ASSESSING PROPERTY RISK IN AUSTRALIAN COMMERCIAL MORTGAGE-BACKED SECURITIES

BWEMBYA CHIKOLWA
Queensland University of Technology

ABSTRACT

This paper investigates how property risk in Australian Commercial Mortgage-Backed Securities (CMBS) issued between 2000 and 2005 can be assessed and reported in a more systematic and consistent approach to be easily understood by institutional investors. Our framework shows that assessing and reporting property risk in Australian CMBSs, which are primarily backed by direct property assets, under the headings of investment quality risk, covenant strength risk, and depreciation and obsolescence risk can easily be done. Rating agencies can adopt a more systematic and consistent approach towards reporting of assessed property risk in CMBS. Issuers and institutional investors can examine the perceived consistency and appropriateness of the rating assigned to a CMBS issue by providing inferences concerning property risk assessment.

Keywords: Commercial Mortgage-Backed Securities; Property Risk; Loan-to-Value Ratio; Debt Service Coverage Ratio; Diversification

INTRODUCTION

Asset-backed securitisation (ABS) is a creative arrangement for raising funds through the issuance of marketable securities backed by predictable future cash flows from revenue producing assets (2004). In Australia, Commercial Mortgage-Backed Securities (CMBS), a sub-class of ABS, are predominantly in the form of securitisation of direct property assets (Jones Lang LaSalle 2001). According to Henderson and ING Barings (1997), assets backing a securitisation are its fundamental credit strength. In the case of Australian CMBSs, this involves looking at property backing these issues vis-à-vis property risk. There are four main areas of risk in securitisation, namely asset risk; cash flow risk; legal risk; and third party risk. Moody's Investor Service (2003) state that the credit risk of a mortgage loan will depend on the characteristics of the underlying properties; the loan structure; loan-to-value (LTV) and debt service coverage ratio (DSCR); the overall portfolio diversification; and other factors, such as the transaction structure, legal risk and servicing quality. They further state that the assigned rating is the relative risk of the collateral and its ability to generate income. Therefore, the ratings inform the public of the likelihood of an investor receiving the promised principal and interest payments associated with the bond issue (Shin & Han 2001).

In this paper, property risk is delineated as in line with Adair and Hutchinson's (2005) property risk scoring model. The key headings under this model are:

- Market transparency risk;
- Investment quality risk;
- Covenant strength risk; and
- Depreciation and obsolescence risk.

However, of concern are the last three property risk parameters since market transparency risk is not an issue for the Australian property market. Australia is one of the most transparent property markets, ranked first together with the USA (Jones Lang LaSalle 2006) and has the most highly securitised commercial property market in the world (Hughes & Arissen 2005). Table 1 shows the placement of Australia on the Jones Lang LaSalle (JLL) Global Transparency Index as at December 2006. JLL define transparency as "as any open and clearly organized real estate market operating in a legal and regulatory framework that is characterized by a consistent approach to the enforcement of rules and regulations and that respects private property rights". They further add that "the ethical and professional standards of private sector advisors, agents and brokers who are licensed to conduct business in each country have to be high".

Table 1: Jones Lang LaSalle global real estate transparency index: 2006

Highly transparent:
Australia, US, New Zealand, Canada, UK, Hong Kong, Netherlands, Sweden, France, Singapore

Transparent:
Finland, Germany, South Africa, Denmark, Austria, Ireland, Belgium, Spain, Switzerland, Norway, Italy, Malaysia, Japan, Portugal

Semi-transparent:
Mexico, Czech Republic, Hungary, Poland, Israel, Taiwan, South Korea, Slovakia, Chile, Greece, Russia, Philippines, Brazil, Slovenia, Thailand, Argentina, India

Low transparency:
China, Macau, UAE, Costa Rica, Indonesia, Turkey, Peru, Romania, Colombia, Uruguay, Saudi Arabia, Panama

Opaque:
Egypt, Venezuela, Vietnam

Source: Jones Lang LaSalle (2006)

According to Hughes and Arissen (2005), 30.2% of Australia's investment-grade property was listed on the stock market and the share of listed property as a percentage of the overall stock market was 10.7%, higher than any other country in the world (see Table 2).

Table 2: Global levels of securitised property

Country	Percentage of property listed on stockmarket	Percentage of stockmarket
Australia	30.2%	10.7%
Hong Kong/China	26.0%	5.5%
Singapore	26.0%	9.3%
Luxembourg	12.5%	5.9%
Sweden	9.9%	3.5%
Canada	7.5%	2.6%
US	7.2%	2.3%
Netherlands	6.5%	3.4%
New Zealand	5.6%	5.2%
Austria	5.1%	4.6%
UK	4.6%	1.7%
Japan	4.2%	2.2%
France	3.5%	1.6%
Switzerland	3.1%	0.6%
Spain	2.9%	1.7%
Total	**5.6%**	**2.3%**

Source: Hughes and Arissen (2005)

The advantage of having a highly securitised property market is that investors have more publicly available information on property risk as a result of the listed property companies being legally bound to report their activities and underlying collateral performance to regulatory regimes such as ASX/ASIC and their equity investors.

To date, few studies have been done on Australia CMBSs outside the credit rating agency circles. These studies are predominantly practitioner-focused (Jones Lang LaSalle 2001; Richardson 2003; Roche 2000, 2002). Chikolwa (2007), O'Sullivan (1998) and Simonovski (2003) are the only academic studies on CMBSs. Roche (2002) presents a model used by ABN AMRO to rank Australian CMBSs, whereas other studies all look at CMBS market structures and development. However, none of these studies have looked at property risk assessment within CMBSs.

As such, the purpose of this paper is to investigate how property risk, as assessed in Australian CMBSs over 2000-2005, can be clearly reported in a more concise and systematic approach; particularly focussing on assessment of investment quality risk, covenant strength risk, and depreciation and obsolescence risk. Other secondary risk factors such as legal risk relating to issues such insolvency and bankruptcy and third party risk involving the credit rating of support parties such as security trustees, interest rate providers and liquidity facility providers, are not discussed in this paper. Common structural mechanisms have been set up to mitigate secondary risk in all CMBS issues. We refer readers to Standard and Poor's (2005b), Clayton UTZ (2003) and Moody's Investor Service (2003). The framework should prove useful to rating agencies, bond

issuers and institutional investors. Rating agencies can adopt a more systematic and consistent approach towards reporting of assessed property risk in CMBS. Issuers and institutional investors can examine the perceived consistency and appropriateness of the rating assigned to a CMBS issue by providing inferences concerning property risk assessment.

The remainder of the paper is organised as follows. In section 2, we present the significance of risk assessment in property investments. Section 3 contains methodology and data. Results and discussion are presented in section 4. Section 5 presents a case study showing how property risk was assessed and mitigating strategies adopted. Finally, we conclude in section 6.

SIGNIFICANCE OF PROPERTY RISK ASSESSMENT

There has been significant growth in the area of property risk research in both the valuation and investment realm from the year 2000. The debate for more property risk research started with the Mallinson Report (RICS 1994). One of the recommendations of this report was that common professional standards and methods should be developed for measuring and expressing valuation uncertainty. Mallinson and French (2000) took this recommendation a step further by examining in-depth the reporting of uncertainty within valuations to the client. They proposed a statistical method to account for uncertainty in valuation reports. The Investment Property Forum/Investment Property Databank (2000; 2002) also highlighted the need for more rigorous risk assessment measures within the property profession. More specifically they concluded that a new approach was needed which combined conventional analysis of returns uncertainty with a more comprehensive survey of business risks. This debate was brought into sharper focus by the publication of the Carsberg Report (RICS 2002) , which emphasised the need for more acceptable methods of expressing uncertainty, particularly when pricing in thin markets where information is deficient. Furthermore, the debate on the reporting of risk was taken forward by The European Group of Valuers Association (TEGoVA) (2003) by the publication of the "European Property and Market Rating: A Valuer's Guide". The function of the rating system is to support risk, property, and loan analyses of portfolios in connection with securitisation, investment and disinvestment decisions and granting of property loans respectively. An earlier publication by TEGoVA (2002) entitled "European Mortgage Securitisation: A Valuer's Guide" provided valuers with criteria for determination of the risk profile in the European mortgage-backed securities market. The International Valuation Standards Committee (IVSC) (2006) has also published a white paper on guidelines for the valuation of property-backed securitised assets, with a call for comments on these guidelines. The thrust of the white paper is that these assets should be assessed on a discounted cash flow basis accounting for all risk factors.

Lorenz et al (2006) show how rating and simulation approaches can be used in property valuation to address uncertainty and risk. Hutchinson et al (2005) develop a generic

market model that can be used to risk score individual property investments utilising the Analytic Hierarchy Process (AHP), a multi-criteria decision making tool. Adair and Hutchinson (2005) examine risk analysis within an investment decision-making framework and the property industry and further explain how their property risk scoring framework can be applied. French and Gabrielli (2004; 2005) show the superiority of using simulations in property valuation to account for uncertainty. Despite attempts by these studies for better assessment of risk and uncertainty and their communication to clients, Lorenz (2006) and Joslin (2005) concede that the concept of uncertainty within property valuation is poorly understood and that it is rarely conveyed to clients in a coherent form.

Further impetus for the explicit communication of risk in property has emerged more recently under the requirements of the Basel 2. The implications of Basel 2 are that banks must be more explicit about the risks of lending. As property constitutes a major source of such lending, the identification, analysis and communication of the risks involved are becoming more important (The Economist 2005).

Lorenz et at (2006) also report that confusion surrounds the terms risk and uncertainty within the valuation literature, because they are often used interchangeably and because one can often be found within the description of the other. They do not offer a definition of risk, but follow Chicken and Posner's (1999) (cited in their paper) classification of the constituents of risk as shown below:

$$\text{Risk} = \text{Hazard} \times \text{Exposure}$$

Whereby hazard is the way in which a thing or situation can cause harm while exposure is the extent to which the likely receipt of the harm can be influenced by the hazard. This is analogous to the perception of risk in CMBS in terms of the probability of default and severity of loss. The probability of default is measured through debt service coverage ratio (DSCR) and severity of loss through loan-to-value (LTV) ratio. Fabozzi and Jocob (1997) state that these are the main criterion used to quickly assess the risk of CMBS deals. The LTV is calculated by dividing the total amount of the notes issued by the current market value of all the properties. The DSCR is calculated by dividing the total net passing income of the properties by the debt-servicing amount. The debt-servicing amount is derived by multiplying credit rating agencies' stressed interest rate assumption by the notes' issuance amount.

Credit rating agencies establish a stabilised net cash flow and an 'assessed capital value', which are used as the basis of the debt-sizing calculations. The appropriate LTV and DSCR are applied to those values. The capitalisation rate used to determine the 'assessed capital value' is a function of the risk and return of the asset, reflecting its age, quality, location, and competitive position within the market.

Moody's Investor Service (2003) state that the core of their analysis is the assessment of cash flows that will be available to service the debt during the term of the loans and for refinancing, if necessary. Sustainable cash flows are meant to represent the cash-generating potential of a property looking through the real estate cycle. Underwriting at or near the peak is more likely to produce unsustainable incomes and capital values than underwriting at the bottom of the cycle. For instance, Fitch Ratings (1999) show that a rating of 'A' or higher should have survived the early 1990's Australian recession intact. Transactions rated lower than 'A' would suffer losses. At the peak of the recession in 1992, interest rates rose to 17% and the commercial real estate markets in Sydney, Melbourne, Perth and Adelaide were severely hit. In general, net effective rents on commercial properties decreased more than 50%, vacancy rates increased to more than 20%, and values dropped more than 50%.

The study's major contribution is offering a framework for assessing and communicating property risk for the success of the CMBS issues. As pointed out earlier, risk and uncertainty are poorly understood in property valuation and this may extend to CMBSs, since property assets are the fundamental credit strength of Australian CMBSs. CMBS investors are able to make informed decisions before investing in CMBSs on the premise that issuers and credit rating agencies have systematically and consistently assessed property risk before launching the issues and assigning credit ratings respectively.

METHODOLOGY AND DATA

All the CMBSs issued over a six year period of 2000 to 2005 were obtained from Standard and Poor's presale reports as found in their Ratings Direct database to identify and review how property risk factors were addressed in all issues and within specific property asset classes following the delineation of property risk by Adair and Hutchinson (2005). We compare and contrast property risk assessment by using various parameter averages within CMBS issues, across property sectors and other industry set standards over the assessment period.

Our dataset comprised a total of 49 generic CMBSs (excluding credit lease and small ticket transactions) with a total of 135 tranches, worth over AU$10.3 billion. Generic CMBSs[1] account for 62% of all CMBS issuances (Standard & Poor's 2005a). Credit lease and small ticket transactions are not discussed in this paper. Table 3 presents a summary of aggregated details of all the Australian CMBSs issued from 2000 to 2005; these account for nearly 69% of all CMBSs by worth.

[1] These are mainly single-borrower transactions.

Table 3: Summary of Australian CMBS (2000-2005)

Sector	Issue	Issued Amount (A$m)	Note Tenure (Years)	Property Details							Financial Details			Tenant/Lease Details				No. of Assets		
				Total Lettable	Capital Value			Net Income ($m)			Gearing		LF	CQI	TC	WALE	OR	TA	Diversity	
				Area (m²)	Market Value (AU$m)	S&P Stressed Value (AU$m)	Capital Value Discount (%)	Market Net Income (AU$m)	S&P Net Income (AU$m)	Net Income Discount (%)	DSCR	LTV							PD	GD
All																				
	Min	0	1	49,650	200	200	0	18	17.90	0	1.20	32.0%	1.16%	0%	20%	3.6	83.0%	1	8.0%	0.20
	Max	350	7	1,008,603	1,880	1,660	22.9%	142.20	120.30	22.5%	3.50	76.0%	13.3%	100.0%	100.0%	30.0	100.0%	101	100.0%	1.00
	Average	75	4	349,805	760	672	11.0%	62.00	56.28	9.0%	2.14	45.1%	3.1%	37.5%	45.8%	7.8	97.2%	21	29.8%	0.47
Diversified																				
	Min	1	3	97,316	265	228	7.3%	21.00	19.50	3.0%	1.29	32.0%	1.9%	17.9%	42.0%	3.6	91.3%	7	9.7%	0.32
	Max	350	6	588,200	1,430	1,255	20.2%	123.87	107.80	13.4%	3.50	68.0%	4.4%	56.0%	67.0%	10.0	99.0%	25	60.2%	0.51
	Average	62	4	284,666	688	606	12.0%	56.79	50.97	9.3%	2.10	46.1%	3.2%	39.5%	50.9%	7.1	97.0%	19	35.5%	0.40
Industrial																				
	Min	5	1	500,844	454	399	3.0%	46.00	37.80	2.0%	1.46	33.0%	2.0%	24.2%	24.3%	4.1	94.0%	26	8.0%	0.48
	Max	185	5	1,008,603	1,147	885	22.9%	92.26	84.10	17.8%	3.10	68.0%	3.3%	24.2%	25.0%	6.3	99.0%	39	14.0%	0.79
	Average	60	3	787,841	808	701	12.2%	74.79	67.53	9.8%	2.40	42.6%	2.5%	24.2%	24.9%	5.4	97.6%	34	10.2%	0.63
Office																				
	Min	10	1	49,650	495	473	4.4%	34.40	29.30	5.4%	1.28	32.0%	1.2%	13.3%	39.0%	4.1	83.0%	1	11.9%	0.26
	Max	350	5	431,691	1,880	1,660	16.4%	142.20	120.30	22.5%	2.40	62.0%	3.4%	75.0%	79.9%	8.0	99.5%	21	100.0%	1.00
	Average	133	3	310,142	1,220	1,084	10.9%	96.40	83.27	13.6%	2.04	41.0%	2.2%	44.3%	54.2%	5.7	96.4%	13	26.3%	0.49
Retail																				
	Min	0	3	91,152	200	200	0.0%	17.90	17.90	0.0%	1.20	35.0%	2.0%	0.0%	20.1%	4.0	93.0%	2	11.0%	0.20
	Max	240	7	533,343	1,380	1,100	20.3%	92.80	85.40	13.9%	3.30	76.0%	13.3%	100.0%	100.0%	30.0	100.0%	101	64.0%	0.78
	Average	61	5	189,845	524	468	0.10	41.76	39.06	5.9%	2.09	0.48	0.04	0.30	0.45	13.9	0.98	20	0.37	0.45

Key:

LF: Liquidity Facility (% of stressed value)

CQI: Credit Quality of Income (% of income from investment grade tenants)

WALE: Weighted Average Lease Expiry (Years)

OR: Occupancy Rate (%)

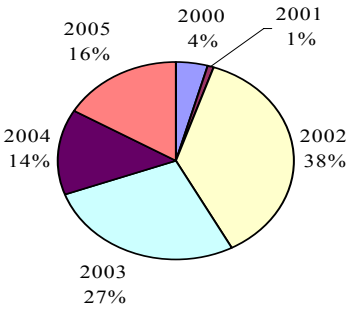
TC: Tenancy Concentration (Top 5 tenants as % of total gross income)

GD: Geographic Diversity Herfindahl Index

Source: Author's compilation from various Standard and Poor's CMBS presale reports

Over the study period, the peak issuance year was 2002 with 19 (38%), followed by 2003 at 14 (27%) issues. 2004 and 2005 had comparatively similar issuances at 7 (14%) and 8 (16%) respectively. The formative years of 2000 and 2001 had issues of 2 (1%) and 5 (4%) respectively. These figures are represented in Figure 3.

Figure 1: Australian CMBS issuance by percentage (2000-2005)

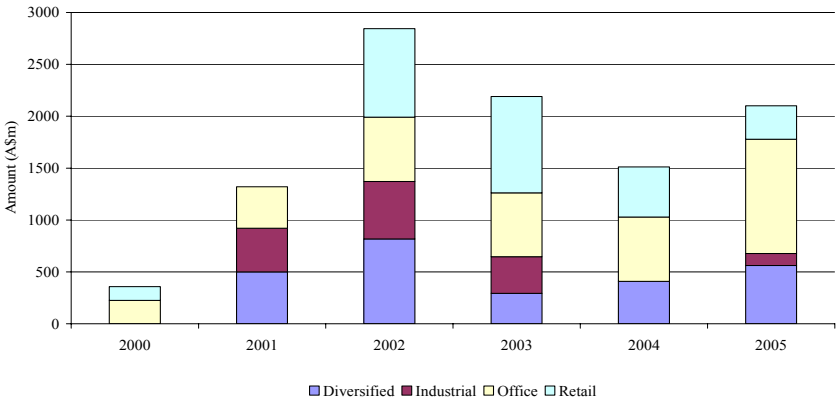


Source: Author's compilation from various Standard and Poor's CMBS presale reports

Figure 2 presents the CMBS issuance by sector over 2000 to 2005. Over this six year period, the most dominant CMBS issues have been in the office sector (AU$3.6 billion), followed by the retail sector (AU$2.7 billion). The diversified sector[2] and the industrial sector have had AU$2.6 billion and AU$1.4 billion worth of CMBS issuance respectively.

[2] These are property portfolios composed of different property types.

Figure 2: Australian CMBS issuance by sector amounts (2000-2005)



Source: Author's compilation from various Standard and Poor's CMBS presale reports

Specific details obtained per CMBS issue were:

- Total lettable area, capital values, and net income;
- Gearing and transaction structure details;
- Tenancy and lease details relating to the credit quality of tenants, tenant concentration, and lease expiry profiles;
- Asset quality details relating to location, average age, condition, and tenancy retention;
- Diversification and total number of assets backing the issues; and
- Management profile of issuers.

To further illustrate property risk assessment in CMBS issues, *Multiplex CMBS Issuer Ltd. Series 2005-1 & 2005-2* are taken as a case-study, with all publicly available data collected from credit rating agencies, CMBS presale reports and the company's website. The Multiplex CMBS issues were selected on account of being the largest and most recent during our study period.

RESULTS AND DISCUSSION

The CMBS data collected were analysed on an aggregated basis to compare property risk assessment within the various property sub-classes using our framework. The results of the analysis under the delineation of property risk are shown below.

Investment quality risk

Cross and over-collateralisation

Cross-collateralisation is a standard feature in Australian CMBS issues. Equity and cash flows from performing properties are available to support weaker properties, improving the probability of default and the recovery assumptions on the loan. Large asset backing contributes to the attainment of a higher credit rating (Moody's Investor Service 2003). Lee (2007), among other authors, asserts that real estate portfolios with smaller number of properties have a higher volatility of portfolio returns than larger portfolios. Averages of 18 properties (285,000m²) backed diversified issues, whereas 34 properties (788,000m²) backed industrial issues. Office property-backed issues had an average of 13 properties (310,000m²) with 20 properties (190,000m²) for retail property-backed issues.

Overcollateralisation is achieved by the special purpose vehicle owning assets to a greater value than the funds it raises from investors or lenders (Henderson & ING Barings 1997). In case of default, the market value should be able to meet all loan repayments. However, credit rating agencies substantially discount market values and net income to arrive at their "stressed values" on a worst-case basis. Stressed values are the basis on which loan-to-value ratio (LTV) and debt-to-service coverage ratio (DSCR) are determined. These are the main criterion used to quickly assess credit risk of CMBS deals (Fabozzi & Jacob 1997). DSCR is the main driver of frequency of default, while LTV is the key factor for expected severity of loss. LTV is calculated by dividing the total amount of the notes issued by the current market value of all the properties, while DSCR is calculated by dividing the total net passing income of the properties by the debt-servicing amount. The debt-servicing amount is derived by multiplying credit rating agencies' stressed interest rate assumption by the notes' issuance amount. This offers 'double-edged' protection to investors as the LTV and DSCR are based on discounted values.

On the basis of risk assessment of capital values and incomes between property asset classes, discounts applied as shown in Table 3 are investigated. Industrial property-backed issues showed the highest average capital value discount (12.2%) followed by diversified property-backed issues (12%), office backed issues (10.9%) and retail property-backed issues (10.0%). A further look at the average net rent discount shows office backed issues had the highest discount (13.6%), followed by industrial property-backed issues (9.8%), diversified property-backed issues (9.3%); and retail property-backed issues (5.9%) had the lowest discount. These discounts can be used as proxies of portfolio composition and CMBSs that can be issued. For instance, a CMBS issue of AU$100 million needs to be backed by a portfolio value of AU$109 million at a market average discount of 10.9% in the case of office backed issues.

These results show that the composition of a property portfolio backing an issue and the capital and rental discounts applied, considered the volatility of the various property sub-classes. Moody's (2003) assert that volatility of property classes in Australia runs from the least being retail property, followed by industrial property, office property and lastly hotel property.

Occupancy rates

Occupancy rates in all issues ranged between 83% and 100%; well over industry averages. Retail property-backed issues had an average occupancy rate of 98% in line with the average national occupancy rates of 97%-98%, followed by diversified and industrial property-backed issues which had 97% each. Office property-backed issues had an average occupancy rate of 96%, significantly above the average national occupancy rate of 92.5% as at December 2005 (Colonial First Estate Global Asset Management 2006). High occupancy rates mitigate the risk of rental loss due to vacancies.

Loan-to-value (LTV) ratio and debt service coverage ratio (DSCR)

The risk and return profile of an asset reflects its age, quality, location, and competitive position within the market. These aspects are captured in the capitalisation rate adopted for property valuation. The 'assessed capital value' is the basis of the debt-sizing calculations of LTV and DSCR.

The incidence of default rises with the LTV; that is, if all other factors are held constant, the probability of default for a loan increases as the LTV increases, but not equally. Unlike the LTV, where the probability of default increases as the LTV rises, the incidence of default is a decreasing function of the DSCR. However, the relationship between the DSCR and the probability of default is weaker than the relationship between the LTV and default. Table 4 shows composite ranges for both DSCR and LTV across all rating classes assigned during the study period. It should be noted that various rating classes have specific LTV and DSCR ranges. As we progress from the lower notes (BBB) to higher notes (AAA), LTV thresholds decrease and DSCR thresholds increase respectively. Details of indicative LTV and DSCR threshold levels in various asset classes can be found in Standard and Poor's (2003) and Jones Lang LaSalle (2001).

Table 4: LTV and DSCR threshold in Australian CMBS issues (2000-2005)

Sector	DSCR (times)		LTV range (%)*	
	Min	Max	Min	Max
Diversified	1.29	3.50	0.32	0.68
Industrial	1.46	3.10	0.33	0.68
Office	1.28	2.40	0.32	0.62
Retail	1.20	3.30	0.35	0.76

Source: Author's compilation from Standard and Poor's CMBS presale reports

DSCR ranged from 1.28 to 3.1 for the industrial and office property-backed issues, whereas retail property-backed issues had a slightly higher range of 1.2 to 3.3. As for LTV ratios, the highest range was again in the retail property-backed issues from 0.35 to 0.76 with those backed by the diversified, industrial and office property-backed issues ranging from 0.32 to 0.62 as shown in Table 2. This confirms the earlier Moody's Investor Service (2003) and Jones Lang LaSalle (2001) suppositions of retail properties having the

least cash flow and asset value volatility and hence rating agencies assessing them at higher LTV and DSCR ranges.

Liquidity facility
This covers interest shortfalls and amounts necessary to preserve and protect the mortgage collateral. The standard has been to allow for six months' of note payments at the credit rating agency's refinance constant for six months' of transaction expenses. Across all issues, this ranged from 1.16% to 13.3% of S&P's accessed capital values. Diversified property-backed issues had a range of 1.9%-4.38%; industrial property-backed issues ranged from 1.96%-3.34%; and office property-backed issues from 1.16%-3.4%. The largest range was in the retail property-backed issues which had 2.0%-13.3%.

A probable explanation for the high liquidity facility ranges in retail properties could be the higher need to continually maintain and update these assets in comparison to office and industrial properties. Further, retail properties and office properties have a larger number of tenants than in industrial properties, which entails having larger allowances to mitigate rent payment delays.

Overall portfolio diversity
The diversity of a portfolio of assets will have an impact on the volatility of the pool's expected loss. Diversity is examined by property type, geographic location, loan/property concentration and economic sector. By diversifying the mix of property types, one can mitigate a pool's expected loss. Geographic diversity mitigates the risk of single market decline and may reduce any losses associated with this type of risk. Generally, loans secured by operational real estate such as hotel properties tend to have the highest default probability, followed by unanchored retail properties and office properties. Loans secured by anchored retail and industrial/warehouse properties have the lowest default levels (Jones Lang LaSalle 2001). Roche (2002) further expands this assertion by stating that diversity across property type is more valuable than geographic diversity, because the market for investment grade property in Australia is relatively small and values across cities for specific asset types, such as single tenanted, large office properties in secondary CBD or suburban locations, are highly correlated. Table 5 shows the current composition of securitised portfolios.

Table 5: Current composition of property portfolios

Property Type	Property Portfolios			
	Diversified	Industrial	Office	Retail
Hotel	√			
Cinema	√			√
Car park	√			
Warehouse/Distribution	√	√		
Business/Office park	√	√		
Industrial estate	√	√		
Container park	√			
Campus	√			
Development site/Hi-tech	√	√		
CBD A-grade offices	√		√	
Non-CBD A-grade offices	√		√	
Regional shopping centre				√
Sub-regional shopping centre				√
Neighbourhood shopping centre				√
Bulky goods retail centre				√

Following Hedander (2005), who used a diversity scoring system based on the Herfindahl Index to measure diversity on a geographic and property type concentration basis in Australian listed property trusts, we adopt a similar procedure to measure diversity in Australian CMBS portfolios. This index effectively converts a pool of CMBS issues of uneven size into a measurement of diversity, as if all issues were the same size. A totally focussed CMBS issue has an index equal to one, while the index for a diversified CMBS issue is closer to zero.

The Herfindahl geographic region index (HHGR) for each respective CMBS issue is calculated as follows:

$$\text{HHGR} = \sum_{j=1}^{8} \left(\frac{x_j}{x}\right)^2$$

where j = Geographic region: the states in Australia (New South Wales, Victoria, Queensland, South Australia, Western Australia, Northern Territory, Australian Capital Territory (ACT) and Tasmania,

x_j = percentage of asset type in portfolio

x = total portfolio composition

Of all the sector issues, diversified property-backed issues had the most geographical diversity with an average score of 0.40, followed by retail and office property-backed issues with scores of 0.45 and 0.49 respectively. Industrial property-backed issues had the least diversity with a score of 0.63. An explanation of this is that the eastern states of New South Wales and Victoria account for the bulk of Australia's gross domestic product.

Retail and office properties included in most issues are found in most states, with little representation in Tasmania and Northern Territory.

The Herfindahl property type index (HHPT) for each respective CMBS issue is calculated as follows:

$$\text{HHPT} = \sum_{i=1}^{6} \left(\frac{x_i}{x}\right)^2$$

where i = type of property: industrial, office, retail, hotel, car park, other

x_i = percentage of asset type in portfolio

x = total portfolio composition

Assessment for diversity by property type basis was only undertaken for the diversified property-backed sector, which had a score of 0.77. Lack of adequate data was the reason for not assessing the retail, office and industrial sectors.

Another measure of diversity is the percentage of the largest property by value in relation to the whole portfolio value. A large single property value exposure has a negative impact on the portfolio in instances of default. The retail property-backed sector had the largest average single property value concentration at 37.5%, due to the large size of the properties both on floor area basis and by market value. The least was the industrial sector at 10.2%. The diversified property-backed sector closely followed the retail property-backed sector at 35.5% whereas the office property-backed sector had an average of 26.3%.

Details on HHGR, HHPT and property diversity are found in Table 3.

Covenant strength risk

Covenant strength risk is impacted through credit quality of income, the weighted average lease expiry profile, and tenancy concentration. A large percentage of income from investment grade tenants minimises the incidence of default, whereas a lower diversity of tenants increases the incidence of default.

Tenancy concentration is measured through the contribution of 5 or 10 top tenants' contribution to total net income. The office sector had the highest percentage of the 5 top tenants' contribution to net income at an average of 54.2% and the least was the industrial sector at 24.9%. The diversified and retail sectors had averages of 50.9% and 45.0% respectively.

As for credit quality of income, which is measured by percentage of income from investment grade tenants, the same trend exhibited in tenancy concentration continues

with the office sector at 44.3%; diversified sector at 39.5%; retail sector at 30.5%; and industrial sector at 24.2% respectively. An explanation of this is that most office buildings included in CMBSs are prized-trophy properties occupied by large well established and often highly credit-rated firms. As for retail properties, apart from credit-rated anchor tenants such as the Woolworths group, Coles Myer, David Jones, the bulk of the tenants are small unrated specialties.

A higher weighted average lease expiry profile also lowers the incidence of default as there is a higher probability of rental receipt (Moody's Investor Service 2003). Nearly all issues had WALE profiles above the tenure of the issued notes, with the exception being the retail sector which has very long leases by some anchor tenants in excess of 15 years. The diversified sector had average WALE profile of 7.0 years and the office and industrial sectors had 5.6 and 5.4 years respectively.

Depreciation and obsolescence risk

In all the issues, depreciation and obsolescence risk is mitigated by the inclusion of maintenance and capital expenditure reserves. Sufficient and regular capital expenditure is necessary to ensure that collateral quality, occupancy and value are maximised. A capital expenditure reserve may be required to ensure sufficient funds are available to cover any major capital expenditure works during the life of the transaction. Capital expenditure requirements may also be addressed via a facility from an appropriately rated counterparty. There are no set rules as each transaction has different requirements depending upon the condition of the assets, the gearing levels, and the positioning of the asset in the market. Some of the parameters in place are lump sums over a certain period or percentages of the independent valuation of the "core" properties.

CASE STUDY: MULTIPLEX CMBS ISSUER: SERIES 2005-1&2

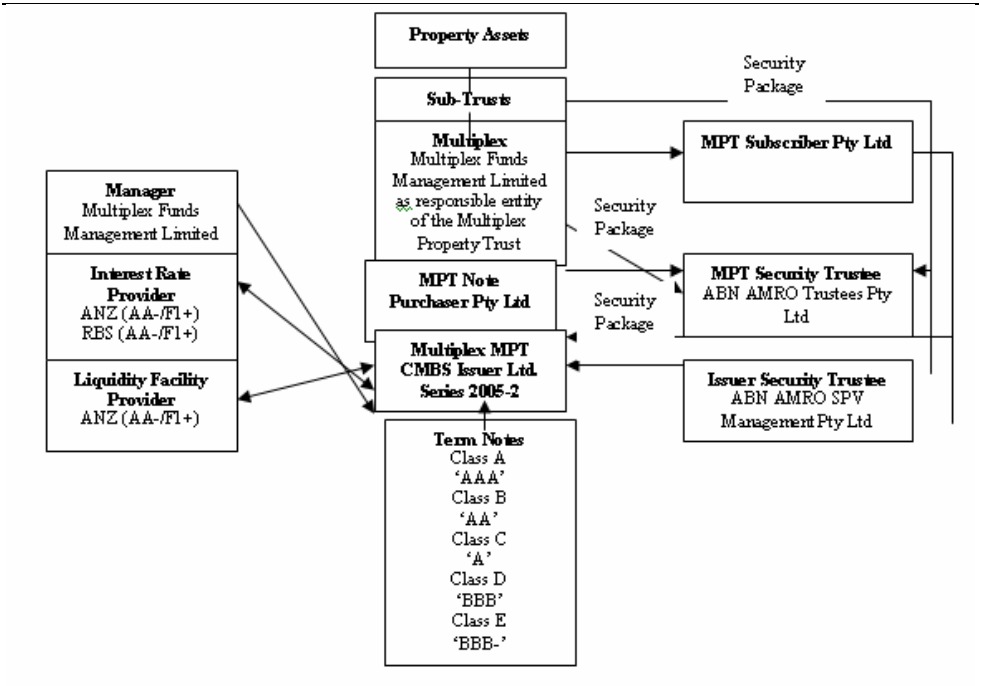
Although the above analysis was conducted on an aggregated basis for comparison of property risk assessment across various property sub-classes, this analysis can be extended to compare property risk assessment between CMBS issues. In this section, the Multiplex CMBS Issuer Ltd. Series 2005-1&2 CMBS issues are presented as a case study of how property risk can be assessed and reported using our framework.

Background

In May 2005, Multiplex Property Trust announced the launch of a AU$1 billion CMBS issue to settle a significant portion of its bank debt. A substantial reduction in their cost of debt was also announced at a weighted average margin of 0.334% per annum (Multiplex Property Trust 2005). The CMBS was in two series, with tranches ranging from AAA through to BBB-. Series One had a scheduled maturity of three years and Series Two five years. The CMBS was secured by 17 properties located in Sydney, Melbourne, Brisbane, Canberra and Perth, with a combined fair market value of AU$1.7 billion. The two series

have a generic transaction structure. In Figure 3, we show the transaction structure of Multiplex CMBS Issuer Ltd. Series 2005-2.

Figure 3: Multiplex CMBS issuer series 2005-2 transaction structure



Source: Fitch Ratings (2005a; 2005b) presale reports

Issue details

Details of the CMBS issues as shown in Table 6 were analysed using the property sub-class averages in Table 1 and other industry benchmarks to assess property risk.

Table 6: Multiplex CMBS issuer series 2005-1&2

	Multiplex CMBS Issuer Ltd. Series 2005-1				**Multiplex CMBS Issuer Ltd. Series 2005-2**			
Issue Date:	May 2005				May 2005			
Term-to-Maturity:	3 years				5 years			
Property Type:	8 Office Buildings				5 Retail (30.7%)* & 4 Office (69.3%)* Buildings			
Size:	245,323 m²				196,450 m²			
Aggregate Market Value:	AU$931.7m				AU$803.5m			
Issue Size:	AU$537m				AU$463m			
Tranche:								
AAA	AU$343m	(40.6%)	[2.03]	20bp	AU$298m	(40.5%)	[2.01]	25bp
AA	AU$61m	(47.8%)	[1.73]	30bp	AU$53m	(47.7%)	[1.70]	40bp
A	AU$54m	(54.2%)	[1.52]	40bp	AU$39m	(53.1%)	[1.53]	50bp
BBB	AU$51m	(60.2%)	[1.37]	57bp	AU$52m	(60.1%)	[1.35]	75bp
BBB-	AU$28m	(63.5%)	[1.30]	80bp	AU$21m	(63.0%)	[1.29]	90bp
Interest Type	Floating				Floating			
Occupancy Rate	98%				93%			
Weighted Average Unexpired Lease Term:	4.9 years				7.6 years			
Liquidity Facility:	AU$29.5m				AU$25.5m			
Refinance constant:	9.0%				9.0%			
Largest Tenant (% of Net Income):	14%				17.9%			
Property Diversity (Largest single exposure):	AU$200m or 21.48% of portfolio value				AU$222.5m or 28% of portfolio value			
Net Income from Top 10 Tenants:	71%				54%			
Geographic Diversity:								
New South Wales	68%				57%			
Queensland	17%				22%			
Western Australia	15%				6%			
Victoria	-				8%			
Australian Capital Territory	-				7%			
Herfindahl property type index (HHPT):	1.000				0.848			
Herfindahl geographic region index (HHGR):	0.261				0.625			

*Per cent of aggregate market value. Loan-to-Value Ratios (in parenthesis) and Debt Service Coverage Ratios [in brackets]. Coupon rate at basis points (bp) plus 3 months bill swap rate
Source: Standard and Poor's (2005c; 2005d) and Fitch Ratings (2005a; 2005b) presale reports and author's compilation

Portfolio composition of the two series is shown below and additional details are shown in Table 7.

Table 7: Multiplex CMBS issuer series 2005-1&2 property portfolios

Multiplex CMBS Issuer Ltd. Series 2005-1

Property	Location	Ownership	Occupancy	% of Portfolio	Market Value (AU$m)
Goldfields House	Sydney	100	98	21.46	200.00
Jessie Street Centre	Parramantta	100	100	19.32	180.00
NRMA Centre	Sydney	50	100	14.92	139.00
AMP Place	Brisbane	100	87	12.29	114.50
KPMG Tower	Sydney	50	100	12.48	116.25
Bank West Tower	Perth	50	100	9.93	92.50
Ernst & Young Building	Perth	100	93	5.06	47.20
ANZ Centre	Brisbane	50	100	4.54	42.20
Total				**100.00**	**931.65**

Multiplex CMBS Issuer Ltd. Series 2005-2

Property	Location	Ownership	Occupancy	% of Portfolio	Market Value (AU$m)
Ernst & Young Centre	Sydney	50	88	27.7	222.50
240 Queens Street	Brisbane	100	98	15.9	127.50
15 Blue Street	Nth Sydney	100	100	10.8	87.00
Defence Plaza	Melbourne	100	100	8.1	65.00
111 Alinga Street	Canberra	100	96	6.8	55.00
King Street Wharf	Sydney	100	100	10.1	81.50
Pittwater Place	Sydney	100	86	8.0	64.0
Great Western Super Centre	Brisbane	100	96	6.4	51.0
Carillon City Shopping Centre	Perth	50	88	6.3	50.0
Total				**100.00**	**803.50**

Source: Standard and Poor's (2005c; 2005d)

The portfolio details were used to arrive at geographic and property diversity factors, which were then compared with the sector averages in Table 3.

Property risk assessment

Table 8 presents the results of the property risk assessment of Multiplex CMBS Issuer Ltd. Series 2005-1 CMBS issue as an example.

Table 8: Property risk assessment in Multiplex CMBS issuer series 2005-1

Property Risk Criteria	Mitigating Strategy	Comments
Investment Quality:		
Cross collateralisation	8 office buildings	Reduced risk of default as each of the properties support each other in instances of poor performance. Though the portfolio composition is less than the sub-sector average for 2000-2005 of 13, the portfolio's net income is higher than the sub-sector average by 35%.
Over collateralisation	Aggregated market value of AU$931.7m vs. total loan value of AU$537m	The total property value would have to fall under 42% to result in non-payment of principal. Property yields forecast to compress further during loan period (2005-2010) due to the high demand for 'prized trophy' properties and will result in growth in property values.
Occupancy rate	98%	Well above national average of 91.5% as at January 2005 for CBD offices and the sub-sector average for 2000-2005 of 96.4%.
Tenancy Retention	87%	MPT have shown ability to actively manage lease renewals.
LTV (AAA notes)	40.6%	Below the Australian rating parameter for commercial offices of 45%
DSCR (AAA notes)	2.03	Above the Australian DSCR rating parameter for commercial offices of 2.00. Rental growth projected to grow at about 3% over loan period guaranteeing coupon payment.
Liquidity Facility	AU$29.5m or 5.49% of issued debt	Adequate coverage of six months' of note payments and transaction expenses. The sub-sector average for 2000-2005 was 2.2%.
Portfolio Diversification:		
- Asset Type (HHPT)	1	Highly focussed portfolio.
- Property	21.48% of portfolio value	Single property value risk mitigated by 'prized-trophy'status of property.
- Geographic (HHGR)	0.26	Well below the sub-sector average for 2000-2005 of 0.49.
Covenant Strength:		
Credit Quality of Income	71.4%	Low risk of rental default due to the high percentage of credit rated tenants. Sub-sector average for 2000-2005 is 44.3%.
Weighted Average Lease Expiry	4.9 years	1.9 years above loan maturity, added certainty of rental income receipt but falls short of the sub-sector average for 2000-2005 is 5.7 years.
Tenancy Concentration	14%	Well diversified rental income sources. Very favourable in comparison to the sub-sector average for 2000-2005 of 54.2%.
Depreciation and Obsolescence:	Guarantee to maintain assets to investment quality standards	Limited capital expenditure requirements over the medium term as assets are relatively new.

It has been shown that property risk in Multiplex CMBS Issuer Series 2005-1 can be easily compared with set benchmarks and reported using our framework. This is of benefit to guaranteeing investors of their promised principal and interest payments. Other transaction structure features, though not subject of discussion in this paper, such as insurance for full reinstatement, along with public liability and business interruption/loss of rental, borrower collection accounts, interest rate swap provision and tail periods of 18 months to cover refinancing risk further reinforce this.

CONCLUSION

The success of Australian CMBSs can largely be attributed to high property market transparency and well developed securitisation market. These features and the dominance of issuance by LPTs have contributed to greater assessment and reporting of property risk in CMBSs. However, this has to be done in a more systematic and consistent approach as shown by our property risk assessment and reporting framework. The dominance of CMBSs issuance by LPTs who legally have to report their activities and underlying collateral performance to regulatory regimes such as ASX/ASIC and their equity investors ensures availability of public information on property risk.

Over the study period 2000-2005, investment risk was minimised by composing well diversified portfolios of mainly 'prized-trophy' properties, as well as utilising conservative loan-to-value ratios and high debt-service-coverage ratios. Weighted average lease expiry profiles in excess of the tenure of the issued notes, adequate tenant concentrations, and ample income from investment-grade tenants, all mitigated covenant strength risk. As for depreciation and obsolescence risk, no standard features were set, though all issues provide for maintenance and capital expenditure reserves to maximise collateral quality, occupancy and value. This information can be used to benchmark property risk assessment and reporting in individual CMBS issues.

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