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WILLIAM WILSON

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Papers from the 2017 Melbourne Money and Finance Conference

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CHRIS DALTON

While the outlook for the Australian securitisation market is very buoyant, the market is currently transitioning to meet the requirements of the new prudential Standard on 1 January 2018. Over the medium term, an additional challenge for the market will be to attain economic pricing of cross-currency swaps to enable the issue of tranches of residential mortgage-backed securities (RMBS) and asset-backed securities (ABS) in currencies other than Australian dollars, thereby providing greater access to a wider investor base.

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KEVIN DAVIS SF Fin

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Current themes in Australian debt capital markets

STEVE LAMBERTSF Fin

This paper examines the three main themes that are expected to shape the future growth and development of domestic capital debt markets (including syndicated loan and bond markets). The first two themes are: the continued rise in the importance of Asian investors; and the growing appetite of self-managed superannuation funds and non-institutional investors for investing in the domestic bond market. These trends also have an impact on the third theme — increased innovation — both in terms of alternative international markets for raising funds and in the design of debt products. This paper was prepared for the Monash University and Australian Centre for Financial Studies' 22nd Melbourne Money and Finance Conference on 10–11 July 2017.

FROM THE

Managing Editor

KEVIN DAVIS SF Fin, Professor of Finance, University of Melbourne
Research Director, Australian Centre for Financial Studies and Professor of Finance, Monash University

This issue of *JASSA* commences with a submitted paper examining the behaviour of New Zealand investors and how the New Zealand culture affects investor criteria in early stage ventures. This is followed by a special section containing papers from the 10-11 July 2017 Melbourne Money and Finance Conference, which focused on Evolutionary Trends in the Australian Financial Sector.

The papers in the special section of the journal address key developments and challenges in the insurance market, the securitisation market and Australian debt capital markets more broadly, and whether complexity has worked in banking regulations. The conference was organised by the Australian Centre for Financial Studies and Monash University, and was sponsored by the Reserve Bank of Australia, Australian Prudential Regulation Authority and FINSIA. While not subject to the usual double-blind process, each of these papers was reviewed by a member of the Editorial Board and by me prior to inclusion.

First, a submitted paper by Hattaf Ansari, David Tripe SF Fin and William Wilson compares investor criteria of early stage ventures in New Zealand with those in the US, identifying a lack of information as a primary reason for a lack of standardisation in the investment process in New Zealand. Overall, the findings reveal significant differences between the New Zealand venture capital market and developed markets, such as the US, with New Zealand investors having a relatively short-term focus and valuing different factors in their investment criteria. The research also shows that New Zealand investors are more accepting of an informal approach and are more willing to invest in ventures in which they have little experience. These differences are likely due to the relatively young age and small size of the New Zealand market. The findings also suggest entrepreneurs would be wise to tailor their pitch for funding to the group of investors they are targeting.

In the special section of this issue of *JASSA*, Mike Thomas examines challenges to the insurance business model arising as technology is changing the nature of risk and the way risk services are priced, and spawning competition at parts of the insurance value chain where none previously existed. Thomas indicates that insurers are being forced to innovate to meet these challenges to their business models. He says technology has also given rise to new risks such as cloud risk and cyber threats, as well as ethical concerns about the collection and use of individuals' data by insurance companies. However, in an increasingly connected world, more consumers are accepting loss of privacy in return for lower premiums. Thomas also speculates on the form that the insurance model will take in the future, suggesting that regulation will have a bearing on which insurance business models thrive.

Next, Chris Dalton provides a detailed analysis of the Australian securitisation market 10 years on from the global financial crisis. He indicates that this market has rebuilt itself following the impact of the global financial crisis that commenced in late 2007 and continued until 2009. The volume of mortgage- and asset-backed securities denominated in Australian dollars has largely returned to the levels that prevailed in pre-crisis 2006 and 2007. However, issuance in non-Australian dollars is only a shadow of pre-crisis volumes largely due to the increased cost and regulatory changes that make the use of cross-currency swaps uneconomic for issuers. Dalton notes that costs associated with securitisation are expected to increase significantly because of the increases in the regulatory capital, but, notwithstanding these challenges, the outlook for this market is buoyant and securitisation will remain a useful part of most authorised deposit-taking institutions' funding plans.

My paper looks at the Basel Committee's approach to prudential regulation of bank risk, the recent apparent shift towards less complex regulation, and the reasons for this. The paper provides an overview of the calls for alternative approaches to regulation from some prominent experts who generally dismiss the merits of the 'risk-sensitive', complex, rules-based Basel approach. The paper also speculates on the future of financial regulation in light of ongoing debate about the optimal regulatory structure and degree of complexity. I suggest that while much of the current debate is framed in terms of complexity versus simplicity, a more important issue in the future may be the relative importance of Pillar 1 versus Pillar 2 in the regulatory approach.

Finally, the paper by Steve Lambert examines the three main themes that are expected to shape the future growth and development of domestic debt capital markets (including syndicated loan and bond markets). These themes are: the continued rise in the importance of Asian investors; the growing appetite of self-managed superannuation funds and non-institutional investors for investing in the domestic bond market; and increased innovation. Lambert expects that foreign banks based in Australia and offshore will continue to show active interest in participating in Australian syndication in the future. He notes that this, in combination with the increased role of fund managers as syndicate participants, raises the question of how the role of Australian banks may change, particularly given ongoing regulatory change and increased prudential requirements (and their subsequent effects in terms of increased funding and capital costs).

I am very grateful to our contributors, throughout my time as Managing Editor, for highlighting the critical applied finance issues that we all need to address as practitioners, policy makers and academics. We trust that our readers have found these papers very thought-provoking and insightful. It has been an honour to guide the journal over the past six years and I look forward to reading many more stimulating and challenging issues of the journal in the future.

INVESTOR CRITERIA OF EARLY STAGE VENTURES

in New Zealand

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This study seeks to inform New Zealand entrepreneurs on the needs and wants of New Zealand investors looking to invest in early stage ventures, potentially enabling entrepreneurs to improve the effectiveness of their capital-raising efforts. The study compares investor criteria of early stage ventures in New Zealand with those in the United States. Our findings show significant differences between the New Zealand venture capital market and developed markets, such as the US, with New Zealand investors having a relatively short-term focus and valuing different factors in their investment criteria. These differences are likely due to the relatively young age and small size of the New Zealand market.

While New Zealand has a shared heritage with other English-speaking countries, its history and environment are quite different, particularly in terms of its small size and isolation from the rest of the world. Research by Weber and Hsee (1998) confirms that culture shapes our perception of risk. Investing in the early stage ventures market (start-ups) is a high-risk activity. This study investigates the criteria of investors in early stage ventures in New Zealand using interviews with industry leaders, a survey and focus group discussion, with the results being compared to investor criteria previously identified in the United States. We make this comparison because the US has a well-developed venture capital industry, and although there are significant differences from New Zealand in relation to geographic size and age, the two countries have much in common in terms of their political, economic and legal systems.²

If entrepreneurs have a better understanding of how to present start-ups these may become more attractive to New Zealand investors. Obvious differences in domestic market characteristics, limited viable investment opportunities, little specialised labour and a general scarcity of investment capital suggest that the environment for New Zealand investors may be different from that for US investors who have a longer history of involvement in venture capital. Many US investors who invest in start-ups are successful entrepreneurs in their own right and tend to invest in industries where they have experience and expertise. They invest in ventures close to where they live, so they can be more involved with the operations of the company and visit the company offices (Benjamin and Margulis 2001). US investors want transparency in business dealings and have a preference for being involved in company operations (Bruton and Ahlstrom 2003).

Until now there has been no data on the behaviour of New Zealand investors or on how the New Zealand culture affects investor criteria in early stage ventures. The closest was a small study conducted in Australia by Hindle and Wenban (1999), based on just 36 respondents, which speculated that the informal venture capital market was a lot larger than the formal market. It suggested Australian investors had an affinity with accumulating more wealth and seeking financial returns, compared to the subjects of a UK study.

The objective of this study is to inform New Zealand entrepreneurs on the needs and wants of New Zealand investors looking to invest in early stage ventures, potentially enabling entrepreneurs to improve the effectiveness of their capital raising efforts. Successful entrepreneurs are seen as being of vital importance for New Zealand, as the country is dependent on selling products and services to the rest of the world. Immigration New Zealand has a special Entrepreneur Residence Category if immigrants have established a

high-growth and innovative business with export potential in New Zealand (Immigration New Zealand 2017). A problem identified by the Chairman of the Angel Association of New Zealand, Marcel van den Assum, is that capital for early stage ventures is not as readily available as in larger, developed economies. He recently noted that '[d]espite all the funds being pumped into start-ups, more is needed for the country's young businesses to realize their full potential' (Pullar-Strecker 2016).

Literature and current venture capital best practice encourages entrepreneurs to match their business with appropriate investors. This enables the entrepreneur to generate more value from the relationship after the initial capital has been raised. The entrepreneur can also leverage the investor's connections and professional network to gain credibility in the industry and fast track development. Successful matching allows the entrepreneur to raise money from experienced and well-informed investors with the right connections, ensuring the best chance of success for their entrepreneurial idea.

A lack of information is a primary reason for a lack of standardisation in the investment process in New Zealand. Our research shows that New Zealand investors are more accepting of an informal approach and the industry has already identified a tendency for a lack of due diligence prior to investment. This research confirms this lack of information. While the model used to develop the findings for our conclusions has been used previously in the US, it only paints a picture of the average behaviour of investors, who have a wide diversity of approaches and behaviours when they invest.

The key prior pieces of work on which our study is based are Sudek (2006), Benjamin and Margulis (2001) and Van Osnabrugge and Robinson (2000).

Method

Van Osnabrugge and Robinson (2000), Harvard professors and angel investors, published their survey of over 300 empirical studies from the US and other countries as a guide for entrepreneurs, investors, venture capitalists and policy makers. Their call for improved funding for start-up companies was endorsed at the time by the Chairman of the US National Venture Capital Association (NVCA) and by the then Chief Economist of the US Small Business Administration. The Van Osnabrugge and Robinson (2000) book also served as a guide for a study by Sudek (2006) who looked at how angel investors in southern California prioritise their investment criteria. We used the criteria identified and ranked by Sudek (2006) to develop a survey suitable for New Zealand.

The survey was circulated by the E-centre (Massey University technology incubator), the New Zealand Venture Capital Association, the New Zealand Venture Investment Fund (NZVIF) and the Angel Association of New Zealand (Government), to their investor networks. We thereby reached out to 15 private angel networks and three venture capital funds across New Zealand. Qualified responses were received from 88 investors who had invested in New Zealand ventures in the past 48 months. The sample comprised angel investors, private investors, venture capitalists, members of crowdfunding platforms and members of professional angel groups. Insights obtained from the survey were then validated through a focus group session involving investors across different investor types. We believe this sample to be representative because the entire New Zealand venture capital ecosystem is estimated to be only between 600 and 800 investors.

The main difference between our approach and that of Sudek is that we shared the survey first and then conducted a focus group instead of the other way around. We also added an extra question to the survey to distinguish between domestic and international sales potential, reflecting the greater importance of international sales for New Zealand venture capitalists.

Results — NZ investor criteria versus US investor criteria

Ruhnka and Young (1991) identify investing in early stage ventures (start-ups) as very risky business. Investors often have limited tangible information when investing in early stage ventures and the focus is usually on the entrepreneur themselves. Multiple studies cite factors linked to the entrepreneurs' personality, such as the intelligence, enthusiasm, trustworthiness, charisma, expertise and experience of the entrepreneur and their team to be the most important criteria (along with their ideas) for investment in early stage companies (Sudek 2006; Bruton and Ahlstrom 2003; Mishra 2004; Certhoux and Perrin 2013).

Table 1 ranks the importance of each criteria to New Zealand investors compared to the criteria ranking identified by Van Osnabrugge and Robinson (2000) and using the research methodology of Sudek (2006). Respondents scored each criterion with a rank from 1 to 6. The mean and standard deviations of the scores from the 88 scores respondents are shown in Table 1, and compared to the Van Osnabrugge and Robinson (2000) results. Key differences are identified and discussed below; however, it must be recognised that while differences between the two studies are apparent, we do not have the data on the means and standard deviation of the Van Osnabrugge and Robinson (2000) study, so it is not possible to compare these differences statistically.

TABLE 1: NZ investor criteria versus US investor criteria

Investment criteria	NZ rank	Mean	Std dev	US rank
Trustworthiness of entrepreneur	1	5.53	0.68	2
Future growth potential of venture	2	5.46	0.61	6
Enthusiasm of entrepreneur	3	5.46	0.72	1
Expected return (perceived financial rewards)	4	5.05	0.94	8
International sales potential	5	5.02	1.06	-
Quality of venture products/service	6	4.82	0.93	7
Liquidity (potential exit)	7	4.71	1.29	24
Nature of competition	8	4.39	1	17
Expertise of entrepreneur	9	4.35	1.01	4
Overall competitive protection	10	4.34	1.16	21
Informal competitive protection	11	4.33	1.17	12
Investor understands venture	12	4.28	1.04	24
Track record of entrepreneur	13	4.13	1.11	10
High profit margin of venture	14	4.10	1.09	15
Size of investment	15	4.02	1.34	20
Investor liked entrepreneur on first meeting	16	4.02	1.08	5
Venture targets niche market	17	3.81	1.42	9
Presence of (potential) co-investors	18	3.77	1.48	26
Venture is local (HQ in country of investor origin)	19	3.64	1.6	23
Low initial cost to test market	20	3.61	1.21	22
Investor involvement possible (networks, skills, etc.)	21	3.54	1.46	13
Low overheads of venture	22	3.50	1.1	16
Formal protection (patents)	23	3.10	1.37	27
Low capex needed initially (fixed assets)	24	2.99	1.17	19
Further investment required to break even	25	2.98	1.46	18
Philanthropy (non-financial rewards)	26	2.88	1.25	-
Investor strength fills gaps in the venture (expertise)	27	2.79	1.36	14
Domestic sales potential of venture	28	2.76	1.31	3

Note: Table ranks the importance of each criteria to New Zealand investors compared to the criteria ranking identified by Van Osnabrugge and Robinson (2000) using the research methodology of Sudek (2006). A rank, from 1 to 6, was provided based on the average score of each response for each criterion. The mean shows how far apart criteria were between ranks while the standard deviation measures the level of disagreement among investors relating to that particular criterion with a smaller standard deviation indicating more consensus.

Entrepreneur characteristics

Not surprisingly, both surveys rank the personal characteristics of the entrepreneur highly with the New Zealand survey ranking *trustworthiness* in first place (US: 2) and *enthusiasm* in third place (US: 1). The entrepreneur's *track record* is ranked 13 (US: 10) while the *expertise of the entrepreneur* is ranked 9 in New Zealand (US: 4) and the *first impression of the entrepreneur* is ranked 16 (US: 5), suggesting US investors are investing more in entrepreneurs than New Zealand investors. This may reflect the fact that New Zealand is an emerging venture capital market in contrast with the highly developed US market. However, insights from the focus groups suggest New Zealand investors are more cautious when building relationships and take longer to get to know founders.

Market characteristics

Both studies rank *growth potential* highly: New Zealand investors rank this 2 (US: 6) and rank *international sales potential* 5. The Californian study doesn't rank international sales but ranks *domestic sales potential* 3 in contrast with the New Zealand rank of 28. This may reflect that New Zealand investors recognise the small size of the domestic market in contrast with the large US market in which ventures can be scaled.

The majority of capital raised in New Zealand for seed stage is concentrated in just four industries: software as a service (SaaS); biotechnology; life sciences; and pharmaceuticals (NZVIF 2016). New Zealand investors have a preference for ventures that can be scaled, a factor which may explain the concentration in just four industries. According to the NZVIF study on valuations (by deal value) of New Zealand early stage ventures, at the seed stage, software investments comprise 33 per cent of the total and pharma-biotech comprise 46 per cent. At the start-up stage, those sectors comprise 41 per cent and 20 per cent, respectively (NZVIF 2016). The report describes a similar pattern in the US with 48 per cent of angel investments being made in software and healthcare.

Investor characteristics

US investors are generally looking to invest in industries in which they have experience and expertise with *investor filling the gaps in the venture* ranked at 14 in the US compared to 28 in New Zealand. The willingness of New Zealand investors to invest in ventures in which they have little experience may reflect the small size and age of the New Zealand venture capital market. The rank of 21 (US: 13) for *investor involvement through skills and network* may also reflect this with most investors having made their initial capital in industries other than software and pharma-biotech, meaning they don't have this network. The longer track record of these industries in the US has resulted in a large pool of potential angel investors who have built their experience in those industries. This suggests that New Zealand investors frequently invest in areas (ventures) where they lack expertise and many are not able to contribute to the venture after their investments, with some investors holding portfolios in multiple start-ups across diverse industries. Moreover, the funds run by New Zealand investors are generally small, meaning that they may be operating at less than optimal scale (Cumming 2006).

The focus group suggested that many New Zealand investors are not able to commit much time to ventures they invest in. This further explains the higher ranking of the *expertise of the entrepreneur*, because New Zealand investors who are investing in fields in which they have no experience need the founders of the ventures to have that experience. In the US, investors with experience are more willing to mentor, train and coach entrepreneurs so they are less concerned about the entrepreneur's previous experience. Investors in the focus group also pointed out that successful New Zealanders are more likely to relocate overseas in pursuit of new opportunities and this reduces the number of investors in New Zealand with experience.

The focus group suggested that many New Zealand investors are not able to commit much time to ventures they invest in. This further explains the higher ranking of the expertise of the entrepreneur, because New Zealand investors who are investing in fields in which they have no experience need the founders of the ventures to have that experience. In the US, investors with experience are more willing to mentor, train and coach entrepreneurs so they are less concerned about the entrepreneur's previous experience. Investors in the focus group also pointed out that successful New Zealanders are more likely to relocate overseas in pursuit of new opportunities and this reduces the number of investors in New Zealand with experience.

Investment characteristics

Fundamental to any investment decision are risk and return trade-offs, New Zealand investors rank *expected returns* at 4 (US: 8) and *exit potential (or liquidity)* at 7 (US: 24). New Zealand investors appear less willing to risk their capital compared to US investors, and seek to invest in ventures that are more liquid than US investors. A similar picture is revealed when looking at competition with New Zealand investors ranking the *nature of competition* at 8 (US: 17) and competitive protection at 10 (US: 21). The focus group suggested that there might be a cultural difference in how the two investor groups perceive risk. Failure is often celebrated and encouraged in the US because it is seen as a stepping stone to success, while in New Zealand the ‘tall poppy syndrome’ still exists and investors are more cautious.

Top five characteristics

Overall there are many similarities between the two studies with both sets of participants valuing trust and enthusiasm very highly. The most significant difference in the top five criteria is the drive in New Zealand for international sales versus the US acceptance of domestic sales, though this is likely due to New Zealand investors’ belief that future growth potential must come from outside New Zealand’s small market.

Investor type

Survey respondents classify themselves as either angel investors (27), venture capitalists (11), private investors (41) or angel syndicate investors (9). With an overall sample of 88 respondents it was not possible to undertake meaningful statistical testing of differences among groups, but results presented below suggest there is value in a larger more robust study being undertaken.

TABLE 2: Selected rankings by investor type

Investor criteria	Angel investor	Angel syndicate	Venture capitalist	Private investor
Sample size N	27	9	11	41
Expected return (financial rewards)	6	8	1	4
Investor involvement possible	21	23	8	22
Venture is local	23	17	14	19
International sales potential	1	1	5	6
Low overheads of venture	19	15	23	21
High profit margins of venture	12	20	17	16
Size of investment required	18	5	19	15
Overall competitive protection	9	21	12	12

Note: Table reports the ranking of selected criteria for different types of New Zealand investors. The numbers of responses were too small to allow us to conduct meaningful tests for the significance of the differences.

Angel investors are very particular about investing in ventures with a strong potential for international sales. They prefer ventures with high margins and are the type of investors most concerned about overall competitive protection of the venture in which they are investing. Angel investors in groups or syndicates are most sensitive to size of investment. This is because many only co-invest as a group and are very specific about the amount they are willing to invest. Consistent with this, they are also the investors who are most concerned that the venture has low overheads.

Those who identify as venture capitalists exhibit behaviour that is closest to US investors. They wish to be more involved after the capital has been raised than other investor types. They have a preference for the venture being local so they can get more involved with the company’s operations. They are the most likely category of investors that can help entrepreneurs raise smart money in New Zealand. Some venture capitalists in New Zealand invest in seed capital and Series A capital, which is uncommon in the US.

Private investors do not have extreme positions like other venture capital investors. They are the least likely to be interested in being involved with the venture after initial investment and are most concerned with the track record of the entrepreneur, preferring to invest in experienced entrepreneurs.

The desire for financial returns

The investment criteria which are related but opposites of each other, expected return and philanthropy (non-financial return) show a wide dispersion with mean scores of 5.05 and 2.88, respectively.

TABLE 3: Philanthropy versus monetary benefits

Investor type	Philanthropy		Monetary benefit	
	Mean	Std dev	Mean	Std dev
Angel syndicate (9)	3.43	0.90	5.78	0.42
Angel investor (27)	3.08	1.15	5.00	0.85
Private investor (41)	2.81	1.27	4.83	0.94
Venture capitalist (11)	2.00	0.67	4.57	1.29
All investors (88)	2.88	1.25	5.05	0.94

Note: Table reports the mean and standard deviation of criteria of expected return (monetary benefits) and philanthropy (non-financial rewards), out of 6, to demonstrate the motivations of different types of New Zealand investors.

Venture capital firms are judged solely on their expected returns whereas the firms they invest in and angel investors can have other objectives. Our survey results confirm these different objectives and incentives. Venture capital investors on the other hand rank philanthropy as least important with a mean of 2.00.

... 31 per cent locate deals through professional networks and only 12 per cent come from (direct contact) unsolicited contacts from non-family members. New Zealand entrepreneurs rely less on direct connections and more on indirect connections.

These results suggest entrepreneurs would be wise to tailor their pitch for funding to the group of investors they are targeting. Other insights revealed by the study are that, when seeking investment, New Zealand entrepreneurs rely heavily on personal networks. A total of 27.91 per cent of investors welcome direct contact by entrepreneurs and 39.53 per cent prefer referrals from friends and trusted advisors. This is in contrast to a study in the US by Benjamin and Margulis (2001) which finds that 57 per cent of investors source their deals through personal contacts, 31 per cent locate deals through professional networks and only 12 per cent come from (direct contact) unsolicited contacts from non-family members. New Zealand entrepreneurs rely less on direct connections and more on indirect connections.

Some 75 per cent of New Zealand investors generally conduct their own due diligence with around half of these relying only on their own expertise. This implies that New Zealand investors frequently invest in ventures in which they do not have adequate knowledge or expertise and hence rely on others to help them decide where to invest. This is a way to minimise the risk of investing in ventures in which they do not have experience. The focus group noted that New Zealand culture is more cautious and not overconfident and so many would like to get a second opinion on their due diligence. It also confirms that they typically do not have standardised investment procedures. This observation from our research is consistent with Debra Hall's insights (as a member of the expert panel of the Business Intelligence Forum)³ and suggests a cultural element. The majority of New Zealand investors are passive investors and prefer to let a minority of active investors do the heavy lifting on due diligence rather than do it themselves (Lowndes 2016).

The majority of New Zealand investors in our sample indicate they are willing to invest in any stage of the company, which is a surprising finding. The risk and return trade-off between the different stages of company operation is very significant and so is the amount of capital required to make an investment. New Zealand investors do not have consistent investment rules or preferences regarding the industries in which they want to invest, the exact amount they are willing to invest (ranked 25) or the stage of company operations at which they wish to invest. New Zealand investors are not as particular (and can be seen as less sophisticated) about their investment process as compared to US investors. New Zealand investors are more likely to take each investment opportunity on a case-by-case basis. This may limit the professionalisation of firms after venture capital involvement (Hellman and Puri 2002).

Previous studies in the US and other markets find the characteristics of the entrepreneur to be a very important determinant of the level and type of investment which is undertaken. An important finding of this study is the significance of the financial characteristics of a project with New Zealand investors ranking this at 4. The outlook for investors also differs with New Zealand investors considering a venture successful only if it has export potential, whereas US investors are content with relying on the larger US domestic market. The final difference is that US investors are looking to how they can make a non-financial contribution to the success of the venture by contributing their expertise and network of contacts. With smaller and younger tech industries in New Zealand, most investors have little tech experience as they have earned their capital in more traditional fields such as farming and general business.

The majority of New Zealand investors in our sample indicate they are willing to invest in any stage of the company, which is a surprising finding. The risk and return trade-off between the different stages of company operation is very significant and so is the amount of capital required to make an investment. New Zealand investors do not have consistent investment rules or preferences regarding the industries in which they want to invest, the exact amount they are willing to invest (ranked 25) or the stage of company operations at which they wish to invest. New Zealand investors are not as particular (and can be seen as less sophisticated) about their investment process as compared to US investors. New Zealand investors are more likely to take each investment opportunity on a case-by-case basis.

Conclusions

The criteria identified in this report are a snapshot of New Zealand investor preferences. The findings should encourage better 'matchmaking' within the venture capital industry and promote awareness about the requirements of New Zealand investors based on facts rather than beliefs. An important finding of the study was the apparent philanthropic inclination of New Zealand angel investors who are prepared to look at non-pecuniary benefits when investing. Results from this study should assist in the country's future development by informing decision making by entrepreneurs, venture capitalists, investors and policy makers about critical aspects of the venture capital industry.

While the sample of this study is small, with only 88 responses, this reflects the limited size of the New Zealand investor base which is estimated at only 600 to 800 investors. However, our results are consistent with the views expressed in the follow-up focus group sessions as well as personal discussions with industry leaders. The size of the New Zealand market is changing with a rise in foreign investment and an influx of wealthy immigrants looking to invest (NZVIF 2016). These changes are likely to manifest themselves fairly quickly and will affect New Zealand's investor criteria in the future. It is therefore recommended that this research be updated every three to five years.

Notes

1. This paper is based on Hattaf Ansari's Master's project which he completed at Massey University's School of Economics and Finance, Albany, and as part of an internship at the Massey University E-centre. This research was supported by the Massey University E-centre.
2. Other venture capital markets, such as Australia, were considered for comparison, but studies such as that by Hindle and Wenban (1999) were considered too small for this purpose.
3. See <https://www.business-intelligence.co.nz/assets/PDFs/2016-Valuable-Advice-Workshop-5.pdf>

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SPECIAL SECTION: PAPERS FROM THE 2017 MMF CONFERENCE

FINSIA acknowledges the contribution of the papers from the 22nd Melbourne Money and Finance Conference to this issue of JASSA. The conference – Evolutionary Trends in the Australian Financial Sector – was held on 10-11 July 2017 by the Australian Centre for Financial Studies and Monash University.

INSURANCE:

Challenges to the business model

MIKE THOMAS, Director, Deloitte Access Economics

With technology changing the nature of risk and the way risk services are priced, this paper examines the key elements of a 'traditional' insurance business that are now open to challenge. It includes a stylised insurance value chain, which provides a framework for discussing how the disruptive forces in the industry are affecting incumbents. The paper also speculates on the form, or forms, which the insurance business model will take in the future. The paper was prepared for the Monash University and Australian Centre for Financial Studies' 22nd Melbourne Money and Finance Conference on 10–11 July 2017.¹

Innovation is not commonly associated with the insurance sector. After all, the basic insurance business model of charging a fee to assume someone else's risk has been around since Babylonian times.² However, insurance has entered a period of increasing change, with the World Economic Forum nominating it as the sector of financial services that is most vulnerable to disruption.³

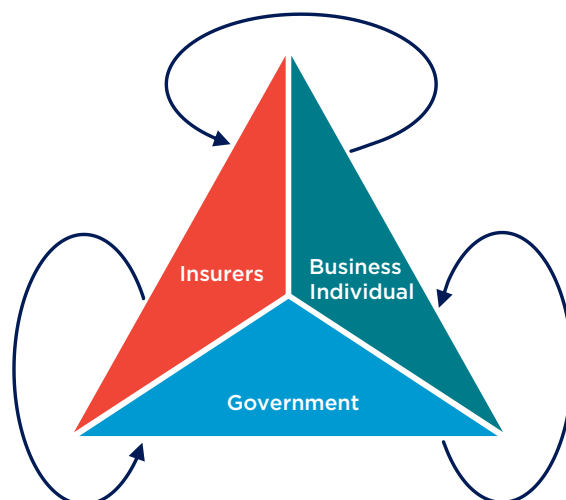
Change in insurance is being enabled by technology, which is altering the nature of risk and how risk services are priced, and spawning competition in parts of the insurance value chain where none previously existed. Insurers are being forced to innovate to meet these challenges to their business models.

Risk and risk allocation

There is an element of risk in everything that individuals and businesses do. Those at risk may choose to: self-insure; mitigate the risk by adopting preventative measures; or transfer it to a third party, e.g. to the insurance market. Governments may bear risk to meet social goals or in the event of market failure.

Disruption can be thought of as challenges to the insurance business model that cause a realignment of the prevailing balance between self-insurance, risk mitigation and risk transfer and, hence, changes to who bears the risk.

FIGURE 1: Principles for allocating risk



- Risk is allocated and pooled within the economy
- Risk is allocated towards those best placed to manage it
- The market provides price signals to encourage an efficient allocation of risk

Challenges to the traditional insurance business model may result in reallocation of risk, including through:

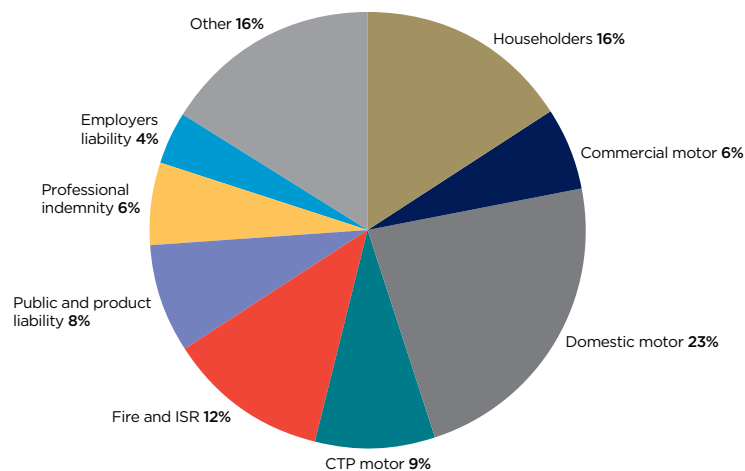
- > *reduced risk of a significant loss*, encouraging increased self-insurance
- > *emergence of new risks*, that may not be insurable (at least initially)
- > *more homogeneous and measurable risks*, potentially allowing capital markets to allocate them more efficiently than insurance markets
- > *sharper, personalised pricing*, causing the insurance pool to leak lower risks and increase adverse selection and, potentially, moral hazard
- > *market price signals incompatible with governments' equity objectives*, inviting intervention in the market
- > *increasing frequency of correlated, severe events*, which may not be economic for insurers to cover at an affordable price
- > *low investment income*, putting upward pressure on premiums.

These *challenges* to the model are likely to push the allocation of risk in different directions. Importantly, technology has also lowered entry barriers to *challengers* at points along the insurance value chain.

Challenges to the traditional model

Many of the challenges to insurers are well documented. Motor vehicle insurance and home insurance in their various guises are relatively simple personal insurance lines that face being disrupted extensively (see below). Given that these lines account for around half of premiums collected by general insurers in Australia, business models appear to be entering a period of fundamental change. In time, it is likely that more complex commercial products will be affected too.

FIGURE 2: Australian general insurance market by class of business (\$m)



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Reduced risk of a significant loss

Where ongoing technological innovation significantly reduces risk, self-insurance becomes more attractive and demand for some traditional lines of insurance will decline. Examples of this are as follows:

- > The introduction of anti-lock braking and collision avoidance systems has improved motor vehicle safety and reduced the incidence of claims. Industry analysts predict that income from motor vehicle insurance premiums will fall by 30 per cent in the next 10 years.⁴ The remnant business is threatened by driverless cars, given that driver error contributes to 75 per cent of crashes.⁵

- > The internet of things (IOT) promises to deliver a smart home in which white goods, thermostats, carbon monoxide levels, water leaks, fire alarms and movement sensors are interconnected. Around the clock, data from the devices will be collected, stored and analysed, to assess the risks to the home and home owner. Diagnostic tools could turn off a faulty electrical device, awake the residents or alert the fire brigade in time to prevent a loss occurring.
- > In the workplace, robotic processes, automation and driverless cars will eliminate many riskier jobs, potentially leading to a shrinking market for workers compensation insurance.

Technology may not be able to eliminate risk completely, for example, there will still be natural disasters. But it doesn't need to. It only needs to reduce risk to a level where individuals and businesses are increasingly willing to self-insure.

Emergence of new risks

Technology has also given rise to new risks.

Cloud risk and cyber threats are new additions to the insurance spectrum. Ransomware is the latest form of cyber attack, disrupting business and government on a global scale. These new risks are correlated to the increasing interconnectedness of modern society.

Moreover, some personal indemnity lines are likely to be transformed into commercial product liability insurance. By 2030, the combination of driverless cars and the sharing economy could result in the majority of all road trips being undertaken as transport services.

The challenge for insurers is to develop suitable products to be able to cover these new risks.

More homogeneous and measurable risks

Homogenisation has always been part of the insurance market; insurance contracts exclude many things. As technology reduces risks for individuals, so too the variability among their risk profiles is likely to decline. The increased use of P2P models and sharing economy platforms, with rules for using assets, has a tendency to homogenise the customer base and their risks. At the extreme, driverless cars will make all drivers good drivers.

Large homogenous data pools may support more disintermediation of insurance markets, by making insurance risks increasingly suitable for securitisation. It remains to be seen how insurance and banking regulation will need to evolve to accommodate such changes.

As technology reduces risks for individuals, so too the variability among their risk profiles is likely to decline. The increased use of P2P models and sharing economy platforms, with rules for using assets, has a tendency to homogenise the customer base and their risks. At the extreme, driverless cars will make all drivers good drivers.

Sharper, personalised pricing

Technology, especially improved data analytics, is revolutionising the pricing of risk. There are ethical concerns about the collection and use of individuals' data by insurance companies. At the same time, in an increasingly connected world, more consumers are accepting loss of privacy in return for lower prices.

Telematics can be used to assess risk more accurately, i.e. risk premiums can be personalised to the driver, rather than a cohort in the pool, and incorporate contextual and behavioural information. For example, by 2020, half of US motor vehicles will have inbuilt telematics that measure performance, driver behaviour and likely monitor road conditions too.⁶

Telematics also has the potential to encourage safer driving; it addresses information asymmetry and moral hazard by incentivising drivers to improve their driving habits to reduce their premiums.

Technology, especially improved data analytics, is revolutionising the pricing of risk. There are ethical concerns about the collection and use of individuals' data by insurance companies. At the same time, in an increasingly connected world, more consumers are accepting loss of privacy in return for lower prices.

Technology may also result in insurance being broken down by usage and type of peril. In a world of driverless cars and a sharing economy, the user of the asset may not be the owner. In this case, the customer will have no need for an annual, comprehensive motor vehicle insurance policy that covers accidents, theft and damage from nature.

However, more individualised pricing could lead to unpooling of risk across customers, raising the prospect of affordability issues for higher risks and increased underinsurance, as has happened in Northern Queensland for insurance against cyclone damage. Moreover, episodic coverage and unbundling will necessitate higher base unit prices because, essentially, customers will be only buying insurance for when their risks are high.

There also is a risk that too-accurate pricing would discourage risk taking to the detriment of economic growth. For example, episodic pricing may discourage people from driving in the rain, whereas annual premiums would not.

For insurers, individualised pricing may allow them to move towards a willingness-to-pay model, with surge pricing akin to how airfares are priced. However, providing episodic cover would potentially expose them to less predictable cash flows and, hence, higher risk capital requirements.

Compatibility with governments' social objectives

Increased segmentation due to more accurate pricing of an individual's risks should reduce the average price of insurance, although it may be that only lower-risk individuals will see their premiums fall. However, this may also be accompanied by an increase in premiums for high-risk individuals. Governments may choose to intervene in the market to counteract adverse social impacts of reduced affordability and access.

It remains to be seen how the impact of new technology on the insurance market will be affected by the pace of change of regulation.

Increasing frequency of correlated events

Correlated events are more difficult for insurers to underwrite because of the relatively high probability of many policy holders claiming at the same time. Climate change is increasing the frequency of extreme weather events. The internet of things is increasing interconnectedness and, with it, the risk of systemic technology failures. It is conceivable that some of these risks could become uninsurable.

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Low investment returns

In a competitive market, insurers typically rely more on investment earnings and less on profit from underwriting. However, with low rates of return on investments, they need to innovate in terms of their capital mix and use of reinsurance, and seek an underwriting profit even on long-tailed business.

Insurers have been living with low interest rates for a decade. Low interest rates enter into calculations of the present value of unexpired risk and unreported claims that determine the level of capital reserves insurers must hold.

While interest rates seem likely to remain relatively low, according to the Reserve Bank of Australia, life insurers appear to have adapted to this new world.⁷ The adjustment may be proving more challenging for general insurers.

The challengers

Traditionally, insurers have filled all the roles in the insurance value chain, except parts of distribution and reinsurance. Now they are facing new challengers at all points along the chain, i.e. in research and development, sales and distribution, pricing and underwriting, claims and service, and risk capital and investment.

FIGURE 3: Insurance value chain



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Research and development

New products are being made possible by data analytics and other advances.

In the sharing economy, consumers will only want to pay for the period they want to use the asset, for example, pay-per-mile car insurance.⁸ Moreover, by switching cover from the individual to the asset, new commercial lines have appeared, such as host protection insurance underwritten by Lloyds for Airbnb hosts.

Despite the hype around so-called insurtechs disrupting the insurance industry, to date most are providing back office solutions or distribution platforms. As P2P insurance is essentially a refresh of traditional mutual insurance, it remains to be seen whether it has longevity. To date, with a few notable exceptions, most P2P insurers distribute traditional insurers' products.

Sales and distribution

Sales and distribution are where rivals have made the most obvious impact. Customers deal with their insurer infrequently, which leaves them open to non-traditional rivals entering the market at the point of sale.

Price comparison websites allow customers to compare prices across carriers; value comparison sites allow customers to choose their cover based on other factors, such as perils covered. These sites do not compete directly with insurers because they are not carriers, but they do increase competition between carriers.

Trust is important for customers of insurers, due to the delay between paying for insurance and receiving money for a claim. The trust that insurers have built up over decades can be acquired almost instantly by new entrants via peer-review ratings, social networks and affinity groups.

This is the model employed by P2P insurers and it has the added advantage that members effectively do the marketing and, hence, lower the cost of acquiring customers. At the same time, the growth of exclusive P2P networks may increase adverse selection in traditional markets.

Pricing and underwriting

Insurers price risks as accurately as the available information allows; they need access to other sources to get a complete picture of their customer. The spread of data analytics has allowed other organisations with a wealth of customer data to compete in this space.

Competition will come from non-insurers estimating their own risks and self-insuring, possibly when facing new risks that are not addressed by existing products. For example, IKEA has a large insurance underwriting business in Europe and the US, which started selling child and pregnancy insurance, and house insurance to its loyalty club members.⁹ Another example is that Volvo has said it will assume the liability for accidents caused by its self-driving cars.¹⁰ This is all occurring before the regulatory framework is in place.

Data is the tail that wags the dog. Consequently, the Government's response to the recommendations of the Productivity Commission Inquiry into Data Availability and Use will have a bearing on the challenges to incumbents in Australia.

Claims and service

Some of the most interesting challengers are seeking to change the customer experience in claims and service. The claims process is an ongoing source of friction. Insurers are criticised for delaying payment on claims to earn investment income; insureds are criticised for overstating their losses. The challenge here is to speed up the process and give both insurers and insureds more certain outcomes.

Under traditional insurance, the insured is covered for the amount of loss incurred less any excess. One alternative is parametric insurance where payment is pre-set and automatically triggered by an objective, third-party parameter. For example, in the event of a cyclone of Force 5, insured properties within a 100 km radius of a given latitude and longitude would receive payment based on Bureau of Meteorology data. The losses are known with certainty beforehand, greatly reducing the underwriting task. There would be no need to adjust claims as payouts are pre-determined and, hence, payment would be prompt. Of course there is basis risk for the insured, because the actual loss may exceed the parametric loss.

The social aspect of P2P is designed to influence claims as a way to address fraud. Around 10 per cent of general insurance claims in Australia are believed to be fraudulent, adding around \$75 to the cost of each policy.¹¹

And some platforms have gone further down the behavioural economics path; US P2P insurer Lemonade, which aims to provide 'insurance that doesn't suck',¹² has designed its online forms to reduce the likelihood of dishonest claims.

Capital and investment

It is not surprising that new entrants have tended to avoid the regulatory and capital intensive part of the value chain. For example, P2P insurers' members settle small claims among themselves, but use traditional insurers for large claims. However, increasingly, technological advances may allow large commercial customers to bypass insurers to go directly to the capital markets.

Competition from capital markets has increased, in part due to low interest rates. Alternative risk transfer (ART) is risk protection that takes place outside of the traditional models of insurance, for example, hedge funds package insurance risks and issue insurance-linked securities (ILS) to investors. Funds are invested to increase the amount available to cover losses, while investors receive interest. Hedge funds believe they can generate higher returns on the float than insurance carriers who have their investment options limited by regulation.

ILS are appealing to investors for their diversification benefits and returns. Catastrophe (Cat) bonds are the largest stock of outstanding ILS, but there are also securities based on mortality rates, longevity, mortgage insurance risks and medical costs. The market for ILS has around \$29 billion outstanding, of which the vast majority are Cat bonds.¹³

Broader capital markets have greater risk bearing capacity than insurance and reinsurance markets. The potential for expanding the ILS market has been recognised by government. HM Treasury has been working to develop a legal, tax and regulatory framework for the UK market. In Australia, APRA has been monitoring developments in ARTs for some time with respect to issues such as: how effective they are in providing the cover needed; and what is the impact of new supplies of capital from institutional investors into the reinsurance market.¹⁴

What will the insurance business of the future look like?

With so much innovation happening in insurance, you could be forgiven for asking why hasn't there been more disruption to incumbents?

High capital and regulatory barriers that persist in parts of the value chain are obvious sources of restraint. So, perhaps the insurance model will become an amalgam of the old and the new, with challengers being absorbed into the traditional model to reduce costs at specific points of the value chain. That said, the prospect of a shrinking market for traditional insurance products means insurers will need to find new ways of generating revenue.

Some insurers may decide to build new business models that focus on risk mitigation, managing risk on behalf of their customers, i.e. providing assurance rather than insurance.

Some personal insurance will evolve and be subsumed into commercial lines. Some lines of insurance may be commoditised or parameterised, but complex commercial insurance will still be negotiated by lawyers across a table. Non-traditional players, armed with extensive proprietary data sets, could also provide an alternative. Just as supermarkets have used their distribution networks to enter insurance, so to could other masters of consumer interactions such as Google, Apple or Facebook.

In order to maintain the integrity of insurance pools and combat adverse selection, government will be called upon to intercede or regulate insurance markets. Ultimately, preventing adverse selection is a decision for society and may be best delivered in partnership with government and regulators.

Some personal insurance will evolve and be subsumed into commercial lines. Some lines of insurance may be commoditised or parameterised, but complex commercial insurance will still be negotiated by lawyers across a table. Non-traditional players, armed with extensive proprietary data sets, could also provide an alternative. Just as supermarkets have used their distribution networks to enter insurance, so to could other masters of consumer interactions such as Google, Apple or Facebook.

It is feasible that a larger proportion of investment risks will be transferred outside of an insurance company as more alternative providers of capital offer cost-effective options. This may refresh the bancassurance model.

Regulation will also have a bearing on which insurance business model, or models, thrive.

Notes

1. I would like to acknowledge the generosity of Ian Harper, Marcus Ng, Sharanjit Paddam, Jonathan Davies, Alex Sanchez and Rick Shaw in commenting on earlier versions of this paper. All errors in the final version are my own.
2. Mills and Tubiana (2013).
3. WEF (2015).
4. WTW (2016).
5. Salmon et al. (2005).
6. WTW (2016).
7. RBA (2015).
8. See <https://www.metromile.com/>
9. WSJ (2014).
10. Bauman and Galaski (2016).
11. See <http://understandinsurance.com.au/insurance-fraud>
12. See <https://www.lemonade.com/>
13. See <http://www.artemis.bm/>
14. Laughlin (2014).

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THE AUSTRALIAN SECURITISATION MARKET 10 YEARS ON FROM *the Global Financial Crisis*

CHRIS DALTON, CEO, Australian Securitisation Forum

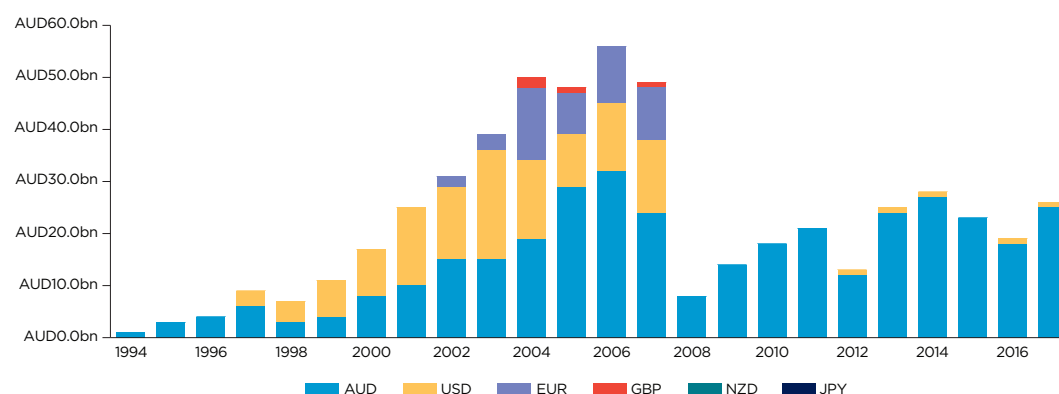
While the outlook for the Australian securitisation market is very buoyant, the market is currently transitioning to meet the requirements of the new prudential standard on 1 January 2018. Over the medium term, an additional challenge for the market will be to attain economic pricing of cross-currency swaps to enable the issue of tranches of residential mortgage-backed securities (RMBS) and asset-backed securities (ABS) in currencies other than Australian dollars, thereby providing greater access to a wider investor base. This paper was prepared for the Monash University and Australian Centre for Financial Studies' 22nd Melbourne Money and Finance Conference on 10–11 July 2017.

A sustainable securitisation market

The Australian securitisation market has rebuilt itself following the impact of the global financial crisis that commenced in late 2007 and continued until 2009. The volume of mortgage- and asset-backed securities denominated in Australian dollars has largely returned to the levels that prevailed in pre-crisis 2006 and 2007. However, issuance in non-Australian dollars is only a shadow of pre-crisis volumes largely due to the increased cost and regulatory changes that make the use of cross-currency swaps uneconomic for issuers.

Figure 1 illustrates the rise and decline of the Australian residential mortgage-backed securities (RMBS) market from inception to its pre-crisis peak and through to 2017.

FIGURE 1: Australian RMBS Issuance

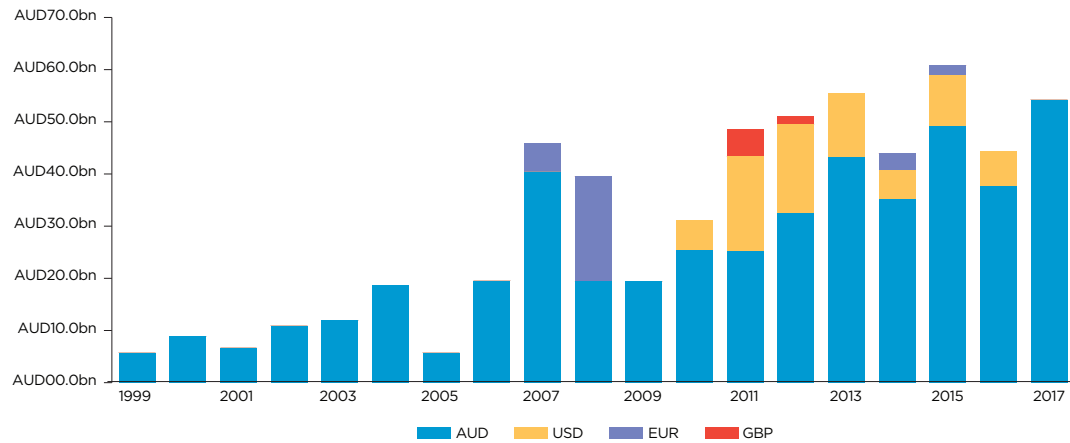


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Source: Macquarie Debt Markets Analysis.

Figure 2 illustrates the pattern of issuance of asset-backed securities (ABS) from the establishment of this segment of the market. While this is a smaller part of the securitisation market than RMBS, it is interesting to note that it didn't suffer the same contraction experienced by the RMBS sector. This was due to the scarcity of securities, their short tenor and the strong credit performance of the collateral. ABS issuers have been able to issue some securities denominated in currencies other than Australian dollars. ABS issuers, such as the Macquarie Group's SMART program, have issued ABS in US dollars as the short tenor of the underlying assets and margin on the receivables make the swap from Australian dollars to US dollars economic.

FIGURE 2: Australian ABS issuance



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Source: Macquarie Debt Markets Analysis.

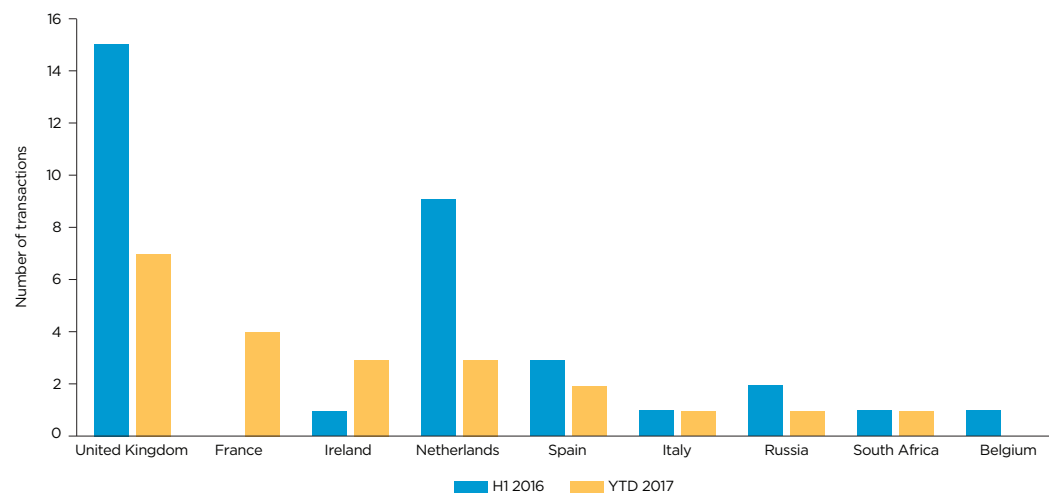
Today's market

The Australian securitisation market is different in character from its pre-crisis form. Residential mortgages remain the dominant asset class with auto and equipment receivables continuing to provide attractive diversification opportunities for investors. But casualties of the financial crisis and its aftermath have been the commercial mortgage-backed and asset-backed commercial paper sectors, which have effectively disappeared as a result of both changes in risk appetite and regulatory reform. Today's market is characterised by a wider variety of ADI issuers from the major banks, regional banks, mutual banks and non-banks.

The Australian RMBS market is one of the few markets that has continued to function with relatively regular issuance since 2008. In the first half of 2017, total Australian RMBS issued in the public markets reached an Australian dollar equivalent of \$13.25bn, up from \$7.3bn in the previous year. In contrast, Figure 3 illustrates the limited primary market activity in the European market.

The Australian securitisation market is different in character from its pre-crisis form. Residential mortgages remain the dominant asset class with auto and equipment receivables continuing to provide attractive diversification opportunities for investors. But casualties of the financial crisis and its aftermath have been the commercial mortgage-backed and asset-backed commercial paper sectors, which have effectively disappeared as a result of both changes in risk appetite and regulatory reform. Today's market is characterised by a wider variety of ADI issuers from the major banks, regional banks, mutual banks and non-banks.

FIGURE 3: EMEA RMBS 2016 vs. 2017

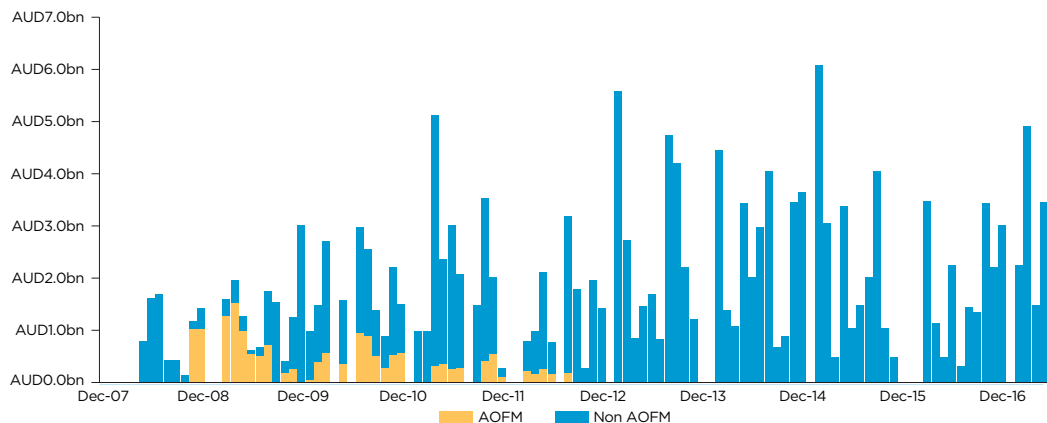


Source: Moody's Investors Service.

Supportive government policy

Ten years on from the crisis, credit should be given to two government initiatives that supported the securitisation market in the immediate aftermath of the crisis and the wider Australia mortgage market through bolstering funding alternatives for large banks. The first was the successful government directive in 2008 to use the Australian Office of Financial Management (AOFM) to intervene and invest in new issues of prime RMBS issued by smaller banks and non-banks. The then Treasurer, Wayne Swan, authorised the AOFM to invest up to \$20 billion. This was a vital initiative that allowed smaller lenders to continue to operate their businesses to finance residential property and fund new loans through the capital markets at reasonable rates. This initiative was successful as it achieved its stated purpose of supporting the market at a time when credit markets were somewhat dysfunctional. The initiative was also successful as not all of the \$20 billion was needed to be invested; it provided temporary support and, overall, it has been a very profitable investment for the government. Figure 4 illustrates the quantum and timeframe of the AOFM program.

FIGURE 4: AOFM investment in Australian RMBS



© Macquarie Bank Limited 2016.

Source: Macquarie Debt Markets Analysis.

The second initiative was the 2011 amendment to the Banking Act to allow banks to issue covered bonds. The ability to issue covered bonds provided yet another option for large banks to fund their mortgage portfolios. The major four domestic banks were the initial issuers of covered bonds in 2012. Since then, Macquarie Bank, Suncorp Bank and Bank of Queensland have established covered bond programs. RMBS continues to be the preferred and most cost-effective way for smaller banks and mutual banks (former building societies and credit unions) to raise term funding in the wholesale markets.

The post-crisis domestic investor base has also evolved in character partly in response to the liquidity rules introduced by Australia's adoption of Basel III. The domestic investor base can be classified into the institutional credit and fixed income managers, bank liquidity books, bank balance sheets and a small but growing sector of new specialist credit funds and even private high-net-worth investors. The inclusion of RMBS and ABS as eligible assets under the Reserve Bank of Australia's (RBA's) committed liquidity facility (CLF) underpins the demand for new securities.

Regulatory reform of Australia's securitisation market

The financial crisis of 10 years ago sparked a firestorm of regulatory reform of global securitisation markets. The crisis highlighted deficiencies in the origination, distribution, investment and regulation practices of some securitisation markets (primarily the United States).

The regulatory response of key regions such as the US and Europe have been varied and somewhat uncoordinated. Australia's securitisation market did not exhibit many of the problems witnessed in the US and Europe during the financial crisis. However, it became clear that Australian Prudential Regulation Authority's (APRA) APS 120, the primary prudential regulation for securitisation for Australia's regulated financial institutions, needed to be overhauled to provide a more comprehensive and contemporary framework for the market. This reform spanned several years and was only concluded in 2016.

Risk retention — ‘skin in the game’

One of the key headline issues addressed by global regulators was the misalignment of interests between issuers and investors in certain pre-crisis securitisations. Regulators identified the need for originators or sponsors of securitisations to have ‘skin-in-the game’.

The major markets of Europe and the US took different approaches to this issue while Australia, through APRA, reflected on practices in the Australian market and the merit of minimum risk retention by securitisers. Table 1 highlights the disparate approaches taken to this issue. Not only is there no commonality among regulators on this issue there has been no serious attempt to grant mutual recognition among jurisdictions.

TABLE 1: Different approaches to minimum risk retention in various markets

Market	Regulatory requirement	Obligation
Europe	Minimum 5% risk retention	Obligation on investors to be satisfied risk retention requirement is met
US	Minimum 5% risk retention, subject to variations and exemptions of certain asset classes	Obligation on issuers to comply with risk retention requirement
Australia	No minimum risk retention requirement	Banks cannot achieve full capital relief for a transaction even if significant risk transfer has been achieved

Europe is now progressing regulations to govern simple, transparent and standardised (STS) securitisations. The detail of this new framework is currently being finalised by the European authorities with implementation of an STS framework not expected before mid-2018.

Australia’s regulatory response

After two consultations APRA released the final version of its prudential standard governing securitisation, APS 120, in November 2016. In April 2017, it released the final version of the practice guide APG 120 and, in May 2017, it released the reporting requirements under ARS 120, to compliment the standard. The new standard is to be implemented in January 2018.

APRA defines a securitisation to be where the cash flow from a pool of financial receivables is used to service obligations to two or more tranches/classes of ‘creditors’ (i.e. debt obligations) with each tranche reflecting different levels of credit risk.

The new standard governs an authorised deposit-taking institution’s (ADI) exposure to a securitisation whether it is as an:

- > issuer
- > an investor, or
- > a facility provider (e.g. swap or warehouse facility).

Unlike other jurisdictions, the Australian prudential framework is not prescriptive. It is principles-based and intended to operate in the nature of broad guidelines. It also governs public securitisations and private securitisations (e.g. warehouse facilities and internal securitisations).

The focus of the current version of APS 120 (which will be superseded in January 2018) is on the requirements which an ADI must meet in order to achieve full regulatory capital relief for the transaction. APRA’s focus to date has been that depositors of an ADI are not exposed to any risk arising from the transfer of assets to a bankruptcy remote special purpose vehicle (SPV). Under the new standard this is now expressed as a quantitative threshold:

- > an ADI can retain no more than 20 per cent of non-senior securities issued (in aggregate, and of any tranche) (A senior securitisation exposure is effectively backed or secured by a first claim on the entire amount of the assets in the underlying pool, whereas a non-senior securitisation exposure is subordinated to another securitisation exposure.)
- > an ADI cannot hold or fund the acquisition of non-senior securities and provide other loss positions or credit enhancements which represent more than 20 per cent of the loss cover for senior securitisation exposures, at any time
- > non-senior securities must be sold to third parties. APRA wants to see a clean transfer of these and not have originating ADIs relying (in APRA’s eyes) on less reliable synthetic techniques, hedges or credit risk mitigation to achieve capital relief

- > an ADI cannot repurchase non-senior securities once sold other than to affect a 10 per cent clean-up call (no date-based calls are allowed for capital relief deals)
- > funding through securitisation must be in place for the life of the underlying pool (i.e. securities issued are sufficient to fund securitised assets up to their longest contractual maturity date)
- > APRA expects originating ADIs to 'measure, monitor and manage liquidity risk of call options'
- > retained securities and other securitisation exposures (e.g. swaps) are risk weighted or deducted from CET1 capital (depending on rating)
- > there is a cap on the total capital requirement: no more than would have been held against assets had they not been securitised.

The new standard provides guidelines for:

- > funding-only securitisations where no capital relief arises from the transaction
- > capital relief transactions that can achieve up to 80 per cent reduction in regulatory capital
- > master trust structures
- > internal securitisations that are established to provide a portfolio of securities which can, in certain circumstances, access liquidity from the RBA.

Notably the new standard explicitly permits the issue of securitisations where the originating ADI does not desire to achieve regulatory capital relief in respect of the securitised assets. The new standard provides much-needed and welcome clarity on this.

Where the transaction is a funding-only securitisation, the securitised assets are included when calculating regulatory capital for credit risk, subject to the requirements of APS 112 or APS 113. The new standard clarifies that an ADI does not need to have regard to the interposed structure when assigning risk weights to securitised assets. An ADI does need to hold regulatory capital (credit risk) for facilities or exposures to the securitisation SPV where those relate to the securitised assets (e.g. interest rate swaps).

While the standard adopts a pragmatic approach to funding-only securitisations, it does not provide complete flexibility for such securitisations. It maintains restrictions on any form of implicit support, restrictions on the ability to repurchase underlying assets, requirements and limitations in relation to the provision of services and facilities, and it maintains a regulatory stance that frowns on excessive purchases of senior securities by the originating ADI (although the revised '20 per cent rule' is now in guidance only and APRA has indicated that it will take a pragmatic approach).

The new standard includes a provision to allow an ADI to incorporate a date-based call in the structure. This is an important improvement for Australian securitisations as it will attract those investors who prefer to invest in a bullet style of security. To incorporate a date-based call, the non-senior securities must share pro rata loss allocation and have the same maturity i.e. no credit tranching of non-senior securities. A call date can be changed post-issuance.

An originating ADI must retain discretion to exercise a call, and cash flows from securitised assets must be able to meet any margin step-up if the call is not exercised. APRA requires that an ADI cannot structure a call to avoid allocating losses to investors, or create credit enhancements. A soft bullet (i.e. date-based call) can be funded by the originating ADI, but it should be noted that for LCR purposes they are modelled as an outflow at the earliest exercise date.

A major push by industry over recent years has been to have the new standard allow master structures to be used by ADIs. APRA has allowed such structures defining them as 'securitisation of revolving credit facilities'. In such structures, the 'seller interest' cannot be subordinated with respect to cash flows or losses to other senior securitisation exposures. That is the seller interest must rank pari passu with senior notes issued to investors. The senior interest must be retained by the issuing ADI. Hence, from 2018 onwards, ADIs will be able to issue securities with a soft bullet maturity date which is effected by a date-based call. This will permit multiple series of securities to be backed by the same pool of underlying assets.

Conceptually, master trusts could fund not only mortgages but also credit cards and other revolving assets. However, the way the new APS 120 is drafted makes it more challenging to construct a master trust for revolving assets such as credit cards.

A key differentiation of Australian master trust structures from UK and US structures is that if an amortisation event (scheduled or early) occurs:

- > the Australian master trust cannot subordinate seller interest, further subordinate junior tranches or in other ways increase an originating ADI's exposure to losses in the underlying assets
- > it ends the trusts' ability to add new assets to the pool or fund further draws
- > the trust goes into run-off (similar to an ordinary term securitisation).

This requirement introduces difficulty in establishing commercially viable master trusts of certain assets (e.g. credit cards) in practice.

In master trust structures, the management of seller interest, dealing with volatility in prepayment rates etc., is likely to be best suited to larger ADIs.

Regulatory capital treatment of Australian securitisations

From 2018, ADIs will need to access the type of securitisation that will be most suitable for them. A key consideration will be cost funding through securitisation. Two simple examples of the costs of funding through either a funding-only or capital relief structure are provided as follows.

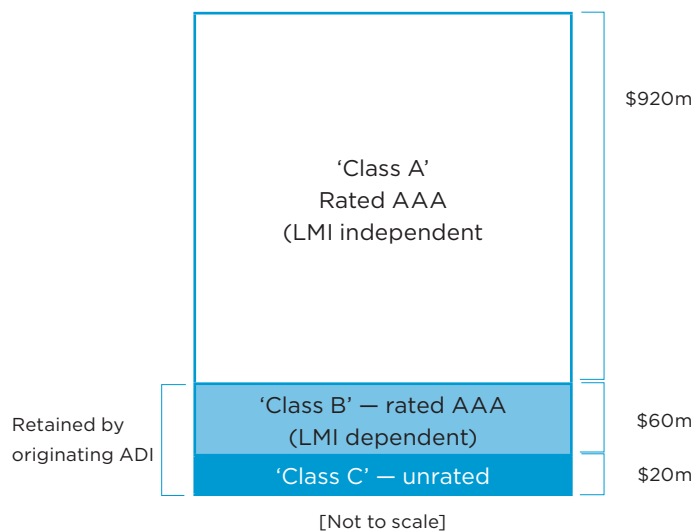
Example of a funding-only securitisation:

Illustrative calculation

Funding costs (Class A)
 BBSW1M + 120 = -280bps
 5-year deposit = 3.00%
 Cost of equity = 15%
 CET1 ratio = 10%
 Avg RWA of mortgages = 35%

Total cost

Senior	= \$25.75m
Retained	~ \$1.35m
Capital	= \$5.25m
	<hr/>
	~ \$32.36m



The above cost of this simple funding-only securitisation has been calculated as follows:

Capital:	\$1 billion x 35% x 10% = \$35 million of equity funding x 15% = \$5.25 million
Class A:	\$920 million x 280 bps = \$25.76 million
Classes B & C:	\$80 million – \$35 million (equity funded) = \$45 million x 300bps (deposit rate) = \$1.35 million

Hence, the cost of funding \$1.0 billion of residential mortgages through a funding-only securitisation is \$32.36 million, at an average funding rate of approximately 3.26 per cent.

Example of a capital relief securitisation:

Illustrative calculation

Retain 20% of non-senior

Funding costs:

A: BBSW1M + 120 = -280BPS

B: BBSW1M + 200 = -360BPS

C: BBSW1M + 300 = -460BPS

D: BBSW1M + 600 = -760BPS

Cost of equity = 15%

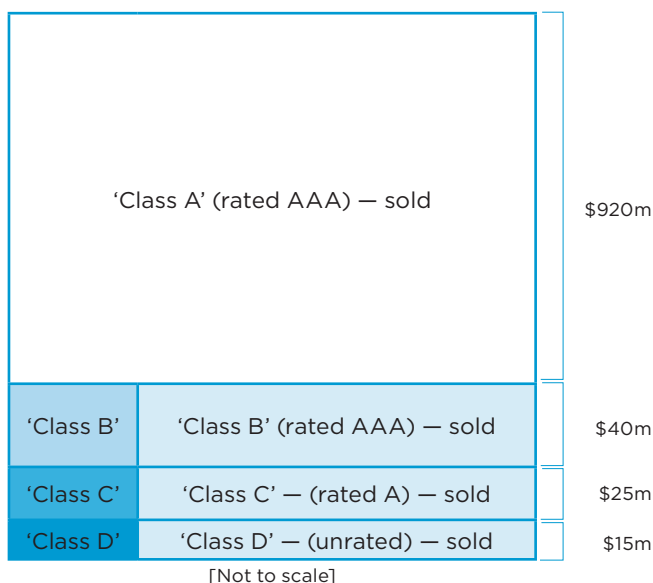
Total cost

Senior = \$25.76m

Sold non-senior = \$2.98m

Capital = \$1.28m

= \$30.02m



Notes sold to investors	Subordinated Notes retained (20%)
Class A: \$920m x 280 bps = \$25.76m	
Class B: \$32m x 360 bps = \$1.152m	\$8m x 65.8% x 10% x 15% = \$0.08m
Class C: \$20m x 460 bps = \$0.92m	\$5m x 15% = \$0.75m
Class D: \$12m x 760bps = \$0.912m	\$3m x 15% = \$0.45m

Note: the retained Class B exposure is assumed to be risk weighted as per APS 120 Attachment C; the retained portions of Class C & D are CET1 deductions.

The above example of a \$1.0 billion capital relief transactions implies an all-up average funding rate of 3.02 per cent.

Determination of regulatory capital risk weightings

The revised Basel Securitisation Framework (Basel III) released in 2015 established the parameters within which APRA could implement a compliant securitisation standard for Australian ADIs. In overhauling APS 120, APRA chose to incorporate further elements of conservatism. Two key elements will influence the evolution of the next phase of the Australian securitisation market: the permitted risk-weighting approaches ADIs are allowed to use in determining regulatory capital for securitisation exposures; and the actual risk weights to be applied.

The new APS 120 only allows two risk-weighting approaches compared to the five permitted under the Basel Framework. Australian ADIs can choose either the external ratings-based approach (ERBA) or the supervisory formula approach (SFA).

The standard does not allow the internal assessment approach (IAA), which was a feature and concession of the current standard and will be accepted under EU Securitisation Regulation. The restriction to only allow the use of the EBRA or SFA approaches will increase the capital required for securitisation exposures. APRA has made further conservative modifications to the EBRA approach including:

- > no granularity
- > variable maturity
- > re-securitisations will be a capital deduction
- > a large increase in risk weights.

The second, and probably most significant aspect of the new securitisation prudential standard is the dramatic increase in risk weighting specified for use in calculating regulatory capital. Table 2 illustrates the changes in risk weights mandated under the ERBA. A few examples illustrate the impact of the revised risk weightings.

Under the current version of APS 120 a senior ranking securitisation exposure rated 'AAA' requires a risk weighting of around 7.0 per cent to be used in calculating regulatory capital for the exposure. Under the new standard this increases to at least 20 per cent. For an exposure rated 'A' the current approach suggests a risk weight of 12 per cent for a senior exposure. The new standard will see this risk weight factor increase to 65.0 per cent for a prime residential mortgage, a greater than fivefold increase.

Under the Basel Framework, the minimum risk weighting is 15 per cent (previously 7 per cent). Based on that, the incremental increase for a one-year 'AAA' exposure is not significant. However, as demonstrated in Table 2, the risk weights are significantly higher for longer-dated exposures and junior exposures under the new APS 120.

TABLE 2: Risk weights under the current and new APS Standard

Rating	Current		NEW APS 120 (2018)			
	Senior current	Senior current	Senior 1 year	Senior 5 year	Junior 1 year	Junior 5 year
AAA	7%	12%	15%	20%	15%	70%
AA+	7%	12%	15%	30%	15%	90%
AA	8%	15%	25%	40%	30%	120%
AA-	8%	15%	30%	45%	40%	140%
A+	10%	18%	40%	50%	Tier 1 deduction	Tier 1 deduction
A	12%	20%	50%	65%	Tier 1 deduction	Tier 1 deduction
A-	20%	35%	60%	90%	Tier 1 deduction	Tier 1 deduction
BBB+	35%	50%	75%	50%	Tier 1 deduction	Tier 1 deduction
BBB	60%	75%	90%	105%	Tier 1 deduction	Tier 1 deduction
BBB-	100%	100%	120%	140%	Tier 1 deduction	Tier 1 deduction

Long term ratings only shown here

Adjustment for thickness

Source: NAB.

At this point, APRA has made no provision for 'simple, transparent and comparable' (STC) securitisations under APS 120. Under the Basel securitisation framework (proposed for the EU Securitisation Regulation), STC compliant securitisations will be able to obtain concessional risk weight treatments. It will soon become a point of discussion as to whether such a regime will be implemented in Australia and whether risk-weight concessions will be introduced under APS 120.

Post 2018 market outlook

The market is currently absorbing the detail and implications of the new prudential standard and it is transitioning to revised structures and facility terms and conditions to be ready to meet the requirements of the new standard on 1 January 2018. What Australia has, in contrast with Europe and to a lesser extent the United States, is a settled regulatory framework within which to operate. Costs associated with securitisation are expected to increase significantly as a result of the increases in the regulatory capital discussed above. Notwithstanding these challenges, securitisation will remain a useful part of most ADIs' funding plans.

The outlook for the Australian securitisation market in 2017 is buoyant. It is expected that over the next 18 months there will be a healthy supply of RMBS and a growing amount of ABS issued.

The outlook for the Australian securitisation market in 2017 is buoyant. It is expected that over the next 18 months there will be a healthy supply of RMBS and a growing amount of ABS issued. RMBS will continue to be the dominant asset class and will be supported by the Australian central bank's acceptance of RMBS as security for its secured liquidity facility as part of Australia's implementation of the liquidity provisions of Basel III. This optimism also stems from an increase in superannuation fund allocation to domestic Australian fixed income funds, which is in line with investor risk reappraisal; a recognition by investors of the benefits of fixed income as an asset class amidst the continuing volatility in equity markets. Domestic funds are re-entering the market for quality RMBS as the secondary supply reduces and a compelling value proposition develops.

The more medium-term challenge is for the market to attain economic pricing of cross-currency swaps to enable the issue of tranches of RMBS and ABS in currencies other than Australian dollars, thereby providing greater access to a wider investor base. Attracting further global investors, particularly investors seeking securities denominated in US dollars, to the Australian securitisation market will assist issuers to diversify and increase their funding options and provide greater certainty to pursue business planning. It will also increase the number of investors participating in Australian securitisation transactions and will improve liquidity for investors.

BANKING REGULATION:

Has complexity worked?

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This paper examines the Basel Committee's approach to prudential regulation of bank risk, the recent apparent shift towards less complex regulation, and the reasons for this. The paper provides a brief discussion of the calls for alternative approaches to regulation from some prominent experts who generally dismiss the merits of the 'risk-sensitive', complex rules-based Basel approach. After addressing the pros and cons of simpler versus complex regulation, the paper also speculates on the future of financial regulation in light of the ongoing debate about the optimal regulatory structure and degree of complexity. The paper was prepared for the Monash University and Australian Centre for Financial Studies' 22nd Melbourne Money and Finance Conference on 10–11 July 2017.

The global financial crisis prompted a wide-ranging agenda of financial regulation reform led by the G20 and implemented by international standard setters and national authorities. A key objective of the G20 Leaders is: 'To make sure our regulatory system for banks and other financial firms reins in the excesses that led to the crisis. Where reckless behavior and a lack of responsibility led to crisis, we will not allow a return to banking as usual' (G20 2009).

Ten years later, much of the agenda set by G20 leaders has been implemented.¹ It has involved an expansion in the scope of regulation, 'tougher' (more restrictive) regulation, and (generally) more complex regulation. The increased complexity is most prominent in the Basel approach to capital regulation involving partial reliance on the internal risk models of large accredited banks for determining their minimum capital requirements (with smaller banks having capital requirements determined by simpler, formulaic, 'standardised' approaches).

But there are a number of features of recent regulatory changes, involving less reliance on bank internal risk models, which could be interpreted as de-emphasising complexity of regulation in favour of greater simplicity. One question that this paper addresses is whether this reduced complexity will be a continuing trend in future financial regulation. Alternatively, have we reached some sort of equilibrium, reflecting learning about which risks can (at the current time) be reliably modelled and where complex internal risk models of banks can be relied upon to improve regulation?

The paper also argues that there are two other important features of recent regulatory change which perhaps make the issue of the form of the technical Basel 'Pillar 1' requirements less crucial. One is the emergence of multiple targets of prudential regulation. This brings with it a need for multiple policy instruments beyond capital requirement rules. The second is that the relative importance attached to Basel's 'Pillar 2' of supervisory approaches and actions appears to be growing — in part reflecting the broader purview of prudential regulation. This suggests a reduced role for rules-based models and greater reliance on supervisory discretion, potentially creating less certainty for regulated institutions. Trends prompting such a view include greater supervisory reliance on stress tests, evolution of macro-prudential policies, and developments in intervention and resolution ('bail-in') powers and practices.

The Basel approach

One of the defining features of developments in the Basel approach to bank regulation, already in train prior to the crisis, was the application of more 'sophisticated', technical, capital regulation. Underpinning this development was the worthy objective (particularly at low capital levels) of making capital regulation more risk sensitive (to reflect the risk of bank failure and avoid the moral hazard of risk-taking incentives under risk-insensitive capital requirements). Also relevant was the acknowledgement that use of relatively sophisticated risk management systems by large banks should be able to inform the extent of capital levels (or risk mitigation activities) required for ensuring solvency.

The Basel Pillar 1 approach has focused upon specific types of risks that banks face. Typically these include: credit (counterparty) risk; market (trading book) risk; operational risk; interest rate banking book risk (IRRBB); and liquidity risk.

This approach has attempted to merge most of these disparate risks into one risk indicator (a risk-weighted assets (RWA) equivalent) to which a single regulatory capital requirement could apply.^{2,3} Initially (in Basel 1), credit and (later) market risk were incorporated, and in Basel 2 this was expanded to include operational risk. IRRBB was seen (and confirmed in April 2016) as a Pillar 2 add-on within this framework which would involve capital requirements.⁴ In contrast, liquidity risk did not fit naturally into this framework leading to a quite separate and distinct approach.⁵

Mapping of disparate risks into a single regulatory indicator (of risk-weighted asset equivalents) raises issues such as: the optimality of such an approach based on essentially one policy instrument;⁶ calibration concerns; and a lack of recognition of diversification effects by simply 'adding up' capital requirements for different risks. Even though there were a number of different 'types' of capital requirement (CET1, Tier 1, total capital) all have been based on a single (RWA) indicator. In this regard, even though concerns about the robustness of complex models (and their use by banks) underpin the adoption of additional capital adequacy requirements (a non-risk-weighted leverage ratio and 'capital floors'), these developments increase the number of policy 'instruments'.

Most discussion of those additional capital requirements does not perceive them as 'discretionary' policy instruments that policy makers may adjust to better achieve a number of policy objectives. However, a broadening of policy objectives beyond micro-prudential regulation to macro-prudential regulation (with the latter involving both temporal systemic stability objectives as well as influencing of financial sector interrelationships) suggests a need for a number of discretionary policy instruments. The introduction of capital conservation and countercyclical buffers into the Basel framework are elements of an expanded policy instrument set, but more relevant in terms of regulatory discretion are stress-testing requirements and enhanced regulatory intervention and resolution powers (and practices).

These changes raise the profile of the Pillar 2 component of the Basel approach, which stresses the importance of the supervisory process. This enables supervisors to impose differential standards for different banks at their discretion, based on their views on risk, and provides discretion in making decisions regarding resolving troubled banks. Two consequences follow. First, banks may find compliance with rules-based Pillar 1 requirements insufficient for meeting supervisory requirements, and may face uncertainty in that regard. Second, even if the regulatory capital requirement specified under Pillar 1 was not related to some objective measure of a bank's risk (as advocated by some commentators), regulators could be expected to adopt a risk-related approach under Pillar 2.

The recent trajectory of Basel standards

The most recent changes to the Basel standards raise the question of whether reliance on complex models has been, at least in part, a failed experiment.

Operational risk

'Basel 4' changes announced in 2016 (BCBS 2016b) removed the 'advanced management approach' (AMA), based around bank modelling of operational risk, in favour of a Standardised Measurement Approach (SMA).⁷ To many analysts, the demise of the 'sophisticated' approach was hardly surprising given the complexities of reliably modelling the likelihood and scale of a wide range of operational events. And, while 'risk sensitive' capital requirements might induce management actions to mitigate such risks, the extent to which this would occur is unclear.

Credit risk

A second change is the planned removal of certain asset portfolios from eligibility for the advanced internal models approach for credit risk, announced in a March 2016 consultative document (BCBS 2016c). The internal models approach was seen to lead to significant differences between large banks in their assessment of risk (and thus capital requirements) of similar portfolios. Although some such differences were explicable, concerns arose about the veracity of relying on the robustness of reliance on bank internal models for determination of capital adequacy. This has prompted the introduction of constraints on model characteristics, and disallowance of model use for some types of risk.

Specifically, the BCBS proposed (and final standards are not yet released) that capital requirements for credit exposures to banks, financials, large corporates and equity portfolios will no longer be determined under the internal models approach,⁸ but must now use the revised Standardised approach. For mid-sized corporates, capital requirements will now be calculated using the Foundation IRB approach, in which banks no longer have freedom to use estimates of loss given default (LGD) from their internal models. This reflects a general view that PD modelling is more robust than LGD modelling, partly because of the smaller sample size and limited data available for calibration of the latter. Similarly, there are new constraints on the use of internal models for specialised lending. Also proposed is a specific floor for counterparty credit risk based on the standardised approach, and credit valuation adjustments (CVA) are to be calculated using a standardised or basic approach.

Market risk

In 2012 and 2013, the BCBS released consultative documents on a *Fundamental Review of the Trading Book*, which included increased risk sensitivity of the standardised approach. One key component of changes to the internal models approach was a move away from a Value-at-Risk (VaR) approach to the use of an Expected Shortfall (ES) approach. VaR had been widely criticised as: not providing an estimate of how large the losses from extreme events might be; involving significant potential for mis-estimation (particularly if correlations change in extreme events); and not meeting the desirable statistical property of 'sub-additivity'. These changes could be interpreted as primarily improving on the complex models being used, rather than moving towards simpler approaches. A major concern was that the existing regulatory framework did not adequately capture all the risks in the trading book.

In January 2016, the revised standards for market risk were published (BCBS 2016a). Securitisation exposures in the trading book are to be treated according to the revised standardised approach. Under the IMA approach, capital requirements based on the ES include add-ons related to a default risk charge (DRC) and a stressed capital add-on (SES).

The decision to permit regulators to approve or disallow IRB status at a trading desk level rather than at the bank level suggests concerns that risk modelling may be of variable quality for different types of exposures of individual banks. In June 2017, a consultative document (BCBS 2017) was released proposing a simplified alternative to the market risk standardised approach, suitable for banks other than large, internationally active banks.

IRRBB

In April 2016 the BCBS released its final standards on IRRBB (BCBS 2016d). These allow for accredited banks to utilise an internal models approach for their assessment and determination of IRRBB capital requirements. However, as in some other areas, the determination of required capital is based on calculations using some regulatory provided parameters – in this case the size of interest rate shocks at which the calculation of change in EVE (economic value of equity) is to be made. A specific standardised model is suggested which regulators can require for use by other banks under Pillar 2.

In this area, there is no sign of a retreat towards simplicity. Several reasons might help explain that. One is the absence of a clear goal for IRRBB regulation with different banks wanting to make different trade-offs between stability of earnings (NII) and economic value of equity – with these variables not necessarily highly correlated. A second reason may be that IRRBB is generally a relatively minor component of overall risk – and one which can be adjusted rapidly through transfer of exposures to the trading book.

Liquidity regulation

The liquidity regulation introduced (BCBS 2013, 2014) has not gone down the route of allowing reliance on internal models – but does involve a bifurcation between smaller institutions subject to minimum liquidity ratios (such as in Australia) and larger institutions subject to the LCR and NSFR requirements. For those larger institutions, the two requirements involve application of prescribed weights to balance sheet structures to ensure compliance, as well as stress-testing requirements. While, in principle, it may be possible to rely on internal modelling to parameterise LCR and NSFR calculations, this has not been attempted.

Additional regulatory changes

Two further changes to the Basel arrangements also involve simplified approaches. One is the introduction of a non-risk-weighted CET1 leverage ratio as a backstop to the RWA approach. Although not yet finalised, the indicative minimum requirement of 3 per cent or 3.5 per cent means that it is unlikely to be binding for most banks.⁹ The other development has been the proposal (BCBS 2014b) for the application of ‘capital floors’ to IRB banks set at an expected 70–75 per cent of the capital requirement the bank would face under the revised standardised approach.¹⁰

In general, these rules can be interpreted as conservative overlays, reflecting both concerns about the reliability of bank internal models due to potential regulatory arbitrage and the ability of models based on historical data and relationships to perform adequately in future unknown crisis scenarios. The debate in this regard is about how much conservatism should be involved although, as discussed in the next section, some commentators have argued for the risk-weighting approach to be largely abandoned.

Another important development has been the increased reliance on stress testing for regulatory purposes. Again, this provides a backstop to complex capital and liquidity regulation, and could be interpreted as less willingness to rely solely on complex rules-based regulation which, despite its complexity, is unable to adequately capture stresses in the financial system to which banks are exposed. Again, some commentators have argued that stress tests should become a ‘frontstop’ rather than a ‘backstop’.

Accompanying these changes have been the introduction of macro-prudential controls in a number of countries which have tended to be very simple, blunt, instruments such as minimum loan-to-valuation ratios (LVRs) or ‘speed limits’ on certain types of lending.

Overall, this brief review of recent Basel changes suggests that there has been some shift away from reliance on complex regulatory approaches under Basel’s Pillar 1, although it has been selective. Some areas of risk assessment have been identified as unsuited to reliance on complex models, while concerns about the robustness of such models in dealing with unexpected financial stresses or being subject to potential manipulation have led to the use of ‘simple’ supplementary regulatory measures as backstops or conservative overlays.

Overall, this brief review of recent Basel changes suggests that there has been some shift away from reliance on complex regulatory approaches under Basel's Pillar 1, although it has been selective. Some areas of risk assessment have been identified as unsuited to reliance on complex models, while concerns about the robustness of such models in dealing with unexpected financial stresses or being subject to potential manipulation have led to the use of 'simple' supplementary regulatory measures as backstops or conservative overlays.

Risk sensitivity and regulatory simplicity

There are a number of prominent commentators arguing that greater simplicity of regulation may be preferable. Importantly, among these arguments are calls for greater reliance upon the use of a non-risk-weighted leverage ratio for banks, rather than the Basel risk-weighted assets approach.¹¹ FDIC Vice-Chairman Thomas Hoenig (2013) for example argues that '[t]he tangible leverage ratio is a superior alternative to risk-weighting schemes that have proven to be an illusion of precision and insufficient in defining adequate capital'.¹² While the BCBS has incorporated a leverage ratio requirement into the regulatory tool bag, it is viewed as a 'backstop' to the more complex risk-weighted capital requirement, rather than as a substitute.

There are two separate issues involved here. One is the merits of a regulatory approach that links regulatory constraints to some form of risk assessment of the institution's position via Pillar 1 rules. Regulation and supervision needs to take bank risk into account — although former Bank of England Governor Mervyn King (2016) has argued that it is 'fundamental uncertainty' rather than 'measurable risk' which is more relevant for financial sector stability and financial institution safety. If so, basing regulation on rules built on risk modelling may be inadequate.

The second issue is, if risk assessment is to be involved, how should that be done — using complex approaches to risk measurement, or more simple (approximate) approaches? The Basel approach to regulation has been to use both, and recent changes could be interpreted as a shift towards the simplicity end of the spectrum via greater reliance on the standardised approach (and 'simple' backstop regulations). But crucially, risk 'relatedness' if not risk sensitivity is still involved.

Two questions need consideration. First what are the relative merits of simplicity versus complexity? Second, if less reliance is placed on risk sensitivity in Pillar 1 rules, what does this imply for supervisory approaches under Pillar 2 which can allow for a more nuanced (albeit judgemental) view of risk? How much greater reliance should be placed on Pillar 2, and to what extent is this desirable? Does it make the debate about simplicity or complexity of Pillar 1 rules less relevant?

Complexity versus simplicity: The merits and alternatives

The question of the merits of regulatory complexity is a topical one.¹³ The Chair of the Basel Committee Stefan Ingves (2016) recently remarked that 'simple rules can sometimes be more risk-sensitive and robust than complex ones, and can better meet supervisory objectives. I would encourage further research to develop this point'.

A range of considerations are typically advanced in considering the merits of simple versus complex rules and regulations (many of which arise in debates about the relative merits of rules versus principles-based regulation). These include: compatibility with the complexity of activities involved; incentives and ability to evade regulation; ease of identifying non-compliance; compliance costs; public understanding; competitive balance; and distortion of the activities of regulated institutions.¹⁴

In some respects, the debate about complexity is misplaced. Risk-weighted capital requirements are simple rules — capital needs to exceed a specified measure of risk-weighted assets. It is the calculation of the inputs to the rule that is complex. More relevant is the question of whether the rules are sufficient and/or necessary for efficiently achieving regulatory objectives and an important issue in this regard is what are the objectives of banking regulation? There has been a significant shift in this regard since the crisis. Initially prudential regulation was primarily 'micro focused' on bank solvency. The focus has shifted towards also preventing crises and runs (macro-prudential regulation), with regulation attempting to meet both objectives — and potentially becoming more complex in the process.

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In this regard, the calls for greater reliance on supervisory stress test results and enhanced intervention powers, both involving supervisory assessment and discretion, could be seen as an appropriate reflection of the multiple objectives of prudential regulation. Complexity of the system and multiple objectives may imply less reliance on specific features of Pillar 1 rules and greater reliance on Pillar 2 approaches which being dependent on regulatory discretion arguably involves greater 'complexity'.

Complex financial regulation, it could be argued, is required because of the complexity of modern financial institutions and financial systems.¹⁵ An alternative (or complementary) regulatory approach is to impose restrictions on the activities of relevant financial institutions, simplifying the structure of financial institutions and of the financial system, and types of regulation required.

Some developments of that type have already occurred. The Volcker rule, retail ring-fencing in the UK, CCP requirements, and STC (simple, transparent, comparable) securitisation initiatives, are examples of explicit regulatory policies designed to shape the structure of the financial system. More generally, regulatory imposts may induce regulated financial institutions to exit (or concentrate on) certain activities, thus (and perhaps inadvertently and perhaps deleteriously) affecting the evolution of the system.

Some commentators (such as Cochrane 2016) have argued for further more fundamental changes — such as limiting the reliance of banks on 'runnable' liabilities, perhaps by the imposition of 'Pigouvian taxes' on short-term debt/deposits of banks, as an alternative to capital regulation. This type of argument has a long history of proposals for narrow banking or mutual-fund banking emanating from the Chicago School which, as Cochrane suggests, are now more feasible as a result of digital technology. Such radical proposals,¹⁶ which fundamentally change the allocation of risk-sharing and nature of banking, seem unlikely to garner political support in the near term. But regulators have already embraced radical changes such as 'bail-in' requirements for bank liabilities, exercisable at the discretion of regulators, creating extensive uncertainty about 'risk sharing' among bank stakeholders.

The outlook

Different views exist internationally about the appropriate future directions for bank regulation, although large banks appear committed to the continuation of the internal models approach based on risk-weighted assets. But among academics and regulators there is less convergence of views.¹⁷

Among regulators, the USA has been a hesitant adopter of the complex regulation of Basel. Indeed the Collins amendment to the Dodd-Frank Act,¹⁸ and its use of a leverage ratio requirement makes the risk-weighted internal models approach largely irrelevant for regulatory purposes.

Other members of the Basel Committee (such as Australia, UK and the EU) appear to be committed to a continuation of the current approach.

While much of the current debate is framed in terms of complexity versus simplicity, this paper suggests that a more important issue in the future may be the relative importance of Pillar 1 versus Pillar 2 in the regulatory approach. Pillar 1 is primarily a rules-based approach that has drawn more attention than Pillar 2 which can involve supervisory discretion (or rules for responses to Pillar 1 indicators) and relies on supervisory capabilities.

Simpler (and possibly less risk-sensitive) rules under Pillar 1 arguably imply a greater reliance on Pillar 2 supervisory approaches involving more subjective risk assessment, more akin to principles based regulation. The rules may be simpler, but regulation overall may be more complex.

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Notes

1. See FSB (2017).
2. This relates to 'Pillar 1' of the Basel approach, with Pillars 2 and 3 providing scope for alternative regulatory and supervisory considerations.
3. Blundell-Wignall, Atkinson and Roulet (2014) argue that differences in business models make use of a single capital ratio approach inappropriate and that '[c]apital rules make more sense when fundamentally different businesses are separated'.
4. See BCBS (2016c). In Australia, APRA has implemented IRRBB capital requirements for IRB banks as a Pillar 1 component.
5. The nature of the liquidity regulation does, because of the risk-weighting of assets involved, have implications for bank capital adequacy. The interaction of liquidity and solvency issues in cases of bank failure suggests one explanation for increased attention to stress testing as part of the regulatory tool-kit.
6. There is a long-established economic policy literature arguing that there should be at least as many policy instruments as objectives. This approach implies that the individual types of risk are not important in their own right but only via their contribution to the one objective of banks' solvency. With the expansion of regulatory objectives to macro-prudential as well as micro-prudential concerns, this view may be questioned.
7. The SMA approach is built around a relatively simple concept of a Business Indicator (BI) whereby financial statement information about the mix of business and perceived operational risks of different business activities is combined with the historical loss experience information of the bank. While formulaic, the approach is hardly non-complex (and the method of incorporation of historical experience hardly non-controversial), but is clearly simpler than the AMA reliance on complex statistical models.
8. It is rumoured that use of the Foundation IRB approach will ultimately be approved for some of these exposures.
9. The Total Loss Absorbing Capacity (TLAC) requirements for G-SIBs also require eligible TLAC liabilities to exceed both a non-risk-weighted benchmark (eventually 6.75 per cent of the leverage ratio denominator) and a risk-weighted benchmark (eventually 18 per cent of risk-weighted assets). See FSB (2015).
10. It has been suggested that these would have virtually no impact on Australian, US or Asian banks, but could require some EU banks to raise further capital.
11. See also comments by former Bank of England Governor Mervyn King (2016, chapter 7), former US Federal Reserve Board Governor Daniel Tarullo (2014), and Bank of England Executive Andrew Haldane (2012).
12. Whether evidence based from the Basel 1 risk-weighted capital ratio provides reliable evidence about how more risk sensitive capital ratios such as under Basel 3 will perform in predicting bank distress is something of an open question.
13. Of course, simplicity versus complexity is merely one of a number of interrelated dimensions along which regulatory approaches can be considered. Also important are the severity of regulation, consistency and interoperability of regulation across jurisdictional boundaries, and consistency between different elements of the overall regulatory structure.

14. Kay (2015) also argues that '[r]egulation based on detailed prescriptive rules has undermined rather than enhanced ethical standards, by substituting compliance for values'.
15. An alternative argument is that advances in technology and knowledge have made more complex regulation possible — indeed this would appear to underpin the Basel decision to incorporate use of bank internal models 'to ensure that the Framework keeps pace with market developments and advances in risk management practices' (BCBS 2006, para 15).
16. Radical, in the sense of departures from the status quo.
17. As well as authors cited earlier, it is also appropriate to mention Admati and Hellwig (2013).
18. This imposes a floor on the minimum capital for large banks approved to use the internal models approach, which is calculated by reference to that which would arise from application of the simpler standardised approach.

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CURRENT THEMES IN

Australian debt capital markets

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This paper examines the three main themes that are expected to shape the future growth and development of domestic capital debt markets (including syndicated loan and bond markets). The first two themes are: the continued rise in the importance of Asian investors; and the growing appetite of self-managed superannuation funds and non-institutional investors for investing in the domestic bond market. These trends also have an impact on the third theme – increased innovation – both in terms of alternative international markets for raising funds and in the design of debt products. This paper was prepared for the Monash University and Australian Centre for Financial Studies' 22nd Melbourne Money and Finance Conference on 10–11 July 2017.

With Australia continuing to run current account deficits, capital inflow is required, such as through borrowing money (or raising equity) from overseas investors, to create a capital account surplus. Asian investors have continued to fund Australian debt issuance through loans, and/or bonds, since the global financial crisis (GFC).¹ The importance of the offshore market should not be underestimated. Every year the percentage of domestic market debt issuance that is purchased by Asian investors grows. The number and diversity of investors from Asia are increasing, both geographically and by type of institution. There is also increasing activity from the Asian offices of a number of European or US fund managers, which is likely to continue.

Another significant theme is the growing scale of self-managed superannuation funds (SMSFs) and non-institutional investors, along with their appetite for investing in the domestic bond market. Traditionally this demand was more focused on the hybrid and convertible market but increasingly these investors are providing liquidity in all types of senior debt.² During 2016, bidding for new debt issues by these investors grew from a consistent, albeit small, part of the domestic debt market to a fairly significant part of most book builds. A number of infrastructure-related issuers saw strong bids in 10-year floating rate notes (FRNs) from this sector. This trend may continue as more SMSFs move towards greater fixed income exposure, which has been an underweight asset class.

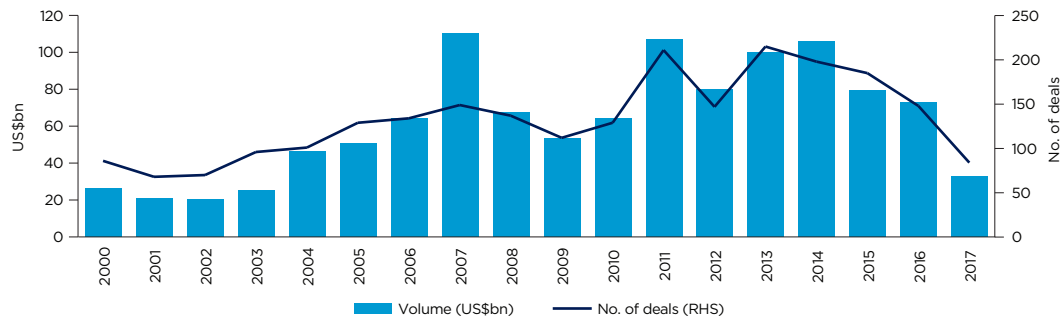
Innovation is also an important theme affecting the domestic debt market. One important development is the extent to which international debt markets provide alternative issuance opportunities to cater to international demand. A second is the emergence of debt products designed to cater to investor preferences for both financial and non-financial considerations. That latter development is illustrated by NAB issuing the first 'green' bond from a commercial bank globally at the end of 2014. In 2015 that transaction was replicated by other banks both domestically and offshore.

In 2016 the green bond market stepped up another level. In April, the first green certified securitisation transaction was undertaken by Flexigroup and, in July, the first green bond was issued by an Australian Government Authority, Treasury Corporation of Victoria. Subsequently, in March 2017, the Queensland Government issued a green bond and NAB issued the first offshore green bond from an Australian issuer. This market is becoming more topical in Australia and is a reflection of the growing investor appetite for assets that are socially responsible.³ The market will continue to grow as investors continue to have the desire for investments that are both financially attractive in their own right and finance activities that have a desired social purpose.

Syndicated loan markets

In 2017, the Australian syndicated loan market has been relatively subdued (as shown in Figure 1), with year-to-date (YTD) volumes down over 25 per cent from the previous year, which has been a similar experience across the Asia Pacific region.

FIGURE 1: New loan market volume (US\$bn)



Source: Thomson Reuters, LPC Data (updated with 2017 YTD figures).

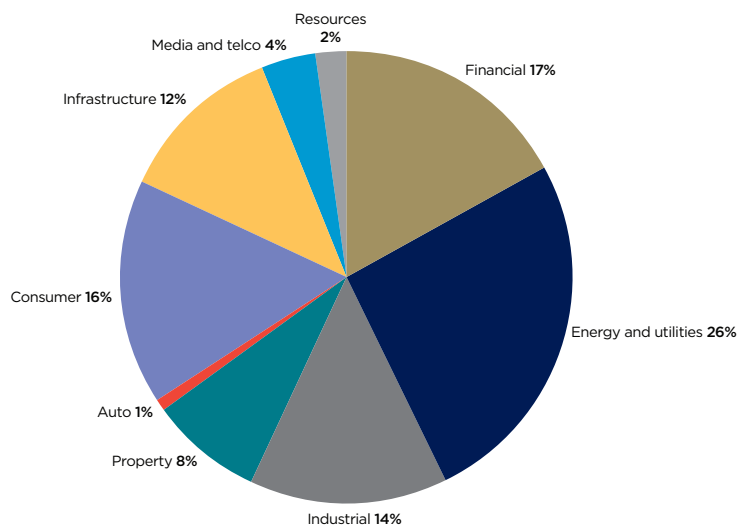
The decline in new issuance has been due to a combination of factors, principally:

- > a lack of demand by the corporate sector for credit
- > a reduced level of refinancing due to significant refinancing occurring over the past few years
- > increased loan pricing making it less conducive for borrowers to refinance early compared to previous years.

Although loan issuance volume was down significantly in fiscal year (FY) 2016–17, it was relatively active with an increase in new money deals (rather than refinancing of existing/maturing loans) that have been a combination of additional funding raised by corporates, mergers and acquisitions (M&A) and privatisation. These transactions have been meaningful in volume with strong support by banks.

Consistent with previous years, market liquidity has remained strong with all syndicated facilities coming to market oversubscribed. FY 2016–17 has seen more event-driven transactions (acquisition and privatisation) than in previous years and transactions have supported a wide variety of sectors (as shown in Figure 2), which has been a key feature of the domestic loan market.

FIGURE 2: 2017 YTD loan deals by sector



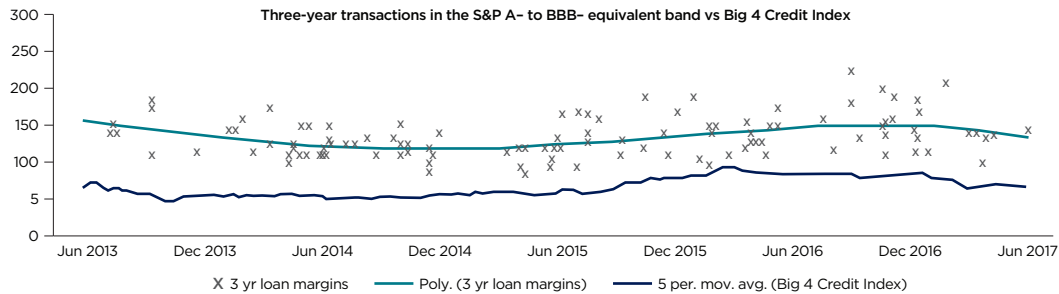
Source: Thomson Reuters, LPC Data.

The loan market also experienced an increase in the number of new banks establishing a branch in Australia, improving local liquidity available to Australian borrowers. Most of the banks that established a presence were of Taiwanese origin. In addition, several transactions were syndicated into the Asian region, which has also been well supported by banks in the key regions of Singapore, Taiwan, Hong Kong/China and regional Japan.

Drivers of change

Figure 3 shows the behaviour of credit spreads over the bank bill swap rate (BBSW) on new three-year loan syndications (and a polynomial trend of those spreads) as well as a measure of the behaviour of bank debt funding costs (using a five-month moving average of the credit spreads for the four major banks).

FIGURE 3: Australian loan market pricing



Source: Thomson Reuters, LPC Data.

Banks have also been increasingly affected by the cost of additional capital raised to meet increased prudential requirements imposed by regulators. The ability of banks to pass on increased costs has been limited due to continuing strong market liquidity and subdued market volume. Banks have been increasingly balancing the level of commitment provided to borrowers with the overall relationship, given the increased cost of capital. This is resulting in syndicate composition broadening to include other banks or non-bank investors (institutions and funds) from across the region.

There are several types of fund managers (corporate, property, leveraged, and project and infrastructure) involved in syndications. This approach allows for a more balanced lender group to support clients in meeting their funding and maturity needs.

One development likely to be a feature of the market in the future is that foreign banks based in Australia and offshore will continue to show active interest in participating in Australian syndication. Currently there is particular interest in the infrastructure and utility sectors. This, in combination with the increased role of fund managers as syndicate participants, raises the question of how the role of Australian banks may change, particularly given ongoing regulatory change and increased prudential requirements (and their subsequent effects in terms of increased funding and capital costs).

Each bank can be expected to manage this in different ways, such as:

- > being more selective of their target market (borrowers and sectors to support) and the amount of available capital used to support this type of lending
- > reduced commitments to the share of each issue and long-term holding of loans, with increased distribution of loan assets in the primary or the secondary market
- > increased securitisation of loan assets.

The growing involvement of institutional investors and funds in the loan market will be complementary to both banks (as originators and distributors of loan participations) and borrowers.

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Australian dollar-denominated corporate bonds

Australia's corporate bond market experienced a period of consolidation in supply in 2016, reflecting muted company demand for term debt, recurrent bouts of volatility and a continued investor bias towards longer tenors.

In reality, local corporate debt markets were facing a supply drought due to the fact that many issuers had pre-funded in previous years, deleveraged or were perhaps targeting different markets such as the US private placement market (USPP), sterling and euro markets for varying reasons such as tenor and volume. This phenomenon affected all debt markets globally and, by the end of 2016, total corporate funding (including financials) fell to around AUD 100 billion from AUD 160 billion as at end-2015.

Key issuers included Air Services Australia, Port of Brisbane, Apple and Coca Cola and, while some of these were very large deals, it masked a bigger trend towards interest by Australian and Asian investors in longer tenor (seven years) and the lower end of investment grade (BBB). The composition of issuance varies between rating categories.

The second half of 2016 saw a rise in activity across multiple corporate mandates including SGSP Australia Assets, Local Government Funding Vehicle, Infrastructure play Westlink M7 (printing AUD 500 million in two tranches) and a debut Kangaroo issue from Toyota Motor Credit Corporation among many others. Prior to both Brexit and the Australian federal election, it is equally noteworthy that taps issuance of AUD 30 million to AUD 50 million became a more popular vehicle for SMSF and non-institutional investors.

The second half of 2016 and first half 2017 saw a continuation of the more traditional themes prevalent in recent years, namely:

- > a rise in activity around the seven-year+ tenors, a trend that remains the sweet spot for the market. Seven-year+ deals accounted for 62 per cent of volumes in 2016, the highest on record
- > a step-up in 10-year investor demand, driven by largely Japanese-related mandates, while domestic investors showed encouraging signs of their willingness to participate
- > increased significance of Kangaroo issuers (i.e. non-Australian firms issuing foreign bonds denominated in Australian dollars in the Australian market), who have not only underwritten about half the market's reduced volume over the past few years, but have also provided a source of diversification for investors
- > investors very sensitive to relative value in primary markets as secondary performance was at best flat.

Asia's significance for Australian corporate bond issues continued in 2017, with deals often comprising around 25 per cent to 30 per cent Asian participation. In addition to fund manager investments, Chinese banks that are hungry to lend to Australian corporates have increased their participation in bond deals.

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Alternative markets for Australian debt issuers

The AUD bond market is not just one market. Effectively, it is at least six markets with their own features, documentation and target investors. Some investors can straddle a number of the formats while others are more constrained due to factors such as restricted mandates or regulatory drivers. These different formats provide alternative mechanisms to the domestic AUD bond market for linking investors and borrowers; this has been particularly relevant given the increasing Asian interest in Australian debt issues.

The main AUD bond formats are:

- > *AUD onshore wholesale*: This comprises domestic and Kangaroo borrowers, with bonds usually settled through Austraclear initially and subsequently bridged to Clearstream/Euroclear. Documentation is generally provided under Australian law, however, recently some legal requirements from offshore jurisdictions have also been creeping in.
- > *AUD onshore retail*: These bonds are usually ASX listed and settled through CHES, with subordinated bank hybrid deals dominating volumes. This is a well-established market with a very different execution process and targeted non-institutional investor base.
- > *AUD European MTN (Reg S)*: These bonds are usually documented under a European jurisdiction (predominantly under UK law) with the program also being listing in Europe. AUD eurobonds started to proliferate once the AUD became a 'floating' currency in 1983, however, appetite for these instruments has expanded beyond the original European retail arena with the emergence of Asian investors who buy AUD structured notes and vanilla private placements in this format. AUD EMTN-subordinated (Tier 2) public deals have started to proliferate in recent years with issuers favouring this format over the Kangaroo, which is more costly and takes longer to establish. The EMTN transactions are usually more modest in size, often starting with just AUD 100 million as an initial volume target.
- > *AUD SEC-registered global*: As the name suggests, these bonds can be sold in most of the large markets including the US. The format has grown dramatically in recent years, partly as a result of increased regulation of the global systemically important banks ('G-SIBs').
- > *AUD Local market bonds* like Uridashi and Formosa bonds use the EMTN format as a base. Uridashi notes overlay a Japanese 'shelf' to enable distribution to Japanese retail investors. Technically, they are notes issued outside of Japan and are sold in secondary trades (one day or more later) to Japanese retail investors. Formosa bonds are issued by non-Taiwanese borrowers and are listed on the Taipei Exchange, thereby effectively becoming a 'domestic' issuer. This allows Taiwanese life companies to participate as investors without breaching holding restrictions on offshore names.
- > *AUD-denominated US private placement (USPP) deals*: These bonds are occasionally added to a USD USPP if it does not suit an issuer to either receive US funding, or if they do not wish to swap USD note proceeds to AUD. Some USPP investors can accommodate this.

Asian interest in Australian capital

As indicated above, Asian buyers of Australian debt have options beyond what we would normally consider in the Australian capital markets. They can participate in bilateral loans (if they have an Australian branch) and the syndicated loan markets, as well as participating in a number of the AUD offshore bond markets. This is in addition to any USD or local currency issuance by Australia borrowers. Because of this flexibility, simply identifying the number of Asian buyers in any one market, such as the domestic loan market, will typically understate the overall influence of Asia buyers.

At around the time of the GFC, Asian demand for Australian debt was primarily driven by Asian-based commercial banks or the Australian branches of Asian-based commercial banks. This is still the most important segment of Asian debt demand for non-government debt. But its importance is changing, as is its shape. Since the GFC, more Asian-based banks have opened branches in Australia and those that had been here for some time have grown their assets significantly. This has been especially true for the three Japanese mega-banks, but also for the Chinese, Taiwanese and Singaporean banks with branches in Australia.

The non-bank demand has come primarily from either insurance companies from Asia, Asian fund managers and from US/European fund managers, mainly based in Asia, managing both global and regional debt mandates.

Non-bank demand has been growing strongly over the past three to four years and while it is still not as significant as the bank-led demand it can be the largest component of certain deals. We have seen this in two main areas – demand for financial issuers and also in longer dated (>seven-year) tenors.

With homegrown options subdued in some North Asia Markets, we expect to see a continued strong bid from the region for Australian paper in many forms. This will also be underpinned by more Asian banks establishing branches in Australia.

Growth in the non-institutional fixed income market

One of the fastest growing and influential parts of the domestic market over the post GFC period, but particularly since 2014, has been the increased bidding from non-institutional investors. This is a very broad group and includes SMSFs, the traditional 'middle market' accompanying faith-based groups, councils, and family offices, as well as financial advisers and other private wealth outside of superannuation.

There have been a number of reasons why this broad group has become significant.

First, the total size of the investor pool is huge: including the AUD 700bn held by SMSFs, non-institutional investors have over AUD 1 trillion in total investments.

Second, demographic change, specifically the ageing of the population, has increased awareness of sequencing risk and the need for greater asset diversification.

Third, there has been increased supply of borrowers into the market, beyond the usual hybrid issuance and this has helped awareness of the fixed income market.

Finally, there has been a great deal of focus, from both regulators and from market participants on educating the market about fixed income products. It appears that this is starting to have a positive effect.

One of the interesting features of this market is the gap between professionally managed and SMSF exposures to fixed income. We have seen increased SMSF demand in recent years, from a very low base, and this has been the main driver of the recent spate of higher yield, non-rated issuance from institutions such as NextDC, Centuria Fund Management and Peet Limited.

The positive feature about the growth of non-institutional bidding is that we are finally seeing some real investor differentiation domestically. This is good for the market. It increases liquidity and it helps to remove some of the market volatility. While individual bids may be small, the combination of many such bids, along with the consistency of the bidding mean that the issuer benefits from having more diversified investors.

It is widely expected that this market will continue to grow over the next three to five years, driven by both the inflow of money to the SMSF sector and by a rebalancing of asset allocation.

Conclusion

Over the next few years, the three key themes highlighted in this paper are likely to continue to influence Australian capital markets. Further strong interest from Asian bank and non-bank institutional investors seems certain as Australian market fundamentals continue to support investment here. As SMSF volume approaches AUD 700bn there is increased awareness of the need to diversify investment classes which will support more fixed income origination. Finally, the market has seen some very interesting examples of innovation over the past few years. These transactions have performed well and this has sparked increased activity from both issuers and investors.

Over the next few years, the three key themes highlighted in this paper are likely to continue to influence Australian capital markets. Further strong interest from Asian bank and non-bank institutional investors seems certain as Australian market fundamentals continue to support investment here. As SMSF volume approaches AUD 700bn there is increased awareness of the need to diversify investment classes which will support more fixed income origination. Finally, the market has seen some very interesting examples of innovation over the past few years. These transactions have performed well and this has sparked increased activity from both issuers and investors.

Notes

1. Discussion of the role of foreign investors in Australian government debt markets and equity markets, while important, is beyond the scope of this paper.
2. These groups have also been significant investors in the hybrid 'bail-in' securities issued by Australian banks to help meet their regulatory capital requirements. While that market has grown substantially since the first issues in 2011, and competes with debt issuance for investor funds, further discussion is beyond the scope of this paper.
3. As a further illustration, in April 2017 NAB launched a world first, an AUD 500mn Gender Equality Social Bond.