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## Prudential Regulation & Competition: Never the Twain shall Meet?

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Pegasus Economics is a boutique economics and public policy consultancy firm that specialises in strategy and policy advice, economic analysis, trade practices, competition policy, regulatory instruments, accounting, financial management and organisation development.

This report has been commissioned by the Customer Owned Banking Association (COBA) to examine the interaction between competition and prudential regulation of the financial system.

The views and opinions expressed in this report are those of the author.

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### Key Messages

#### Nature of Risk in the Australian Financial System

- The high level of concentration within the Australian banking sector has exacerbated the problem of systemic risk within the Australian financial system.
- High levels of concentration within the Australian banking system also poses a risk to competition in the provision of financial services as warned by the final report of the Financial System Inquiry (Murray Report) (Murray, Davis, Dunn, Hewson, & McNamee, 2014a, p. 255).
- Another risk is the concentration risk in a financial institution's portfolio.
  - This risk arises from an excessive exposure to a single sector or to several highly correlated sectors (i.e. 'sector concentration') as well as from an excessive exposure to certain names (which is often referred to as 'name concentration' or 'granularity') (Düllmann & Masschelein, 2006).
- Investor owned banks have excessive incentives to take risk in the presence of limited liability for their shareholders and also for managers due to contracts that limit their downside and moral hazard due to nonobservable risk positions on the asset side (Vives, 2016).

#### Fragility in Banking and Regulation

- Banking is not like any other industry; it has important characteristics that make it heavily regulated and subject to public intervention (Vives, 2016).
- The most common form of preventative financial safety regulation is prudential regulation (Wallis, Beerworth, Carmichael, Harper, & Nicholls, 1997, p. 194).
  - Prudential regulation involves the imposition of prescriptive rules or standards governing the prudential behaviour of institutions making certain types of promises.
- Prudential regulation has been designed to provide the banking and financial systems with stability, to avoid the negative effects associated with failing institutions and systemic crises, as well as to protect small deposit holders/investors due to asymmetric information problems (Vives, 2016).
  - The Australian Prudential Regulation Authority (APRA) is responsible for prudential supervision of the Australian financial system.
- "Capital" is one of the most important concepts in banking (Elliott, 2010, p. 3). In its simplest form, capital represents the portion of a bank's assets which have no associated contractual commitment for repayment.
  - A bank's capital essentially represents its ability to withstand losses without becoming insolvent (Gorajek & Turner, 2010, p. 43).

#### Competition and Banking

- Competition is a process of rivalry between firms, each seeking to win customer's business. The primary objective of competition policy is to promote economic efficiency which in turn boosts and stimulates economic growth.
- For merchants the retail price of a product they charge is brought into some kind of relationship with cost through the competitive process (Adelman, 1957, p. 266). Through this process, competition forces prices down towards the cost of production which enhances allocative efficiency.
- Competition promotes productive efficiency by forcing firms to cut their costs in order not to lose sales to more efficient rivals (Kolasky & Dick, 2003, p. 208). If firms cannot maintain

productive efficiency with their rivals, they risk losing market share and possibly going out of business altogether.

- Out of concern for stability, competition policy has not always been applied in the banking system (Vives, 2016).
  - Competition may influence stability through the liability or asset side of the balance sheet of a financial intermediary.
  - However, competition is not responsible for the inherent fragility within the banking system since vulnerability to runs and panics can emerge independently of competitive tensions.
- Concern that competition in the provision of financial services could lead to a situation where risk is underpriced and in turn institutions could fail with systemic consequences has given rise to the so-called "competition-fragility" view of banking whereby more competition erodes market power, decreases profit margins, and results in reduced franchise value – the market value of the banks beyond their book values (Berger, Klapper, & Turk-Ariss, 2009, p. 100).
  - Under the "competition-fragility" view of banking the accretion of market power is seen as desirable from standpoint of preserving stability in the financial system.
- There is anecdotal evidence to suggest Australian financial regulators are not immune from such attitudes.

#### Market and Regulatory Failures in the Financial System

- The four systemically important major banks dominate the level of assets held by all categories of authorised deposit-taking institutions (ADIs) in Australia.
- An oligopoly is a market structure characterised by a few participants. It may include a "competitive fringe" of numerous smaller sellers who behave competitively because each is too small individually to affect prices or output (Areeda, Solow, & Hovenkamp, 2002, p. 9).
  - The provision of financial services in Australia that is dominated by the four major banks – could be characterised as an oligopoly that is supplemented by a competitive fringe that includes regional banks and customer owned banking institutions (mutual banks, credit unions and building societies).
- Implicit within APRA's legislative charter is the notion that competition is a secondary consideration along with the related concepts of efficiency, contestability and competitive neutrality as something that can be traded off against financial safety and the overarching objective of promoting financial stability.
  - The notion that APRA sees its role as engaging in a careful balancing act that seeks to preserve financial stability as an overarching objective while potentially trading off secondary objectives such as efficiency, competition, contestability and competitive neutrality raises the possibility it is susceptible to take the so-called "competition-fragility" view of banking in exercising its functions.
- As a consequence of the natural tendency of prudential regulators to prioritise stability over competition and long-term efficiency concerns, the Murray Report raised concerns that broader competition issues would *fall between the cracks* as regulators focus on their specific mandates for stability and consumer protection (Murray, Davis, Dunn, Hewson, & McNamee, 2014a, pp. 255-256).
- APRA downplayed as well as dismissed competition concerns during its implementation of Basel II and did not follow due process by completing the required competition assessment checklist in the Regulation Impact Statement it prepared for Basel II.

- Under Basel II, credit and operating risk weights determined under the standard approach were much higher than under the internal rating basis (IRB) approach used by the major banks.
- Higher risk weights means more capital is allocated to the lending, which leads to a higher cost of funds for ADIs using the standardised approach. The higher cost of funds for ADIs using the standard approach in turn influences their pricing of lending products, thus reducing their competitiveness with IRB banks for lending.
- The adoption of the IRB method also meant the major banks could engage in excessive leveraging and in turn increase their capacity for lending.
  - Based on the average risk weight of residential mortgage exposures for banks using the IRB method in June 2015 implies a leverage multiple of almost 74 times the amount of capital held, more than double the implied leverage for those using the standardised approach.
- It appears that APRA was well aware of competition concerns before the implementation of Basel II but chose to downplay their potential impact.
- The available evidence suggests the interaction of the Global Financial Crisis (GFC) combined with the implementation of Basel II provided a major fillip to the major banks to the detriment of other ADIs.
  - The percentage market share of interest income earned on housing loans by the major banks dramatically spiked as well as permanently increased in the second half of 2008 onwards.
- In its initial submission to the Murray Report inquiry, APRA (2014) was antithetic to the suggestion that differing approaches in risk weights under Basel II could be tilting the playing in favour of banks using the IRB approach and thereby stifling competition.
  - APRA dug its heels in to support the lack of competitive neutrality under Basel II.
- The Murray Report completely rejected APRA's position and recognised the IRB method had usurped competitive neutrality by tilting the playing field against financial institutions using the standardised approach.
- APRA dragged the chain on the competitive impact of the IRB approach until it was forced to act in response to Recommendation 2 of the Murray Report.
  - The Murray Report suggested the minimum risk weight on IRB banks for housing loans in the range of 25 and 30 per cent would be appropriate (Murray, Davis, Dunn, Hewson, & McNamee, 2014a, p. 65).
  - In July 2015 APRA (2015) announced that it would raise the risk weights on IRB banks to at least 25 per cent, at the lowest end of the range suggested by the Murray Report.
- Since the introduction of Basel II there has been a clear bias in favour of housing finance by the banking sector.
  - Housing loans as a percentage of total bank loans has risen from 57 per cent in 2007 to currently around 63 per cent.
  - The main impetus for this increase in housing finance has been the major banks, whose overall share of housing loans as a percentage to total bank loans has risen from 43 per cent in 2007 to currently around 52 per cent, while the market share of all other banks has contracted.
- The bias towards housing lending contained in Basel II has created a risk to the Australian economy through bank lending fuelling a potential asset price bubble.

- Since the Government foreshadowed the Financial System Inquiry in November 2013 with the release of draft terms of reference, APRA's recent conduct in relation to competition issues and competitive neutrality has improved.
  - Recent regulatory action by APRA appears to have slightly levelled the playing field and thus curtailed the market expansion of the major banks in various banking lending categories.
- Given the views expressed by APRA in its first submission to the Murray Report inquiry regarding smaller ADIs, it is doubtful any changes would have transpired had it not been for the additional public scrutiny APRA received by virtue of the Murray Report inquiry and subsequent recommendations.
  - Given that it is just not feasible to have an ongoing inquiry into the financial system, nor for an ongoing Productivity Commission inquiry into competition into the financial system for that matter, it is necessary to consider other policy options to force APRA to place a greater emphasis on competition in its deliberation over the prudential regulation of the financial system.

#### Competition Reform in Prudential Supervision

- According to Professor Xavier Vives (2016) of the University of Navarra, competition policy and prudential regulation need to be coordinated.
  - This has recently been achieved in the United Kingdom through legislative reforms to its prudential regulatory system.
- In March 2014, the Prudential Regulation Authority (PRA) of the Bank of England was given a statutory secondary competition objective (SCO) which states that:
  - When discharging its general functions in a way that advances its objectives, the PRA must so far as is reasonably possible act in a way which, as a secondary objective, facilitates effective competition in the markets for services provided by PRAauthorised persons in carrying on regulated activities.
- The SCO does not require the PRA to act in a manner that is incompatible with its primary objective, i.e. to promote the safety and soundness of the firms it regulates, focusing on avoiding and minimising adverse effects that they can have on the stability of the UK financial system (Bank of England Prudential Regulation Authority, 2016, p. 8).
  - The existence of the SCO means the PRA should consider, but is not necessarily required to adopt, those options which would deliver greater benefits to competition for a given objective of safety and soundness.
  - An added advantage of looking at prudential regulation through a competition lens is that is provides a check on whether prudential interventions are being applied proportionately, and to guard against the risks of unintended consequences.
- One solution to overcoming the "competition-fragility" view of banking that appears endemic to APRA to ensure that competition considerations are given due deliberation in prudential regulatory policy decisions is to give it a statutory secondary competition objective as has been adopted in the United Kingdom.
  - This in turn will help to ensure that competitive neutrality is maintained across all ADIs.

### 1. Introduction

This report has been commissioned by the Customer Owned Banking Association (COBA) to examine the interaction between competition and prudential regulation within the Australian financial system.

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## 2. Nature of risk in the Australian financial system

#### 2.1 What is risk?

Risk often appears ubiquitous in modern life (Haines, 2017, p. 181). From the moment we get up in the morning, drive or take public transportation to get to school or to work until we get back into our beds (and perhaps even afterwards), we are exposed to risks of different degrees (Damodaran, 2008, p. 3). At the more extreme end, we are inundated with news of terrorist attacks, environmental catastrophe and the emergence of diseases such as swine flu and Ebola, brought to us through a never-ending media stream (Haines, 2017, p. 181).

Given the ubiquity of risk in almost every human activity, it is surprising there is little consensus about the definition of risk (Damodaran, 2008, p. 5). Multiple definitions have evolved in multiple professions (Hubbard, 2009, p. 79). The definition of risk we will adopt here is:

A state of uncertainty where some of the possibilities involve a loss, injury, catastrophe, or other undesirable outcome (i.e., something bad could happen). (Hubbard, 2009, p. 80)

This definition is in accord with the common usage of the term that refers to any sort of uncertainty viewed from the standpoint of the unfavourable contingency (Knight, 1964, p. 233).

#### 2.2 The Nature of Risk in the Financial System

The financial system is a system of promises (Blundell-Wignall, Atkinson, & Roulet, 2014, p. 59). The basic elements of financial contracts are promises – promises to make payments at specified times, in specified amounts and in specified circumstances (Wallis, Beerworth, Carmichael, Harper, & Nicholls, 1997, p. 179). Financial arrangements which take the form of trust relationships also involve promises – promises to manage assets in the best interests of beneficiaries. Financial promises are among those products and services which incorporate risk, including the risk that the promise will not be kept.

The financial system provides the framework within which these promises are created and exchanged (Wallis, Beerworth, Carmichael, Harper, & Nicholls, 1997, p. 179). Unlike the markets for most other goods and services, the exchange of many financial contracts takes into account both the explicit contractual promise and the varying risk that the promise will not be kept. Identifying, allocating and pricing risk is a key role of the financial system.

Within the financial system the most basic risk is credit risk (Benetton, Eckley, Garbarino, Kirwin, & Latsi, 2017, p. 8). Credit risk is most simply defined as the potential that a bank borrower or counterparty will fail to meet its obligations in accordance with agreed terms (Basel Committee on Banking Supervision, 1999, p. 1). Credit risk is one of the main risks that financial intermediaries – such as banks – face (Rodgers, 2015, p. 1).

Credit risk is related to 'creditworthiness' and whether or not a person or institution making a financial promise can be trusted to keep it (Wallis, Beerworth, Carmichael, Harper, & Nicholls, 1997,

p. 181). Creditworthiness depends on the honesty, financial standing and operational systems of the promisor. For most banks, loans are the largest and most obvious source of credit risk (Basel Committee on Banking Supervision, 1999, p. 1).

Assessing the creditworthiness of borrowers is a specialised task which can consume considerable resources, time and expertise (Wallis, Beerworth, Carmichael, Harper, & Nicholls, 1997, p. 182). It can be undertaken within a financial institution or outsourced to specialist firms, such as a rating agencies. The difficulty of assessing credit risk is exacerbated by information asymmetry whereby the borrower may have a better understanding of the risk associated with their intended investment than does the lender.

The failure to meet a financial promise is quite common in any market economy and there is an inevitable presumption that some loans will fail from time to time (Wallis, Beerworth, Carmichael, Harper, & Nicholls, 1996, pp. 95-96). As credit risk materialises and borrowers fail to make repayments, banks are forced to recognise the reduction in current and future cash inflows this represents (Rodgers, 2015, p. 1). These 'credit losses' reduce a bank's profitability and can affect capital.

The mass failure to meet financial promises can give rise to systemic problems within the financial system. Indeed, credit risk has been the underlying driver of most systemic banking crises in advanced economies over recent decades (Rodgers, 2015, p. 1).

Systemic risk is the risk that the failure and distress of a significant part of the financial sector reduces the availability of credit which in turn may adversely affect the real economy (Acharya, Pedersen, Philippon, & Richardson, 2009). A systemic banking crisis is characterised by three elements: macroeconomic fragility; contagion; and a triggering event that acts as a coordinating device (Dewatripont & Freixas, 2011, p. 425).

Triggering events can come from:

- the public sector such as when a central bank unexpectedly and suddenly contracts liquidity;
- an external shock, such as a natural disaster or terrorist attack; or
- the financial markets themselves, such as when a large private financial firm fails (Taylor, 2009, p. 36).

If systemic risk materialises then it typically has a significant negative impact on the economy because of the central position of the financial system in a monetary economy (Vives, 2016). Hence, macroeconomic fragility refers to the likelihood that a systemic banking crisis could severely affect the whole economy (Taylor, 2009, p. 36).

Contagion risk refers to the risk that financial difficulties at one or more banks spill over to large number of banks or the financial system as a whole (Schoenmaker, 1996). Within a contagion, there is a mechanism for transmission from one infected entity to another (Kolb, 2011). According to Amil Dasgupta (2004) from the London School of Economics, there are two broad classes of transmission mechanisms in a rational economy:

- adverse information that precipitates a crisis at one institution also implies adverse information about another; and
- financial institutions are often linked to each other through direct portfolio or balance sheet connections.

In the context of systemic risk, large banks are of particular importance because their failure could pose significant risks to other financial institutions and the financial system as a whole (Moch, 2013, p. 2908). The Financial Stability Board (2013, p. 3) has defined systemically important financial institutions (SIFIs) as those of such size, market importance and interconnectedness that their distress or failure would cause significant dislocation in the financial system and adverse economic consequences.

The Basel Committee on Banking Supervision (2013, pp. 7-8) has adopted four criteria to identify SIFIs:

- Size the link between the size of an institution and the systemic impact that its distress or failure will bring about is generally accepted as a key factor in the assessment of its systemic importance. The size of the balance sheet and off-balance sheet exposures of the institution, the volume of transactions it engages in and processes, the volume of assets it warehouses or manages are all indicative of the extent to which its clients will be starved of funds, its business with other institutions will be disrupted and the magnitude of losses its counterparties may face.
- Substitutability some institutions lack immediate substitutes for the key role they play in the economy. They are systemically important not so much because other institutions are financially exposed to them but because other financial market participants rely on them for the continued provision of key specialised services. This would describe, for instance, institutions charged with providing systemically important infrastructure services, such as clearing, payment and settlement of trades, or custodial services. Limited substitutability is likely to be much more of a concern when the services provided are large in volume, or where they provide a key link in connections among financial institutions.
- Interconnectedness captures situations when financial distress in one institution materially
  raises the likelihood of financial distress in other institutions because of the network of
  contractual relations in which the institution operates. This chain effect operates on both
  sides of the balance sheet, i.e., there are inter-connections on the funding side as well as on
  the provision of funds. The larger the number of links (the larger the number of creditors
  and clients), the higher potential to cause spillovers onto either clients and/or creditors. In
  addition, the larger the size of the individual exposures (the "thickness" of the links), the
  greater the potential that these effects will be magnified. Moreover, the complexity of the
  connections within a network, as well as confidence factors when a core element of the
  system comes under stress, can add to the uncertainty of participants in situations of stress,
  further increasing the risk that distress may take systemic proportions. (Staff of the
  International Monetary Fund and the Bank for International Settlements, and the Secretariat
  of the Financial Stability Board, 2009, pp. 9-10)
- The systemic impact of a bank's distress or failure is expected to be positively related to its overall complexity that is, its business, structural and operational complexity. The more complex a bank is, the greater are the costs and time needed to resolve the bank.

The obvious question arises as to whether there are any SIFIs operating in Australia. The Australian Prudential Regulation Authority (APRA) (2013) has identified four SIFIs operating in Australia:

APRA's assessment methodology has regard to the Basel Committee's four key indicators of systemic importance: size, interconnectedness, substitutability and complexity. Based on its assessment of these indicators, APRA has determined that the following authorised deposit-taking institutions are [Domestic Systemically Important Banks]:

Australia and New Zealand Banking Corporation

Commonwealth Bank of Australia

National Australia Bank

Westpac Banking Corporation.

The four Australian SIFIs – the Australia and New Zealand Banking Corporation (ANZ), the Commonwealth Bank of Australia (CBA), National Australia Bank (NAB) and Westpac Banking Corporation (Westpac) – will be collectively referred to as the major banks.

A policy problem arises in the event of the failure of a SIFI and the subsequent contagion it envelops in that it creates large negative externalities or spillovers. Externalities occur when participants to an economic transaction do not necessarily bear all of the costs or reap all of the benefits from a transaction. If the impacts of externalities are not reflected in the costs incurred by the participants involved in the transaction, markets will tend to over-produce negative externalities. These include disruption to the ability of the financial system to provide credit and other essential financial services to households and businesses and in turn harm the real economy (Dudley, 2013).

The high level of concentration within the Australian banking sector has exacerbated the problem of systemic risk within the Australian financial system, as outlined in the final report of the 2014 Financial System Inquiry (Murray Report):

... the banking sector is concentrated, with the four major banks being the largest players in virtually all respects. This concentration, combined with the predominance of similar business models focused on housing lending, exacerbates the risk that a problem at one institution could cause issues for the sector and financial system as a whole. (Murray, Davis, Dunn, Hewson, & McNamee, 2014a, p. 34)

In turn, the high level of concentration within the Australian banking system poses a risk to competition in the provision of financial services as warned by the Murray Report (Murray, Davis, Dunn, Hewson, & McNamee, 2014a, p. 255).

Operational risk is the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events (Basel Committee on Banking Supervision, 2006, p. 144). Operational risk is essentially an amalgamation of many disparate risks (Holmes, 2003). While there have been many attempts to define it positively, its primary definition remains a negative one – losses that aren't related to either credit or market events. Such events include fraud, settlement errors, accounting and modelling mistakes, lawsuits, natural disasters, information technology breakdowns, and many other types of loss.

In the provision of financial services, market risk is defined as the risk of losses in on and off-balancesheet positions arising from movements in market prices (Basel Committee on Banking Supervision, 2006, p. 157). For a bank the risks subject to this requirement are:

- the risks pertaining to interest rate related instruments and equities in the trading book; and
- foreign exchange risk and commodities risk throughout the bank.

Another risk is the concentration risk in a financial institution's portfolio. This risk arises from an excessive exposure to a single sector or to several highly correlated sectors (i.e. 'sector concentration') as well as from an excessive exposure to certain names (which is often referred to as 'name concentration' or 'granularity') (Düllmann & Masschelein, 2006). Name concentration happens when the idiosyncratic risk cannot be perfectly diversified due to large (relative to the size of the portfolio) exposures to individual borrowers (Grippa & Gornicka, 2016, p. 4). Idiosyncratic risk represents the effects of risks that are particular to individual borrowers (Basel Committee on Banking Supervision, 2006a, p. 4). Sector concentration emerges when the portfolio is not perfectly diversified across sectoral factors, corresponding to systematic components of risk (Grippa & Gornicka, 2016, p. 4). According to the Basel Committee on Banking Supervision (2006a, p. 3):

Historical experience shows that concentration of credit risk in asset portfolios has been one of the major causes of bank distress. This is true both for individual institutions as well as banking systems at large.

Banks have excessive incentives to take risk in the presence of limited liability for their shareholders and also for managers due to contracts that limit their downside and moral hazard due to nonobservable risk positions on the asset side (Vives, 2016).

According to the Governor of the Reserve Bank of Australia (RBA), Dr Philip Lowe (2008, p. 88):

It is all too clear that most episodes of financial disturbances have their roots in the build-up of risk in good times.

In turn, when things turn bad in a downturn, the risk built up in the good times quickly crystallises (Lowe, 2008, p. 88).

## 3. Fragility in Banking and Regulation

#### 3.1 Fragility in Banking

Banking is not like any other industry; it has important characteristics that make it heavily regulated and subject to public intervention (Vives, 2016).

Banks create liquidity that leaves them vulnerable to runs (Vives, 2010, p. 12).<sup>1</sup> Banks protect entrepreneurs from the liquidity needs of investors/depositors. On the asset side, banks specialise in assessing the relative viability and profitability of projects put forward by entrepreneurs and, based on their information production on these projects, they grant loans to the entrepreneurs (Carletti & Hartmann, 2002, p. 8). On the liability side, banks are special in that they rely to a significant extent on (many small) short-term demandable deposits, which they pool and then invest in long-term loans provided to entrepreneurs.

There is an underlying fragility in banking in that there is a coordination problem with investors, who may decide to call-back their short-term deposits and make a bank that is solvent fail (Vives, 2010, p. 13). A solvent bank may be victim of purely speculative panic, with depositors withdrawing their funds, and the bank being forced to quickly liquidate assets and incurring a fire sale penalty (Vives,

<sup>&</sup>lt;sup>1</sup> Liquidity refers to how easily it is to turn assets into cash.

2016). The root of the problem is the dependence of banks on short-term debt and the maturity mismatch this entails.

Traditional bank runs involve massive withdrawals by individual depositors queuing at the door of banks (Vives, 2016). In the early 1990s in Australia, there were a number of runs on some financial institutions, including a couple of banks (Bank of Melbourne and Metway Bank) (Gizycki & Lowe, 2000, p. 183). In general, these runs were stopped by public sector intervention.

In turn a run on a bank could lead to contagion and a systemic problem with the financial system. The Organisation for Economic Co-operation and Development (OECD) (2011, p. 20) has summed up the problem in the following terms:

.. the financial system can become unstable, largely because banks, funded in large part by withdrawal-on-demand liabilities and holding longer term risky assets, are themselves inherently unstable, and that instability can generate sizeable negative spill-over effects.

The social cost of a bank failure is perceived to be large (Vives, 2016). The social cost includes the costs of financial distress and economic distress. Financial distress is borne by the bank's creditors and shareholders. The failure of a bank has adverse consequences for non-financial firms because individual bank-firm relationships are valuable as a source of capital to the private sector. A crisis that leads to a contraction of bank capital may result in a credit crunch, with severe disruption to the entire economy.

#### 3.2 Prudential Regulation of Banking

#### 3.2.1 Market failures in banking

The basic building block of microeconomics is the theory of perfect competition which is essentially used as a benchmark by which to assess 'real world' outcomes. The underlying assumptions of perfect competition are:

- Lots of buyers and sellers.
- The product is homogenous. That is, consumers cannot distinguish between the products produced by different firms.
- Perfect information. All firms are fully informed about their production possibilities and consumers are fully aware of their alternatives.
- There are no entry or exit barriers.

Under perfect competition, every participant is a *price taker* as they can sell or buy as much or as little as they want without affecting the price.

The polar opposite of perfect competition is monopoly where there is only one firm supplying the entire market. A monopolist is *price maker* and the basic result under monopoly is production is cutback and the price is raised by the monopolist in order to maximise their profit. A monopoly is objectionable on economic grounds because it reduces output and increases price, in turn creating a deadweight or efficiency loss. The outcome under monopoly is that an inefficient level of output is produced because some of the consumers who would have purchased the product in a competitive market do not choose to do so at the higher price, which is referred to as a loss of allocative efficiency. Monopoly pricing also results in a wealth transfer from consumers to the seller of a product (Depoorter, 1999, p. 501). The power to behave as a price maker is referred to as monopoly power as well as market power.

The economic and legal literature has provided several different definitions of market power. One commonly used definition is that provided by American economist Abe Lerner which is the ability of a firm to push its price above marginal cost (Lerner, 1934). However, the problem with the Lerner definition of market power is that it is often difficult to measure marginal cost in the real world.

Another definition of market power comes from prominent American competition law experts Carl Kaysen and Donald Turner (1959, p. 75):

A firm possesses market power when it can behave persistently in a manner different from the behaviour that a competitive market would enforce on a firm facing otherwise similar cost and demand conditions.

This definition has been used by the Australian Competition and Consumer Commission (2002, p. 64) and in a prominent Australian legal judgement.<sup>2</sup> Another definition of market power provided by prominent American competition law experts William Landes and Richard Posner (1981, p. 937) is "the ability of a firm to raise price above the competitive level without losing so many sales so rapidly that the price increase is unprofitable and must be rescinded".

Banking and financial markets intensively display an entire array of classical market failures that violate the conditions of perfect competition (Vives, 2016). There is asymmetric information both between bank and customer and between firm and bank, raising issues in relation to moral hazard and adverse selection generating incentives for excessive risk taking.<sup>3</sup>

Some degree of market power is created in banking markets through the presence of switching costs (Vives, 2016). Switching costs are the additional costs over the market price that consumers incur if they elect to abandon their investment and switch to another product (Goldfine & Vorrasi, 2004, p. 213). The costs of switching increase when consumers are unable to recover the useful life of their investment in a product if they choose to shift to another brand. Switching costs arise when consumers value forms of compatibility that require otherwise separate purchases to be made from the same firm (Farrell & Klemperer, 2007, p. 1971). Large switching costs lock in a consumer once they have made an initial product purchase, so they are effectively buying a series of goods and services (Farrell & Klemperer, 2007, p. 1972). In banking, consumers face switching costs if they decide to switch from one bank to another and the costs incurred may be associated with the physical change of accounts and regular bill payments.

Banking markets also suffer from externalities relating to fragility with coordination problems and contagion (Vives, 2016).

The general case for market intervention and regulation is predicated on market failure. Traditionally, the function of government has been seen as a benign corrector of the market economy when it falters (Tollison, 1985, p. 906). The multiple market failures prevalent in banking markets has led to government intervention through regulation to try to ameliorate some of the adverse effects. This has been done through financial safety regulation that seeks to alter the risks that would otherwise be attached to financial promises through providing a degree of assurance to promisees (Wallis, Beerworth, Carmichael, Harper, & Nicholls, 1997, p. 192).

<sup>&</sup>lt;sup>2</sup> Cited with approval by Dawson J in *Queensland Wire Industries Proprietary Limited v The Broken Hill Proprietary Company Ltd and Anor* (1989) 167 CLR 177 at 200

<sup>&</sup>lt;sup>3</sup> Further information on asymmetric information, moral hazard and adverse selection is provided in the Appendix to this report.

The most common form of preventative financial safety regulation is prudential regulation (Wallis, Beerworth, Carmichael, Harper, & Nicholls, 1997, p. 194). Prudential regulation involves the imposition of prescriptive rules or standards governing the prudential behaviour of institutions making certain types of promises. Prudential regulation in part substitutes the judgment of regulators for that of regulated financial institutions and their customers.

#### 3.2.2 Addressing market failure – Prudential Regulation

The basic underlying objective of prudential regulation is to increase the probability of a promise being honoured, and since this relates to the creditworthiness of the promiser, it follows that the focus of regulation must be on the promising entity (Wallis, Beerworth, Carmichael, Harper, & Nicholls, 1997, p. 303). Institutions offering payment services or conducting the general business of deposit taking are clear candidates for prudential regulation (Wallis, Beerworth, Carmichael, Harper, & Nicholls, 1997, p. 304). The nature of deposit taking, particularly the transformation of illiquid assets into liquid liabilities, the information asymmetry for depositors and the fact that institutional failure has the potential to cause systemic instability, warrants intense prudential regulation.

Prudential regulation has been designed to provide the banking and financial systems with stability, to avoid the negative effects associated with failing institutions and systemic crises, as well as to protect small deposit holders/investors due to asymmetric information problems (Vives, 2016).

The Australian Prudential Regulation Authority (APRA) is responsible for prudential supervision of the Australian financial system. APRA is an integrated prudential regulator responsible for deposittaking institutions (banks, building societies and credit unions) as well as friendly societies, life and general insurance companies and superannuation funds.

Section 8 of the *Australian Prudential Regulation Authority Act 1998* (Cwlth) sets out the legislative purpose for establishing APRA. Section 8 makes clear that APRA's primary purpose in exercising its prudential powers is to protect depositors and other members of the community holding financial promises issued by regulated financial institutions (Australian Prudential Regulation Authority, 2014, p. 15).

Deposit-taking institutions are regulated by APRA under a single licencing regime and are all covered by the same 'depositor protection' provisions of the *Banking Act 1959* (Cwlth). This legislation gives APRA the power to act in the interests of depositors, including revoking licences, making prudential standards or issuing enforceable directions, to appoint an investigator or statutory manager to an authorised deposit-taking institution (ADI) in difficulty or take direct control of the institution itself. If the difficulties prove intractable, APRA can apply to the courts to wind-up an ADI.

Under the 'depositor protection' provisions of the *Banking Act 1959*, depositors have first claim to the assets of an ADI in a wind-up. To support depositors' interests, all ADIs are required to hold assets in Australia at least equal to their deposit liabilities in Australia. Depositors are also protected through the Financial Claims Scheme (FCS) where eligible deposits are guaranteed up to a limit of \$250,000 per customer.

#### 3.2.3 Existing regulatory framework

"Capital" is one of the most important concepts in banking (Elliott, 2010, p. 3). In its simplest form, capital represents the portion of a bank's assets which have no associated contractual commitment for repayment. It is, therefore, available as a cushion in case the value of the bank's assets declines or its liabilities rise. Banks attempt to hold the minimum level of capital that supplies adequate protection, since capital is expensive, but all parties recognise the need for such a cushion even

when they debate the right amount or form. A bank's capital essentially represents its ability to withstand losses without becoming insolvent (Gorajek & Turner, 2010, p. 43).

The Basel Committee on Banking Supervision (2016) (Basel Committee) which is headquartered at the Bank for International Settlements in Basel, was established to enhance financial stability by improving the quality of banking supervision worldwide, and to serve as a forum for regular cooperation between its member countries on banking supervisory matters.

In 1988 the Basel Capital Accord (now referred to as Basel I) was approved by the Basel Committee and set capital requirements for banks in proportion to risk metrics referred to as 'risk weights'. Initially these risk weights were set by regulators (Benetton, Eckley, Garbarino, Kirwin, & Latsi, 2017, p. 2). According to Basel I:

Two fundamental objectives lie at the heart of the Committee's work on regulatory convergence. These are, firstly, that the new framework should serve to strengthen the soundness and stability of the international banking system; and secondly that the **framework should be in fair and have a high degree of consistency in its application to banks in different countries with a view to diminishing an existing source of competitive inequality among international banks**. (Basel Committee on Banking Supervision, 1988)<sup>4</sup>

Basel I stipulated that banks should hold minimum capital in the amount of eight per cent of their risk-weighted assets (Düllmann & Masschelein, 2006). Under Basel I, loans secured by residential mortgages were assigned a risk weight of 50 per cent, whereas all other loans were given a risk weight of 100 per cent (Terry, 2009, p. 26).

Basel I gave banks the ability to control the amount of capital they required by shifting between assets with different weights on balance sheet, and by securitising assets and shifting them off balance sheet (Blundell-Wignall, Atkinson, & Roulet, 2014, p. 53). Banks quickly accumulated capital well in excess of the regulatory minimum, and capital requirements, in effect, had no constraining impact on banks' risk taking.

To link capital more closely to banks' own risk estimates, the Basel II agreement in 2004 made provision for some banks to use their internal models to calculate risk weights (Benetton, Eckley, Garbarino, Kirwin, & Latsi, 2017, p. 2). Basel III was agreed in 2010 amid growing concerns about the operation of risk weights.

The core of the Basel rules on capital reflects a belief that the necessary level of capital depends primarily on the riskiness of a bank's assets (Elliott, 2010, p. 4). Since capital exists to protect against risk, more capital is required to be held when greater risks are being taken. The focus is on the asset side because liabilities are generally known with great precision, since a deposit must be repaid based on specific contractual terms. Unlike bank liabilities, bank assets can go down, or occasionally up, in value. In particular, bank loans may not be repaid and securities may default or may need to be sold at a time when their market value has declined.

The Basel Capital Accord has been applied to Australian banks since 1988 (Australian Prudential Regulation Authority, 2014, p. 39). APRA implemented the Basel II agreement in 2008 and has been progressively implementing the Basel III agreement since 2013.

<sup>&</sup>lt;sup>4</sup> Emphasis added by the author of this report.

There are three 'Pillars' of the Basel II framework: Pillar 1 sets out minimum capital requirements to address credit, operational and market risk; Pillar 2 outlines the supervisory review process (including supervisory discretion to set higher capital requirements where necessary); and Pillar 3 seeks to impose market discipline through disclosure requirements.

An Australian bank's regulatory capital is the sum of its 'Tier 1' and 'Tier 2' capital, net of all specified 'deductions' (Gorajek & Turner, 2010, p. 43). Tier 1 capital consists of the funding sources to which a bank can most freely allocate losses without triggering bankruptcy. This includes, for example, ordinary shares and retained earnings, which make up most of the Tier 1 capital held by Australian banks. Tier 2 capital is made up of funding sources that rank below a bank's depositors and other senior creditors, but in many cases are only effective at absorbing losses when a bank is being wound up (Gorajek & Turner, 2010, p. 44). In this way, Tier 2 capital provides depositors with an additional layer of loss protection after a bank's Tier 1 capital is exhausted. Both Tier 1 and Tier 2 capital are measured net of deductions, which are adjustments for factors that lessen the loss absorption capabilities of capital.

For capital adequacy purposes, Australian banks are required to quantify their credit, market and operational risks (Gorajek & Turner, 2010, p. 44). The most significant risk of these is typically credit risk. Credit risk is measured as the risk-weighted sum of a bank's individual credit exposures, which gives rise to a metric called 'risk-weighted assets'. APRA requires all locally incorporated banks to hold total capital of at least 8 per cent of their risk-weighted assets (Gorajek & Turner, 2010, p. 46).

Under Basel II agreement, there were three methods for calculating minimum capital requirements:

- 1. the standardised (externally set) risk weights;
- 2. foundation internal ratings basis (FIRB); and
- 3. advanced internal ratings basis (AIRB) (Terry, 2009, p. 27).

Under the standardised approach, the risk weights are prescribed by APRA and are generally based on directly observable characteristics of each exposure (Gorajek & Turner, 2010, p. 44). For example, if a residential mortgage has a loan-to-valuation ratio of 70 per cent, full documentation and no mortgage insurance, APRA specifies a risk weight of 35 per cent. The value of the loans in each category is multiplied by the prescribed risk weight and the product is multiplied by 8 per cent to determine the minimum capital requirement (Terry, 2009, p. 27). Corporate exposure risk weights are based on external credit ratings and are generally higher than for residential mortgages because the exposures are usually riskier (Gorajek & Turner, 2010, p. 45).

APRA (2007, p. 3) has categorised the FIRB and AIRB as advanced approaches which rely on an ADI's own internal risk-assessment and measurement methodologies. The FIRB uses internal estimates of the probability of loan defaults (PD) and feeds this into a more complex probability-based formula (that relies on the supervisor's estimates of the other risk components) to determine the risk weight to be used to calculate the amount of capital to be held against the loan (Terry, 2009, p. 28). The AIRB uses internal estimates of loss given default (LGD) and the other risk components (effective maturity and the exposure at default) in a prescribed formula to determine the risk weight and hence the capital charge against a loan.

Three banks, CBA, Westpac and ANZ, were given approval to use the AIRB from January 2008 while NAB was given permission to use the FIRB (Terry, 2009, p. 29). NAB (2008) subsequently received approval to use AIRB as from 1 July 2008. Macquarie Bank has also received accreditation for FIRB.

### 4. Competition and Banking

#### 4.1 Benefits of Competition

According to Professor Xavier Vives (2016) of the University of Navarra:

The imperfections of banking markets do not imply that the benefits of competition for static and dynamic efficiency, well established since Adam Smith, do not apply to banking.

Competition is a process of rivalry between firms, each seeking to win customer's business. The primary objective of competition policy is to promote economic efficiency which in turn boosts and stimulates economic growth. According to the 1993 independent committee of inquiry into National Competition Policy (Hilmer Report):

Competition policy is not about the pursuit of competition per se. Rather, it seeks to facilitate effective competition to promote efficiency and economic growth while accommodating situations where competition does not achieve efficiency or conflicts with other social objectives. (Hilmer, Rayner, & Taperell, 1993, p. xvi)

According to the recent Competition Policy Review (Harper Report):

Competition policy is aimed at improving the economic welfare of Australians. It is about meeting their needs and preferences by making markets work properly. (Harper, Anderson, McCluskey, & O'Bryan, 2015, p. 7)

For merchants the retail price of a product they charge is brought into some kind of relationship with cost through the competitive process (Adelman, 1957, p. 266). Through this process, competition forces prices down towards the cost of production which enhances allocative efficiency.

Competition also promotes productive efficiency by forcing firms to cut their costs in order not to lose sales to more efficient rivals (Kolasky & Dick, 2003, p. 208).<sup>5</sup>. If firms cannot maintain productive efficiency with their rivals, they risk losing market share and possibly going out of business altogether. It has long been recognised in the economic literature that competition plays an important role in reducing managerial slack. Adam Smith (1961) recognised as far back as 1776 that "monopoly ... is a great enemy to good management". Prominent British economist Sir John Hicks (1935, p. 8) opined "[t]he best of all monopoly profits is a quiet life."

Harvey Leibenstein (1966; 1973) believed that a lack of competitive pressures may lead firms with monopoly power to neglect the pursuit of productive efficiency and tolerate what he described as x-inefficiency. X-inefficiency represents the gap between actual and minimum possible production costs. While x-inefficiency can affect both monopolists and firms operating in competitive markets alike, it will impose a far greater cost burden on a monopolist as they will have no discipline imposed upon them externally through competition with rival firms. According to Professor Vives (2016):

The importance of X-inefficiency in explaining deadweight losses in banking does not seem to be less than in other industries...

<sup>&</sup>lt;sup>5</sup> Productive efficiency, also referred to as technical efficiency, means that production takes place using the least costly amount of resources for a given level of technology.

Indeed, there is a vast literature suggesting the deregulation of the banking sector across the world has had an impact on reducing X-inefficiency (Vives, 2016).

Allocative along with productive efficiency are static concepts of efficiency. Static efficiency refers to holding society's technological know-how constant (Kolasky & Dick, 2003, p. 247). On the other hand, dynamic efficiency refers to the efficiency benefits achieved through research, development, and innovation, including the diffusion of technology to produce new products and processes (Fox, 2008, p. 78). Dynamic efficiency brings benefits to consumers either through the introduction of improved new products that buyers value more highly ("product innovations"), or through the use of new, lower cost ways of producing existing products ("process innovations") (Commerce Commission, 2003, p. X).

Competition also provides a spur for dynamic efficiency. Firms undertake innovation through research and development (R&D) to improve their competitiveness. R&D can help a firm lower its costs of production and/or produce better products giving it a competitive advantage over its rivals in the market place. The benefits which firms seek to capture through R&D, namely lower costs, higher productivity and better products, if realised, will ultimately generate higher rates of economic growth.

#### According to Professor Vives (2016):

Competition policy should be enforced in the banking sector. This is how it should be to guarantee competitive financial input for the economy and to foster growth. Competition nurtures efficiency and innovation, and delivers consumer welfare when regulation is appropriate.

#### 4.2 Tension between competition and prudential regulation

Out of concern for stability, competition policy has not always been applied in the banking system (Vives, 2016). Competition may influence stability through the liability or asset side of the balance sheet of a financial intermediary. On the liability side, competition may increase instability by exacerbating the coordination problem of depositors/investors, and consequently fostering runs and/or panics, which may become systemic. However, competition is not responsible for the inherent fragility within the banking system since vulnerability to runs and panics can emerge independently of competitive tensions.

On either the liability or asset sides, competition may increase the incentives to take risk and correspondingly the probability of failure of banks (Vives, 2016). Competition can lead to a riskier bank portfolio and higher probability of failure due to the adverse selection problem. Furthermore, increased rivalry may reduce incentives to screen and monitor borrowers.

Concern that competition in the provision of financial services could lead to a situation where risk is underpriced and in turn institutions could fail with systemic consequences has given rise to the socalled "competition-fragility" view of banking whereby more competition erodes market power, decreases profit margins, and results in reduced franchise value – the market value of the banks beyond their book values (Berger, Klapper, & Turk-Ariss, 2009, p. 100). Competition in turn encourages banks to take on more risk in order to increase returns.

Under the "competition-fragility" view of banking the accretion of market power is seen as desirable from standpoint of preserving stability in the financial system. As banks gain market power, their franchise value increases (Berger, Klapper, & Turk-Ariss, 2009, p. 103). Because franchise value represents intangible capital that will only be captured if the bank remains in business, such banks

face high opportunity costs of going bankrupt and hence they become more reluctant to engage in risky activities. They tend to behave prudently by holding more equity capital, by holding less risky portfolios, and/or by originating a smaller loan portfolio.

RBA Assistant Governor Michele Bullock (2017) has recently summarised the "competition-fragility" view of banking in the following terms:

One view is that a concentrated banking system promotes financial stability in a number of ways. It is sometimes argued, for example, that if a concentrated banking system implies less competition, the large banks will be more profitable and able to generate capital organically, increasing their resilience. This argument therefore suggests that a concentrated banking system will promote financial stability. Having a few large banks might also promote financial stability in other ways. Larger banks might be more diversified in the risks they take on and have more sophisticated risk management systems. It could also be argued that it is easier for our prudential regulator, the Australian Prudential Regulation Authority (APRA), to supervise and regulate a small number of large banks.

Empirical support for the "competition-fragility" view of banking originally came from Michael Keeley (1990) who found that increased competition and deregulation in the United States during the 1980s reduced monopoly rents and resulted in a surge of bank failures.<sup>6</sup> A large academic literature provides support to the "competition-fragility" nexus (Berger, Klapper, & Turk-Ariss, 2009, p. 102). For example, Thorsten Beck and Asli Demirguc-Kunt from the World Bank and Ross Levine from Brown University (2006) find that crises are less likely in economies with more concentrated banking systems.

According to Professor John Boyd of University of Minnesota and Gianni De Nicolo of the IMF (2005, pp. 1332-1333), the "competition-fragility" view of banking has had enormous influence over the thinking of financial regulators and central bankers:

We believe that the body of research ... has had a material impact on bank regulators and central bankers. Specifically, we believe there is a widely held view among policy makers that reduced competition in banking is not necessarily bad because, other effects not withstanding, reduced competition results in a more stable banking industry...

For obvious reasons, policy spokespersons are loath to publicly state that they encourage monopoly rent earning by banks so as to stabilise that sector. However, there is a historical track record of events that is strongly suggestive... There is also much suggestive evidence based on the treatment of banks in the many banking crises around the world. Local and international agencies have pursued aggressive merger policies in almost all crisis situations, even in bank markets that were already highly concentrated by any standard.

There is anecdotal evidence to suggest Australian financial regulators are not immune from such attitudes, with the then Chairman of the Australian Competition and Consumer Commission (ACCC) Graeme Samuel (2009) commenting on the ACCC's decision not to oppose CBA's acquisition of BankWest:

<sup>&</sup>lt;sup>6</sup> A monopoly rent is the excess distribution earned by any factor of production in a production process above the amount required to draw the factor into the process or to sustain the current use of the factor.

With the advice that we had at the time, remember this was almost at the peak of the near global panic in terms of the banking system and the financial system worldwide towards the end of last year. This advice that we had at the time from both APRA and the Reserve Bank, I think, gave us absolutely no choice, we had to approve that merger. Now if we had that over again, I'm not sure that we would have any different of – or any different result based on the advice that we received from APRA and the Reserve Bank.

In these comments, Mr Samuel appears to be insinuating the ACCC subverted its usual competition assessment process in the merger of BankWest with the CBA at the behest of APRA and the RBA.

However, the "competition-fragility" view of banking that purports that the exercise of market power leads to more stability in the financial system has not gone unchallenged. According to Tommaso Padoa-Schioppa (2001, p. 16), a former executive board member of the European Central Bank:

## ... if banks were strengthened by the gymnastics of competition, the banking system would be stronger and more resilient to shocks.

Professor Franklin Allen of the University of Pennsylvania and Professor Douglas Gale of New York University (2004, p. 455) have suggested that subordination of competition policy to financial stability may be unwise for a number of reasons. First, the extent to which there is a negative tradeoff between competition and financial stability may be questioned in that while the costs of financial crises are high, it does not follow that it is necessary to reduce competition to avoid those costs. Second, the wide range of estimates of the efficiency costs from concentration is at least consistent with a high efficiency gain from greater competition. Third, the costs of financial crises occur infrequently, perhaps every decade or few decades, whereas the inefficiency cost from a lack of competition are borne continuously.

Professor Franklin Allen, Professor Elena Carletti of the European University Institute and Professor Robert Marquez of the University of California at Davis (2011) have argued that when credit markets are competitive, market discipline coming from the asset side induces banks to hold positive levels of capital as a way to commit to monitor and attract borrowers.

More recent studies have provided empirical support for the benefits of competition in improving stability in the financial system. Professor Klaus Schaeck of Bangor University and Martin Cihak of the International Monetary Fund (2012) have found that competition goes hand in hand with higher capital ratios based on a study of 2,600 banks across 10 European countries. This led Schaeck and Cihak (2012, p. 861) to draw the following conclusions:

We conclude that the most important contribution of this study is the evidence supporting the notion that competition incentivises banks to increase capital holdings...

In light of the recent crisis, these results have important implications for policymaking, as they suggest that a critical re-examination of the idea that restricting competition (e.g., via activity and entry restrictions) is a way to achieve sounder banking systems.

In a follow-up study, Schaeck and Cihak (2013) investigated the relationship between competition, productive efficiency and stability and tested whether improvements in productive efficiency is the mechanism through which competition enhances stability in the financial system. Schaeck and Cihak found that competition robustly improves stability via the channel of productive efficiency.

Assistant Professor Deniz Anginer of Virginia Tech and Asli Demirguc-Kunt and Min Zhu from the World Bank (2014) investigated the relationship between bank competition and systemic stability and found a robust positive relationship between the two. They found that greater competition encourages banks to take on more diversified risks, making the banking system less fragile to shocks. Anginer, Demirguc-Kunt, and Zhu (2014, p. 21) conclude:

Our paper has important policy implications. Unlike most of the earlier literature, our findings suggest that market power is associated with greater systemic fragility, which suggests the importance of ensuring a competitive environment in banking.

A recent study by Dr Aurélien Leroy of the University of Nantes and Associate Professor Yannick Lucotte of the Paris Business School (2017) on the existence of a trade-off between competition and stability among European listed banks has found that while competition encourages bank risk-taking and thus increases individual bank fragility, that competition also enhances financial stability by decreasing systemic risk. Leroy and Lucotte (2017, p. 210) thus conclude:

... our results suggest that pro-competitive policy should be undertaken in the European banking system to maintain macro-financial stability.

#### 5. Market and Regulatory Failures in the Financial System

#### 5.1 Australian Banking system as an Oligopoly

#### According to the Murray Report:

Some sectors of the Australian financial system are **concentrated**. In particular, the banking sector is concentrated, with the four major banks being the largest players in many aspects of the financial system and having significant market influence (Murray, Davis, Dunn, Hewson, & McNamee, 2014a, p. 3).<sup>7</sup>

The four systemically important major banks dominate the level of assets held by all categories of ADIs in Australia, as outlined in Figure 1 below.

<sup>&</sup>lt;sup>7</sup> Emphasis is in the original document.





Source: APRA (2017a)

An oligopoly is a market structure characterised by a few participants. It may include a "competitive fringe" of numerous smaller sellers who behave competitively because each is too small individually to affect prices or output (Areeda, Solow, & Hovenkamp, 2002, p. 9). The provision of financial services in Australia – that is dominated by the four major banks – could be characterised as an oligopoly that is supplemented by a competitive fringe that includes regional banks and customer owned banking institutions (mutual banks, credit unions and building societies).

Within economic theory, there is no single determinate solution to the problem of oligopoly with many possible outcomes being postulated. The range of solutions runs the full gamut of possible outcomes from that reminiscent of perfect competition to that of a monopoly. The reason there is no single unique solution to the problem posed by oligopoly is because of the interdependency of market participants.

A number of theories of oligopoly predict that once firms recognise their interdependency, their most rational course of action would be to behave in a manner reminiscent of a monopoly. The outcome from these models has been described as tacit collusion, also known as conscious parallelism. While firms are not part of a cartel arrangement that are seeking to formally collude by cutting back on production and raising prices, the firms are able to coordinate their conduct so that an outcome similar to cartel or monopoly is achieved.<sup>8</sup>

<sup>&</sup>lt;sup>8</sup> A cartel is where there is a formal agreement amongst competing firms to collude to fix prices or cutback on production. The objective of a cartel is organise firms so they behave in manner similar to the outcome

However, just because a market is characterised as having an oligopolistic structure does not necessarily mean that it will be prone to tacitly collusive behaviour. While market concentration can certainly provide guidance as to which markets are likely to raise competition concerns, it is certainly not the be-all and end-all of the matter. Market concentration is only one of a number of factors that should be relied upon in determining whether a market is likely to result in any abuse of market power.

Economic theory would caution that the level of market concentration alone may not necessarily be the prime determinant for the actual state of competition in a market. In this regard, Professor David Round, the former Director of the Centre for Regulation and Market Analysis at the University of South Australia, has warned:

... concentration statistics or even market shares attributable to individual firms by themselves tell us nothing about the dynamics of competition within a relevant market. They present a snapshot only, and tell us neither how firms obtained those market shares, nor whether those shares are currently increasing or decreasing, and they certainly offer no guide as to what might happen as future market conditions change. (Round, 2006, p. 54)

Similarly, RBA Assistant Governor Michele Bullock (2017) has recently observed:

... concentration of itself does not necessarily imply a lack of competition. Indeed, indicators of market structure such as measures of concentration are not regarded as a very accurate measure of competition. In principle, four large banks could still compete very actively among themselves.

Thus, a competition analysis focusing solely on market concentration could be fundamentally flawed because it ignores other critical factors. These other factors include the height of barriers to entry and the extent of sunk costs incurred by new entrants.

An entry barrier is a structural characteristic of a market that protects the market power of incumbent operators by making new entry unprofitable (Church & Ware, 2000, p. 11). Prominent American economist Joseph Bain (1956) considered the force of potential competition as a regulator of price and output of comparable importance to that of actual competition and focused on the height of barriers to entry as the critical determinant of the price level. According to Professor Vives (2016), entry barriers are pervasive in banking. According to the Murray Report:

Licencing provisions and regulatory frameworks can impose significant barriers to the entry and growth of new players, especially those with business models that do not fit well within existing regulatory frameworks. (Murray, Davis, Dunn, Hewson, & McNamee, 2014a, p. 255)

The theory of contestable markets is a reformulation of Bain's work on barriers to entry whereby oligopolistic behaviour can be explained by means of the constraint imposed by potential competition. Under this theory, an entry barrier has been defined as "anything that requires an expenditure by a new entrant into an industry, but that imposes no equivalent cost upon an incumbent" (Baumol & Willig, 1981, p. 408).

achieved by a monopoly. Within market economies, there are generally competition laws (also known as antitrust laws) prohibiting cartel arrangements.

From this definition, a distinction is drawn between fixed costs and sunk costs. Fixed costs do not necessarily constitute a barrier to entry because they affect incumbents and entrants alike. However, any entry cost that is unrecoverable is a sunk cost. The need to sink costs into a new firm imposes a difference between the incremental cost and the incremental risk that are faced by an entrant and an incumbent (Baumol & Willig, 1981, p. 418). In the case of an incumbent, such funds have already been expended and they are already exposed to whatever risks the market entails. In contrast, the new firm must incur any entry costs on entering the market that incumbents don't bear. Entry will occur in the event the profits expected by a successful entrant outweigh the unrecoverable entry costs that will be lost in the case of failure. Hence, the need to sink costs can therefore constitute a barrier to entry.

In banking, sunk costs could include investment in a branch network, automatic teller machine (ATM) network, advertising, investing in communications networks/technology, and specialised human capital.

Structural conditions exist within the Australian financial system whereby competition problems could manifest themselves. Despite this, the Murray Report found that competition within the financial system was adequate for the time being, although it also acknowledged the potential dangers:

... the high concentration and steadily increasing vertical integration in some sectors has the potential to limit the benefits of competition in the future. (Murray, Davis, Dunn, Hewson, & McNamee, 2014a, p. 255)

Arguably, one of the biggest factors leading to the diminution in level of competition within the Australia financial system in the past decade has been the interaction of the Global Financial Crisis (GFC) coinciding with the introduction of Basel II.

#### 5.2 Basel II, APRA and Competition

#### 5.2.1 APRA's Competition Mandate

Section 8 of the *Australian Prudential Regulation Authority Act 1998* (Cwlth) sets out the legislative purpose for establishing APRA. According to APRA (2014, p. 15), section 8 makes clear that APRA's primary purpose in exercising its prudential powers is to protect depositors and other members of the community holding financial promises issued by regulated financial institutions.

Section 8(2) requires APRA to balance financial safety with efficiency, competition, contestability and competitive neutrality, subject to an overarching requirement to promote financial stability.<sup>9</sup> Implicit within APRA's legislative charter is the notion that competition is a secondary consideration – along with the related concepts of efficiency, contestability and competitive neutrality – as something that can be traded off against financial safety and the overarching objective of promoting financial stability. In this regard, the interim Murray Report observed that regulators are required to make judgements in balancing sometimes competing objectives (Murray, Davis, Dunn, Hewson, & McNamee, 2014, p. 3.121). Similarly, APRA (2014, p. 15) has observed that its legislative purpose provides it with "a clear mandate but one that requires a careful balancing act."

 <sup>&</sup>lt;sup>9</sup> Competitive neutrality occurs where no entity operating in an economic market is subject to undue competitive advantage or disadvantage (Organisation for Economic Co-operation and Developmen, 2012, p. 17).

The notion that APRA sees its role as engaging in a careful balancing act that seeks to preserve financial stability as an overarching objective while potentially trading off secondary objectives such as efficiency, competition, contestability and competitive neutrality raises the possibility it is susceptible to take the so-called "competition-fragility" view of banking in exercising its functions. In this regard, the Murray Report observed:

Conduct and prudential regulators have a natural tendency to prioritise fairness or stability over competition and long-term efficiency. (Murray, Davis, Dunn, Hewson, & McNamee, 2014a, p. 19)

As a consequence of this natural tendency of prudential regulators, the final Murray Report raised concerns that broader competition issues would *fall between the cracks* as regulators focus on their specific mandates for stability and consumer protection (Murray, Davis, Dunn, Hewson, & McNamee, 2014a, pp. 255-256).

To address this problem, the interim Murray Report suggested that APRA could do more to emphasis competition matters (Murray, Davis, Dunn, Hewson, & McNamee, 2014, p. 3.121). To address this problem in the final Murray Report, it recommended the state of competition in the financial system be reviewed every three years and that there should be improved reporting of how APRA balanced competition against its core objective (Murray, Davis, Dunn, Hewson, & McNamee, 2014a, p. 254).

5.2.2 Implementation of Basel II According Andrew Haldane (2013, p. 25), the Chief Economist of the Bank of England:

These design features of Basel II were intended to provide incentives to banks to move to internal models and thereby improve their risk management. The link from the use of models to improved risk management is at best tenuous. But more fundamentally, this design feature may also have potentially perverse consequences for systemic risk and competition.

According to Adrian Blundell-Wignall and Caroline Roulet from the OECD (2013, p. 8), OECD research has consistently argued the Basel system is excessively complex, rendering it ineffective, and that a simple leverage ratio should be the primary regulatory tool for bank capital.<sup>10</sup>

The internal rating basis (IRB) method for calculating risk weights provided for under Basel II has been described by some as essentially self-regulation. The IRB approach relied on the self-interest of the banks to lead them to use the best possible estimates of risk in their own management of assets (Elliott, 2010, p. 5).

According to then Prime Minister Kevin Rudd (2009, p. 23):

... the Basel II guidelines, published in June 2004, have now been demonstrated to be inadequate because they left the determination of risk to flawed credit-ratings processes and the banks' own "self-regulated" internal assessment models.

Andrew Haldane (2013, p. 18) has observed the IRB approach – like other attempts at self-regulation – has arguably been gamed or arbitraged:

<sup>&</sup>lt;sup>10</sup> Leverage – or gearing as it is sometimes called, is the extent to which a business funds its assets with borrowing rather than equity (Ingves, 2014). Leverage ratios measure the extent to which a bank has financed its assets with equity.

Under a self-assessed standard, banks may have both the incentive and the ability to shade downward risk weights, or to switch to lower risk-weighted asset categories, thereby boosting reported capital ratios. The aggregate evidence is consistent with this having occurred secularly and on a significant scale.

#### In the Australian context, the Murray Report observed:

Concerns have also been raised that banks may have the capacity —and incentive — to manipulate IRB models to achieve a lower capital requirement. (Murray, Davis, Dunn, Hewson, & McNamee, 2014a, p. 85)

#### Competition Issues with the Implementation of Basel II

APRA downplayed as well as dismissed competition concerns during its implementation of Basel II and did not follow due process by completing the required competition assessment checklist in the Regulation Impact Statement it prepared for Basel II. The actions of APRA in turn implies the "competition-fragility" view is endemic to the organisation. The outcomes arising from the interaction of the GFC coupled with the implementation of Basel II vindicates the criticisms of Basel II from a competition perspective.

When Basel II was published in 2004 banks were informed the capital weight given to mortgages would fall from 50 per cent under Basel I to 35 per cent under Basel II, and to as little as 15-20 per cent depending on whether and how a bank would use the IRB method (Blundell-Wignall, Atkinson, & Lee, 2009, pp. 15-16). Thus under Basel II, credit and operating risk weights determined under the standard approach were much higher than those under the IRB method used by the major banks. In this regard, the RBA (2015, pp. 54-55) found that at the end of June 2015 the average risk weight of residential mortgage exposures using the IRB method was 17 per cent as compared to 40 per cent using the standardised approach.

Higher risk weights mean more capital is allocated to the lending, which leads to a higher cost of funds for ADIs using the standardised approach. The higher cost of funds for ADIs using the standard approach in turn influence their pricing of lending products, thus reducing their competitiveness with IRB banks for lending. On the other hand, the use of lower capital weights under the IRB method raises the return on capital for a given mortgage asset, and the corollary of this is that greater concentration in low-capital-weighted mortgages improves the overall bank return (Blundell-Wignall, Atkinson, & Lee, 2009, p. 16). As former Group Executive of Business Banking at NAB Joseph Healy (2010) observed:

## Basel II has been a big boost to banks with a strong Retail Banking franchise, enhancing returns on what was an already very profitable segment by lowering the cost of capital required to be funded out of margins. Fact.

The adoption of the IRB method also meant the major banks could engage in excessive leveraging and in turn increase their capacity for lending. Based on the average risk weight of residential mortgage exposures for banks using the IRB method in June 2015 implies a leverage multiple of almost 74 times the amount of capital held, more than double the implied leverage for those using the standardised approach.

Through its implementation of Basel II, APRA put smaller ADIs at a major competitive disadvantage and undermined competitive neutrality. Professor Christine Brown of Monash University and

Professor Kevin Davis of the University of Melbourne warned of this possibility as far back in 2002 that Basel II could threaten competitive neutrality in the banking system:

Basel 2 has significant potential to affect structure, conduct and performance in three distinct areas or the economy. First, it may alter the industrial structure of the banking industry if capital incentives do provide a competitive advantage to banks using advanced risk management techniques. (Browne & Davis, 2002)

#### Rather presciently, Professor Davis (2005) also warned:

If the internal risk weights for IRB banks for housing mortgages and retail lending are as low as the Quantitative Impact Studies have indicated, there is the potential for such banks to make significant inroads into those markets at the expense of other banks operating under the standardised approach. It would be quite anomalous if a capital accord developed primarily to suit the sophisticated activities of very large banks in international markets, had the effect of giving them a competitive advantage in the 'bread and butter' markets where smaller local banks can, arguably, assess and manage risk equally well.

It appears that APRA was well aware of competition concerns before the implementation of Basel II but chose to downplay their potential impact. According to then APRA Executive General Manager Charles Littrell (2003):

There are material competition issues associated with Basel II...

The main domestic competition issue is the split between [internal ratings based] banks and standardised ADIs, including smaller banks. We recognise the potential for competitive disequilibrium between [internal ratings based] and standardised approach users, particularly in home loans. Doubtless this will be a matter for considerable industry discussion and possibly some angst, but our calculations indicate that the larger bank's current capital advantages will not widen materially as a result of Basel II's introduction.

## The then Chairman of APRA, Mr John Laker (2006), dismissed concerns of smaller financial institutions at an overseas conference in the following terms:

Many smaller ADIs have expressed concerns that this outcome will, nonetheless, change their competitive position vis-à-vis the larger banks. We in APRA, however, do not view Basel II as a vehicle for changing the competitive landscape but rather as an opportunity to better align regulatory capital with the risks that ADIs assume and how well those risks are managed. It is also worth noting that there have long been differences in the average capital ratios of different sectors of the ADI industry in Australia.

While Mr Laker's observations that there had long been differences in the average capital ratios of different sectors of the ADI industry is probably correct, he did not address whether implementation of Basel II would open up further differences between the major banks and other ADIs and thus dramatically alter the competitive landscape, thereby undermining competitive neutrality.

The final Regulation Impact Statement (RIS) for the implementation of Basel II was prepared by APRA (2007) in November 2007. The final RIS was silent on the potential competitive disadvantage

of smaller ADIs under Basel II despite the requirement to complete a competition assessment checklist that included the following question:

Would the regulatory proposal restrict or reduce the ability of businesses to compete?

For example:

- control or substantially influence the price at which a good or service is sold;

- alter the ability of suppliers to advertise or market their products;

*– set standards for product/service quality that are significantly different from current practice; or* 

– significantly alter costs of some suppliers relative to others. (Office of Best Practice Regulation, 2007, p. 30)

While APRA was required to complete a competition assessment checklist, it failed to fulfil this requirement. Despite the potential for smaller ADIs being placed at a competitive disadvantage under Basel II not being addressed, the RIS was assessed as adequate by the Office Best Practice Regulation (2008). This suggests the RIS was more of a 'tick all of the boxes' exercise than a serious examination of potential regulatory flaws within the Basel II framework.

Furthermore, APRA (2007, p. 7) declared advanced methods were the exclusive domain of the major banks:

The larger Australian banks are among the global banks that commenced developing sophisticated risk management systems and internal economic capital models prior to the release of Basel II. This gives those banks a foundation on which to base the advanced Basel II methodologies. The small ADIs do not have the resources, or indeed the need, to implement the advanced approaches and will implement the standardised approaches.

The available evidence suggests the interaction of the GFC combined with the implementation of Basel II provided a major fillip to the major banks to the detriment of other ADIs. This can be seen in Figure 2 below that shows the percentage market share of interest income earned on housing loans by the major banks dramatically spiked as well as permanently increased in the second half of 2008 onwards.



Figure 2: Percentage Market Share of Interest Income Earned by the Major Banks – September Quarter 2004 to March Quarter 2017

Source: APRA (2017a)

APRA (2014, p. 73) has attributed this dramatic change entirely upon the drying-up of funding from the residential mortgage-backed securities market on which some of the other ADIs had previously relied during the GFC. However, this change also coincided at a time when the major banks were able to hold much less regulatory capital for credit risk thus lowering their cost of funds, providing them with the scope to reduce their relative prices on home loan products by virtue of the IRB method. As a matter of economic theory, even a monopolist will generally be expected to pass along at least some portion of a reduction in marginal costs (Frankel, 2007, p. 47). As business commentator Alan Kohler has observed, the IRB method:

... represents a built-in regulatory bias towards the banking oligopoly in Australia, and makes it much harder for the smaller players to take market share off them because their interest rates have to be higher to pay for the capital.

From the beginning of 2008 until 2013 there appears to be something of an inverse relationship with varying lags between the amount of regulatory capital held for credit risk by the major banks and changes in their market share on interest income earned on housing loans. This is illustrated in Figure 3 below. The amount of regulatory capital for credit risk held by the major banks prior to the implementation of Basel II in the December quarter 2007 wasn't finally exceeded until December 2013.





Source: APRA (2017a)

During period of implementation for Basel II, the major banks increased their market share across the three main bank lending categories of:

- owner occupied housing;
- investment housing; and
- lending to non-financial corporations.

This is outlined in Figure 4 below.



Figure 4: Percentage Market Share of the Major Banks for Bank Lending for Owner Occupied Housing, Investment Housing and Non-Financial Corporations – 2002 to 2017

Source: APRA (2017)

In its initial submission to the Murray Report inquiry, APRA (2014) was antithetic to the suggestion that differing approaches in risk weights under Basel II could be tilting the playing in favour of banks using the IRB approach and thereby stifling competition:

APRA's prudential requirements may affect the relative position of competitors in particular regulated industries by imposing differential capital costs, but other factors – such as scale, business models and operating and funding costs – are likely to have larger impacts on the competitiveness of smaller institutions. (Australian Prudential Regulation Authority, 2014, p. 15)

APRA does not see any compelling reasons to depart from the Basel II capital framework, now well-established globally, to seek to deal with residual competition issues in housing lending. Comparing the specific risk-weight for a particular loan under the two approaches will give a misleading impression of the competitive impact of Basel II. (Australian Prudential Regulation Authority, 2014, p. 76)

APRA dug its heels in to support the lack of competitive neutrality under Basel II even though the Chief Economist of the Bank of England, Andrew Haldane (2013, p. 25), had commented the previous year that:

A second unintended consequence of the move to a model-based regulatory framework is that it has tended to work in quasi-discriminatory ways. In particular, it has tended to discriminate both between small and large banks and between new entrants and existing incumbents in the amounts of capital they are required to hold even against identical exposures. The reason for this is that small or new entrant banks will generally adhere to ... simple standardised approaches for measuring risk. In general, they will have neither the data nor the technology to support internal model approaches. But simpler, standardised approaches tend to require much higher amounts of capital than internal model approaches. Indeed, this was a design feature of Basel II.

These design features of Basel II were intended to provide incentives to banks to move to internal models and thereby improve their risk management. The link from the use of models to improved risk management is at best tenuous. But more fundamentally, this design feature may also have potentially perverse consequences for systemic risk and competition.

It is also evident from research across the world that Basel II and the introduction of the IRB method provided an unfair competitive advantage to those financial institutions that could take advantage of it. In relation to the United Kingdom, a Bank of England Staff Working Paper recently concluded:

The switch to Basel II gave lenders using internal (IRB) models a comparative advantage in capital requirements (compared to lenders using the standardised approach, or SA), particularly at low loan-to-value (LTV) ratios, and this was reflected in prices and quantities. Lenders in general reduced their prices by more for low (versus high) LTV lending. (Benetton, Eckley, Garbarino, Kirwin, & Latsi, 2017, p. 26)

The Murray Report completely rejected APRA's position and recognised the IRB approach had usurped competitive neutrality by tilting the playing field against financial institutions using the standardised approach:

In the Inquiry's view, the relative riskiness of mortgages between IRB and standardised banks does not justify one type of institution being required to hold twice as much capital for mortgages than another. This conclusion is supported by the findings of APRA's recent stress test, which found regulatory capital for housing was more sufficient for standardised banks than IRB banks.

The gap between average IRB and standardised mortgage risk weights means IRB banks can use a much smaller portion of equity funding for mortgages than standardised banks. Because equity is a more expensive funding source than debt, this translates into a funding cost advantage for IRB banks' mortgage businesses to the extent that the riskiness of mortgage portfolios is similar across banks.

Given that mortgages make up a significant portion of the assets of almost all Australian ADIs, competitive distortions in this area could have a large effect on their relative competitiveness. This may include inducing smaller ADIs to focus on higher-risk borrowers. Restricting the relative competitiveness of smaller ADIs will harm competition in the long run. (Murray, Davis, Dunn, Hewson, & McNamee, 2014a, p. 61)

APRA dragged the chain on this matter until it was forced to act in response to Recommendation 2 of the Murray Report which recommended that APRA should:

Raise the average internal ratings-based (IRB) mortgage risk weight to narrow the difference between average mortgage risk weights for authorised deposit-taking institutions using IRB

risk-weight models and those using standardised risk weights. (Murray, Davis, Dunn, Hewson, & McNamee, 2014a, p. 60).

The Murray Report suggested the minimum risk weight on IRB banks for housing loans in the range of 25 and 30 per cent would be appropriate (Murray, Davis, Dunn, Hewson, & McNamee, 2014a, p. 65). In July 2015 APRA (2015) announced that it would raise the risk weights on IRB banks to at least 25 per cent, at the lowest end of the range suggested by the Murray Report.

#### Implementation of Basel II and Over-Exposure to Housing Finance

Despite previously acknowledging that concentration of credit risk in asset portfolios has been one of the major causes of bank distress, the Basel Committee made no allowance for credit risk concentration in the IRB methodology. The risk-weighting formulas in Basel II are based on a specific mathematical model, developed by the Basel Committee, which is subject to the restriction that it is *portfolio invariant*; that is, the capital required to back loans should depend only on the risk of that loan, not on the portfolio to which it is added (Blundell-Wignall & Atkinson, 2010, p. 12). The major disadvantage of this approach is that it does not reflect the importance of diversification as an influence on spreading and minimising portfolio risk. Thus, the minimum capital requirements associated with any type of loan due to credit risk simply rise linearly with the holding of that asset type, regardless of the size of the exposure (that is, appropriate diversification is simply assumed). This means that Basel II did not penalise portfolio concentration.

Sector concentration risk is an important issue; for instance, if a loan portfolio is excessively concentrated in credit to firms in a particular sector, a shock to the sector could have a significant impact on the entire portfolio (Düllmann & Masschelein, 2006).

Concentration of credit risk if it is dealt with at all under Basel II, was left to prudential supervisors under Pillar 2 (Blundell-Wignall & Atkinson, 2010, p. 12). In relation to APRA (2007a, p. 5), concentration of credit risk was covered under Pillar 2 under the category of Pillar 1 inherent risks that were not fully captured by the Pillar 1 processes. According to APRA (2007a, p. 13):

Credit concentration risk – where the ADI's internal credit risk economic capital model already reflects actual exposure sizes and default correlations to the relevant industry, geographic and other systematic risk factors, there is no need for any specific adjustment for such risk.

However, if the exposure size and correlation assumptions employed in the model do not closely approximate those of the ADI's own unique credit portfolio, a concentration risk adjustment may be required. Large exposure size and high correlations increase the amount of losses that could be sustained as a result of particular adverse circumstances.

Since the introduction of Basel II there has been a clear bias in favour of housing finance by the banking sector. Housing loans as a percentage of total bank loans has risen from 57 per cent in 2007 to currently around 63 per cent.<sup>11</sup>

The main impetus for this increase in housing finance has been the major banks, whose overall share of housing loans as a percentage to total bank loans has risen from 43 per cent in 2007 to currently around 52 per cent, while the market share of all other banks has contracted. This is outlined in Figure 5 below.

<sup>&</sup>lt;sup>11</sup> Data sourced from APRA (2017).



Figure 5: Total Bank Housing Loans, Major Bank Housing Loans and Other Bank Housing Loans as a Percentage of Total Bank Loans – 2007 to 2017

Source: APRA (2017)

While there are government policy settings that encourage housing lending such as the first home owners grant scheme, the capital gains tax exemption on the family home and certain tax advantages associated with negative gearing, Basel II appears to have also been another contributing factor in the redirection of bank lending towards housing finance. This is because Basel II cut the risk weights for housing lending in general, but also provided a greater fillip for systemically important banks through cutting risk weights even more for those banks able to utilise the IRB method. This problem was highlighted by former Group Executive of Business Banking at NAB Joseph Healy (2010) who warned:

... the bias towards home lending has clearly been influenced by the international Basel II capital adequacy rules which took effect in Australia in 2007-08.

These rules implicitly encourage banks to favour residential mortgage lending over business lending as residential mortgages attract a lower capital charge under both standardised and advanced accreditation frameworks.

This means that banks can do on average three to four times more mortgage lending relative to business lending in terms of capital management. All other things being equal, we have a system that makes it more attractive for banks to lend the marginal dollar on a weekend holiday home than to a small business! One could reasonably regard this outcome as perverse.

In its submission to the Murray Report inquiry, APRA (2014, p. 72) acknowledged that some had argued that its capital requirements for housing lending had been a major influence in encouraging an 'excessive' concentration of ADI balance sheets on housing lending.

However, no one knows if APRA has addressed the excessive concentration on housing lending on the balance sheets by the major banks, or even if it has as to whether any adjustments made could

be considered adequate. This is because Pillar 2 adjustments are entity specific and are not publicly disclosed (Byres, 2011).

In turn, the bias towards housing lending contained in Basel II has created a risk to the Australian economy through bank lending fuelling a potential asset price bubble. The Murray Report warned about the risk posed by housing lending to the Australian economy in the following terms:

Australia's banks are heavily exposed to developments in the housing market. ... A sharp fall in dwelling prices would damage household balance sheets and weigh on consumption and broader economic growth. It would also reduce the quality of the banking sector's balance sheets and the capacity of banks to extend new credit, which would compromise the speed of a subsequent economic recovery. (Murray, Davis, Dunn, Hewson, & McNamee, 2014a, p. 22)

This is consistent with recent comments by the RBA (2017, p. 19) that the main risks from a housing asset price bubble are primarily macroeconomic rather than systemic:

The risks associated with strong investor credit growth and increased household indebtedness are primarily macroeconomic in nature rather than direct risks to the stability of financial institutions... the concern is that investors are likely to contribute to the amplification of the cycles in borrowing and housing prices, generating additional risks to the future health of the economy. Periods of rapidly rising prices can create the expectation of further price rises, drawing more households into the market, increasing the willingness to pay more for a given property, and leading to an overall increase in household indebtedness. While it is not possible to know what level of overall household indebtedness is sustainable, a highly indebted household sector is likely to be more sensitive to declines in income and wealth and may respond by reducing consumption sharply.

However, before dismissing concerns altogether that a housing asset price bubble could trigger a systemic crisis rather than just a severe economic downturn, an International Monetary Fund research paper has previously warned:

When banks are involved in financing asset price booms, ... as in real estate mortgage and corporate sector financing, risks of adverse consequences of a following asset bust are typically much higher. The main reason is that these booms involve leverage and banks, implying that the flow of credit to the economy gets interrupted when a bust occurs. (Claessens & Kose, 2013, p. 11)

A recent paper published by the UK Centre for Economic Policy Research on the impact of the Basel process on the resilience of banks in the European Union has concluded:

This analysis reveals that the adoption of internal models for credit risk (Basel II) was an especially major driver of the build-up of systemic risk exposure in Europe.

...

Rather than providing incentives for better risk management for the larger and internationally active banks, precisely those sophisticated banks used internal models to carve out even more equity in order to increase return on equity and at the same time reduce resiliency. In light of these results, placing caps on the use of internal models seem reasonable policy options. (Gehrig & Iannino, 2017)

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The current predisposition of the major banks toward housing lending has prompted several commentators to observe that they have become giant building societies. According to former NAB Chief Executive Officer Don Argus back in 2010:

*I think the Australian banking sector has gone too far. You can look at some of them now as giant building societies. (Maiden, 2010)* 

According to business commentator Alan Kohler (2015):

A funny thing happened to business lending on the way from the GFC.

Australia's banks turned into giant building societies, lending almost exclusively against residential property and rarely, if ever, making unsecured loans to businesses or people any more.

The bias towards housing risks creating a significant misallocation of resources across the Australian economy, potentially lowering economic growth. Given an economy's stock of physical capital, labour, human capital, and knowledge, the way in which those aggregate quantities of inputs are allocated across households, firms and industries determines the economy's overall level of production (Jones, 2011, p. 2). The optimal allocation will maximise welfare through maximising output and growth in the long run. However, other allocations result in lower levels of output and growth and will manifest themselves in lower levels of multi-factor productivity (MFP).<sup>12</sup>

Productivity growth, which means producing more output with fewer inputs, is a crucial determinant of national living standards. According to the 2008 Nobel Laureate for economics Paul Krugman (1992, p. 9):

Productivity isn't everything, but in the long run it is almost everything. A country's ability to improve its standard of living over time depends almost entirely on its ability to raise its output per worker.

Aggregate productivity growth can essentially reflect two broad factors: first, technical progress and more and better human and physical capital in the various industries; second, reallocations of capital and labour from poorly performing sectors to those that perform well (Bank for International Settlements, 2015, p. 53). However, evidence shows that credit booms tend to undermine this second factor.

Credit booms tend to undermine productivity growth as they occur (Borio, Kharroubi, Upper, & Zampolli, 2015, p. 2). A large part of this impact reflects the shift of labour to lower productivity growth sectors. This is typically sectors that are particularly credit-intensive even though they may not be very productive in the long run (Bank for International Settlements, 2015, p. 53). This depresses productivity growth – and thus potential output – even long after credit has stopped growing. For example, the shift of labour into a temporarily bloated construction sector (Borio, Kharroubi, Upper, & Zampolli, 2015, p. 2). Finally, the subsequent impact of labour reallocations that occur during a boom is much larger if a crisis follows.

<sup>&</sup>lt;sup>12</sup> MFP is the ratio of output to the combined inputs of labour and capital. MFP is a more comprehensive productivity measure because it identifies the contributions of both - capital and labour - to output.

While the most recent estimates reveal that MFP across the market sector of the Australian economy have ticked up, the construction sector has been something of a recent productivity laggard.<sup>13</sup> This slowdown in MFP in the construction sector has occurred at a time when the relative contribution of residential building to the construction sector has dramatically increased due to an upsurge in residential building construction coupled with the end of the mining boom.<sup>14</sup>

Although APRA has made a number of recent regulatory decisions that has forced the major banks to raise their capital holdings (see section 5.2.3 below), this may not necessarily address the overemphasis on housing lending by the major banks. As Alan Kohler (2015) has observed, the major banks will be loath to waste any new capital raised on loans that count dollar for dollar against that new capital, and will be even more inclined to focus on real estate. This in turn suggests a fundamental design flaw in the credit risk weightings under Pillar 1 of Basel II. Unfortunately, the revised Basel III framework doesn't address this problem as the weighting system under Pillar 1 continues to suffer from the assumption of portfolio invariance (Blundell-Wignall & Atkinson, 2010, p. 20).

Adrian Blundell-Wignall and Paul Atkinson from the OECD (2010, p. 20) have suggested that it may be possible to deal with concentration issues under Pillar 1 through the adoption of a quadratic penalty applied to deviations from a diversified benchmark portfolio – the minimum leverage ratio would apply if a firm was on benchmark, but it would have to add increasingly more capital the more it deviated from benchmarks.

Following recommendation 7 from the Murray Report as well as the Basel III framework, APRA has introduced a leverage ratio deal to address excessive leveraging under Pillar III of Basel III. According to APRA (2014b, p. 10), the leverage ratio was designed to:

- restrict the build-up of excessive leverage in the banking system, helping to avoid a destabilising deleveraging process that could damage the broader financial system and the economy; and
- reinforce the risk-based requirements with a simple 'backstop' measure that provides additional safeguards against model risk and measurement error.

However, Adrian Blundell-Wignall, Paul Atkinson and Caroline Roulet from the OECD (2014, p. 7) have criticised the proposed Basel leverage ratio as inadequate to deal with excessive leveraging:

... the 3% Tier 1 leverage ratio "back-up" goal being considered by the [Basel Committee on Banking Supervision] for 2019 is too lax. It allows leverage of 33-times capital and, in addition, banks are permitted to net derivatives transactions when calculating the leverage ratio. This latter arrangement has always puzzled the present authors: netting is a settlement concept, particularly in the event of default, and it does not in any way protect a bank from market risk. Hence netted derivatives are not an appropriate basis on which to base ex-ante capital rules. Leverage ratios that give rise to capital for ex-ante market risk would be larger than those allowed under Basel III.

In order to rein in excessive leveraging by the major bank in housing lending, APRA has resorted to more direct regulatory interventions following discussions with other members of the Council of

<sup>&</sup>lt;sup>13</sup> See Productivity Commission (2013; 2014; 2015; 2016).

<sup>&</sup>lt;sup>14</sup> See Australian Bureau of Statistics (2017).

Financial Regulators.<sup>15</sup> In December 2014 APRA (2014a) announced that it would take steps to reinforce sound residential mortgage lending practices by increasing the level of supervisory oversight on mortgage lending. In particular APRA (2014a) flagged to ADIs that it would be paying particular attention to specific areas of prudential concern, including:

- higher risk mortgage lending for example, high loan-to-income loans, high loan-to-valuation (LVR) loans, interest-only loans to owner occupiers, and loans with very long terms;
- strong growth in lending to property investors portfolio growth materially above a threshold of 10 per cent will be an important risk indicator in considering the need for further action;
- loan affordability tests for new borrowers these should incorporate an interest rate buffer of at least 2 per cent above the loan product rate, and a floor lending rate of at least 7 per cent, when assessing borrowers' ability to service their loans.

At the end of March 2017, APRA (2017b) initiated additional supervisory measures to rein in certain residential mortgage lending practices in order to reduce risks, writing to all ADIs advising that APRA expected them to:

- limit the flow of new interest-only lending to 30 per cent of total new residential mortgage lending, and within that:
  - place strict internal limits on the volume of interest-only lending at loan-to-value ratios (LVRs) above 80 per cent; and
  - ensure there is strong scrutiny and justification of any instances of interest-only lending at an LVR above 90 per cent;
- manage lending to investors in such a manner so as to comfortably remain below the previously advised benchmark of 10 per cent growth;
- review and ensure that serviceability metrics, including interest rate and net income buffers, are set at appropriate levels for current conditions; and
- continue to restrain lending growth in higher risk segments of the portfolio (e.g. high loanto-income loans, high LVR loans, and loans for very long terms).

APRA's resort to these measures to rein in excessive leveraging suggests that its ongoing adherence to Basel arrangements that place the use of risk-weighted capital ratios as the most appropriate mechanism for determining an ADI's capital adequacy is failing.

#### 5.2.3 Other Recent Action by APRA

Since the Government foreshadowed the Financial System Inquiry in November 2013 with the release of draft terms of reference, APRA's recent conduct in relation to competition issues and competitive neutrality has improved.

In December 2013 APRA (2013) announced its decision to impose an additional capital charge of 1 per cent (referred to as the higher loss absorbency (HLA) capital requirement) on Australia's four domestic systemically important banks (D-SIBs), ANZ, CBA, NAB and Westpac. According to the APRA (2013) media release:

<sup>&</sup>lt;sup>15</sup> The Council of Financial Regulators is the coordinating body for Australia's main financial regulatory agencies and comprises the RBA, which chairs the Council APRA, the Australian Securities and Investments Commission (ASIC) and the Australian Treasury.

Based on a range of considerations, APRA has determined that a one per cent HLA requirement will apply to the four D-SIBs. This must be met by Common Equity Tier 1 capital and will be implemented as an extension of the capital conservation buffer as defined in Prudential Standard APS 110 Capital Adequacy.

The D-SIB framework will come into effect from 1 January 2016.

In response to recommendation 2 from the Murray Report, in July 2015 APRA (2015) announced that it would raise the risk weights on IRB banks to at least 25 per cent, at the lowest end of the range suggested by the Murray Report.

Recommendation 1 from the Murray Report was for:

Set capital standards such that Australian authorised deposit-taking institution capital ratios are unquestionably strong. (Murray, Davis, Dunn, Hewson, & McNamee, 2014a, p. 41)

In response to the Murray Report recommendation 1, in July 2017 APRA (2017c) announced

For ADIs that use the internal ratings-based approach to credit risk, APRA has concluded that it is necessary to raise minimum capital requirements by around 150 basis points from current levels to achieve capital ratios that would be consistent with the goal of 'unquestionably strong'.

...

In the case of the four major Australian banks, APRA expects that the increased capital requirements will translate into the need for an increase in CET1 capital ratios, on average, of around 100 basis points above their December 2016 levels. In broad terms, that equates to a benchmark CET1 capital ratio, under the current capital adequacy framework, of at least 10.5 per cent.

For ADIs that use the standardised approach to credit risk, APRA (2017c) concluded that it was only necessary to only raise minimum capital requirements by approximately 50 basis points from current levels to achieve capital ratios that would be consistent with the goal of 'unquestionably strong'.

Recent regulatory action by APRA appears to have slightly levelled the playing field and thus curtailed the market expansion of the major banks in various banking lending categories as can be seen in Figure 4 above.

Given the views expressed by APRA in its first submission to the Murray Report inquiry regarding smaller ADIs, it is doubtful any changes would have transpired had it not been for the additional public scrutiny APRA received by virtue of the Murray Report inquiry and subsequent recommendations. Given that it is just not feasible to have an ongoing inquiry into the financial system, nor for an ongoing Productivity Commission inquiry into competition into the financial system for that matter, it is necessary to consider other policy options to force APRA to place a greater emphasis on competition in its deliberation over the prudential regulation of the financial system.

## 6. Competition Reform in Prudential Supervision

According to Professor Vives (2016), competition policy and prudential regulation need to be coordinated. This has recently been achieved in the United Kingdom through legislative reforms to its prudential regulatory system.

The UK Prudential Regulation Authority (PRA) of the Bank of England has two primary objectives: to promote the safety and soundness of the firms it regulates, focusing on avoiding and minimising adverse effects that they can have on the stability of the UK financial system; and an objective specific to insurance firms, to contribute to the securing of an appropriate degree of protection for those who are or may become policyholders.

In March 2014, the PRA of the Bank of England was given a statutory secondary competition objective which states that:

When discharging its general functions in a way that advances its objectives, the PRA must so far as is reasonably possible act in a way which, as a secondary objective, facilitates effective competition in the markets for services provided by PRA-authorised persons in carrying on regulated activities.

This Secondary Competition Objective (SCO) requires the PRA to take a more proactive stance towards competition than had previously been the case for the Financial Services Authority, the PRA's regulatory predecessor (Independent Evaluation Office - Bank of England, 2016, p. 5).

The PRA was originally established as part of the Bank of England by the UK Financial Services Act 2012. Not dissimilar to APRA's current legislative purpose, the PRA originally commenced with a 'have regard' duty with respect to competition, namely to "the need to minimise any adverse effect on competition in the relevant markets that may result from the manner in which the PRA discharges those functions" (Parliamentary Commission on Banking Standards, 2013, p. 473). In essence, this regulatory principle sought to ensure that competition considerations were at least a factor the PRA should consider when taking actions to meet its primary objectives (Dickinson, Humphry, Siciliani, Straughan, & Grout, 2015, p. 337).

During the passage of the UK Financial Services Act 2012, the House of Commons Treasury Committee (2012, p. 33) recommended the PRA be given a secondary competition objective:

It remains our view that competitive markets need both freedom to exit and freedom to enter. The Bill contains no proposal for specific objectives related to competition for the Prudential Regulation Authority. We recommend that the House of Lords consider amending the Bill to make competition an objective of the Prudential Regulation Authority.

While this suggestion was not taken up at the time during the passage of the original legislation, the UK Parliamentary Commission on Banking Standards (2013, p. 474) made a similar recommendation the following year:

The Commission has concluded that the PRA should be given a secondary competition objective. A 'have regard' to competition simply does not go nearly far enough. As the experience of the FSA shows, a 'have regard' duty in practice means no regard at all. With only a 'have regard' duty given to the PRA, the risk is high that it will neglect competition considerations. This would be of great concern, given the potential for prudential requirements to act as a barrier to entry and to distort competition between large incumbent firms and new entrants. The current legislation strikes an inadequate balance in this area.

In 2013, the UK Government agreed with the UK Parliamentary Commission on Banking Standards' recommendation and introduced the SCO (Dickinson, Humphry, Siciliani, Straughan, & Grout, 2015, p. 337).

The SCO does not require the PRA to act in a manner that is incompatible with its primary objectives (Bank of England Prudential Regulation Authority, 2016, p. 8). The existence of the SCO means the PRA should consider, but is not necessarily required to adopt, those options which would deliver greater benefits to competition for a given objective of safety and soundness or policyholder protection. An added advantage of looking at prudential regulation through a competition lens is that it provides a check on whether prudential interventions are being applied proportionately, and to guard against the risks of unintended consequences. The SCO does not mean that the PRA is a 'competition regulator'.

The PRA (2016, pp. 10-13) has adopted a four-pronged approach to the implementation of the SCO:

- 1. Structural changes and increasing capability the PRA has undertaken a series of measures to embed the SCO in its ways of working, to ensure that competition issues are considered wherever relevant.
- 2. Research agenda the PRA is undertaking a number of research projects on the relationship between prudential regulation, financial stability and effective competition.
- Internal and external communication of the PRA's approach to the SCO the PRA has made progress in communicating the SCO and its practical implications both internally and externally.
- 4. Working with external stakeholders the PRA has built strong and effective working relationships with competition regulators.

As part of its research agenda, the PRA (2017, p. 14) has already completed two research projects focusing on:

- the impact of IRB models on the pricing of mortgages; and
- developing indicators of effective competition in the UK deposit-taking sector.

To address the competitive disadvantage faced by firms using the standardised approach in the residential mortgage lending market, the PRA (2017, p. 5) undertook a review in 2016 of its approach to IRB credit risk model applications from smaller banks and building societies. The findings showed that many of the specific issues raised by IRB aspirants were linked to an overarching perception the PRA did not welcome IRB applications from smaller firms. As part of this review, the PRA (2017, pp. 6-7) has proposed measures that should enable firms that wish to obtain IRB permissions to understand better the PRA's expectations for IRB applications, and therefore enable firms to take investment decisions with greater confidence.

In designing policies, the PRA (2016, p. 7) must have regard to a number of 'regulatory principles' set out in primary legislation, including the principle of 'proportionality'. That is, burdens imposed on a firm's activity are proportionate to the benefits expected, and where appropriate, the PRA will exercise its functions in a way that recognises the difference in the nature, size and complexity of businesses carried out by different firms. Therefore, in designing policies and making rules, the SCO complements this principle by recognising that a 'one size fits all' approach could cause market distortions. In its pursuit of proportionality, the PRA (2017, p. 11) has proposed refinements to its Pillar 2A capital framework to address concerns over the differences between standardised approach and IRB model risk weights. Proposals would allow supervisors to exercise judgement and reduce variable Pillar 2A add-ons for firms using the standardised approach for credit risk where appropriate.

The UK Government also requires the PRA to publish an annual report on how it is delivering against its competition objective across financial services, to set out clearly the steps being taken to drive more competition and innovation and to help ensure the right incentives exist for new banks to enter the market (HM Treasury, 2015, p. 57).

The SCO has at its centre the notion of effective competition (Dickinson, Humphry, Siciliani, Straughan, & Grout, 2015, p. 334). Such a concept is not unfamiliar in Australian competition law.<sup>16</sup>

One solution to overcoming the "competition-fragility" view of banking that appears endemic to APRA to ensure that competition considerations are given due deliberation in prudential regulatory policy decisions is to give it a statutory secondary competition objective as has been adopted in the United Kingdom. This in turn will help to ensure that competitive neutrality is maintained across all ADIs.

<sup>&</sup>lt;sup>16</sup> Re Queensland Co-operative Milling Association Ltd (1976) 8 ALR 481, 515.

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## Appendix: Asymmetric Information, Adverse Selection and Moral Hazard

Information about whether a product has a serious defect may be 'privately observed' by those who access to it and 'unobservable' by those who don't (Mohlo, 1997, p. 1). Such information is referred to as private information. On the other hand, if information is available to everyone then it is referred to as 'public information' or 'publicly observable'. The presence of private information creates an 'information asymmetry' whereby some people are better informed than others.

In the event that informational asymmetries exist between buyers and sellers in a market, the 2001 Nobel Laureate for economics George Akerlof (1970) demonstrated that this would give rise to the problem of adverse selection. Akerlof used the example of the market for used cars where buyers could buy either good cars or defective cars that were described as 'lemons'. In the presence of asymmetric information, Akerlof showed that the used car market would either contract into a market for 'lemons' or collapse altogether. In order to address the problem of asymmetric information and adverse selection, Akerlof (1970, p. 488) suggested that government intervention may be warranted in some instances:

There are many markets in which buyers use some market statistic to judge the quality of prospective purchases. In this case there is incentive for sellers to market poor quality merchandise, since the returns for good quality accrue mainly to the entire group whose statistic is affected rather than to the individual sellers. As a result there tends to be a reduction in the average quality of goods and also in the size of the market. It should also be perceived that in these markets social and private returns differ, and therefore, in some cases, government intervention may increase the welfare of all parties.

Adverse selection can occur in banking markets when consumers looking to deposit their savings are unable to assess the credit worthiness of a financial institution or on the part of financial institutions in assessing the credit worthiness of a loan applicant.

Moral hazard occurs in any situation in which one person makes the decision about how much risk to take, while someone else bears the cost if things go badly' (Krugman, 2009, p. 63). Moral hazard infers a disposition on the part of individuals or organisations to engage in riskier behaviour, than they otherwise would, because of a tacit assumption that someone else will bear the costs and consequences if the incurred risk turns out badly (Wolf, 1999, p. 60). The inadequate control of moral hazards often leads to socially excessive risk taking (Dowd, 2009, p. 143).

Moral hazard originates from analysing the effects of insurance. When a person purchases full insurance to cover all of their potential losses, they no longer have an incentive to invest in private precautions to prevent potential losses from occurring (Bell & Parchomovsky, 2012, p. 1930).

Two partial solutions have been suggested to address the problem of moral hazard:

- incomplete coverage against loss; and
- observation by the insurer of the care taken to prevent loss (Shavell, 1979, p. 541).

Incomplete coverage gives an individual or organisation a motive to prevent loss by exposing them to some financial risk. Observation of the case gives an individual or organisation a motive to prevent loss, as it allows the insurer to link the perceived level of care to either the insurance premium or the amount of coverage paid in the event of a claim.

Moral hazard is often seen in the context of the principal-agent problem, which concerns the difficulties associated with trying to motivate the agent to act in the best interests of the principal. The principal-agent problem occurs because the desires or goals of the principal and the agent are in conflict and it is difficult or expensive for the principal to verify what the agent is actually doing.

Whereas adverse selection is a problem of pre-contractual opportunism which gives people the opportunity to lie in the presence of private information prior to the initiation of a contract, moral hazard is a problem of post-contractual opportunism where the presence of some unobservable action provides people with the opportunity to cheat after the contract is signed (Mohlo, 1998, p. 8).