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The impact of regulatory governance standards on board characteristics:
Evidence from Australian credit unions
LUISA UNDA
Credit unions are mutual or cooperative financial institutions owned by members, who are also their customers, depositors and borrowers. Governance of mutuals is based on the democratic principle of ‘one member one vote’, and directors are drawn from and elected by the membership. This paper examines how regulatory governance standards have shaped the governance practices of Australian credit unions. While credit unions have a very different ethos from that of publicly-traded institutions, they face similar governance challenges, particularly in terms of the need to ensure board competence and effective control over management.

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The incidence and causes of personal bankruptcy in Australia
PAUL ALI, MALCOLM ANDERSON, LUCINDA O’BRIEN and IAN RAMSAY
This paper examines recent trends in Australian personal bankruptcy by analysing a large data set obtained from the regulator, the Australian Financial Security Authority. It demonstrates a marked decline in Australian bankruptcy rates, since a peak in 2009, and a consistent rise in levels of unsecured debt among bankrupts. It identifies a number of distinct cohorts within the bankrupt population, and important differences between men and women, younger and older people, and professional and blue collar workers. We find that the debts of bankrupt individuals tend to fall into two distinct categories: a combination of taxation debts and legal liabilities; or a mixture of personal loan, overdraft and credit card debts, likely to be linked to consumer spending. These findings represent a significant contribution to Australian empirical bankruptcy research. They are also timely, in light of the Commonwealth Government’s recent proposals to implement significant changes to Australian bankruptcy law.
In this final issue of JASSA for 2016, our authors address a diverse range of topics including China’s progress in internationalising its currency, risk culture in Australian banking, recent trends in personal bankruptcies, and the impact of regulatory governance standards on Australian credit union board structures.

In the first paper, Elizabeth Sheedy examines risk culture and staff perceptions of risk structures in five Australian banks using psychometric survey methods to investigate the influence of bank size. Sheedy notes that following the global financial crisis in 2007–08 there was general agreement that risk management in banks had not been sufficiently prioritised relative to other competing priorities such as the drive for short-term profits and, since then, most banks have made radical changes to their risk management frameworks, policies and systems. Her findings indicate that bank size brings both advantages and disadvantages in terms of risk culture. The risk structures of large banks are perceived more favourably than those of small banks except for remuneration where the reverse is true. While all of the Australian banks assessed have a favourable risk culture, the large banks do better in two of the four dimensions of risk culture (proactive and manager) while small banks do better in another dimension (avoidance).

Next, Kerry Liu provides a detailed study of effects of China’s August 2015 improvement in its mechanism for setting the RMB central parity rate against the US dollar. Liu finds that the PBC’s landmark decision has had profound effects on the RMB markets, creating increased volatility in RMB traded both onshore and offshore. Liu notes that the causal relationship between the CNY and the CNH has weakened and disappeared since July 2016. The previous day’s closing price of the CNY now plays a greater role in determining the RMB central parity rate. The renewed emphasis on using a basket of currencies in exchange rate setting — involving the introduction of the RMB Index — also appears to have lasted for only a couple of months (December 2015 to January 2016). Liu suggests that these developments reflect the increasing power of participants in Chinese RMB markets and the response by the Chinese authorities — who are struggling to find a balance between the long-term goal of implementing market-oriented reforms to further internationalise RMB and the short-term objective of stabilising financial markets in order to protect economic growth.

With Australian credit unions undergoing significant change in recent decades, Luisa Unda investigates how regulatory governance standards have shaped their governance practices. She finds that in the period after the introduction of governance standards there has been a significant shift from volunteer to paid boards, an increase in the financial expertise of directors, larger boards, reduced tenure of directors, and greater attendance at board meetings. Overall, this research suggests that Australian credit unions have undergone a redesign of board governance, shifting away from truly cooperative democratic governance towards a board structure that has been shaped by regulatory governance standards and M&A activity and consolidation.

Paul Ali, Malcolm Anderson, Lucinda O’Brien and Ian Ramsay undertake an empirical study of the incidence and causes of personal bankruptcy in Australia, based on a large government data set. This is very timely in view of the Federal Government’s recent announcement that it intends to reduce the period of bankruptcy from three years to one, in order to promote entrepreneurship and reduce the stigma associated with bankruptcy. The study finds that bankruptcy has become less prevalent among both men and women, people in major cities, and inner and outer regional areas. At the same time, levels of unsecured debt in bankruptcy have been rising steadily. The study also identifies a number of distinct cohorts within the bankrupt population: debtors who are younger, older, male, female, professional or blue collar; debtors who are single with dependants; debtors with predominantly legal and tax-related debts; and those with debts more likely to relate to consumer spending.

I would like to extend my sincere thanks to all of our contributors during the 2016 for their efforts in stimulating important policy discussions within the industry and academe. We look forward to many more incisive articles in 2017 and encourage you as our readers to contact us at membership@finsia.com with any interesting ideas about the sorts of articles you would like to see in JASSA.
RISK CULTURE IN AUSTRALIAN BANKS: Does size matter?

ELIZABETH SHEEDY, Associate Professor, Macquarie Applied Finance Centre

Previous research has shown that the best risk outcomes are achieved when effective risk structures are combined with a favourable risk culture. We examine risk culture and staff perceptions of risk structures in five Australian banks using survey methods to investigate the influence of bank size. We find that size brings both advantages and disadvantages. The risk structures of large banks are perceived more favourably than those of small banks except for remuneration where the reverse is true. While all of the Australian banks assessed have a favourable risk culture, the large banks do better in two of the four dimensions of risk culture (proactive and manager) while small banks do better in another dimension (avoidance).

Until recently, ‘soft’ issues such as corporate culture were rarely mentioned by bankers or their regulators. However, practitioners and academics working in the economics, accounting and traditional finance fields are quickly having to learn about organisational behaviour, psychology and behavioural finance.

Contrary to the concerns of some, risk culture can be identified and assessed using robust psychometric methods. In the past few years much has been learned about risk culture and how it varies within and between financial institutions.

This paper examines risk culture in a group of Australian banks and how it varies with size. But first, it provides a quick review of how and why the ‘risk culture’ concept has become so important in modern financial institutions.

Following the global financial crisis in 2007–08 there was general agreement that risk management in banks had not been sufficiently prioritised relative to other competing priorities such as the drive for short-term profits. Since then, most banks have made radical changes to their risk management frameworks, policies and systems including:

- the introduction of a ‘three lines of defence model’ under which all staff members have a role in risk management, including the risk takers
- appointing a high-status Chief Risk Officer with direct access to the board of directors
- an independent risk management function with expanded resourcing relative to the pre-crisis era
- a risk appetite statement owned by the board of directors and cascaded appropriately throughout the organisation
- better integrated risk management systems so that risk data can be aggregated across the organisation
- training programs to ensure that all staff understand risk policies and their role in the risk management process
- reforms to remuneration and performance measurement systems to ensure that rewards are allocated in a manner that supports prudent risk taking.

These risk structures should, at least in theory, help produce better behaviour by staff, i.e. a willingness to speak up and question business practices, compliance with policies, reporting of risk events, acting with a sense of accountability for risk, regular and constructive discussion of risk, and a lack of gaming behaviour. Ultimately, the right behaviour should result in superior risk
outcomes (higher risk-adjusted performance, fewer scandals and surprises). But the effectiveness of risk structures depends on the quality of implementation and also on the risk culture. If the risk culture is unfavourable, it may undermine the effectiveness of the structures as staff find ways to work around or ignore policies. For example, if the risk structures are perceived as mere window-dressing to satisfy regulatory requirements, staff will assume that they are not a genuine priority and act accordingly. Our research (Sheedy and Griffin, in press) has shown that for desirable risk behaviour to flourish, it is necessary to have both risk structures that are perceived as effective and a favourable risk culture. Put another way, the impact of risk structures is, to a large extent, felt through the risk culture.

So what do we mean by the term risk culture? It is defined as ‘the shared perceptions among employees of the relative priority given to risk management, including perceptions of the risk-related practices and behaviours that are expected, valued and supported’ (Sheedy et al. 2017).

A favourable risk culture simply means that risk management is valued/prioritised. It implies that staff understand what the risk appetite is and play their part in ensuring that the risk appetite is not breached.

Risk culture is only one particular facet of organisational culture — the aspect of organisational culture that is of most interest to prudential supervisors (Financial Stability Board 2014). Other facets of organisational culture — customer service culture, innovation culture, safety culture, ethical culture and performance culture — have also been studied. These focused or strategic cultures are the most effective for targeting particular outcomes of interest; for example, a customer service culture produces more satisfied customers and repeat business, a safety culture produces fewer and less serious accidents, and a risk culture helps ensure that the firm achieves its objectives and reduces surprises, scandals, and/or bailouts. Of course, no single organisation can have all of these strategic cultures; having many priorities means that they are not really priorities at all.

Risk culture is currently attracting considerable interest from industry, not least because of new regulatory requirements. Prudential standard CPS220 para. 13 states that:

The Board of an APRA-regulated institution is ultimately responsible for the institution’s risk management framework and is responsible for the oversight of its operation by management. In particular, the Board must ensure that: ... (b) it forms a view of the risk culture in the institution, and the extent to which that culture supports the ability of the institution to operate consistently within its risk appetite, identifies any desirable changes to the risk culture and ensures the institution takes steps to address those changes. (italics added)

Since January 2015 when this prudential standard was introduced, many directors and senior executives have pondered over this paragraph and how to implement the new standard. One common source of confusion relates to the distinction between risk culture and risk appetite (the amount of risk a firm is willing to take in order to meet its strategic objectives). A firm with a high risk appetite may enjoy great success if it has a favourable risk culture; conversely, a firm with low risk appetite might experience disastrous outcomes if it has an unfavourable risk culture.

A favourable risk culture simply means that risk management is valued/prioritised. It implies that staff understand what the risk appetite is and play their part in ensuring that the risk appetite is not breached. It implies a proactive approach to risk management i.e. risk is a consideration in all business decisions, staff have productive and regular discussions about risk, staff are encouraged to question the risk of business practices and identify new risks, and risk issues/breaches are not hidden but treated as a learning opportunity.

The aim of this paper is to shed light on the risk culture of Australian banks. We use the multi-dimensional Macquarie University Risk Culture Scale developed using a well-established framework and commonly accepted psychometric principles (Hinkin 1998). The procedure used for developing the scale, along with the evidence of reliability and validity is explained in Sheedy et al. 2017.
In particular, we investigate whether big banks have any significant advantage (or disadvantage) relative to smaller banks. While smaller banks may differ in terms of their mix of activities and, therefore, their risk appetite, this does not necessarily have any bearing on their risk culture as the two concepts are distinct. As risk culture is a new topic for scholarly investigation, there is little in the existing literature to guide us. To the extent that risk culture is a component of risk governance, we could extrapolate findings from previous governance research. Ellul and Yerramilli (2013) find that larger banks are more likely to implement risk governance. This is consistent with arguments based on economies of scale i.e. larger banks have more resources available to commit to risk management. They may also be subject to greater regulatory scrutiny due to ‘too big to fail’ concerns.

**Method: Survey administration**

Between July 2014 and July 2016 we assessed five Australian banks of which three are very large (drawn from the four major banks) and two are smaller. In some cases all staff were invited to participate while in others only a representative sample were invited to participate. In all cases the surveys assessed staff across all major business lines and all levels of seniority. Response rates varied between 21 per cent and 62 per cent. In total we received 8,921 individual survey responses of which 1,544 were from the smaller banks and 7,377 were from the big banks. Staff from all levels of the organisation participated, with some overrepresentation occurring of middle and senior managers and risk professionals.

The banks participated in the research on the basis that they would not be identified. Each bank received a confidential report containing our findings. It is interesting to see how perceptions of risk structures and risk culture vary within and between the banks.

Anonymous survey responses were collected via a secure online survey platform, with data only accessible by the university researchers. To encourage candour, employees were advised that their employer would receive only aggregated analysis of responses.

Each bank was asked to provide the researchers with access to a stratified sample of employees from multiple business units. The responses were drawn from 172 identifiable business units (66 from smaller banks and 106 from big banks).

Risks were defined as including: credit, operational (e.g. conduct, fraud, computer system failure, errors, loss of reputation, lawsuits), liquidity, underwriting and market.

The survey consisted of items answered on a six-point scale from 1 (strongly disagree) to 6 (strongly agree). To support the reliability of our measures (and hence the findings of the study) we report and analyse factor scores rather than relying on the results of individual survey items.

The process of validation for the Macquarie University Risk Culture Scale identified *four distinct factors of risk culture* (Sheedy et al. 2017). We therefore produce factor scores for business units and whole banks on each of the four identified factors of risk culture. Factor scores are created by taking a simple average of the scores for the three to six related items that comprise the factor (based on exploratory and confirmatory factor analyses in different organisations). The four factors are as follows:

**Valued:** Staff perceive that risk management is genuinely valued within the organisation (e.g. ‘Risk managers have authority and status in this organisation’).

**Proactive:** Staff perceive that (in the local business unit) risk issues and events are proactively identified and addressed (e.g. ‘For us, analysing risk events (including near misses) is very useful’).

**Avoidance:** Staff perceive that risk issues and policy breaches are ignored, downplayed or excused in the organisation. (e.g. ‘Senior leaders don’t want to hear about bad news’)

**Manager:** Staff perceive that their (local) manager is an effective role model for desirable risk management behaviours (e.g. ‘When it comes to managing risk, my manager is an excellent role model of desirable behaviour’).
In addition to assessing risk culture, we used a similar approach to assess employee perceptions of risk structures on the following four dimensions:

**Risk framework:** perceptions regarding the effectiveness of policies, procedures, systems relating to risk (e.g. ‘There is a strong level of expertise throughout the organisation with regard to risk management’).

**Risk managers:** perceptions regarding the quality of specialist risk managers (e.g. ‘The risk management teams have been integral to our business unit’s performance’).

**Risk training:** perceptions regarding the quality of internal risk training (e.g. ‘The risk management training I have had in this organisation has given me a greater appreciation of risk issues’).

**Remuneration and KPIs:** perceptions regarding the consistency of remuneration and performance measurement systems with prudent risk taking (e.g. ‘Remuneration systems encourage staff to sometimes cross the line of acceptable behaviour (reverse coded)’).

### Analysis and discussion

#### a) Perceptions of risk structures

The perceptions of risk structures are favourable on most dimensions. Indeed for risk training, risk managers and risk framework the perceptions are favourable for every Australian bank we assessed.

How different are big banks from small banks? We found that staff in big banks perceive the risk frameworks and risk training more favourably than staff in smaller banks. Economies of scale in large banks may mean that bigger banks have been able to invest more in these crucial risk structures.

When it comes to remuneration and KPIs, the picture is reversed. Staff in small banks perceive the remuneration systems more favourably than staff in bigger banks. In each of the large banks we assessed, more than 50 per cent of staff have an unfavourable perception whereas in each of the small banks we assessed more than 50 per cent have a favourable perception. To clarify, favourable perceptions here relate to a sense that the remuneration and performance measurement systems support prudent risk taking and are unlikely to encourage staff to behave inappropriately. This may be because smaller banks are less likely to have bonus schemes that encourage short-term profit maximisation.

Staff in small banks perceive the remuneration systems more favourably than staff in bigger banks. In each of the large banks we assessed, more than 50 per cent of staff have an unfavourable perception whereas in each of the small banks we assessed more than 50 per cent have a favourable perception.
b) Risk culture

It’s important to note that the risk culture of the Australian banks we assessed is favourable — there were no exceptions to this. That is, in every bank we have assessed, the average rating that staff give is in the favourable range and this applies across all four dimensions of risk culture. While we are not able to report individual bank results (for reasons of confidentiality) we can confirm that we observed some significant differences between them.

Table 1 provides regression analysis of the individual responses for the four dimensions of risk culture. Each column represents a separate regression where the dependent variable is one of the risk culture factors.

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<th>TABLE 1: Explaining individual perceptions of risk culture</th>
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Note: Table 1 reports regression coefficients: *indicates significance at p < .05, **indicates significance at p < .01.

Dependent variables are derived from survey responses. Staff may indicate agreement or disagreement to survey items according to a six-point scale, i.e. from strongly disagree (1) to strongly agree (6). From these responses factor scores are calculated for each individual as an average of related survey items. Avoidance: Risk issues and policy breaches are ignored, downplayed or excused; Valued: Risk management is genuinely valued within the organisation; Proactive: Risk issues and events are proactively identified and addressed; Manager: A role model of desirable behaviour. High scores are desirable except for Avoidance. Institutional, Risk/Audit, Wealth, Other HQ are dummy variables that indicate the business line to which the employee belongs (reference group is Retail/Commercial banking).

In terms of size, the small banks have significantly less favourable risk culture ratings than large banks in two dimensions (proactive and manager). Proactive captures a group of practices or perhaps a mindset where staff are on the front foot with regard to risk management. Staff are encouraged to anticipate risk rather than just react after the event. If a risk event occurs, it’s treated as a useful learning experience rather than an exercise in blame and shame. Therefore, information about such events easily rises to higher levels and leaders respond in a supportive fashion, providing encouragement to those who have reported the problem. Discussions about risk are a natural part of all relevant business discussions because risk management is central to the business practice rather than an afterthought. Staff are encouraged to ask questions about risk policies and identify new risks. Those who do so are not treated as trouble-makers but partners in making the business more resilient. Compliance with risk policies and procedures is given high priority, even when the unit is behind on its performance targets.

The dimension where small banks significantly outperform their larger peers is in the avoidance dimension. In other words, staff in small banks are less likely to perceive that risk issues and policy breaches are ignored, downplayed or excused in the organisation.

The fact that big banks tend to outperform here is consistent with the earlier findings relating to risk structures. More effective risk frameworks and risk training may have helped staff better appreciate their role in the risk management process and the behaviour that is expected of them to make risk management successful. The consequence is that staff of large banks self-report more desirable risk behaviour such as speaking up.

The dimension where small banks significantly outperform their larger peers is in the avoidance dimension. In other words, staff in small banks are less likely to perceive that risk issues and policy breaches are ignored, downplayed or excused in the organisation. This dimension measures staff perceptions that the senior leaders only want to hear good news; i.e. they will shut their eyes to risk events or breaches of risk policy. When warning signs are received (i.e. evidence
that risk management is ineffective), leaders are likely to find some justification or explanation that will allow them to avoid addressing the issue. Staff are disinclined to report on problems in the risk management systems or signs that all is not as it should be due to the belief that such reports are likely to be ignored. Attitudes to risk management might be tokenistic, with risk management structures being undermined by frequent criticism, disdainful comments or neglect. As a result, staff are unclear regarding the firm’s risk appetite and to what extent breaches will be tolerated. Staff receive mixed messages about the relative priority of risk management because of inconsistent implementation of policy e.g. non-compliance by star performers is sometimes excused. The consequence of less avoidance is less observed undesirable risk behaviour (manipulating risk controls, not taking risk seriously).

It is unclear exactly why smaller banks are typically doing better in the avoidance dimension. Perhaps in a smaller organisation staff have more regular contact with senior leaders and they feel more comfortable to pass issues up the line? Alternatively, staff might have greater visibility of the efforts of senior leaders to tackle issues. Staff in large firms may feel that the issues they raise vanish into the management hierarchy with insufficient feedback regarding the outcome.

We are often asked how risk culture varies according to business line (retail v. institutional v. wealth management v. head office functions). In this analysis the reference group is retail/commercial banking and the other business lines are reported relative to it. In the case of the institutional business line, it differs from retail/commercial only in terms of avoidance. If this is surprising, recall that risk culture is quite distinct from risk appetite. While the risks and the risk appetite might vary across business lines, risk culture will ideally be more consistent.

In the case of avoidance, institutional staff have a more favourable perception than their peers in retail/commercial (i.e. lower score) meaning that staff working in this business line are less likely to perceive that avoidance is a problem for the organisation. Perhaps this is because staff in the institutional bank feel more connected to the senior leaders? Exactly the same pattern is observed for wealth.

Turning to staff working in the second and third line of defence (risk and audit teams) we find that they perceive more avoidance and less ‘valued’ in the organisation — perhaps they have this more negative view of the organisation due to their unique role as monitors of risk management throughout the organisation. When reflecting on their own business units they have a more favourable view (significantly higher scores for proactive and manager). Once again, this is consistent with their special role and likely greater concern with matters relating to risk management. Staff working in other HQ roles (e.g. HR, legal, marketing and technology) have significantly less favourable perceptions on three dimensions (avoidance, valued and proactive).

It is worth mentioning that the adjusted R-squared values we report are low. This highlights that most of the variation in individual risk culture scores cannot be explained by this model. Significantly more variation is explained in (unreported) regressions that also include bank level differences and business unit differences.

On the subject of business units, we produced risk culture scores at the business unit level as well as at the bank level. In 95 per cent of cases we found agreement about culture at the local level (i.e. there is a statistical similarity1 in the ratings given by people who work in the same business unit). In all but one bank we identified business units with culture significantly more or less favourable than the bank norm. In other words, each bank had subcultures that cannot be explained by differences in business line. Therefore, it is most likely that these differences result from variations in local management. Other researchers (e.g. Koene et al. 2002) have established that cultural differences emerge in local business units depending on the local leadership and other opinion leaders who set the tone. Interestingly, the bank with the greatest consistency of culture was a small bank suggesting that it may be easier to achieve consistency in a smaller organisation.
Conclusions
In summary, we find that:

> The best risk outcomes are achieved when effective risk structures are combined with a favourable risk culture.

> Staff of the big Australian banks tend to have more positive perceptions of risk structures than their peers in smaller banks. The exception to this is remuneration (staff of smaller banks are more likely to perceive remuneration favourably in terms of consistency with prudent risk taking).

> Staff of the big Australian banks tend to have more favourable perceptions of their risk culture than those in small banks, especially with regard to manager (the perception that the local manager is a good role model of desirable risk behaviour) and proactive (the perception that risk issues and events are proactively identified and addressed). The exception to this is avoidance (the perception that risk issues and breaches are ignored, downplayed or excused in the organisation) where staff of smaller banks have more favourable perceptions of their risk culture.

Note
1. This similarity was measured using $\rho_{wg}$ — the within group agreement index which is commonly used by psychologists for assessing similarity in ratings.

References


This study examines the effects of China’s August 2015 improvement in its mechanism for setting the RMB central parity rate against the US dollar. In the ensuing period to July 2016, we find that there was increased volatility in both the CNY (RMB traded onshore) and CNH (RMB traded offshore) markets. We demonstrate a weakening in the causal relationship between the CNY and the CNH, which is likely due to official intervention. Consistent with the policy announced on 11 August 2015, we show that the previous day’s closing price of the CNY plays a greater role in determining the RMB central parity rate. We also show that a currency basket (in the form of the CFETS Index) was used in exchange rate setting for only a short period after the announcement of this element of the reforms in December 2015. These developments reflect the growing power of participants in the Chinese RMB markets and the frequent interventions by Chinese authorities struggling to find a balance between implementing market-oriented reforms and stabilising financial markets.

On 11 August 2015, the People’s Bank of China (PBC, China’s central bank) announced an unexpected policy change designed to improve its mechanism for setting the official Renminbi (RMB) central parity rate against the US dollar, as well as devaluing the currency by 1.9 per cent. The daily fixing of the RMB was to occur with reference to the previous day’s closing rate of the RMB, foreign exchange market demand and supply, and exchange rate movements in other currencies. This major policy change became known as ‘811’. Four months later, on 11 December 2015, the PBC announced that the RMB would be set according to a basket of currencies instead of the US dollar only.1

The timing of these initiatives was problematic as global investors were already facing considerable uncertainty stemming from the rising likelihood that the US Federal Reserve would finally begin to increase official US interest rates. Global capital markets were stunned by this largely unanticipated reform. Panicked investors thought China would join the ‘currency war’ and further depreciate the RMB to boost its exports.

Some investors viewed the RMB devaluation as a sign that China’s real economy was much weaker than it appeared. The ensuing turmoil in both Chinese and global capital markets has thrown a spotlight on the RMB exchange rate.

In this paper, we address the following questions. What happened to the volatility of the RMB exchange rate in the wake of the 811 reforms — in its onshore (CNY) and offshore (CNH) markets? How did the linkage between the onshore and offshore markets evolve? Was the daily fixing of the RMB actually set with reference to the previous day’s closing rate of the RMB, as set out by the PBC on 811? Did the PBC really set the RMB exchange rate with reference to a basket of currencies, as was promised on 811 and re-emphasised in the policy announcement four months later?

Recent developments in China’s exchange rate policy

Since July 2005, when the Chinese authorities abandoned a longstanding dollar peg, the RMB has been allowed to trade within a defined band around the daily official fixing or central parity announced by the PBC. Initially, the daily trading band against the US dollar was set at ±0.3 per cent around the central parity. The PBC also announced the adoption of a managed and regulated floating exchange rate regime based on market demand and supply, and with reference to a basket of currencies.2
After the 2005 policy change, the RMB gradually appreciated against the US dollar until July 2008. Some studies (Frankel 2009; Sun 2010) describe this new regime as a basket peg including some weights on non-US dollar currencies. However, other studies (Ma and McCauley 2011; Yi 2013) argue that this kind of mechanism is similar to a crawling peg arrangement.

During the period from July 2008 to June 2010, the global financial crisis interrupted this experiment and the bilateral RMB/US dollar exchange rate was stabilised at 6.8, with the PBC effectively repegging the RMB to the US dollar.

In June 2010, PBC announced its intention to further reform the RMB exchange rate regime and enhance RMB exchange rate flexibility. In essence, the PBC reintroduced the policies it announced in July 2005 — of managing the RMB against a basket of currencies. At the time, the global economy was gradually recovering, and China’s economic recovery was also becoming more robust.

From June 2010, the RMB began to gradually appreciate. This trend attracted huge capital flows, with speculators betting on a one-way RMB appreciation. To further enhance RMB exchange rate flexibility, the PBC gradually widened the trading band around the daily US dollar fixing from an initial band of ±0.3 per cent to ±0.5 per cent on 21 May 2007 to ±1 per cent on 16 April 2012, and ±2 per cent on 17 March 2014. A wide band increases the probability of two-way fluctuations and hence reduces the likelihood that speculators will bet on RMB appreciation. (Indeed, when the trading band was widened in 2012 and 2014, the RMB experienced significant two-way volatility that deterred RMB appreciation betting positions.)

In July 2010, the Hong Kong Monetary Authority and the PBC signed the Memorandum of Understanding on Renminbi Business Cooperation, which allows the trading of spot and forward RMB and RMB-linked structural products in Hong Kong. Since then, RMB transactions in Hong Kong have essentially been conducted as though the RMB were a convertible currency. Market participants have labelled the RMB traded offshore as CNH, as opposed to CNY which is traded onshore. The Chinese authorities’ main motivation was to increase the use of the RMB in cross-border trade settlements and thereby enhance the internationalisation of the RMB. The establishment of the offshore RMB market is part of China’s plan to reform its currency system. The CNY and CNH markets are segmented because China has not yet fully opened its capital account; there are various forms of restrictions limiting investors from transferring RMB funds between the CNY and CNH markets.

Since the 11 August 2015 change in the RMB–US dollar central parity formation mechanism, the daily fixing has been set with reference to the previous day’s closing rate of the RMB, foreign exchange market demand and supply, and exchange rate movements in other currencies. Previously, the central parity rate was based on a trimmed weighted-average of prices from designated liquidity providers, and the currency weights were set discretionally.

On 11 December 2015, the PBC announced that the RMB would be set according to a basket of currencies instead of the US dollar only. The reference to a currency basket was openly announced back in 2005 and again in 2010. However, the currency basket now includes a RMB Index (China Foreign Exchange Trading System Index, or CFETS Index).

Accomplishing the convertibility of the RMB is key to China’s ongoing reform and opening-up policies, and to the reform of its financial system. This policy direction was first announced in December 1993 when Chinese authorities stated that ‘the long-term goal of China’s foreign exchange reforms is to realise convertibility of the RMB’ (Avery et al. 2011). This goal was repeated in the 13th five-year plan for 2016–20. However, no official timetable was provided.

**Both CNY and CNH markets have become more volatile**

Let us now examine the volatility of RMB exchange rate before and after August 2015 (or ‘811’). Table 1 presents the standard deviation of the percentage change in the CNY and CNH.

Both before and after 811, the CNH has been more volatile than the CNY. This observed volatility differential reflects a greater degree of exchange rate management of the CNH than the CNY; it is widely believed that before 811 there was essentially no intervention in the offshore market (Funke et al. 2015). It is clear that since the 811 reform, both the CNY and the CNH have become more volatile; they were particularly volatile during the period from 11 August 2015 to 29 February 2016. This partly reflects the fact that market participants have faced greater...
uncertainty since 811. However, the rise in RMB volatility, particularly for the CNH, is also likely due to intervention. The consequences of this intervention can be observed in Figure 1, which depicts the USD/CNH one-year, option-implied volatility (left-hand axis) and the levels of the CNY/USD and the CHN/USD (right-hand axis). A rise in the exchange rate indicates a depreciation of the RMB.

**TABLE 1: Standard deviation of the percentage changes of CNY and CNH**

<table>
<thead>
<tr>
<th>Time period</th>
<th>CNY (%)</th>
<th>CNH (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before 11 Aug 2015</td>
<td>0.10</td>
<td>0.15</td>
</tr>
<tr>
<td>After 11 Aug 2015 (until 29 July 2016)</td>
<td>0.22</td>
<td>0.34</td>
</tr>
<tr>
<td>From 11 Aug 2015 to 29 Feb 2016</td>
<td>0.25</td>
<td>0.41</td>
</tr>
</tbody>
</table>

Source: Wind.

Figure 1 shows that from July to December 2015, the trend depreciation of the CNH was closely associated with USD/CNH implied volatility; i.e. CNH implied volatility rose as the RMB depreciated. From January 2016, the CNH depreciation momentum reversed as a result of intervention by the Chinese authorities — likely aimed at wrong-footing speculators with short CNH positions.

The **linkage between the CNY and the CNH has become disconnected since 811**

In this section, the Granger Causality test is employed to illustrate the relationship between the CNY and CNH before and after the 811 reform. Table 2 shows the results of the P-value of the F-statistics for the Granger test. The results show that there was two-way causality before 811. However, from 811 to the end of 2015, the CNY Granger caused the CNH, but the reverse relationship — the CNH Granger causing the CNY — was much weaker (and not statistically significant at standard levels, p = 0.09). Since 1 January 2016, there has been no significance either way, suggesting that the relationship between the two markets has essentially broken down.

**TABLE 2: Summary results of Granger causality test**

<table>
<thead>
<tr>
<th>Time period</th>
<th>Granger Causality Test: CNH = f(CNY) (lag=8)</th>
<th>Granger Causality Test: CNY = f(CNH) (lag=8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-Value</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before 11 August 2015</td>
<td>0.000</td>
<td>0.016</td>
</tr>
<tr>
<td>During 12 August 12 to 31 December 2015</td>
<td>0.001</td>
<td>0.088</td>
</tr>
<tr>
<td>After 1 January 2016</td>
<td>0.126</td>
<td>0.722</td>
</tr>
</tbody>
</table>

Data Source: Wind.
The results shown in Table 2 are likely the result of intervention by the Chinese authorities. Before 811, the CNY and CNH affected each other’s pricing. Clearly there were arbitrage activities between the CNY and CNH markets before 811 — despite the restrictions in place to limit this activity.

From 811 to the end of 2015, the Chinese authorities’ aim was to peg the CNH to the CNY. To achieve this, the Chinese authorities (mainly the PBC, but also offshore branches of large Chinese state-owned banks and other Chinese government-linked entities) used large amounts of foreign reserves to reduce the downward momentum of the CNH. Declining foreign reserve holdings (data on reserves are published monthly by the PBC) led investors to doubt the Chinese authorities’ ability to achieve a sustained stabilisation of the CNY and particularly the CNH markets.

In early 2016, the Chinese authorities adopted a new strategy to reduce speculative activity in the offshore RMB market and stabilise the currency: deliberately reducing CNH liquidity (as evidenced by declining RMB deposits in Hong Kong and rising Hong Kong interbank offer rates on borrowing RMB offshore). Not surprisingly, the costs associated with short sales have increased dramatically. These interventions have changed the fundamentals of the formerly market-driven CNH market. As a result, the CNH and CNY markets have become disconnected from each other.

Intervention in the RMB offshore market, which led to the disconnect between the CNY and the CNH, is likely to be seen as a ‘multiple currency practice’. In this light, the PBC’s interventions constitute a major setback to the RMB internationalisation process.

From 2014, the Chinese authorities launched a series of reform measures to enhance RMB internationalisation. One of China’s successes has been the official inclusion of the RMB in the International Monetary Fund’s (IMF) Special Drawing Rights basket, effective from 1 October 2016. According to the IMF’s policy on multiple currency practices introduced on 20 March 1981, ‘(a) action by a member or its fiscal agencies that of itself gives rise to a spread of more than 2 per cent between buying and selling rates for spot exchange transactions between the member’s currency and any other member’s currency would be considered a multiple currency practice and would require the prior approval of the Fund.’

Intervention in the RMB offshore market, which led to the disconnect between the CNY and the CNH, is likely to be seen as a ‘multiple currency practice’. In this light, the PBC’s interventions constitute a major setback to the RMB internationalisation process.

The previous day’s closing price of the CNY has begun to play a greater role in setting the central parity rate since 811

As discussed earlier, under the new ‘811’ mechanism the central parity is set with reference to the previous day’s closing rate of the RMB, foreign exchange market demand and supply, and movements in other currencies. This section assesses whether the PBC is indeed doing what it said it would do. Is the central parity rate set with reference to the previous day’s closing price of the RMB?

We first use a rolling correlation analysis to examine the changing nature of the relationship between the central parity and the previous day’s closing price of the CNY, before and after the 811 reform. Figure 2 depicts 30-trading-day rolling correlations between these two variables. It shows that 12 August 2015 (the day after ‘811’) is a clear turning point. Before this date, the relationship between the central parity and the previous day’s closing price varied greatly. Since then, there has been a near-perfect positive correlation between the two, indicating that the central parity formation mechanism fundamentally changed following the 811 reform. Note that this correlation analysis is based on the past 30 days’ trading data. The sudden change of the correlation coefficient from 0.10 to 0.88 on 12 August suggests that the PBC had, in fact, started this new pricing system 30 trading days earlier than the announcement date — on 2 July 2015.
Second, we run a series of univariate regressions. The specification is as follows:

\[ Y_t = \alpha + \beta X_{t-1} + \epsilon_t \]

where \( Y \) and \( X \) are the central parity rate and CNY rate, respectively.

Consistent with the findings of the rolling correlation analysis, the regression analysis demonstrates that the PBC does indeed refer to the previous day’s closing price of CNY when setting the RMB central parity. At the very least, following 811 the previous day’s CNY closing price began to play a much larger role in setting the RMB exchange rate than previously.

Figure 3 shows the relationship between the central parity rate and previous day’s CNY closing price before 811. In this specification, the adjusted \( R \)-squared is 0.698. Figure 4 shows the relationship between the central parity rate and the previous day’s closing price of the CNY after 811. As can be seen, the adjusted \( R \)-squared rises to 0.986. (The results shown in Figures 3 and 4 are significant at the 5 per cent level or better.) Consistent with the findings of the rolling correlation analysis, the regression analysis demonstrates that the PBC does indeed refer to the previous day’s closing price of CNY when setting the RMB central parity. At the very least, following 811 the previous day’s CNY closing price began to play a much larger role in setting the RMB exchange rate than previously.
FIGURE 4: Relationship between the central parity and previous day’s closing price of the CNY after 811 (11 August 2015 to 29 July 2016)

\[ Y = 1.146 + 0.977X \]

Adjusted $R$-squared: 0.986

Data Source: Wind.

**The CFETS RMB Index’s role in setting central parity rate varies**

In this section, we ask whether and to what extent the PBC, post-811, has used a currency basket in setting the RMB exchange rate. By referencing a basket of currencies, the RMB appreciates or depreciates against the US dollar depending on the performance of the component currencies, making the RMB flexible against the US dollar in both directions. The benefit of this approach is that a basket of currencies better captures the competitiveness of China’s goods and services. Before 811, there had already been policy announcements indicating that the RMB should be set against a basket of currencies rather than against the US dollar only — specifically when the dollar peg was abandoned in 2005, and again in 2010. What was new in the announcement made on 11 December 2015 was an explicit reference to the RMB Index (CFETS Index).

Since the CFETS RMB Index is a weekly index, we need to transform it into a higher frequency data series. The sample currency weights are calculated by using international trade weights with adjustments for re-export trade factors; this information is disclosed by the PBC. Combining the daily exchange rate with information on these basket currencies, we can simulate the daily CFETS RMB Index (see Figure 5).

**FIGURE 5: Simulated daily CFETS RMB Index**


As a higher CFETS RMB Index means a stronger RMB against a basket of currencies, the RMB central parity rate against the US dollar should be lower when the CFETS RMB Index is higher: that is, there is a negative correlation between them. We calculate a rolling thirty-day correlation between the RMB central parity rate and the CFETS RMB Index (see Figure 6).

Figure 6 shows that during the period from November 2015 to January 2016, the RMB central parity was almost perfectly negatively correlated with the CFETS RMB Index. However, since February 2016, the correlation between the RMB central parity and the CFETS RMB Index has varied widely — suggesting that after the first two or three months into the new regime, the PBC has not consistently referred to the full basket of currencies in its exchange rate setting.
We also conduct a series of univariate regressions to further explore the relationship between the RMB central parity rate and the CFETS RMB Index. Figures 7, 8, 9 and 10 show the results (regressions 7 and 10 are statistically significant at the 5 per cent level, while regressions 8 and 9 are insignificant).

Figure 7 shows that from 30 November 2015 to 29 January 2016, movements in the RMB central parity rate were closely associated with the CFETS RMB Index. The adjusted $R^2$-squared is 0.909, suggesting that the explanatory power of the CFETS RMB Index is very large. This is consistent with the rolling correlation analysis presented in Figure 6.

Figures 8 and 9 show that from February to May 2016, the causal relationship between the CFETS RMB Index and the RMB central parity rate broke down; that is, the correlation became statistically insignificant.

Figure 10 shows that from June 2016, the relationship became stronger but was still weak relative to the period from December 2015 to January 2016; the adjusted $R^2$ square is just 0.116.

It is understandable, perhaps, that the PBC had changed its focus from the longer-term goal of internationalising the RMB — involving the freeing-up of capital controls and the reduction in exchange rate intervention — to other more urgent issues. This is consistent with China's gradual and trial-and-error approach to financial and economic reforms, placing an emphasis on stability.

The economic backdrop to this changing relationship between the RMB central parity and the CFETS RMB Index is that from January 2016, a series of economic data — including China's GDP growth rate in Q4 and for the whole year of 2015 — were below market expectations. Investors in China and in the rest of the world were worried about the possibility of further deterioration of the Chinese economy. The benchmark Shanghai Composite Index lost nearly 30 per cent in just one month. Capital outflows became stronger, and the Chinese authorities began to intervene in the CNH market, as well as implement a series of measures to curb these outflows.

It is understandable, perhaps, that the PBC had changed its focus from the longer-term goal of internationalising the RMB — involving the freeing-up of capital controls and the reduction in exchange rate intervention — to other more urgent issues. This is consistent with China's gradual and trial-and-error approach to financial and economic reforms, placing an emphasis on stability.
FIGURE 7: Relationship between the RMB central parity rate and the CFETS RMB Index (30 November 2015 to 29 January 2016)

\[ Y = 10.889 - 0.0446X \]

Adjusted \( R \)-squared: 0.909


FIGURE 8: Relationship between the RMB central parity rate and the CFETS RMB Index (1 February 2015 to 31 March 2016)

\[ Y = 7.144 - 0.006X \]

Adjusted \( R \)-squared: 0.009


FIGURE 9: Relationship between the RMB central parity rate and the CFETS RMB Index (1 April 2015 to 31 May 2016)

\[ Y = 7.289 - 0.008X \]

Adjusted \( R \)-squared: 0.003

Conclusion
The PBC's policy announcement on 11 August 2015 has had profound effects on the RMB markets. Since then, both the CNY and CNH have become more volatile. The causal relationship between the CNY and the CNH has weakened and disappeared since July 2016. The previous day’s closing price of the CNY now plays a greater role in determining the RMB central parity rate. The renewed emphasis on using a basket of currencies in exchange rate setting — involving the introduction of the RMB Index — appears to have lasted for only a couple of months (December 2015 to January 2016). These developments reflect the increasing power of participants in Chinese RMB markets and the response by the Chinese authorities — who are struggling to find a balance between the long-term goal of implementing market-oriented reforms to further internationalise RMB and the short-term objective of stabilising financial markets in order to protect economic growth.

Acknowledgement
The author would like to thank an anonymous referee and Managing Editor Kevin Davis for very valuable comments.

Notes
7. The Granger Causality test is a statistical hypothesis test for determining whether one time-series $X$ is useful in forecasting $Y$ through a series of $t$-tests and $F$-tests on lagged values of $X$ (including lagged values of $Y$).
References
Credit unions in Australia have undergone significant change over recent decades. Increased regulatory requirements, mergers, new products and services, and growing operational sophistication are all occurring within an increasingly competitive market. These changes pose significant challenges for those concerned with the issue of effective governance.

Both credit union membership and financial sophistication have grown in recent years with the Australian mutual sector, including credit unions, mutual banks and building societies, holding AUD 100 billion in assets and serving more than 4 million customers as at September 2016 (Customer Owned Banking Association 2016). According to McKillop and Wilson (2015), the Australian credit union sector is considered to be at a mature stage of development, given their large asset size, loose common bond, professionalisation of management, and diversification of products and services.1

This study examines the board governance practices of Australian credit unions and explores the impact of regulatory governance standards on board characteristics. In 2006, the Australian Prudential Regulation Authority (APRA) introduced prudential governance requirements for all authorised deposit-taking institutions (ADIs) with the aim of ensuring that a regulated institution is managed in a sound and prudent manner by a competent board. At that time, there were concerns within the Australian credit union sector that these governance requirements might not be consistent with the democratic board structure. For example, the requirement for board renewal practices might not recognise the fact that credit unions could benefit strategically from long-tenured directors who are committed to the mutual principles. This raises the question of how the governance of Australian credit unions has evolved in response to both regulatory requirements and market realities over the past 10 years.

Improved governance practices are particularly important for regulators to ensure financial institutions are managed by a board that exercises its role effectively. But are these governance standards consistent with credit unions’ democratic governance? The democratic election of the board means that each credit union member has one vote regardless of the size of their investment in the credit union. This creates an issue for owners seeking to exert discipline at the board level.

This research seeks to provide an understanding of the nature and effectiveness of the democratic attributes of credit union boards. Because APRA’s governance standards are mandatory, it is important to understand credit unions’ response to the introduction of these standards while adhering to their democratic features.
Background
The regulatory standard CPS 510 sets APRA’s minimum requirements for good governance of an ADI. The aim of this standard is to ensure that a regulated institution is managed in a sound and prudent manner by a competent board. Although APRA does not clearly specify what a competent board is, it provides a set of requirements that ADIs need to follow to ensure the regulated institution has a strong governance framework. The current CPS 510 standard (effective from January 2015) specifically sets requirements with respect to board: size and composition; independence; renewal; remuneration; and committees.

In particular, it specifies that the board must have a minimum of five directors. In credit unions, board size is primarily influenced by the individual characteristics of the institution, such as its size and the complexity of its operations. The governance standards also require the board to ensure that directors have a full range of skills needed for effective and prudent operation of the institution. This expertise requirement applies to the board as a whole although it does not reduce the responsibility of each individual director. One of the concerns for credit unions when the governance standard was proposed was the difficulties they could face when recruiting qualified directors (Khoo 2005) given the democratic election of the board. Boards are also required to have in place a formal policy on board renewal, as this was not evident in many Australian credit unions at the time when CPS 510 was introduced. Khoo (2005) highlights that this board renewal standard was interpreted by credit unions as APRA targeting long-serving directors.

The governance standard also requires the board to establish a remuneration committee that periodically reviews the remuneration policy, ensuring it remains appropriate for its intended purpose. The key principle of this policy in credit unions is to remunerate directors and senior managers in a manner that takes into account experience, qualifications and performance, while also considering industry benchmarks. The requirement for a remuneration policy, however, fails to recognise that some credit unions have volunteer directors.

Data
The study examines Australian credit unions over the 2004–12 period. Data are available from two sources: publicly available annual reports; and hard copies of annual reports obtained from the Australian Credit Union Archives (ACUA) office in Sydney. Board governance variables were hand collected from the directors’ report section. This study focuses on a comprehensive set of board characteristics such as board size, tenure, expertise, remuneration, meeting frequency and attendance at board meetings.

Analysis
This study analyses whether the board structure in credit unions has been shaped by APRA’s governance standards. Two time periods are identified and categorised as ‘before’ the change in APRA standards (i.e. 2004–06) and ‘after’ (i.e. 2008–12). A one-year gap (2007 observations not included) allows for the CPS 510 standard’s effects to flow through to board governance variables. Table 1 presents the sample means for the board variables, the range of values in each time period, and the nonparametric test statistics (t-test) for the differences in mean values between the two periods.

The average board size increased slightly over the period after the governance standards came into effect, which is in line with the minimum of five directors mandated by APRA. When compared to bank board size, credit union boards are much smaller. For instance, in 2012, the big four banks in Australia had an average board of 11 members. Thus, the small board size in credit unions appears to reflect their relatively small size.

No significant changes in board gender diversity occurred as a result of the introduction of the CPS 510 standard. Women continue to be underrepresented on credit union boards relative to Australian banks; on average, 22 per cent of directors on bank boards are female. Board gender diversity in Australian credit unions is also lower than that reported by Goth et al. (2010) for a sample of Canadian and US credit unions, i.e. 30.8 per cent and 29.2 per cent, respectively.
### TABLE 1: Board structure and governance standards

<table>
<thead>
<tr>
<th>Before APRA standards</th>
<th>After APRA standards</th>
<th>(t-test)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Range</td>
</tr>
<tr>
<td></td>
<td>(min to max)</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>16.78 [0 – 71]</td>
<td></td>
</tr>
<tr>
<td>Financial expertise</td>
<td>16.90 [0 – 18]</td>
<td></td>
</tr>
<tr>
<td>Paid boards</td>
<td>83.38 [0 – 84]</td>
<td></td>
</tr>
<tr>
<td>Meetings</td>
<td>13.18 [8 – 31]</td>
<td></td>
</tr>
<tr>
<td>Attendance</td>
<td>86.59 [62 – 100]</td>
<td></td>
</tr>
<tr>
<td>Sample</td>
<td>343</td>
<td>343</td>
</tr>
</tbody>
</table>

**Board size** is the number of directors on the board. **Female** is the percentage of directors who are female. **Tenure** is the average number of years directors have served on the board. **Financial expertise** is a dummy variable coded 1 if the credit union has at least one director with accounting and/or financial expertise on the board, and 0 otherwise. **Paid boards** is a dummy variable coded 1 if the credit union pays a fee to directors, and 0 otherwise. **Meetings** is the number of board meetings. **Attendance** is the weighted average of the number of meetings attended by directors as a percentage of the total number of meetings held.

Board tenure has declined consistent with the regulatory requirement aimed at ensuring that boards are open to fresh ideas and new perspectives. This decline was either due to the appointment of new directors or the retirement of existing directors or both. Changes in directors’ tenure are more evident in the later years, when the majority of Australian credit unions experienced a marked decrease in board tenure. For instance, in 2012, roughly half of all Australian credit unions experienced a 33 per cent decrease in board tenure, compared to 2004.

Recent annual reports provide evidence that elected directors are appointed for a period of three years, and that they can stand for re-election for two additional terms. Thus, in total, a director serves on the board for a maximum of nine years, which is consistent with the Australian Institute of Company Directors’ (AICD) good governance principles. Nonetheless, the average tenure of credit union directors is higher than that of bank directors (5.41 years).

Directors’ financial expertise has significantly improved, consistent with the objective of regulators. The proportion of credit union boards with financial expertise (49.19 per cent) is relatively close to that of the big four bank boards (62.9 per cent). Credit unions have made significant efforts to elect board members with the required financial expertise, by either electing qualified directors or providing training to existing ones. The most common qualification in accounting is CPA, and the other source of financial expertise most commonly sought-after is work experience as banker or financial analyst.

The expansion of the common bond of association may have also contributed to increased expertise as credit unions are able to recruit directors from outside their traditional membership base. For those credit unions without a restriction on the bond of association, the proportion of boards with at least one accounting/financial expert (69.8 per cent) following the introduction of governance regulation is significantly higher than for those credit unions with a restrictive bond (44.5 per cent). Nonetheless, this redesign of directors’ appointment carries some risk in that it might result in a qualified board that does not function within the cooperative philosophical framework.

The number of volunteer credit union boards has dropped significantly in the period after the introduction of governance standards, particularly during 2006, which saw a decline from 23 to 11. The governance standards are likely to have raised concerns about the viability of volunteer boards and led to greater remuneration of directors, with credit unions attempting to recruit more qualified individuals and/or directors demanding higher compensation for increased obligations. Directors’ pay tends to reflect the level of expectations from board members. This is particularly relevant in a competitive environment when there are greater compliance requirements and increasing expectations of directors and their ability to effectively monitor management and assess the institution’s risks. During the sample period, the total remuneration for credit union boards is, on average, $119,289, which represents only 5 per cent of the average total remuneration of bank boards.
In the period after the introduction of governance standards there has been a significant shift from volunteer to paid boards, an increase in the financial expertise of directors, larger boards, reduced tenure of directors, and greater attendance at board meetings. It appears that regulation has positively affected credit union board practices.

Table 1 also shows that after the adoption of governance standards, the frequency of board meetings decreased, and the attendance at those meetings increased. This highlights improved board functioning through more effective board meetings. The maximum frequency is 31 meetings per year, which is higher in the early years of the sample, for credit unions with poor performance that were subject to mergers. The average number of board meetings suggests that boards meet approximately once a month. This includes the annual general meeting, where the election of board members takes place. Further, the commitment to the credit union values may play a significant role in the higher attendance records reported after the governance standards; however, credit union board attendance is lower than that reported for bank board meetings (98.6 per cent).

Overall, the data in Table 1 suggest that board structure in Australian credit unions has been shaped by regulatory governance standards. In the period after the introduction of governance standards there has been a significant shift from volunteer to paid boards, an increase in the financial expertise of directors, larger boards, reduced tenure of directors, and greater attendance at board meetings. It appears that regulation has positively affected credit union board practices.

Merger activity
The changes in board characteristics might also be partly due to the continuous trend of merger and acquisition (M&A) activity in the Australian credit union industry over the past two decades as credit unions have pursued economies of scale, or simply sought to survive. Simultaneous to this M&A activity, the number of credit unions has declined (Brown et al. 1999; Davis 2005; Ralston 2001; Worthington 2004), falling from 345 in 1990 to 224 in 2000, and from 179 in 2004 to 94 in 2012. On average, 22.5 per cent of Australian credit unions (either as acquiree or acquirer) engaged in M&A activity during the 2004–12 period.

Arguably, such dynamics could have had a direct impact on the governance of credit unions. For instance, the significant decrease in board tenure may have been due as much to mergers (where long-tenured directors were not re-elected) as the renewal practices adopted as a consequence of mandatory governance standards. It could also be that directors from the acquiree credit unions were considered as new directors for the acquirer credit union, so their tenure was not accumulated.

This study explores and controls for the effect of mergers on board structure. The results indicate that credit unions with previous M&A activity have larger boards, a higher percentage of female directors, lower board tenure, and have higher levels of remuneration for directors (see Figure 1). Larger boards are expected in credit unions that have been subject to mergers, particularly in the years following the merger. The bank governance literature provides evidence that boards typically grow after M&A activity (Adams and Mehran 2012; Pathan and Skully 2010). The findings of this study confirm this argument and reveal that the average board size for credit unions that have been subject to mergers during the 2004–12 period is 8.5 members, which is larger than the average board size (7.9 members) for credit unions without mergers. Board size is positively correlated with board gender diversity, suggesting that female directors are more likely to be found in larger boards. A higher percentage of female directors is found for credit unions involved in mergers.
M&A activity is also associated with a decrease in the board tenure of the surviving credit union, suggesting that long-tenured directors are less likely to be re-elected by the acquiring credit union. Finally, total remuneration paid to directors is higher for those credit unions with previous mergers. The data also indicates that following the merger unpaid boards were replaced by paid boards. In fact, 44.73 per cent of credit unions with volunteer boards in 2004 engaged in merger activities in the subsequent years. In most cases, the acquirer credit union paid remuneration to its board. This finding could also be explained by the relatively large size of credit unions with M&A activity. Board remuneration for larger credit unions is significantly higher than for smaller credit unions. Overall, these results provide some evidence that M&A activity has also been a determinant of credit union board characteristics.

Conclusions
The findings of this research suggest that regulatory governance requirements have had a positive effect on credit union board practices. In particular, the increased financial expertise of boards demonstrates the efforts made by Australian credit unions to appoint qualified directors. Contrary to the volunteer nature of mutuals, the majority of Australian credit unions remunerate their directors, and boards are relatively small in size but are still compliant with regulatory standards. Governance standards have also reduced the frequency of board meetings and have contributed to improved attendance records. These results highlight the efficacy of regulation in promoting effective board practices.

This study also reports that the changes in board characteristics have been influenced by the continuous M&A activity in the Australian credit union sector. The average tenure of board members has decreased for those credit unions influenced by M&A activity. Mergers have also contributed to larger boards and increased board gender diversity.

Overall, these results provide evidence that Australian credit unions have undergone a redesign of board governance, shifting away from truly cooperative/democratic governance towards a board structure that has been shaped by regulatory governance standards and M&A activity and consolidation.
These findings contribute to a better understanding of board governance in a mature credit union sector and provide important feedback to regulators and other credit union industries worldwide as they assess the evolution of board practices.

Overall, these results provide evidence that Australian credit unions have undergone a redesign of board governance, shifting away from truly cooperative/democratic governance towards a board structure that has been shaped by regulatory governance standards and M&A activity and consolidation.

Notes
1. There are three growth stages in credit unions, namely the nascent, transition and mature stages (Ferguson and McKillop 1997, 2000).
2. Four changes have been made to the CPS510 governance standard since it was first issued in 2006.
3. ADIs must also have a board audit committee and a board risk committee. This study focuses only on the board as a whole.

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THE INCIDENCE AND CAUSES OF PERSONAL BANKRUPTCY in Australia

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This paper examines recent trends in Australian personal bankruptcy by analysing a large data set obtained from the regulator, the Australian Financial Security Authority. It demonstrates a marked decline in Australian bankruptcy rates, since a peak in 2009, and a consistent rise in levels of unsecured debt among bankrupts. It identifies a number of distinct cohorts within the bankrupt population, and important differences between men and women, younger and older people, and professional and blue collar workers. We find that the debts of bankrupt individuals tend to fall into two distinct categories: a combination of taxation debts and legal liabilities; or a mixture of personal loan, overdraft and credit card debts, likely to be linked to consumer spending. These findings represent a significant contribution to Australian empirical bankruptcy research. They are also timely, in light of the Commonwealth Government’s recent proposals to implement significant changes to Australian bankruptcy law.

Bankruptcy is a legal process enabling people with unmanageable debt to obtain a release from their obligations, and start afresh after a period of three years. The earliest English bankruptcy laws were enacted in 1542 and were essentially punitive in nature. The Act Against Such Persons As Do Make Bankrupts roundly condemned debtors who ‘consume the substance obtained by credit of other men, for their own pleasure and delicate living, against all reason, equity and good conscience.’ This Act, and subsequent early modern statutes, imposed harsh penalties upon bankrupts, ranging from imprisonment to being ‘set upon the pillory’ and ‘having on[e]... ea[r] cut off’ (Bankruptcy Act of 1623). At the same time, these early acts sought to establish a measure of fairness and order in the debt recovery process, by ensuring that debtors’ assets were distributed equally among their creditors (Levinthal 1919, p. 14). This latter goal has gradually assumed greater prominence as the law of bankruptcy has developed, while the sanctions imposed upon debtors have become considerably less severe. Current Australian bankruptcy law (Bankruptcy Act 1966 (Cth)) now stresses the pragmatic goal of equitable asset distribution, rather than the punishment of debtors (Law Reform Commission 1988, pp. 15—17).

When debtors declare bankruptcy, their assets must be handed over to a trustee. For a period of three years, these individuals must submit to a range of legal restrictions and make contributions towards their debts, if their incomes exceed a certain threshold. At the end of this period, bankrupts are freed from their legal restrictions and their remaining debts are discharged. In 2016, the Federal Government announced its intention to reduce the period of bankruptcy from three years to one, in order to promote entrepreneurship and reduce the stigma associated with bankruptcy (Treasury 2016). If implemented, these changes would further emphasise the pragmatic, rather than punitive, function of Australian bankruptcy law.

Although a form of bankruptcy has been part of Australian law since the early nineteenth century (Allsop and Dargan 2013), the academic study of bankruptcy is a relatively recent phenomenon in this country. Some studies have considered the policy objectives underlying Australian bankruptcy law and ways in which the law could better meet these objectives (Howell and Mason 2015). Others have addressed specific topics such as the treatment of gambling debts and the interaction between bankruptcy and family law (Duns 2007; Fehlberg et al. 2014). Yet to date, few Australian researchers have carried out empirical studies of bankruptcy (Ryan 1995; Ramsay and Sim 2009; Ramsay and Sim 2010). By contrast, the United States (US) has produced...
a great deal of empirical bankruptcy research, most notably the Consumer Bankruptcy Project. This collaborative project has been underway since 1981 and has examined a vast body of data including court records, written surveys and interviews with current and former bankrupts. The Consumer Bankruptcy Project has explored the causes of bankruptcy; the obstacles that debtors encounter when attempting to seek bankruptcy relief; the bankruptcy experiences of specific groups, such as single mothers, African Americans and retirees; and many other topics. This US literature demonstrates the enormous potential for empirical techniques to improve researchers’ understanding of bankruptcy law and guide policy makers in identifying areas requiring reform.

This article seeks to contribute to the developing body of Australian empirical research, by examining a large and unique data set obtained by the authors from the regulator, the Australian Financial Security Authority (AFSA). In line with its privacy policies and its commitment to facilitating bankruptcy research, AFSA has provided a data set of nearly 29,000 de-identified records of individual bankruptcies initiated between 2007 and 2016. The authors have analysed this data to form a clearer understanding of the trends in, and salient features of, Australian personal bankruptcies over the past nine years. This is the first Australian empirical study to be based on a data set of this magnitude and comprehensiveness, and the first to employ statistical techniques to analyse such data. It demonstrates the significance of AFSA’s unpublished data as a resource for researchers and policy makers.

Data

AFSA provided the authors with 28,683 records entered between 1 July 2007 and 20 June 2016. The sample represents 10 per cent of all bankruptcies filed during this period, and has been selected randomly, to make it broadly representative of the bankrupt population as a whole. Of the records provided, 79 per cent (or 22,517) relate to personal (or non-business-related) bankruptcies. The remaining 21 per cent (6,166) relate to business-related bankruptcies. The data set includes each individual’s sex, age, occupation, income, source of income, family situation and, if appropriate, spouse’s income. It identifies each individual’s state of residence and whether or not the individual lived in a ‘major city’, ‘inner regional’, ‘outer regional’, ‘remote’ or ‘very remote’ area, as defined by the Australian Bureau of Statistics (ABS). The data set includes the cause of bankruptcy, as nominated by each individual when completing his or her Statement of Affairs (SOA) form at the commencement of bankruptcy; or, in the case of an involuntary bankruptcy, on the basis of information supplied by creditors. It also provides details of each individual’s unsecured assets and liabilities at the time of bankruptcy. It lists the primary source from which each debtor obtained information about bankruptcy, and whether or not each debtor had ever been bankrupt before.

While this data set is extremely rich, it has a number of limitations. In the first instance, the data is provided by bankrupt debtors themselves, at the commencement of their bankruptcies. Existing empirical studies demonstrate that the period leading up to bankruptcy is frequently marked by intense stress and a sense that one’s financial problems have become overwhelming and unmanageable (Sullivan et al. 1999, p. 244). For this reason, it is likely that some of the data reported by debtors at the commencement of bankruptcy is inaccurate or incomplete. The format of the data set also imposes some limitations. Key financial data — income, assets and (unsecured) liabilities — is recorded in bands, such as ‘$0.01–$4,999.99’, rather than in precise figures. Banded data tends to obscure true distributions and thus to reduce the accuracy of statistical calculations such as means and medians. Moreover, the data set does not include secured assets or liabilities, such as homes and home mortgages, as AFSA is unable to guarantee the reliability of such data. Since homes are the primary source of wealth, and debt, in most Australian households, this is a significant omission. Still, even taking into account these limitations, the data set provides valuable insights into the circumstances of Australian debtors at the time of their bankruptcies.

Trends in the rate and incidence of Australian personal bankruptcies

Bankruptcy rates have been falling relatively steadily since 2009. This may reflect the growing popularity of debt agreements, or ‘Part IX’ agreements, among Australians in financial distress (Ramsay and Sim 2011; Wyburn 2012). Debt agreements allow individuals to enter into a legally binding repayment arrangement with their creditors and usually involve the payment of ongoing fees to a private debt administrator. They accounted for 25 per cent of all (non-business-related)
personal insolvencies in calendar year 2008. By 2015, this figure had risen to 44 per cent. Even taking account of the increasing role of debt agreements in the personal insolvency system, the decline in bankruptcy rates in recent years represents a striking contrast with the trend in the lead-up to 2009. Total bankruptcies rose dramatically from 8,552 in 1990 to 21,830 in 1997, and 27,483 in 2009 (Ramsay and Sim 2010, p. 289). By contrast, there were only 17,7628 bankruptcies in 2015.

During this period, both men and women have experienced steadily declining rates of bankruptcy. In 2009, 16,689 men and 12,030 women declared bankruptcy. By 2015, only 10,798 men and 6,945 women declared bankruptcy. As a proportion of the total adult population, the incidence of personal bankruptcy over the nine financial years from 2007−08 to 2015−16 is 108 per 100,000. The male incidence is 121 per 100,000 and the female rate is somewhat lower, at 95 per 100,000. Thus the probability of an adult becoming bankrupt in any given year is approximately one in 926.

Figure 1 shows the incidence of personal bankruptcy by geographic location. It indicates a downward trend in all regions except for the ‘remote’ category. It also shows that the decline in bankruptcy in outer regional areas has been less marked than the decline in inner regional areas and major cities. The rate of bankruptcy in remote areas has fluctuated between 2007 and 2016.

Figure 2 shows the incidence of personal bankruptcy for certain occupational categories. Here, the denominator in the incidence calculation is the adult population in work, rather than the Australian population generally. This figure shows significant variation between occupational categories. Professionals experienced a relatively low incidence of personal bankruptcy, averaging 60 personal bankruptcies per 100,000 over the nine-year period examined. By contrast, those in traditional blue-collar occupations, such as machine operators and drivers, and labourers, experienced much higher incidence rates: 230 per 100,000 and 226 per 100,000, respectively. Across a typical working life of 40 to 45 years, around 10 per cent of all adults in these ‘blue collar’ categories might be expected to experience personal bankruptcy.
FIGURE 2: Incidence of personal bankruptcies, by occupation (average 2007/08 to 2015/16)

Unsecured debts in personal bankruptcy
Most personal bankruptcies involve relatively modest amounts of debt compared with business-related bankruptcies. Figure 3 compares the total unsecured liabilities involved in personal and business-related bankruptcies in the data set. It shows that a clear majority of personal bankruptcies — 62 per cent — reported unsecured liabilities of less than $50,000. Some 27 per cent reported unsecured debts of less than $20,000. The median level of unsecured debt for personal bankruptcies in the data set was $37,500, representing roughly 25 per cent of the median level of unsecured debt for business-related bankruptcies, which is estimated at $147,916.

FIGURE 3: Percentage breakdown of bankrupts according to total unsecured liabilities (business related v personal)

Levels of unsecured debt vary considerably according to age and gender. Among those in the personal (non-business related) bankruptcy sample, 56 per cent of males reported unsecured liabilities under $50,000, with a median level estimated at $42,500. By contrast, almost 70 per cent of females reported unsecured debt of less than $50,000, with an average level of unsecured debt estimated at $32,500. Unsecured debt levels were also much lower among younger debtors.

Across all age groups, 27 per cent of debtors reported debts of less than $20,000, with an estimated median debt of $37,500. However, 43 per cent of those aged under 25 reported unsecured debt of less than $20,000, with an estimated median debt of $22,500. The proportion of personal bankrupts with debts of $50,000 and over rose steeply with age. While 9 per cent of those aged under 25 reported debts of this magnitude, this rose to 31 per cent for those aged 25 to 34, and 44 per cent for those aged 55 to 64. The rate declined slightly for people over 65 (32 per cent).
Overall, levels of unsecured debt have been rising over the past nine years. Figure 4 indicates the rise in the percentage of personal bankruptcies involving debts of $50,000 and over. It also shows a concomitant fall in the overall number of personal bankruptcies involving debts of less than $20,000. It is possible that this is partly attributable to the increasing popularity of debt agreements. Debt agreements may be attracting a greater percentage of individuals with smaller debts.

**FIGURE 4: Trends in the size of unsecured liabilities of personal bankruptcies, Australia — by year, 2007/08 to 2015/16**

![Chart showing trends in unsecured liabilities of personal bankruptcies](chart.png)

Table 1 shows the relationship between unsecured debt and multiple demographic and personal attributes occurring in combination. It reports the results of an Ordinary Least Squares (OLS) regression, which tests the effects of a number of selected demographic and personal characteristics on the dependent variable — the level of unsecured debt. The coefficient column captures estimates of unsecured debt levels, depending upon the characteristic (or combination of characteristics). The most potent indicator appears to be age: consistent with the analysis above, the results indicate that the level of unsecured debt generally rises with age. The results also suggest that debt levels rise with income: the greater an individual's earning potential, the more likely it is that they will report a high level of debt. This is consistent with the finding that those in managerial and professional roles generally report higher debt levels than those in labouring occupations.

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The results also demonstrate that those living in metropolitan areas tend to incur higher levels of debt than those in regional and remote areas. They also indicate that couples tend to incur more debt than singles; that men incur more debt than women; and that those who have never been bankrupt previously incur more debt than those who have been bankrupt at least once before. Individuals working in labouring occupations tend to experience a higher incidence of personal bankruptcy; yet when they are made bankrupt, they report much lower levels of unsecured debt. By contrast, those in higher income occupations, such as professionals and managers, report a much lower incidence of bankruptcy; however, when they do go bankrupt, they report much higher levels of debt.
TABLE 1: Relationship between unsecured debt and multiple demographic and personal attributes occurring in combination (OLS regression results)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>St Err</th>
<th>Beta</th>
<th>t stat</th>
<th>p-value</th>
<th>Signif sign</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>549.54</td>
<td>15.08</td>
<td>0.2368</td>
<td>36.4480</td>
<td>0.0000</td>
<td>+</td>
</tr>
<tr>
<td>Female</td>
<td>-3549.67</td>
<td>402.40</td>
<td>-0.0572</td>
<td>-8.8210</td>
<td>0.0000</td>
<td>-</td>
</tr>
<tr>
<td>Couple</td>
<td>4264.54</td>
<td>700.91</td>
<td>0.0678</td>
<td>6.0840</td>
<td>0.0000</td>
<td>+</td>
</tr>
<tr>
<td>Children</td>
<td>-489.60</td>
<td>449.26</td>
<td>-0.0077</td>
<td>-1.0900</td>
<td>0.2758</td>
<td></td>
</tr>
<tr>
<td>Previously bankrupt</td>
<td>-7295.69</td>
<td>506.11</td>
<td>-0.0896</td>
<td>-14.4150</td>
<td>0.0000</td>
<td>-</td>
</tr>
<tr>
<td>Remote rural</td>
<td>355.84</td>
<td>1889.42</td>
<td>0.0012</td>
<td>0.1880</td>
<td>0.8506</td>
<td></td>
</tr>
<tr>
<td>Metropolitan</td>
<td>5493.67</td>
<td>422.63</td>
<td>0.0818</td>
<td>12.9990</td>
<td>0.0000</td>
<td>+</td>
</tr>
<tr>
<td>Single income</td>
<td>226.33</td>
<td>708.85</td>
<td>0.0034</td>
<td>0.3190</td>
<td>0.7495</td>
<td></td>
</tr>
<tr>
<td>Manager/Professional</td>
<td>11150.80</td>
<td>566.83</td>
<td>0.1329</td>
<td>19.6720</td>
<td>0.0000</td>
<td>+</td>
</tr>
<tr>
<td>Clerical/Machinery</td>
<td>2083.44</td>
<td>504.26</td>
<td>0.0274</td>
<td>4.1320</td>
<td>0.0000</td>
<td>+</td>
</tr>
<tr>
<td>Labourer</td>
<td>-3069.74</td>
<td>583.59</td>
<td>-0.0347</td>
<td>-5.2600</td>
<td>0.0000</td>
<td>-</td>
</tr>
<tr>
<td>Income</td>
<td>1.9</td>
<td>0.0082</td>
<td>0.0034</td>
<td>0.1540</td>
<td>23.1450</td>
<td>0.0000</td>
</tr>
<tr>
<td>(Constant)</td>
<td>-15477.89</td>
<td>1094.11</td>
<td>-1.4170</td>
<td>0.0000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: OLS regression diagnostics: Multiple R 0.3805; Adjusted R-square 0.1448; F-stat 317.55; signif p=0.0000; DF 12 (regression) and 22,504 (residual).

Factor analysis indicates that the debts of people who go bankrupt tend to be clustered into two distinct groups. The results of this analysis are reported in Table 2, in the form of a factor matrix. Generally there is a strong correlation between taxation debts and legal liabilities. Another distinct correlation emerges between personal loans, bank overdrafts and credit cards. This means that an individual who goes bankrupt is highly likely to accumulate a collection of legal and tax-related debts, or, alternatively, a mixture of personal loan, overdraft and credit card debts, more likely to be linked to consumer spending.

TABLE 2: Correlation between selected types of debts, personal bankrupts, Australia (varimax rotation)

<table>
<thead>
<tr>
<th>Debt type</th>
<th>Factor 1</th>
<th>Factor 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other liabilities</td>
<td>.7354</td>
<td></td>
</tr>
<tr>
<td>Taxation debt liabilities</td>
<td>.6301</td>
<td></td>
</tr>
<tr>
<td>Legal debt liabilities</td>
<td>.4936</td>
<td></td>
</tr>
<tr>
<td>Personal loan liabilities</td>
<td>-.3353</td>
<td>.6161</td>
</tr>
<tr>
<td>Bank overdraft liabilities</td>
<td>.6700</td>
<td></td>
</tr>
<tr>
<td>Credit card liabilities</td>
<td>.5427</td>
<td></td>
</tr>
</tbody>
</table>

Note: The ranges of liability amounts are grouped (since most are highly skewed toward the lower end of the range). Analysis performed on n=22,517 cases. The first factor holds together in a reliability analysis with a standardised Cronbach's alpha of 0.3186; the second factor is far less coherent (alpha of 0.1720) and supports the hypothesis that these three items are not loaded on the first factor.

Causes of personal bankruptcy

When individuals complete the SOA form at the commencement of a personal bankruptcy, they are asked to nominate the cause of the bankruptcy, choosing from the following options: ‘unemployment or loss of income’; ‘adverse legal action’; ‘liabilities due to guarantees’; ‘gambling, speculation and extravagance in living’; ‘ill health or absence of health insurance’; ‘domestic discord or relationship breakdowns’; and ‘excessive use of credit facilities including losses on repossessions, high interest payments and pressure selling’. Individuals are also able to nominate ‘[an]other reason not listed’. The causes nominated by those in this sample are indicated in Figure 5, in descending order of prevalence. Figure 5 shows that ‘unemployment or loss of income’ is the single most common cause of personal bankruptcy.
Figure 6 shows the relationship between cause of bankruptcy and the extent of unsecured liabilities. Those who went bankrupt as a result of giving personal guarantees reported very high levels of unsecured liabilities: they reported a median unsecured debt of $162,500, compared with a median figure of $37,500 across the data set as a whole. Some 73 per cent of bankrupts in this category reported unsecured liabilities of $50,000 and over. By contrast, those who cited unemployment or loss of income as the cause of their bankruptcy reported only $27,500 in median unsecured debt. Only 26 per cent reported debts of $50,000 and over. Those who attributed their bankruptcy to domestic discord reported a slightly higher median debt of $37,500. Some 39 per cent of these individuals reported debts of $50,000 or more.

The data also shows that certain demographic groups are more likely than others to nominate particular causes of bankruptcy. In this sample, younger individuals were more likely to attribute their bankruptcies to unemployment or loss of income: 53 per cent of those in the under 25 age group cited this cause, compared with 34 per cent of the overall sample. Those aged 65 or older were more likely to attribute their bankruptcies to ‘excessive use of credit’: 37 per cent of those aged 65 and older selected this cause, compared with 24 per cent of the overall sample. Older individuals were also slightly more likely to cite ill health: over 16 per cent of those aged 55 and over selected this cause, compared with 11 per cent of the overall sample.
Those in managerial or professional occupations were less likely to cite unemployment: 24 and 27 per cent selected this cause, respectively, compared with 34 per cent of the sample as a whole. By contrast, unemployment or loss of income was selected as the primary cause by 43 per cent of labourers and 41 per cent of those in rural and remote locations. Domestic discord was more likely to be cited by women (16 per cent) than men (10 per cent). Of those who were single with dependants at the time of bankruptcy, almost one third cited domestic discord as the primary cause of bankruptcy. Over the nine years from 2007 to 2016, individuals generally became less likely to cite excessive use of credit as the cause of their bankruptcies. The proportion of individuals selecting this cause fell from 30 per cent in 2007−08 to 21 per cent in 2015−16.

Conclusion
This analysis demonstrates a consistent and pronounced decline in Australian bankruptcy rates, since a peak in 2009. Bankruptcy has become less prevalent among both men and women, and among people in major cities, inner and outer regional areas. At the same time, levels of unsecured debt in bankruptcy have been rising steadily. In conjunction with these broadly consistent trends, the data reveals significant variations within the bankrupt population. Statistical analysis identifies a number of distinct cohorts within the bankrupt population: debtors who are younger, older, male, female, professional or blue collar; debtors who are single with dependants; debtors with predominantly legal and tax-related debts; and those with debts more likely to relate to consumer spending. The distinct experiences of these cohorts emerge from their varying debt profiles and the factors they nominate as causing their financial problems, as well as their prevalence within the bankrupt population overall.

Drawing upon a very comprehensive data set, these findings make an important contribution to the growing field of Australian empirical bankruptcy research. They also illustrate the potential for empirical research to inform public policy, particularly the Federal Government’s current proposals to reform Australian bankruptcy law.

Notes
1. The authors wish to thank the statistics team at the Australian Financial Security Authority for their assistance in the provision of data for this project. The authors particularly wish to thank River Paul, who managed the process and was exceptionally patient with our questions and requests for additional data.
2. Debtors are entitled to retain ordinary household goods, items of sentimental value, tools of trade and other specified items (Bankruptcy Act 1966 (Cth) s 116).
4. The data spans the period from 1 July 2007 to 20 June 2016. 1 July 2007 was the date on which AFSA adopted its current data management and reporting system. The data file was produced on 20 June 2016 and includes all records entered up until that date.
5. All figures have been rounded to the nearest whole number.
6. Individuals in the sample were coded by AFSA as residing in a ‘major city’, ‘inner regional’, ‘outer regional’, ‘remote’ or ‘very remote’ area. This coding was based upon ABS classifications. See ABS, Australian Statistical Geography Standard (ASGS) Remoteness Structure.
7. During the period under discussion, AFSA changed its reporting methods. It ceased reporting some bankruptcy statistics by calendar year and began to report them by financial year. Accordingly, this article cites some figures by calendar year and others by financial year.
8. AFSA, Bankrupts (31 January 2016).
9. In 2015, a further 19 bankrupt debtors did not state their gender: ibid.
10. For the purposes of statistical analysis, the ‘remote’ and ‘very remote’ categories have been combined.
References


An Act Against Such Persons as Do Make Bankrupts 1542, 34 & 35 Hen 8, c 4.

Bankruptcy Act 1666 (Cth).

Bankruptcy Act of 1623, 21 Jac 1, c. 19.


