV and product but other risk factors are used in underwriting and may be considered in pricing.
- The maximum amortisation period was increased to 40 years but has recently been reduced to 25 years.
- Mortgage insurance is only available on homes with a purchase price of C\$1 million or less.
- Interest rates are not guaranteed for the full amortisation period of the mortgage and are guaranteed for 5 years or less in most cases. Floating rate mortgages are also permitted.
- Lenders may also purchase insurance on a pool of low ratio loans (LTV of 80% or less) with the premium rate negotiated between the lender and the insurer.
- NHA Mortgage-Backed Securities (NHA MBS) are issued by approved issuers and backed by pools of residential mortgages insured by CMHC or one of the private mortgage insurers. Investors in NHA MBS purchase undivided interests in the pool of mortgages and receive monthly instalments of principal and interest from the cash flows of the underlying mortgages.
- The Canada Mortgage Bond (CMB) Program was designed to complement the NHA MBS program. Through the CMB Program, Canada Housing Trust, a special purpose trust sells CMB to investors and uses the proceeds to purchase mortgages packaged into NHA MBS from financial institutions. CMB investments offer investors regular semi-annual coupon payments and a single repayment of principle at maturity.
- NHA MBS and CMB are guaranteed as to the timely payment of interest and principal by the Government of Canada through CMHC.
- CMHC is now subject to prudential supervision by the Office of the Superintendent of Financial Institutions (OSFI). The private mortgage insurers have always been subject of OSFI supervision.

- The Government of Canada guarantees the obligations of private mortgage insurers to lenders through legislation that protects lenders in the event of default by the insurer. The guarantee is subject to a deductible equal to 10% of the original principal amount of the loan.

## Current Mortgage and Mortgage Insurance Market

Today the mortgage market is dominated by 12 financial institutions that account for over 90% of all new mortgages in Canada. Life insurance companies, who were the dominant source of funds prior to 1954, account for an insignificant portion of the loans. Federal law requires that all federally regulated financial institutions obtain mortgage insurance on all mortgages with an LTV greater than 80%. While similar requirements apply to other financial institutions regulated by the provinces, there is an unregulated segment that is not obliged to purchase mortgage insurance. As a result most single family mortgages with an LTV of over 80% are insured and, with the exception of mortgage pools, mortgages with an LTV of 80% or less are generally not insured.

While mortgages can have an amortisation period of up to 25 years, financial institutions will quote interest rates for 1 to 10 years after which time the interest rate must be renewed or renegotiated at the new current rates. Floating rate mortgages are also available and, subject to terms and conditions, can be converted to fixed rate mortgages at any time. Borrowers are permitted to change financial institutions but may be subject to prepayment penalties and other expenses may be involved.

Canada has a small Alt-A market aimed at self-employed borrowers. Other products are aimed at non-prime borrowers but non-prime is less than 5% of the market. An important difference between mortgages in Canada and the US is that the interest portion of the mortgage payment is not tax deductible. A capital gain on the sale of a primary residence is tax free. Mortgages in Canada are typically full recourse.

CMHC and two private mortgage insurers (Genworth Financial Mortgage Insurance Company Canada and Canada Guaranty) have insured loans in force of almost C\$800 billion with a written premium of approximately C\$2 billion. CMHC has about a 70% market share; Genworth 25% and Canada Guaranty 5%.

The premium for high LTV mortgages is a single up front premium and covers the entire amortisation period (normally 25 years). The policy covers the full extent of the loss including interest and reasonable expenses. In most cases the financial institution will sell the property and submit a final bill to the mortgage insurer. Where the financial institution is unable to sell the property the mortgage insurer will reimburse the financial institution for the full amount of the outstanding loan plus interest and expenses and take over their right to the property.

Since interest rates are not guaranteed by lenders for the full amortisation period borrowers must renegotiate interest rates periodically. In some cases borrowers will change financial institutions and in this case the mortgage insurance is usually transferrable at no additional cost.

As noted above the premiums vary by LTV and product but generally other risk characteristics are used. In particular there is no urban/rural distinction and rates are identical across Canada. Credit rating and other characteristics are used to determine eligibility for mortgage loans but not premiums. Since the premium for high ratio mortgage insurance is passed on to the borrower there is little price competition and the private insurers generally follow CMHC's lead.

CMHC provides insurance for owner occupied dwellings (including condos and town houses), rental properties and residential related properties such as condo construction, retirement homes and nursing homes but not to other commercial properties. Private mortgage insurers are restricted under the regulatory framework to providing mortgage insurance on residential properties consisting of one to four housing units. Mortgage insurance is also available for refinancing but at LTVs of 80% or less. A minimum down payment of 20% is required for investment properties and mortgage insurance is available.

Mortgages are underwritten by the financial institution and by the mortgage insurer and the individual mortgage must be accepted by both before it is approved. The mortgage insurers generally use automated underwriting systems where the data is provided by the financial institutions. This data is periodically audited by the mortgage insurers and detailed records of early delinquencies are also reviewed on a frequent basis.

Pooled or bulk insurance on low ratio mortgages is provided by CMHC and the private mortgage insurers and premiums are individually negotiated for each deal. All NHA MBS securitised pools are either insured individually (high ratio) or through bulk insurance (low ratio). As a result the investors are protected from credit risk and are only exposed to cash flow/timing risk. CMHC also guarantees timely payments of principal and interest to investors.

### Accounting and Capital Requirements

Premiums are earned over the amortisation period of the loans based on the expected emergence of losses. While these patterns differ by individual insurer and product line OSFI has a prescribed earning pattern which must be used for capital purposes. While these patterns extend for 25 years or longer almost all the premium is earned in the first seven years.

The loss date is deemed to be the first missed payment leading to default. Since many borrowers miss payments but do not default there is usually a delay of about a year between the first missed payment and the final settlement. Mortgage insurers use different techniques to establish these claims reserves with some using a combination of case reserves and IBNR and others projecting the entire amount using actuarial methods. Actuaries are also required to estimate the expected losses on the in force business and where this estimate exceeds the unearned premium an additional liability is required. Each mortgage insurer must have an appointed actuary who prepares a report and opinion on the unpaid claims and premium liabilities. This report is based on actuarial standards of practice and is subject to review by the actuaries at OSFI.

Capital requirements are based on the Minimum Capital Test for non-life insurers. There is, however, a special requirement for mortgage insurers where an additional provision is based on the in force book of insured mortgages. As a result mortgage insurance essentially has its own unique capital requirement. Mortgage insurers all establish a capital target based on scenario testing subject to OSFI review. As a result they are all holding capital of 150% or more of the required minimum.

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