

International Special Report

Australian Residential Mortgage Default Model 1999

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Collateral Information Checklist

A. Loan Attributes

- Loan balances (current, original, and scheduled)
- Appraised value
- Loan-to-value ratio
- Loan term (original, remaining, and seasoning)
- Origination date
- Mortgage rate and description (i.e. variable)
- Mortgage attributes (i.e. rate adjustment frequency)
- Loan type
- Loan purpose
- Loan status (if in arrears, number of months and balance)
- Mortgage insurance

B. Borrower Attributes

- Profile (i.e. first-time home buyer)
- Status (i.e. self-employed)
- Debt-to-income ratio
- Credit reporting information

C. Housing Attributes

- Home type
- Owner-occupied vs. investment property
- Regional dispersion

D. Pool Concentration

- Geographic location by state and region
- Post code

■ Summary

In 1997, Fitch IBCA developed a model to evaluate credit loss levels on Australian residential mortgage-backed securities (MBS). The model, using the Australian housing recession of the early 1990s as a benchmark, calculates credit enhancement requirements to support ratings on investment-grade classes of MBS. It incorporates a loan-by-loan analysis that takes into account the characteristics of each property, borrower, and loan.

To determine rating guidelines that reflect the unique characteristics of mortgages and lending practices in the Australian market, Fitch IBCA conducted a study of the residential mortgage industry. The study included an examination of residential mortgage portfolios from several mortgage lenders. In addition, Fitch IBCA analysed data and research from several Australian mortgage insurers, the Australian Bureau of Statistics, and the Real Estate Institute of Australia.

Fitch IBCA's Australian mortgage default model calculates credit losses for MBS based on the probability of borrower default and loss severity. The model focuses on the interaction of the three primary determinants of default. These three factors are: borrower's equity in their home (or loan-to-value ratio [LVR]); borrower's financial resilience; and potential effect of an unexpected downturn in borrower's financial standing, such as unemployment or divorce.

Loss severity is determined by considering regional market value trends; the costs involved once a borrower has defaulted, such as carrying costs and legal expenses; and LVR. Fitch IBCA's market value assumptions are based not only on traditional determinants such as regional economic stability but also on historical home price volatility by state and projected steady state sustainable growth.

Residential MBS ratings are based on three fundamental aspects of the transaction: the credit quality of the collateral; the financial structure of the security; and the legal separateness of the issuer. This report focuses on Fitch IBCA's approach to determining the credit quality of the collateral.

The report describes some of the unique features of the Australian mortgage market, sets out Fitch IBCA's guidelines and methodologies for rating Australian residential mortgage loans, and includes Fitch IBCA's checklists for reviewing the origination and administration of the loans.

This report updates Fitch IBCA's report from September 1997. The primary changes are the inclusion of income coverage and other factors in calculating default probability, additional historical home price data, and a discussion of credit reporting in Australia.

■ Australian Home Ownership

There is a significant social status to home ownership in Australia. Approximately 70% of Australian households live in dwellings that they own or are purchasing. For most Australians, the purchase of a home for owner-occupation is one of the most important and largest purchases made during their lifetime.

The high rate of home ownership in Australia can largely be attributed to government policy encouraging ownership, both directly and indirectly, over a long period. Before World War II, the government promoted home ownership to address the problems of housing shortages, homelessness, and substandard rental accommodations. These governmental policies continued in the post-war era, as the government provided more than 100,000 loans to soldiers returning from the war. This significant initiative provided a major impetus to the home construction activity and increase in housing stock for 10 years after the war.

The government continued its promotional policies in the 1960s and 1970s, providing various measures to assist first-time home purchasers and establishing regulations affecting housing finance. Furthermore, in the 1980s, the deregulation of the financial market and floating of the Australian dollar affected house purchases.

In April 1986, a significant policy change occurred: The Australian government lifted the control on housing loan interest rates. Before this, housing loan interest rates were capped at 13.5%. This change resulted in an unlimited supply of financing for home lending and caused rates to increase rapidly in the late 1980s, peaking in 1989 at approximately 17% (see chart below). The rapid increase in rates adversely affected home purchasers, and mortgage

defaults increased markedly in the years that followed.

More recently, the 1990s has seen the increase of non-bank home mortgage lending. These non-bank originators often fund themselves through securitising their mortgage pools. The emergence of the non-bank originators has led to increased competition in the mortgage market, as the bank and non-bank originators compete for customers based on interest rates and loan amenities.

■ Fitch IBCA Residential Default Model

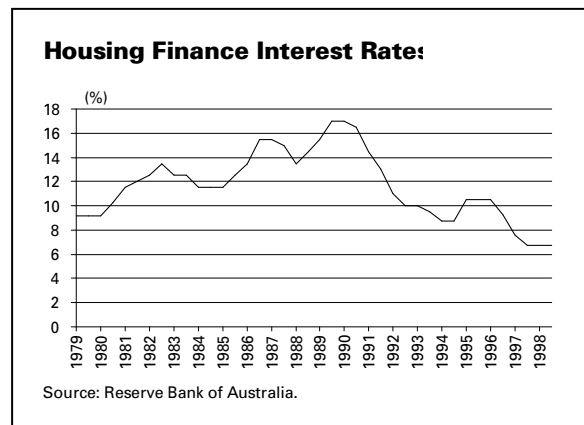
Model Approach

Fitch IBCA considered unique social, economic, and cultural features in developing its Australian mortgage default model. Based on historical analysis, Fitch IBCA has determined that the probability of default for an Australian home loan borrower is lower than for similar US or UK home loan borrowers. Fitch IBCA has reflected the slightly lower likelihood of borrower default in its default probability matrix on page 4.

Fitch IBCA's market value decline (MVD) assumptions also reflect the historically low levels of volatility in Australian house prices; nevertheless, because Australia has not experienced a severe housing recession in recent history, Fitch IBCA has been conservative in formulating its MVD assumptions to allow for the effects of a recession severe enough to affect investment-grade entities.

To determine loss coverage for residential MBS, Fitch IBCA's Australian default model employs a loan-by-loan review, examining several loan-, borrower-, and property-specific factors that most influence default probability and loss severity. Fitch IBCA's base default probability analysis focuses primarily on a loan's LVR. These expected default rates are then adjusted further by loan, borrower, and property attributes, as described later in this report.

A large component of Fitch IBCA's recovery value analysis is market value trends. (Recovery value is the inverse of loss severity.) Fitch IBCA market value assumptions focus on historical regional volatility and sustainable growth, while also including traditional measures of MVD. The market value projections are then adjusted by loan and property attributes, including property size and ownership.



Reported Credit Events

	US	Australia
Late Payments	30 Days	Not Reported
Defaults	Reported	Usually Reported
Bankruptcies	Reported	Reported
Current Outstanding		
Balances	Reported	Not Reported
Judgments	Reported	Reported
Credit Applications	Reported	Reported
Credit Granted	Reported	Not Reported
Credit Availability	Reported	Not Reported

Fitch IBCA's Australian mortgage default model can be characterised as a worst-case, loss-driven model, which calculates investment-grade credit enhancement requirements for residential mortgage securitisations.

■ Credit Information Availability

Credit information on borrowers is an important predictor of borrower behaviour. Borrowers who have poor credit histories are far more likely to default on their home mortgages than borrowers who have clean credit histories. In the US, credit reporting bureaus maintain accurate and detailed positive and negative credit information for all borrowers. This detailed credit history is an important indicator of default probability. In Australia, as in the UK, credit reporting has not developed to the same extent as in the US. In addition, privacy laws forbid the collection or dissemination of some data. The table above outlines some of the differences between credit reporting in the US and Australia.

The lack of available credit data in Australia reduces the effectiveness of credit reporting as a predictor of future defaults. Because the Australian credit reporting agencies typically only receive negative data after a loan has defaulted (120 or more days late), a borrower who is habitually 30 to 90 days late in making payments will likely not appear on any negative credit report. This high threshold of reporting does separate out borrowers with very poor credit histories (referred to in the US as "C" and "D" borrowers); however, it is difficult to distinguish between a borrower with an average credit history and a borrower with a spotless credit history. As a result, Fitch IBCA finds that most performing loan pools will contain "A," "A-," and "B" borrowers. Without the ability to distinguish among these classes of borrowers, Fitch IBCA must conservatively assume that a performing loan pool will have equal concentrations of all three classes.

■ Default Probability

Determinants of Default

The primary indicators of delinquency and default are a combination of the following factors:

1. The amount of equity invested in the home (LVR).
2. The financial resilience of the borrower.
3. The effect of unexpected financial stress on the borrower, such as unemployment or divorce.

Fitch IBCA incorporates the two basic theories of mortgage default in its model, namely the borrower's willingness and ability to make monthly payments.

The equity or willingness-to-pay theory states that the borrower's perceived equity in the property dominates the decision to default if the borrower is in financial distress. The borrower's incentive to avoid foreclosure is, therefore, affected by home price fluctuations over time. The equity theory also assumes that a large initial downpayment reflects a borrower of higher financial means. Fitch IBCA believes that a borrower is more willing to pay if he has made a substantial downpayment at origination, regardless of declines in home prices that might erode equity over time.

In Australia, accumulated equity in housing provides significant benefits to homeowners, including: use as collateral against loans for cars, holidays, or investment purposes; and an additional degree of security against unemployment or retirement. Consequently, low LVR loans (less than 60%) are expected to have very low default rates.

Most home mortgages in Australia are fully recourse to the borrower. The recourse provisions allow a lender to pursue other assets of the borrower in the event that the mortgage collateral is insufficient to satisfy the loan upon a borrower default. The



'AAA' Australian Default Matrix

(%)

Loan-to-Value Ratio	'AAA'	'AA'	'A'	'BBB'
≤ 40.00	5	4	3	2
40.01–50.00	6	5	4	3
50.01–60.00	7	6	5	3
60.01–70.00	10	8	6	4
70.01–80.00	14	12	9	6
80.01–85.00	17	14	11	7
85.01–90.00	22	18	14	9
90.01–95.00	27	22	17	11
95.01–98.00	33	27	19	14
98.01–100.00	40	32	24	16
> 100.00				

Analysed on an Individual Basis

recourse provision will provide an incentive to the borrower to expend all assets to avoid a mortgage default. In countries with predominantly non-recourse mortgages, during periods of sharp MVDs, solvent borrowers who find their loans “under water” may choose to hand back the keys to the lender to protect their other assets. This option is not viable under a recourse mortgage.

A borrower’s ability to pay is largely dictated by his income in relation to all monthly necessary obligations. The larger the income surplus or cushion, after paying monthly debts, the more financially resilient is the borrower. In addition, larger surpluses allow for greater absorption by the borrower of financial shocks, such as divorce, unemployment, or a rise in interest rates. This is particularly important because the two most common reasons for borrower default are unemployment and divorce.

When Fitch IBCA analyses pools of Australian mortgage loans, it will review the lender’s underwriting guidelines, as well as a sample of loan files. Fitch IBCA views a lender favourably if it limits loan amounts based on borrower income and debt and if a thorough borrower evaluation is performed, including checks for negative credit information with the Credit Reference Association of Australia Ltd. Fitch IBCA’s review and analysis of the lender determines whether Fitch IBCA decreases or increases the base default rates.

Fitch IBCA uses these factors in the Australian mortgage default model to determine base default rates, which are then modified to reflect the risk associated with specific loan, borrower, and property attributes. The base default probability matrix for investment-grade rating levels is set out above.

Default Probability Adjustments

Fitch IBCA adjusts the base default rates on a loan-by-loan basis to account for individual loan characteristics

of the collateral across all rating levels. Default rates may be adjusted to reflect product type, loan purpose, second home/investment property, borrower profile, seasoning, and arrears status.

Product Type: The most common type of home loan in Australia is the variable-rate, 20- to 30-year amortising residential mortgage loan. While variable-rate mortgages can experience payment shock due to underlying index volatility, this risk is already incorporated into the baseline default analysis. Many mortgages offer a variety of other features, such as redraw facilities; the ability to lock in a fixed rate for all or a portion of the mortgage for a set period, to offset interest payments with earned interest from a deposit account; or the ability to receive advances for principal payments made in excess of scheduled amortisation. These features will be discussed in more detail later. Fitch IBCA assumes that all residential mortgage loans are fully amortising. Fitch IBCA will increase the probability of default 100% or more for any mortgage that is not fully amortising.

Amortising Variable-Rate Mortgages: These mortgages pay principal and interest until maturity. The interest rates for these mortgages typically vary at the discretion of the trustee, fund manager, or servicer. No default probability adjustments are made for these loans.

Amortising Fixed-Rate Mortgages: These types of mortgages pay principal and interest until maturity. The interest rate is fixed for a specified period, at which point it will convert to a variable rate. Fitch IBCA will increase the probability of default by 20% if the fixed rate is a below-market “teaser” rate. For loans fixed five or more years, Fitch IBCA will not increase the probability of default because it believes that the fixed rate will protect the borrower from increases in interest rates during the peak default period, which occurs in years two through five for most loans. For loans fixed less than five years, Fitch IBCA will increase the probability of default by up to

10% to reflect the inability to prepay the loan and the possibility of a shock to the borrower if payments suddenly increase at the expiration of the fixed term.

Some mortgage products will allow the borrower to convert all or some of the mortgage to a fixed rate at any time during the life of the mortgage. Fitch IBCA does not increase the probability of default for these loan types.

Interest-Only Mortgages: These types of mortgages convert to amortising principal and interest mortgages after a specified date. The interest rate under the mortgage may be a variable or fixed rate. Fitch IBCA increases default probability for interest-only loans that convert to amortising loans due to the payment shock caused to the borrower as a result of higher monthly payments required to amortise the loan by its maturity date.

Amortising Split Variable-Rate/Fixed-Rate Mortgages: Under these mortgages, the interest rate for a certain specified dollar proportion of the mortgage is fixed for a specified time period, while the interest rate for the remaining dollar proportion of the mortgage is variable. In these loans, the borrower may freely prepay the variable-rate portion of the loan without penalty or break charges. Fitch IBCA believes that the ability to prepay the mortgage and build up equity balances the risk of a potential payment shock at the expiration of the fixed-rate term. Therefore, Fitch IBCA does not increase the probability of default for fixed/floating loans.

Redraw Facilities: Some loans will allow a borrower to redraw principal that has been paid ahead of schedule. The borrower may only redraw an amount up to the scheduled balance of the loan. For instance, a borrower prepays \$50,000 of a \$100,000 loan and two years later needs cash for home improvements. Had the borrower not prepaid the \$50,000, the scheduled balance on the loan after two years might have been \$95,000. Therefore, the borrower could redraw up to \$45,000 of the \$50,000 that had been repaid to bring the balance back to the scheduled amount of \$95,000. Fitch IBCA does not increase the probability of default for the presence of redraw facilities so long as the redraw is at the discretion of the lender. For loans with redraw facilities, Fitch IBCA will determine default probability and losses based on the scheduled loan balance and not the current loan balance.

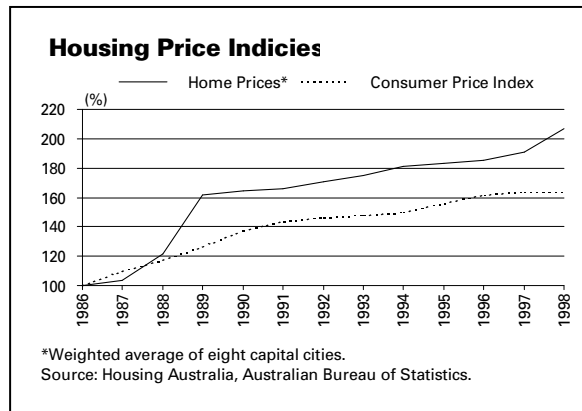
“Top-Up” Facilities: These facilities will allow the borrower to receive additional funds such that the new loan balance exceeds the original loan balance.

Fitch IBCA will increase the probability of default and the projected losses for loans that allow “top-ups.” To avoid the additional credit enhancement requirements of top-up loans, the lender can agree to remove such loans from a pool before providing any additional advances. However, rather than remove these loans from a securitised pool, some lenders may opt to provide a deed of priority, which will subordinate the top-up portion to the original loan amount to insulate bondholders. Fitch IBCA believes that while a deed of priority may protect bondholders from increased losses, the top-up will still increase the probability of default. Therefore, unless the loan is completely removed from the pool, a top-up facility will require additional credit enhancement.

Reduced Documentation Programs: Fitch IBCA believes that loans made with reduced documentation are more likely to default than fully documented loans. Loans made with no borrower income verification and no asset verification are much more likely to default. Loans with little or no documentation perform particularly poorly when combined with other high-risk characteristics, such as poor credit history or high LVRs. Fitch IBCA will substantially increase the probability of default for limited or no documentation loans.

Refinancing: Fitch IBCA views mortgage loans advanced to release equity in the home (equity refinance mortgages) as risky because the homeowner is essentially borrowing back equity based on the home’s price appreciation. Fitch IBCA believes that a cash-out refinance is more likely to default than a rate and term refinance. First, given the borrower’s desire to obtain a certain amount of cash, pressure to reach the corresponding property valuation may result in understated LVRs. Therefore, such loans would be more risky than accurately valued loans with apparently identical LVRs.

Because the loan is advanced on the basis of the home’s appreciated value, appraisals for a refinance are critical to the underwriting process. Fitch IBCA reviews the issuer’s appraisal process, as well as all underwriting guidelines, when meeting with the originator’s management. Second, a common purpose for cash-out refinancing is debt consolidation. While debt consolidation may result in a lower aggregate monthly payment for the borrower, the need for debt consolidation can be an indicator of financial stress. Should the borrower “reload” on other credit lines after the consolidation, the debt burden may become intolerable. For these reasons, Fitch IBCA increases the probability of default for a cash-out refinance. Conversely, Fitch IBCA will reduce the probability



of default on a rate and term refinance if the borrower can demonstrate a clean mortgage payment history.

Purchase Money Mortgages: Fitch IBCA believes that the safest purchase money mortgages are to borrowers who have had prior mortgages and who are not pushing maximum LVR limits. Fitch IBCA will reduce the probability of default and potential for loss upon a default for these types of loans. For loans that are seeking the maximum available LVR, Fitch IBCA believes that there may be pressure on the appraisal to arrive at the appropriate value and the borrower may have used all available resources to obtain the mortgage. Therefore, Fitch IBCA will increase the loss upon a default for these loans. In addition, Fitch IBCA will increase the probability of default for first-time borrowers because they are a greater risk than seasoned borrowers.

Construction Loans: For loans advanced to construct homes, Fitch IBCA expects construction to be completed before the loan being included in the pool for securitisation.

Mortgages Up to 90 Days in Arrears: When rating a portfolio combining current and arrears mortgages, Fitch IBCA increases base default rates for mortgages in arrears up to 90 days by 25%–75%.

Credit Report Histories: Fitch IBCA will decrease the probability of default for borrowers with no defaults, bankruptcies, or other blemishes on their credit report. A borrower with any defaults, no matter how small or despite any explanation, will not receive this credit.

Second Homes and Investment Properties: While information about mortgage performance for second homes is limited, Fitch IBCA assumes that second homes are considerably more susceptible to default. A financially distressed borrower is more likely to default on a second home than on a primary

residence. A borrower is even more likely to default on an investment property than on a second home. Investment properties in Australia tend to have low yields and generate little or no positive cash flow. Borrowers typically acquire investment properties for tax benefits and appreciation. If interest rates rise, investment property borrowers will see their cash flow positions rapidly deteriorate, thus increasing the probability of default. Accordingly, Fitch IBCA increases base default rates up to 25% for investment properties.

Borrower Profile: Self-employed borrowers have a greater probability of default than borrowers who are paid a salary, depending on the nature of their business. More importantly, as mentioned earlier, a borrower in Australia is required to guarantee his mortgage with all his assets, including moveable assets and wages, as well as the real estate against which the loan has been advanced. If the entire loan is not repaid by foreclosing on and selling the mortgaged property, the borrower's wages and other income can be seized according to limits set by Australian law.

Given this legislation, Fitch IBCA believes that a borrower who earns a fixed annual salary is more likely to make monthly mortgage payments than a self-employed borrower who generates income from his own business. For these reasons, Fitch IBCA increases default probability on loans to self-employed borrowers by up to 30%.

■ Income Ratios/Excess Income

The ability of a borrower to repay a loan has a direct link to the size of the mortgage payment relative to the borrower's income. Naturally, a borrower with a low mortgage payment to income ratio will have more ability to survive stress situations, such as an increase in interest rates, a reduction in income, or an unexpected major expense. Fitch IBCA's default ratios on page 4 assume a borrower with a debt service-to-income ratio of 35%–40%. If a borrower's ratio exceeds 40%, Fitch IBCA will increase the probability of default. Conversely, if the borrower's ratio falls below 35%, Fitch IBCA will decrease the probability of default.

Fitch IBCA recognises that debt service-to-income ratios are not as applicable to wealthy borrowers, who will have a greater amount of disposable income, even at higher debt service-to-income ratios. For this reason, Fitch IBCA will allow wealthy borrowers a debt service-to-income ratio of up to 45% before increasing the probability of default.

Some lenders will use excess income as a measure of loan affordability as opposed to debt service-to-income ratios. Fitch IBCA will look at these underwriting guidelines individually to determine their appropriateness. Excess income required by a family will vary greatly depending on the number of children, whether one or both parents work, and the location of the borrowers. In addition, changes in family status and interest rates can quickly reduce excess income. Fitch IBCA may increase or decrease the probability of default depending on the lender's guidelines for determining excess income.

■ Loss Severity

Components of Loss Severity

It has long been recognised that economic changes affect mortgage performance. The risks created by serious economic downturns can be severe: home prices and repossession rates can fluctuate dramatically, with bank losses escalating, if a surge in foreclosure rates coincides with a downturn in home prices. Fitch IBCA's Australian default model quantifies loss severity (or, conversely, recovery value) by utilising several factors, including market value trends, foreclosure and carrying costs, mortgage insurance, and LVR.

■ House Prices in Australia

Between 1986–1989, house prices in Australia increased more rapidly than the Consumer Price Index (CPI) (*see chart, page 6*). Since then, prices have moved more in line with the CPI, although more recently they are diverging again. This divergence from the CPI in 1986–1989, as well as recently, reflects the volatility of the housing market, which has historically worked on boom/bust cycles. The last boom was between 1987–1989, when house prices increased almost 50%.

The increase in prices in 1987 was caused by growth in demand for real estate. There are several reasons for this growth: pent-up demand following a period of relatively high prices in 1985; children of “baby boomers” started to form households of their own; increased interest in real estate following the 1987 stock market corrections; Australia experienced high levels of net overseas migration through the last half of the 1980s (net migration for the five years ended June 1990 was 48% higher than the previous five years); and housing demand fueled by the government lifting the control on housing loan interest rates in 1986.

Since 1989, house price growth has slowed due to a combination of high interest rates, greater home prices, a decline in overseas migration, and lower economic growth. However, in 1997 and 1998, real estate prices in Sydney and Melbourne increased

Market Value Trends

To capture true market value movements for each region, Fitch IBCA's methodology focuses on traditional determinants, such as regional economic stability, as well as historical regional changes in home prices and projected steady state sustainable growth.

Many variables influence home price movements, such as sudden, volatile changes in housing demand brought about by government policy and speculation or population migration, variations in disposable income induced by fluctuations in interest rates and wages, and changes in lending practices. While these variations are sometimes measurable, they generally are not predictable and, as a result, do not lend themselves to the traditional methods of assessing future decreases in market values. For this reason, Fitch IBCA's model focuses on home price movements rather than the events that influence them.

Fitch IBCA divided Australia into eight regions to carry out its house price analysis, as shown in the table on page 8. Fitch IBCA analysed house price movements in each region since 1978 on the basis of data compiled by the Real Estate Institute of Australia and found that house prices had increased year-over-year in the country as a whole since 1978, despite the minor recession in the early 1990s. Although home prices have been increasing overall in Australia, as in the UK and the US, each region has different patterns of growth and declines (*see Appendix 1, page 11*). To determine worst-case home price movements and volatility for each region, Fitch IBCA focused on each region individually and assessed worst-case home price declines and volatility. The results were then increasingly stressed to determine base MVDs ranging from ‘BBB’ to ‘AAA’ for each region in Australia.

Adjustment Factors for High-Value Properties

Property Value (A\$)	Sydney/Melbourne (x)	Other Capital Cities (x)	Other (x)
400,000–600,000	N.A.	1.10	1.25
600,001–900,000	1.10	1.25	1.50
> 900,000	1.25	1.40	2.00

N.A. – Not applicable.

Market Value Declines

(%)

	New			South	Western		Australian	Northern
	South Wales	Victoria	Queensland	Australia	Australia	Tasmania	Capital Territory	Territory
'BBB'	35	25	24	21	30	20	23	22
	40	30	29	26	35	25	28	27
	45	35	34	31	40	30	33	32
'AAA'	50	40	39	36	45	35	38	37

Market Value Adjustments: Fitch IBCA adjusts its projected MVDs depending on the property type. Fitch IBCA believes that single-family detached homes are the least volatile of all residential property types. Therefore, Fitch IBCA will reduce the projected MVDs for this property type. Other property types, such as apartments, attached townhouses, units with fewer than two bedrooms, and downtown residential, have historically shown greater price volatility. As a result, Fitch IBCA will increase the MVDs for these more volatile property types.

High-Value Properties: Homes with relatively high market values are generally subject to greater MVDs in a deteriorating market than homes with average or below-average market values due to limited demand for such properties. Imprecise pricing information, caused by the lack of comparable benchmark homes, also influences the amount of price volatility during a market downturn. Additionally, Fitch IBCA recognises that relative and absolute home price movements can vary by region. Fitch IBCA will increase base MVD assumptions to account for this increased risk, as detailed in the table on page 7.

Property Ownership: In Australia, a borrower can possess his/her home freehold or leasehold. If the registered legal mortgage is over freehold land, the homeowner owns the land on which the house is built. If the property is possessed leasehold, credit risk can be higher. As the lease approaches termination, the value of the leasehold property rapidly declines. This depreciating effect increases in severity toward the end of the lease's life. In some rare cases, the lease may not be renewed, and the owner of the property can take possession of the structure. For this reason, Fitch IBCA imposes a minimum lease life of approximately 20 years beyond the life of the loan. In the event this condition cannot be met, Fitch IBCA will depreciate the value of the home based on the duration of the lease's life.

Foreclosure and Carrying Costs

When calculating recovery value, Fitch IBCA's model reduces the property valuation by foreclosure costs and the cost to the administrator of "carrying" the loan from delinquency through to default. Fitch IBCA assumes foreclosure costs amount to 8% of the

loan balance at the time of possession. This estimate is based on actual cost data supplied to Fitch IBCA and may be adjusted as cost structures change in the industry.

To calculate carrying costs, Fitch IBCA assumes the borrower does not pay interest for 12 months and that the interest rate on all loans during this time is the weighted average rate in the mortgage pool for fixed-rate product and at 17% for variable-rate mortgages. The 12-month time frame is based on worst-case estimates obtained from Australian mortgage lenders. The 17% interest rate is based on worst-case historical interest rate data.

■ Mortgage Insurance

Mortgage insurance in the form of primary mortgage insurance (PMI) and pool policies (as credit enhancement) is commonly provided on all mortgage loans securitised in Australia. Typically, there is 100% loss coverage by mortgage insurance against the loan balance plus costs. Mortgage insurance also often provides liquidity to the securitisations, ensuring that timely interest is paid to the security holders even upon the default of a large percentage of borrowers in a securitisation.

Participants: Five participants dominate the mortgage insurance market in Australia: CGU Lenders Mortgage Insurance Ltd. (formerly Commercial Union); Housing Loans Insurance Corporation Ltd. (rated 'AAA' by Fitch IBCA); GE Capital Mortgage Insurance (Australia) Pty Ltd. (rated 'AA' by Fitch IBCA); MGICA Ltd.; and Royal and Sun Alliance Lenders Mortgage Insurance Ltd.

Primary Mortgage Insurance: Typically, the insurance provided under a PMI policy covers losses and costs after enforcement against a defaulted mortgage. The losses and costs covered include principal losses, interest losses, and any amount of costs of sale and enforcement reasonably and necessarily incurred.

Cash Flow Coverage: Many PMI and pool policies include cash flow coverage (liquidity) in an amount equal to defaulted interest installments. This coverage

Loan-Level Credit Enhancement Calculation

Desired Rating	'AAA'	Loss Severity Calculation (A\$)	
Appraised Value (A\$)	100,000	Loan Balance	75,000
Region	Melbourne	Appraised Value	100,000
Loan Advanced (A\$)	75,000	Less: Market Value Decline (40%)	40,000
Loan-to-Value Ratio (%)	75.0	Less: Repossession Costs	6,000
Product Type	Variable Rate	Less: Carrying Costs (17% for 12 Months)	<u>12,750</u>
		Equals: Recovery Value	41,250
		Loan Balance (30 Months Seasoned)	75,000
Default Probability Calculation (%)		Less: Net Recovery	<u>41,250</u>
'AAA' Base Default Probability	14.0	Equals: Loss Amount	33,750
		Loss Severity (Loss/Original Balance) (%)	45.0
		Required Credit Enhancement	
		'AAA' Default Probability (%)	14.0
		Times: Loss Severity (%)	<u>45.0</u>
		Equals: 'AAA' Credit Enhancement (%)	6.3

Note: Example assumes no mortgage insurance.

typically starts after one missed payment and continues until the default in payment is remedied or until enforcement of the mortgage is complete, subject to a maximum period, usually between 12 and 24 months, specified in each PMI policy. The insurers are typically required to pay cash flow claims within 14 days of having received a proper claim. Cash flow coverage does not provide credit enhancement to the transaction, rather, it decreases the amount of liquidity that Fitch IBCA would otherwise require for the securitisation.

Exclusions: PMI policies will not cover losses resulting from: the liability of the trustee as mortgagee under any environmental legislation; the payment of any further penalty or liability to pay damages; war, invasion, insurrection, or like events; government or local authority confiscation, nationalisation, requisition, or damage to any property securing a mortgage; refusal or failure to comply with reasonable directions of the mortgage insurer; material breach by the trustee as the insured; the mortgage becoming invalid, unenforceable, or losing priority; losses due to the lender's systems failing to meet Year 2000 compliance; or material or physical damage to a security property (however, in this regard, mortgagors are obliged to effect full fire and general insurance, and there is often a mortgage protection policy purchased for the benefit of the trustee that provides coverage in the event of physical damage loss arising from the failure of the original insurance policy).

When rating an MBS, Fitch IBCA initially reviews the PMI and/or pool policies to determine coverage amount and payment terms and to understand the exclusion clauses in the policy that might cause non-payment by the insurer. The insurer's rating also is

taken into consideration when determining the amount of credit for mortgage insurance for each loan in a pool. If a mortgage insurer is rated less than the rating on the MBS transaction, only partial credit is given. For example, on 'AAA' rated MBS, credit for mortgage insurance from an 'AAA' rated entity may be up to 100%, with up to 75% for an 'AA' rated insurer, up to 50% for an 'A' rated insurer, and up to 25% for a 'BBB' rated insurer.

■ Credit Enhancement

Fitch IBCA calculates credit enhancement for each loan in a mortgage pool by multiplying default probability by loss severity. The required credit enhancement amounts for each loan is totalled and then adjusted for any pool-wide characteristics to derive the required credit enhancement for the entire securitisation. An example of Fitch IBCA's loan by loan calculation is set out above.

■ Liquidity Coverage

MBS transactions require liquidity to cover short-term delinquencies and long-term shortfalls. Assumptions regarding liquidity requirements can vary dramatically because the timing of delinquencies and shortfalls is difficult to predict. For this reason, Fitch IBCA uses a worst-case methodology to determine the level of liquidity required to cover delinquencies and defaults and takes the weighted average default probability for a given pool of mortgages as the base indicator. Because liquidity coverage is closely related to the quality and efficiency of mortgage administration as well as the quality of the collateral, Fitch IBCA tailors the calculation of liquidity to the particular dynamics of each transaction that it rates.

For short-term delinquencies, Fitch IBCA assumes that payment will be received within a maximum of

six months and that interest will accrue during this period at the weighted average interest rate for a fixed-rate mortgage pool and at 20% for variable-rate pools. Short-term delinquencies also include legitimate events of non-payment, such as for maternity/paternity leave and payment holidays.

For long-term payment shortfalls, Fitch IBCA typically assumes that payment will be received within a maximum of 15 months from the point of default and that interest will accrue at the weighted average interest rate for a fixed-rate mortgage pool and at 18% for variable-rate pools. Fitch IBCA then adjusts weighted average default probability to reflect its estimation of the number of loans likely to be in default at any one time. To the extent liquidity is provided by an appropriately rated mortgage insurer, this liquidity calculation may be substantially reduced.

A key factor in evaluating and rating a pool of mortgage loans is the quality of the operations and procedures of the underlying mortgage originator/administrator. A direct correlation exists between the origination and

servicing functions and the performance of a collateral pool. Fitch IBCA may increase or reduce credit enhancement based on the quality and experience of the originator and administrator. Underwriting guidelines, appraisals, and collection procedures are of particular importance.

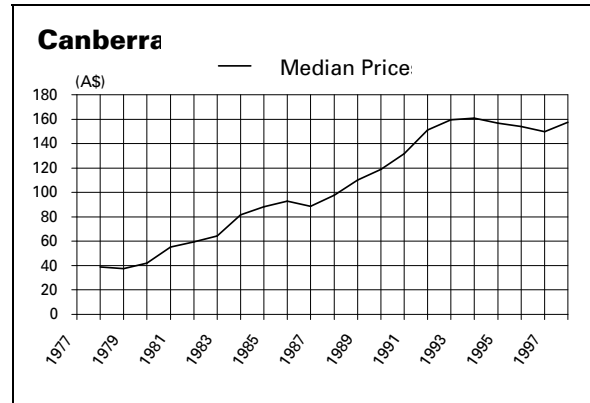
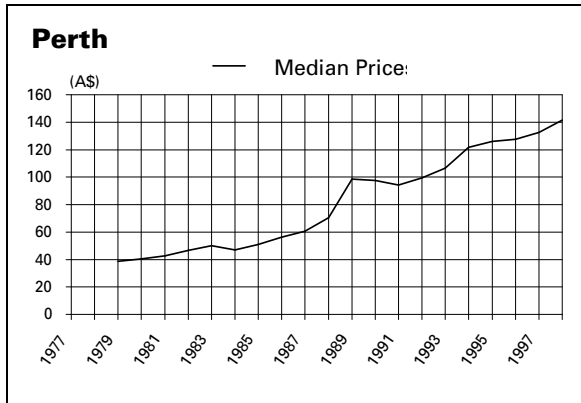
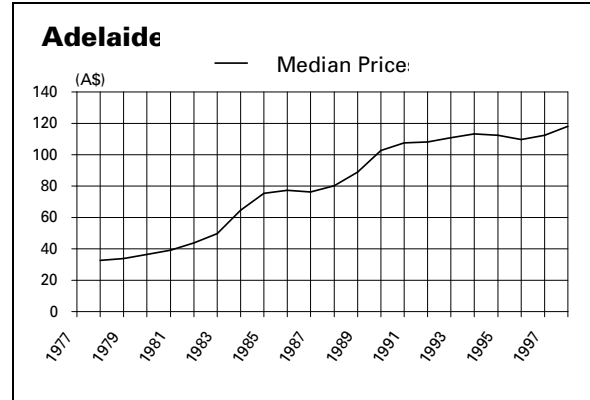
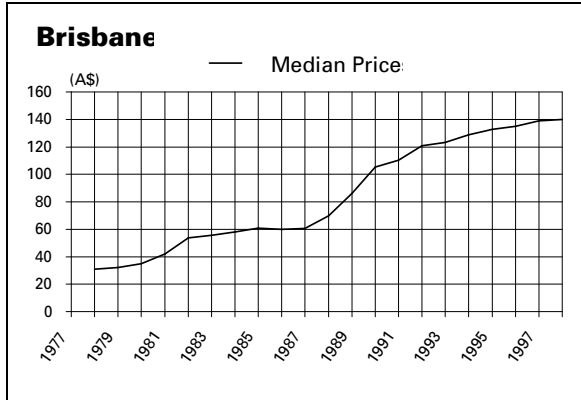
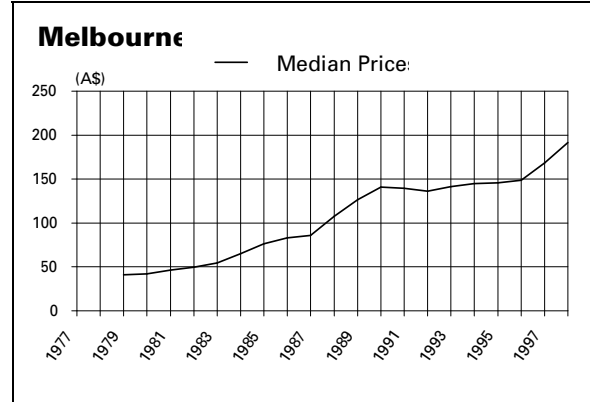
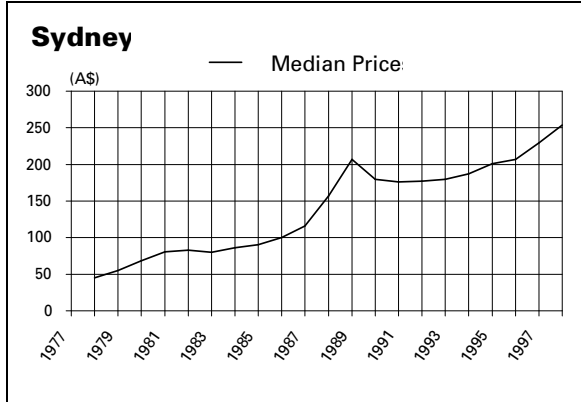
Operations Review

As part of its rating process for each transaction, Fitch IBCA reviews the operations of the originator/administrator, determining whether the company's procedures, controls, and performance are acceptable. Interviews, procedural reviews, and loan-level analyses are performed, not only to determine if operations comply with industry and investor guidelines but also to ensure that the proper controls are in place for a given transaction.

Fitch IBCA tailors its review to the requirements of each issuer and investor, as well as the nature of the transaction involved. The key aspects of its approach are summarised in the checklists in Appendix 2 on page 12.

Appendix 1

Established Weighted Average Median Home Prices



Source: Real Estate Institute of Australia.

Appendix 2

Mortgage Origination Checklist		
<p>Underwriting</p> <ul style="list-style-type: none"> • Underwriting experience • Adequate training • Compliance with guidelines • Process for approving third-party originators* • Process for reunderwriting third-party loans* 	<p>Appraisal</p> <ul style="list-style-type: none"> • Management experience • Formal review process • Appraisal examples • Use of approved appraisers • Completion of appraisals to industry standards 	<p>Quality Control</p> <ul style="list-style-type: none"> • Management and staff expertise • Conformity with guidelines • Documented procedures • Involvement in early payment defaults and foreclosures • Uniform Consumer Credit Code compliance
<p>*If applicable.</p>		

Servicing Checklist	
<p>Collections/Workout</p> <ul style="list-style-type: none"> • Management experience • Collector experience • Formal collection strategy • Familiarity with industry guidelines • Tracking system • Level of borrower contact 	<p>Foreclosure/Bankruptcy</p> <ul style="list-style-type: none"> • Management and staff experience • Committee foreclosure approval • Familiarity with state/territory requirements • Selection of lawyer and monitoring • Property inspections
<p>Property Management</p> <ul style="list-style-type: none"> • Marketing strategy • Compliance with industry and government guidelines • Expense management • Security, protection, and repair of properties 	<p>Servicing Quality Control</p> <ul style="list-style-type: none"> • Management involvement and reporting structure • Formal review process • Compliance with government guidelines • Number and severity of quality control exceptions and adequate follow-up • Year 2000 compliance

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