Financial Services Forum

Scoring Goals in a Changing World

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Actuaries Institute

Mortgages – Emerging Trends An International Perspective

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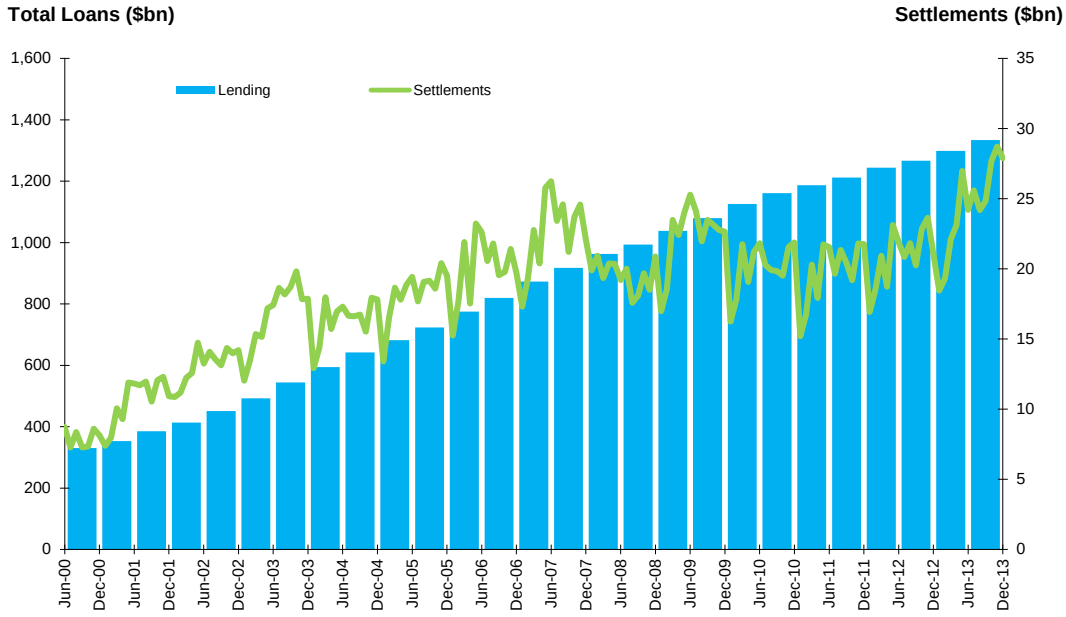
Agenda

1. Australian Market Overview – strong recent activity, but what will be the next evolution?

2. Customer Needs – is the Australian approach the only or best solution?

3. Capital Pricing and Regulation – how is this impacting?

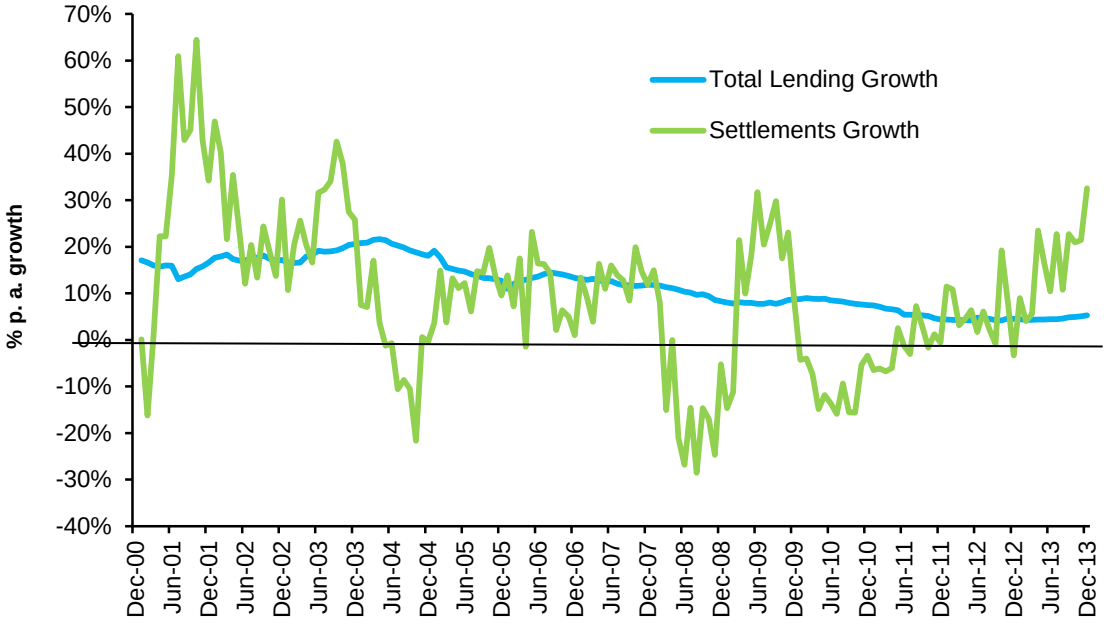
Australian Mortgage settlements are running hot…….



Settlement Volumes

- Settlements peaked at over $28b/month nationally in Dec13
- Highest point in past 15 years - higher than pre-GFC level

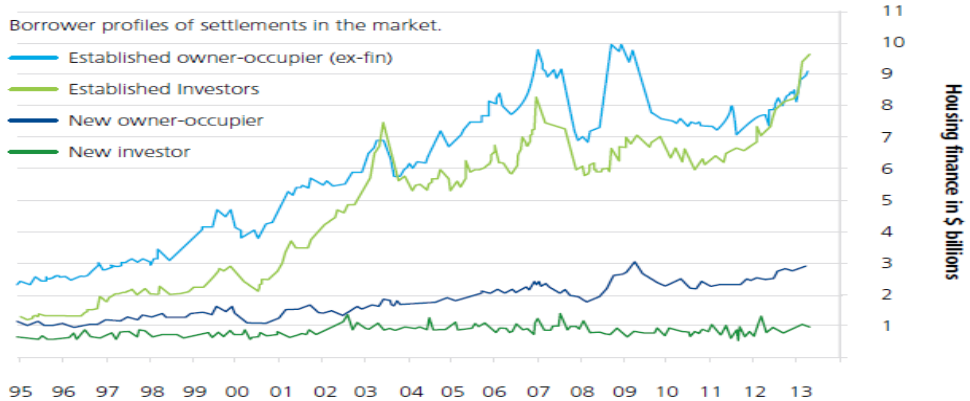
Australian Mortgage settlements are running hot…….

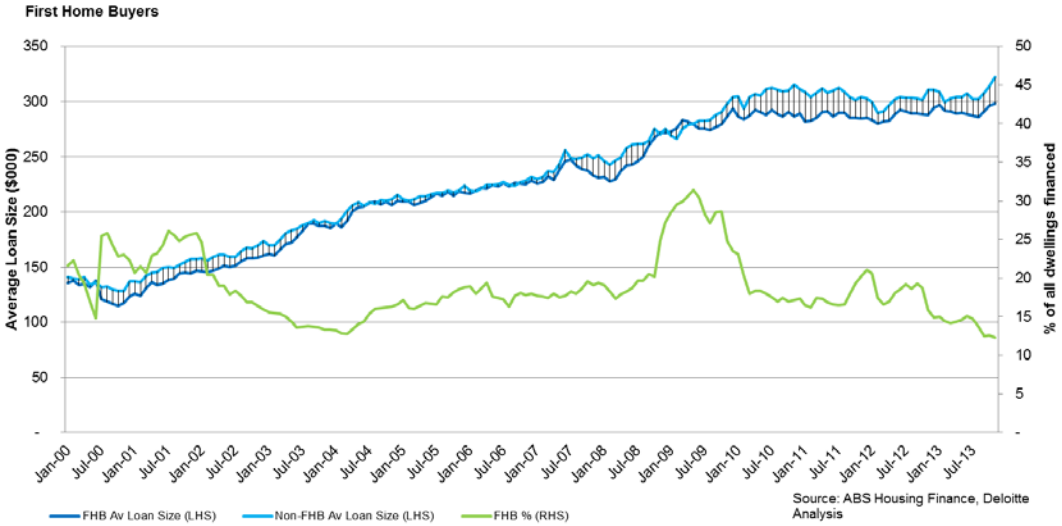


Growth Rates

- 2013 a story of two halves: growth >20% pa in July-December 2013
- Strong momentum carried into 2014
- However system overall flat growth at c4-5%. Implies movement within system rather than new borrowers entering the market

But investors, upgraders refinancers driving activity....at expense of FHB





- Most activity, especially in 2012/13 has been from existing borrowers – both owner occupiers and investors
- The rate of new FHB is slowing across the market (only around 12% of all new settlements in 2013 compared to 30%+ in 2009)
- Those who can benefit from exposure to capital growth of property prices can use this to upgrade and refinance
- What implication does this have for accessibility of housing ownership for all borrowers in the market?

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Customer Needs – Being met by a variety of designs globally

- Customers all have the primary need of purchasing a property to live or invest in
- However, distinct global differences exist in the mortgage product design :

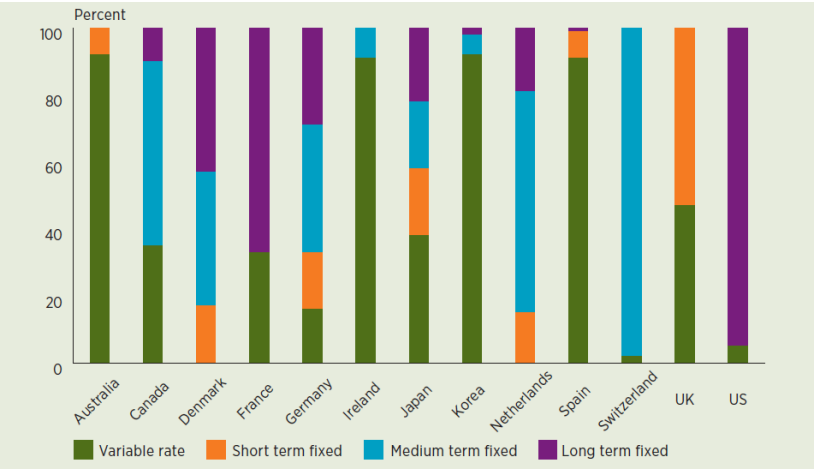
Characteristic	Range of differences	Examples
Interest Rate	Fixed vs. variable	AUS v USA
Repayment	P&I vs IO	Netherlands
Term	25/30yr vs lifetime	Switzerland
Advice	Proprietary vs broker	CAN vs USA
Return	Debt (interest) vs capital gain	UK

- Many of the above differences are due to:
  - Sovereign differences (eg tax treatments)
  - Culture (eg attitude to intergenerational transfer)
  - Religion (eg avoidance of debt)

- The rapid emergence of digital is also challenging many existing approaches

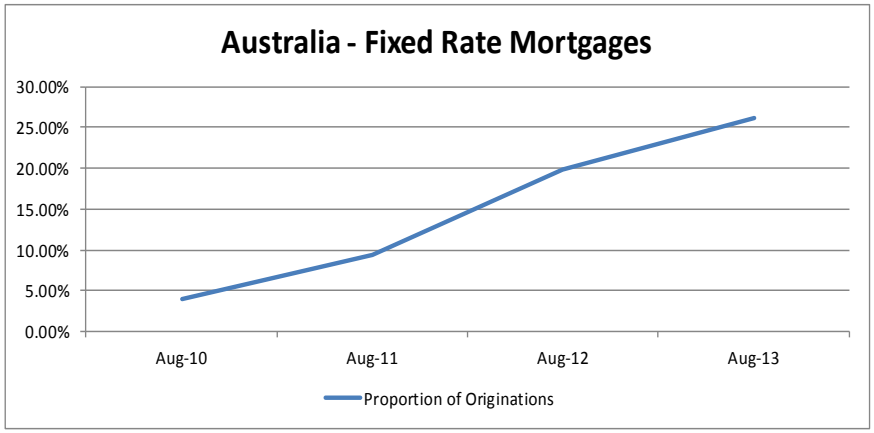
Interest Rate – Why do Australians prefer variable and the US fixed?

2009 Market Share



Source: Lea, M., *International Comparison of Mortgage Product Offerings,* Research Institute for Housing America, 2010

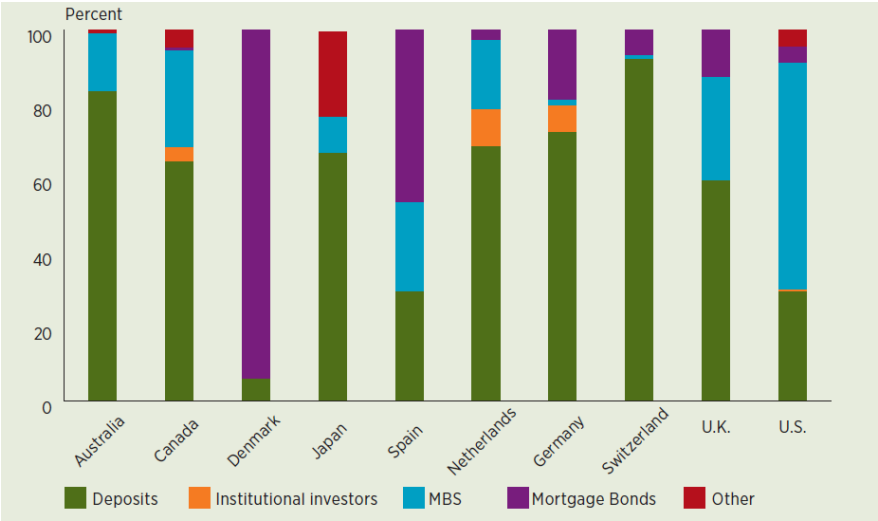
- Australia and the US are at opposite ends of the variable/fixed rate spectrum
- Long term fixed rate mortgages account for 90% of the US market, their share having increased since the GFC partly due to negative publicity around variable rate mortgages and shifts in the term structure of interest rates



- Short term fixed rate mortgages account for only 24% of the Australian market, their share having increased recently due to a low-interest rate environment

Fixed vs. Variable – Supply Side

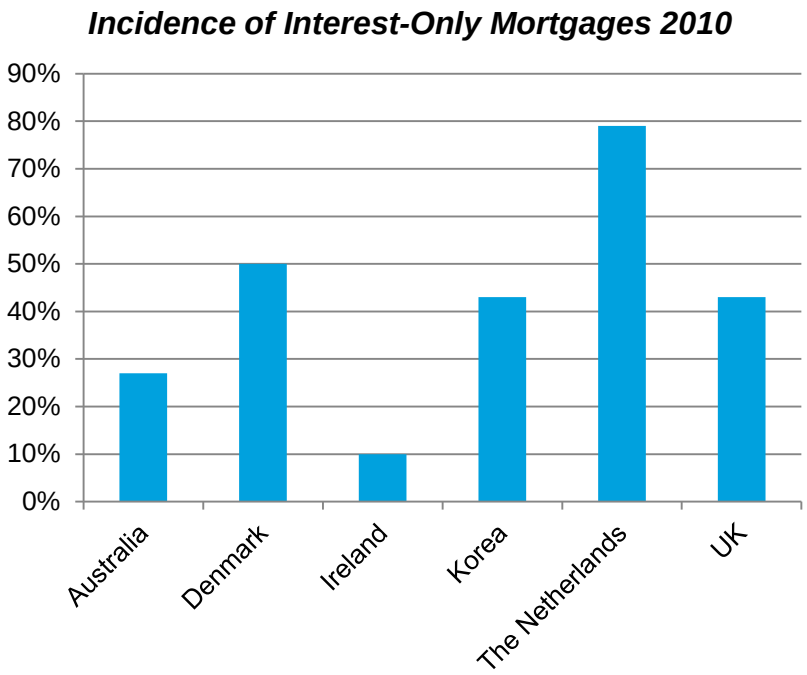
Mortgage Funding



Source: Lea, M., *International Comparison of Mortgage Product Offerings,* Research Institute for Housing America, 2010

- Variable rate mortgages allow banks to minimise interest rate risk when primarily funded by deposits
- The depth of bond markets plays an important role in funding fixed interest mortgages.
- The existence of 30 year treasury bonds and the depth of the securitisation market in the US allows funding for long term fixed mortgages with Government Sponsored Enterprises (eg Fannie Mae and Freddie Mac) responsible for approximately half of all lending in 2012
- Under the Dodd-Frank Act, prepayment penalties (break costs) can only be applied for the first three years of a qualifying fixed rate mortgage
- Securitisation is used to pool and diversify the interest rate and refinancing risk

Principal & Interest vs. Interest Only – Tax driven preferences



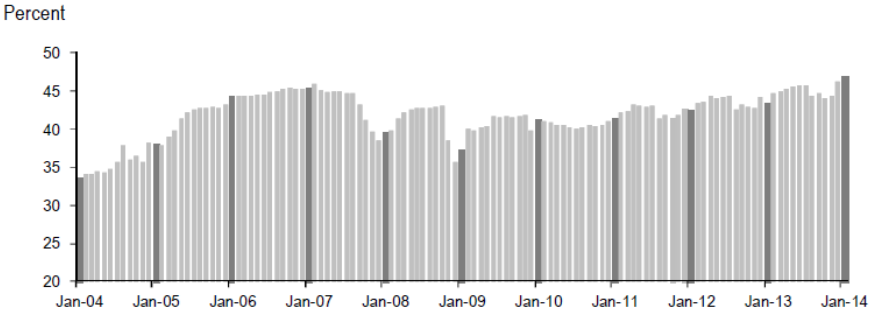
- The majority of mortgages in most developed countries are P&I
- Tax deductibility often drives the incidence of interest-only mortgages. Mortgage interest is tax deductible in the Netherlands, Denmark and Korea
- Where there is no identifiable repayment vehicle for the principal, it is assumed the borrower will refinance, sell or acquire an inheritance
- Interest-only mortgages in the Netherlands can be linked with a savings or insurance vehicle where capital accumulates to repay the principal and does not attract taxation
- Interest only loans can therefore maximise tax deductibility in the Netherlands

Term – Finite (contractual) or open ended

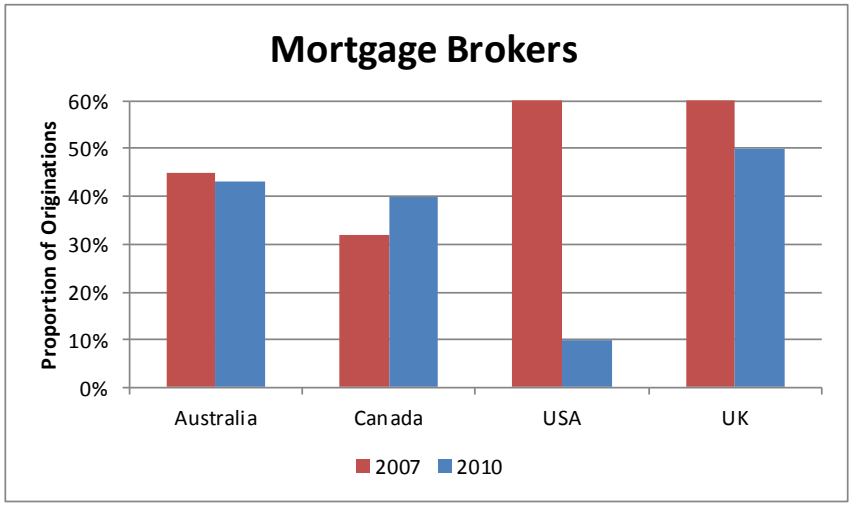
- Mortgage terms typically range between 20-40 years across developed countries
- Refinance rates of around 15-20% pa however substantially shorten this to an effective "weighted average life" of around 4-5 years
- Switzerland is a notable exception.
    - A mortgage can have a term of 100 years, even infinite
    - UBS and Credit Suisse offer an unlimited term on their variable rate mortgages
    - These mortgages are intergenerational – they can be passed down through generations and this is culturally acceptable
    - These interest-only infinite term loans have a maximum loan-to-valuation ratio of 65%
    - (Note that mortgage interest payments are tax deductible in Switzerland. Also, the majority of Swiss rent rather than owning their home)

Distribution – has the broker growth wave reached its peak?

Broker Share of Originations - Australia



Source: Australian Mortgage Industry - Volume 19, JP Morgan, 2014



Source: Mortgage and Finance Association of Australia 2012, Maritz Research Canada 2011, Deloitte Canada 2010, Council of Mortgage Lenders 2011

- The share of mortgage broker business in Australia has consistently been >40%. This is increasing in recent times as customers value the choice and 'independence of advice'
- Canada has similar broker experience to Australia. Its broker distribution has evolved from a "lender of last resort" network to a credible option for prime borrowers where brokers focus on differentiating themselves and targeting borrower needs. They value advice in understanding options
- The share of broker-originated mortgages has declined significantly however in the US since the GFC. This was the result of the declining mortgage market and increased regulation by the Consumer Financial Protection Bureau

Tax Deductibility – Different approaches impact mortgage design and use

- Tax treatment can influence the design and use of mortgage products. This is noticeable in both the demand for property to purchase in such countries, and the relative level of investment vs owner occupied housing.
- It is a vexed point, with much commentary about potential distortions that it can create.

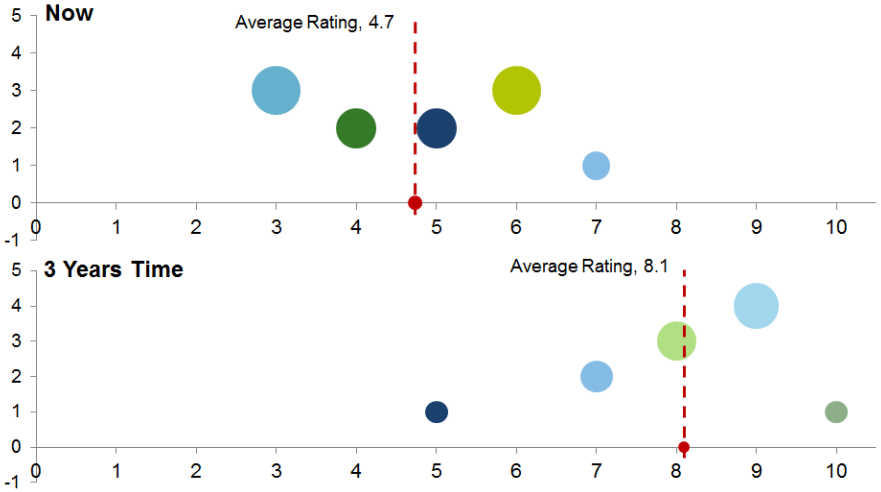
Country	Tax Treatment
Australia	"Negative Gearing" for interest on an investment property
	Tax offset even if mortgage interest > rental return
Netherlands	Interest paid on a mortgage is fully tax deductible
	Deductions can be made on one mortgage for an owned residential property
USA	Interest paid on a mortgage principal of up to $1 million is tax deductible
	Deductions can be made on a main home and a second home. If the second home is rented for a part of the year, the owner must have used the home for the larger of 14 days or 10% of the time period it was rented for
	Interest can be deducted on up to $100,000 of the mortgage that is not used to finance the dwelling

Culture/Religion – Sharia Compliant mortgages

- Under Sharia Islamic law, interest cannot be charged
- Sharia compliant mortgages commonly have a lease-to-own structure
- Structure
  - Home Purchase Plans in the UK use the Islamic Finance principles of co-ownership and leasing. The borrower and bank will contribute to the purchase of the property as partners, with the bank selling its share of the property to the borrower over the term of the loan
- Repayments
  - Rent is charged by the bank for the use of its share in the property. The repayments comprise an acquisition element (to increase the borrowers share in the property) and a rent element. The rent element decreases as a proportion of the repayment as the borrower's share in the property increases
- Flexibility
  - The rental rate can change over time. The loan can be refinanced, similarly to an ordinary mortgage

Digital Revolution in mortgages – customers will demand it

Where do our Digital Skills in Mortgages need to be?



Source: Deloitte Australian Mortgage Report 2014

- Currently, very little "digital" mortgage innovation has yet to occur (especially at the front line)
- However, considerable digital innovation has occurred in the payments, cards and deposits areas of retail banking
- How long will it be before mortgages is similarly disrupted, and what can be done?
- Lenders need to consider:
  - What consumer need is being met
  - How can this be supported by digital
  - How can it integrate with existing channels to enhance experience
  - How can "back office" processes be improved for simplicity and efficiency
  - Should they lead, or follow……..

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Capital Treatment

In most of the economies mentioned in the prior chapter, the capital treatment is in in line with the Basel II standards. Some exceptions exist eg the US who are still on Basel I. Under Basel II, there are 2 key types of capital treatment relevant to banks:

Standardised – where pre-set risk weights for credit risk apply to the loan, usually varying with the Loan to Valuation Ratio (LVR). These weights are 35%, 50%, 75% and 100%.

Internal Ratings Based (IRB) – where the risk weights are determined using a closed form equation, allowing the capital to vary according to the customers' Probability of Default (PD) and Loss Given Default (LGD). The formula for Risk Weighted Assets for credit risk capital is as set out below:

$$K \times 12.5 \times EAD \times 1.06$$

$$K = \left[LGD \times N\left(\frac{G(PD) + \sqrt{R} \times G(0.999)}{\sqrt{1-R}} \right) - PD \times LGD \right]$$

N(X) = cumulative distribution function for a standard normal random variable.

G(X) = inverse cumulative distribution function for a standard normal variable.

Correlation $R = 0.15$

The LGD is subject to a floor of 10% in the Basel accord. In Australia, APRA has taken the view that a floor of 20% is necessary to allow for a reduction of house prices during a downturn.

- Typically only larger institutions (or subsidiaries of these) apply the IRB approach due to the high cost and capability required for this status. These have lower risk weights than the smaller institutions who are typically on the standardised treatment.
- In Australia for example the average risk weights for the Basel II Mortgages asset class vary between 16% and 21% for credit risk and overseas are even lower.
- There are other offsetting factors however that require the larger institutions to hold more capital, which include targeting higher credit ratings and the requirements as Domestic and/or Global Systematically Important Banks.
- Various regulators take different approaches to alter the application of the IRB to allow for views of downturns eg APRA applies a 20% floor to the LGD and the Reserve Bank of New Zealand applies higher correlations for higher LVRs.

Economic Capital

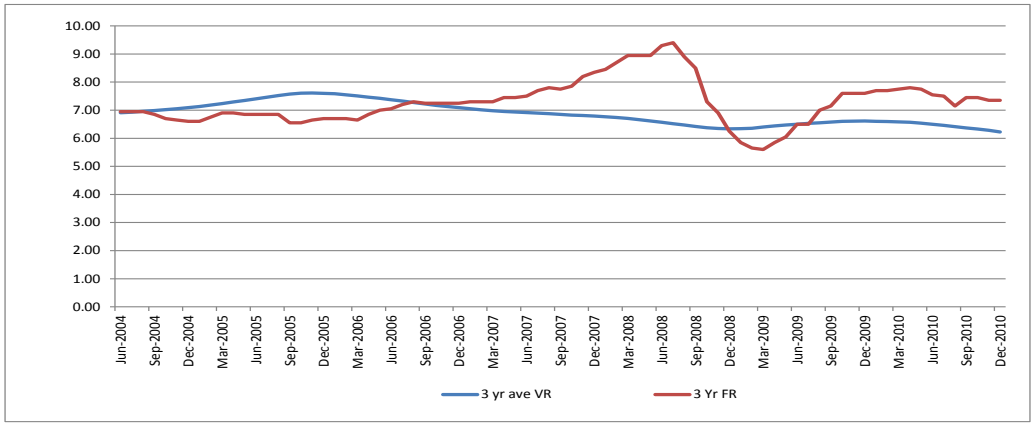
- Many institutions recognise the limitations of the regulatory capital calculations and supplement it with information provided by their own economic capital models. This can allow for the capital to recognise pockets of risk that are not picked up by the form of the regulatory capital eg regional concentration.

Pricing

- In Australia, the majority of mortgages are variable rate (typically around 85%). Fixed rates pick up in popularity when rates are rising, but generally only 15% of the market is fixed rate. This contrast with New Zealand where fixed rates make up the majority of lending, driven by the experience of many borrowers who have witnessed volatility of rates in the past.
- In Australia fixed rates are usually only offered for up to 5 years. Overseas, fixed rates are available for longer periods. In the US, fixed rates for 30 years are currently available.
- Fees are an important part of mortgage pricing, with fees being charged for setting up and in the cases of many legacy mortgages exit fees are still charged. Such fees are designed to recoup set up costs.
- In Australia, when fixed rates are broken, customers can be subjected to break- costs. These usually only occur when funding costs are lower at the time of breaking a loan compared to when the loan is taken out. No benefit is paid to customers in the reverse situation. In the US these are not charged, which is interesting given the large fixed terms.
- Brokers Receive Commissions for placing mortgages. Interestingly these mortgages do not tend to have higher pricing than proprietary mortgages.
- In Australia mortgages tend to be priced on a portfolio basis as opposed to business loans which are more individually based. However, pricing differences are applied in the form of discounts to better customers. Discounts tend to be higher the larger the loan.
- The trend to are more differential pricing approach is larger in overseas markets such as the UK where significant discounts are applied to customers with strong LVRs.

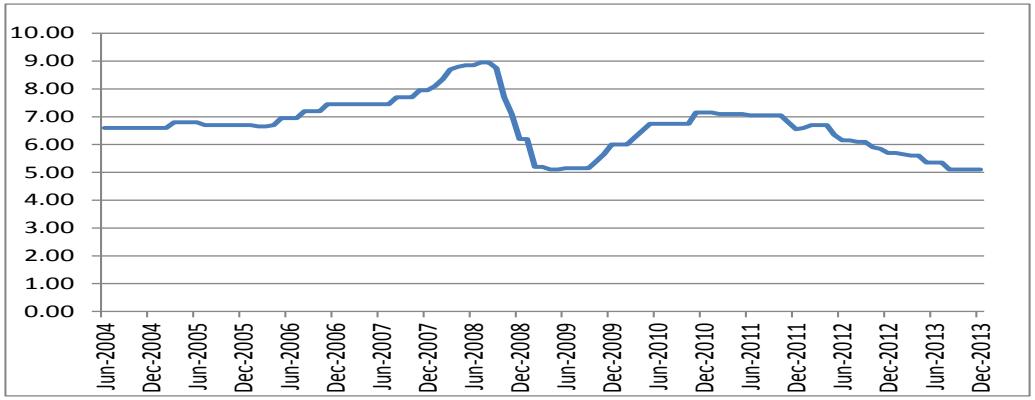
Case Study – Will I pay less in the long- run riding the variable rate cycle?

Well it depends – however, the evidence does seem to point to people doing better riding the variable rate in many cases. RBA data comparing the average variable rate over the next 3 years with a 3 year fixed rate shows that more often the person who rides the variable rate cycle does better.



Source: RBA Rates data

Variable rate customers who took out loans between June 2004 and June 2006 were subject to rising rates. It appears that for a number of reasons fixed rates did not allow for this increase. A lot of this is likely due to the shape of the yield curve being flatter than the rate of change of variable rates. The variable rates are quite volatile, as can be seen in the chart to the right. This hypothesis also supports the situation for next period, where markets a few years earlier wouldn't have predicted the large cuts in the RBA cash rates in late 2008.

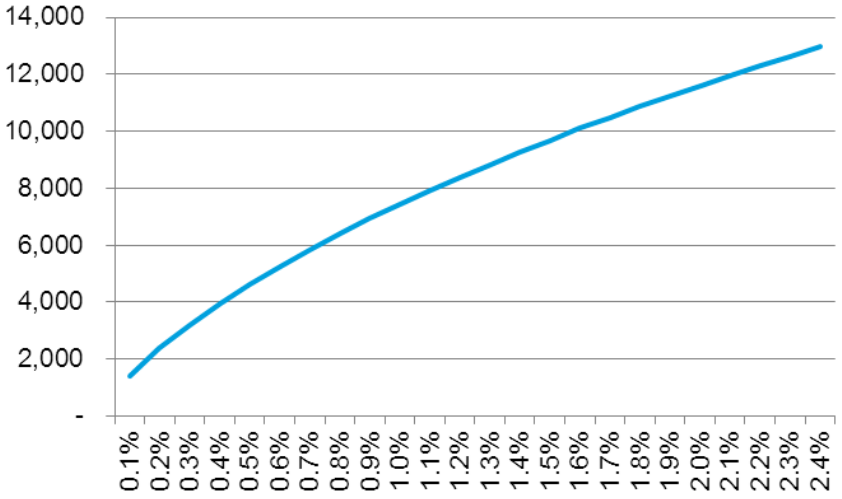


Source: RBA Rates data

The view that people will pay less over time riding the cycle is a driver towards the high incidence variable rates in Australia.

Profitability and Potential Pricing Implications in Future

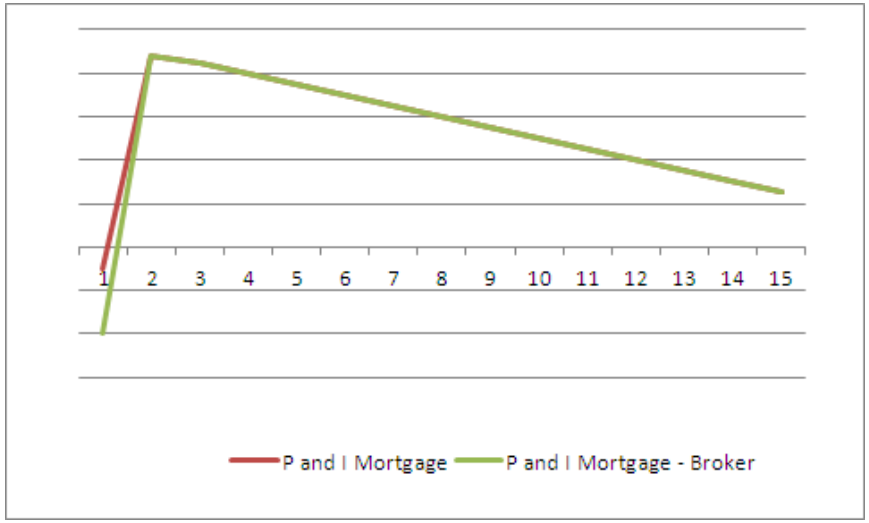
- Banks will typically view the profitability of a product or customer on a return on equity or return economic capital basis.
- Mortgages vary significantly in profitability. The pricing for this risk is difficult in the current market in Australia and this is generally managed by credit restrictions, where bad risks are screened out.
- The chart to the right shows the variation in credit risk capital that needs to be held for various probabilities of default (ie customer credit rating). This shows significant variation and hence profitability as measured by ROE,



What would this mean if a form of risk based pricing became possible in Australia? There may be difficulty in applying the full risk differential. But as seen above, there is an emerging appetite overseas to apply differential pricing to attract better risks.

Profitability and Potential Pricing Implications in Future

- A typical mortgage profit signature is shown below (for an amortising loan where the customer is paying both principal and interest).



- The most profitable time for the institution is when the loan is still higher and interest accordingly. Retaining the mortgages is critical in ensuring profitability (especially for broker mortgages where commission is a big hit up front) and it is important to understand the refinance rates and profile of customers. Typically the weighted average term of mortgages is much lower than the term.
- Considering this and the changes noted in prior sections, there is significant opportunity to be unlocked by applying modelling skills that are typically applied in insurance to the mortgages sector.

So What Next?

- Clearly there are emerging changes across the world.
- Regulators are concerned about housing bubbles and applying capital overlays to deal with this. Are these coming to Australia?
- Is there an opportunity to use tax policy to switch the bias towards home ownership vs investment as in US and Europe?
- Are there opportunities to innovate to provide more access to the housing market eg shared equity loans?
- Is there a need to understand profitability pockets better to be prepared for changes to pricing or more risk based pricing?
- Does product design need to evolve to consider cultural and religious implications?