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## **PROFITABILITY OF AUSTRALIAN BANKS: 1985-2001**

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### **ABSTRACT**

This paper examines the profitability of Australia's four major banks, covering the time period 1985 to 2001. The level of profitability achieved by the banks across this period is determined and individual components of the profit rate examined. The contribution of efficiency gains and growth in non-interest income to profitability is discussed and the extent to which these gains have been passed on to consumers is measured. Apart from a period in the early 1990's banks have been able to maintain a relatively consistent level of profitability. However, the maintenance of these levels of profitability following on from their recovery in 1992 has been at the expense of customers.

## I. INTRODUCTION

As with many other countries, the Australian banking industry has undergone a process of regulatory change over the past two decades. The anticipated and actual consequences of deregulation on bank performance have been the subject of much discussion and research. (See for example Ackland and Harper 1992, Battelino and McMillan 1989, Edwards and Valentine 1998, and Grenville 1991). One of the major factors behind the push for deregulation of the financial system during the 1980's and of the more recent Financial System Inquiry (FSI 1997)<sup>1</sup> was the desire on the part of Regulators to increase the efficiency of the financial system. An expected outcome of deregulation was a contraction in bank margins (net interest margins) due to increased competition. This in turn would impact negatively on profitability, forcing banks to improve efficiency. Studies have shown that this contraction in margins was slow to occur, (Crowley, Jeffs and Tennant 1995, RBA 1999) with no real decline experienced until the early 1990's. However, the narrowing of margins from the mid 1990s was not accompanied by a decline in profitability. Gizycki and Lowe (2000) highlight the apparent anomaly between increasing competition and a relatively constant return on equity during the late 1990s.

Increased competition brought about by deregulation was expected to force efficiency gains achieved in part by cost reductions (Ackland and Harper 1992). Walker (1995) argued that economies of scale existing in the banking industry during the 1980's provided banks the opportunity to lower short run costs through a process of staff and branch reductions. During the early 1990's such actions reduced excess capacity, limiting banks' ability to attain further cost reductions. However Walker indicated that variations in product mix would allow further economies of scale to be achieved. Banks have followed this

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<sup>1</sup> More commonly known as the 'Wallis Inquiry' after its Chairman, Stan Wallis

avenue with a shift of their product mix away from traditional deposit taking areas into funds management and related areas. This change of product mix is well documented in the FSI Report (1997) and by Goldsworthy, Lewis and Sheutrim (2000). Gizycki and Lowe (2000) discussed this product diversification by banks as being driven not only by a compression of bank interest margins (increasing competition) but also by the ability of banks to use their brand power to cross-sell financial products. The recent activities of CBA and NAB towards acquiring ownership of the Colonial Group and MLC respectively, illustrate the growing importance of these non-traditional activities to banks. The compression of bank interest margins together with increasing product diversification is likely to result in a change in the composition of banks' income. In particular it is likely to increase the relative importance of fee income as a revenue source. This increase in banks' fee income is highlighted by a recent study showing that bank fee income as a proportion of total income increased from 21% of income in 1997 to 24% in 2000 (RBA 2001).

Another expected outcome of deregulation was a passing on of efficiency gains to the public (Harper 1991, Phelps 1991). Studies in this area are sparse with a study by Avkiran (1999) finding that for Australian banks, there is no conclusive evidence that efficiency gains have been passed on to the public.

This paper examines the extent to which banks in Australia have been able to maintain profitability in the face of increased competition and decreased interest margins. It considers the role played by a combination of increases in efficiency and cost reductions in the maintenance of profitability as well as investigating the contribution of non-interest income to profitability. Finally, it measures the allocation of any efficiency gains between shareholders, customers (depositors) and expenses. These issues are explored through an empirical investigation of Australia's four major banks – Australia and New Zealand Banking Group

(ANZ), Commonwealth Bank of Australia (CBA), National Australia Bank (NAB) and Westpac Banking Corporation (WPC) covering the time period 1985 to 2000. It is only in the later stages of the 1990s that the process of deregulation has had time to work more fully through the financial system. By covering the period 1985-2001, this research allows a more comprehensive picture to emerge of the changes that have occurred within an historical context.

The remainder of the paper is organised as follows. Section II of the paper provides the historical setting for the paper with a brief overview of bank regulation in Australia and expected gains from deregulation. Section III discusses the approach used to assess bank performance. Section IV analyses the empirical findings of this research. Section V contains concluding remarks.

## II. DEREGULATION: AN EVOLUTIONARY PROCESS

### *Bank Regulation in Australia*

Prior to deregulation in the 1980s, Australian banks operated in one of the most heavily regulated environments and were amongst the most profitable in the OECD (Milbourne and Cumberworth 1991). Bank activity was constrained in a number of ways including: the imposition of Statutory Reserve Deposit requirements and Liquid Government Securities requirements; limits on interest rates banks could apply to both deposits and loans in addition to other qualitative and quantitative controls over lending; requirements for savings banks to hold 70% of assets in the form of Commonwealth Government Securities; and controls over foreign exchange holdings and the exchange rate. There was also a restriction on the entry of foreign banks (Battelino and McMillan 1989, Grenville 1991, Harper 1991, Milbourne and Cumberworth 1991).

Both regulators and the banking industry itself considered regulations applied to the banking system at that stage to be inefficient due to inherent weaknesses. From the viewpoint of the regulators, in an environment of an increasing integration of world financial markets, the growth of banks' off-balance sheet activities, combined with the growth of non-bank financial institutions outside of the Reserve Bank of Australia's (RBA) regulatory control, impeded the RBA's ability to effectively implement monetary policy (Ackland and Harper 1992, Harper 1987, Grenville 1991). Furthermore the fixed price system of selling government securities was inefficient. From the banking industry's point of view, regulation acted as an impediment to their ability to compete with non-bank financial institutions. However it did give banks a special privilege by allowing the banks to have monopoly access to domestic and international payments systems (Williams 1998). Protected margins encouraged banks to engage in non-price competition including cross-subsidisation of the provision of payment services from their interest margins, a process both economically inefficient and inequitable.

The process of deregulation attempted to address these issues with a view to increasing competitiveness and efficiency of the financial system. During this process, open market operations switched to a tender system, forcing a separation of government debt management from monetary policy allowing the RBA greater control over interest rate management. In the process, the 'cash' rate replaced the bond rate as the focal point of monetary policy. In December 1983 the Australian dollar was floated giving the RBA greater control over domestic liquidity. From 1980-1984 interest rate controls over bank deposit and lending activities were removed, as were qualitative and quantitative controls over bank lending. This gave the banks greater responsibility for the management of their balance sheets and led to greater expansion in their activities with a change in emphasis from asset to liability management



(Battelino and McMillan 1989). The financial system was opened up to foreign banks with the granting of 16 new licences to foreign banks in 1985. Battelino and McMillan (1989) and Grenville (1991) provide a detailed list of the major changes introduced in the process of deregulation.

The deregulatory process has continued during the 1990s with the most recent chapter being added as a result of the FSI (1997). This resulted in changes to the regulatory regime, the most significant in this respect being the removal of prudential supervision of the banking system from the RBA, and the introduction of the Australian Prudential Regulation Authority as the overseer of prudential supervision of Authorised Deposit Taking Institutions.

#### *Expected gains from deregulation*

It was anticipated that deregulation should bring benefits to different groups including the RBA, the banking industry and the public. The control of the RBA over monetary policy would be strengthened by the anticipated process of reintermediation as funds flowed back to the banking industry and from the switch to a tender process for the sale of government bonds, separating government funding of the deficit from monetary policy control. The banking industry should benefit from the removal of balance sheet restrictions giving them more control over liability management. In addition the entry of foreign banks and other new players was expected to further increase competition. This would cause a narrowing of interest rate margins and place pressure on banks to reduce operating costs and improve productivity. It was anticipated that major gains could be made in the areas of operational or cost efficiency. Gains were also expected to be made in terms of allocative efficiency. It was hoped that increased competition would force banks to end cross subsidisation and price products closer to marginal cost for each service, including the imposition of new fees for all services provided (Harper 1991). This would be reflected by

growth in non-interest income. Improvements in dynamic efficiency were also anticipated as reflected in a growth in product range and quality of service. The increase in competition from new entrants as well as from the move to liability management however, was also expected to reduce profitability (Ackland and Harper 1992). The public should benefit from cost savings flowing on from reduced interest margins, reductions in fees and greater product diversity (Phelps 1991).

### III. DETERMINING AN APPROACH TO ASSESS BANK PERFORMANCE

The nature of the Australian banking industry and the availability of data, restrict the applicability of some research methodologies particularly those relying on statistical modelling techniques. The strength of conclusions drawn from empirical studies is affected by the limitations imposed by the relatively small database available for Australian studies as noted by Avkiran (1999 p. 995). Difficulties are incurred in conducting empirical research on bank efficiency in Australia as "the small number of Australian banks and the generally inaccessible bank-generated data make it difficult to conduct econometric analysis". Unlike the US banking system for example, the Australian banking industry is heavily concentrated, with the four major banks, ANZ, CBA, NAB and WPC dominating the market. Data availability is generally restricted to that which is publicly available in banks' Annual Reports and the reports of regulatory bodies. The number of bank mergers occurring over the time period reduces the comparability of individual banks.

Nevertheless some empirical studies have been conducted in relation to the Australian banking industry. These include studies relating to economies of scale in banking (Walker 1995, 1998), efficiency gains (Avkiran 1999, 2000, Milbourne and Cumberworth 1991), interest margins (Crowley, Jeffs and Tennant 1995, Demircuc-Kunt and Huizinga 1999), bank risk and profitability

(Gizycki 2001, Harper and Scheit 1992), competition and profitability (Phelps 1991) and performance of foreign banks (Williams 1998).

Walker (1995, 1998) examined the extent to which economies of scale existed in Australian banks over the period 1978-1990, by estimating a multi product cost function using data from 12 banks. Walker found that economies of scale did exist in the Australian banking industry during the 1980s, providing banks the opportunity to lower short run costs through a process of staff reductions and branch rationalisation. Walker further indicated that in the longer term, banks would be able to attain additional cost reductions by altering their product mix. The increasing shift of banks away from traditional deposit taking areas into areas that generate non-interest income would indicate that changes in product mix have occurred.

Avkiran (1999 p. 991) used data envelopment analysis to measure "operating efficiencies, employee productivity, profit performance and average relative efficiency" and the extent to which "efficiency gains are passed on to the public". These factors were discussed within the context of a consideration of the impact of bank mergers on efficiency gains. Avkiran found that banks experienced an improvement in operating efficiency across the period 1986-1995 with the exception of the period 1989-1991. A steady rise in employee productivity was viewed as a reflection of restructuring which occurred in response to increased domestic and international competition. Furthermore, technological change contributed to gains in employee productivity. Changes in the market share of deposits held by banks pre and post merger was used by Avkiran to measure the extent to which efficiency gains were passed on to the public. Avkiran argued that improvements in the price and quality of banking services due to operating efficiencies would increase the post merger deposit market share of a bank. Results however were inconclusive suggesting that this

variable was not a good measure of the extent to which operating efficiencies are passed on to the public.

A further study by Avkiran (2000) focused on measuring productivity (using Malmquist productivity indices) as a means of assessing performance. In particular, Avkiran related productivity gains to gains in technical efficiency and technological change. He studied 10 Australian banks between 1986-1995. Two inputs - interest expense and non-interest expense, and two outputs - net interest income and non-interest income were considered. Avkiran concluded that it was only in the early 1990s that total factor productivity showed a steady rise. He also concluded that this rise in total productivity was driven more by technological progress rather than by technical efficiency.

Milbourne and Cumberworth (1991) used the interest margin and cost structures of banks to assess the post-deregulation performance of Australian banks. Their study focused on the ability of the four major Australian banks to achieve profitability gains and generate cost efficiencies following deregulation of the banking system. This was done in the context of a determination of the accuracy of predicted outcomes of deregulation. Milbourne and Cumberworth found that the profit rate fell during the 1980s despite a widening of margins after 1985. They also found evidence to support gains in cost efficiency with falling unit labour costs and operating expenses, accompanied by rising levels of real deposits per employee over the period 1980-1988. They concluded that expected attempts by banks to reduce costs following deregulation were overshadowed by banks taking on increasingly riskier loans in the deregulated environment rather than from any narrowing of interest margins. The failure of margins to narrow following deregulation has been attributed to a failure of regulatory changes to introduce greater competition to the banking sector. Milbourne and Cumberworth suggested that the entry of foreign banks did not increase

competitiveness at the retail level as new entrants operated largely in wholesale markets.

A further finding of Milbourne and Cumberworth was that the ratio of other income to total assets was stable across the 1980s. This implied that little change had occurred in the fee structure of banks. They argue that "the issue of bank fees turns out to be somewhat irrelevant for our discussion...but [the finding] is counter intuitive to what might have been expected with the onset of deregulation and competition" (p. 175). At the time of their study, the full effects of deregulation had not had time to work their way through the banking system. Later studies (RBA 1999, 2001) addressing fee income have found that change has occurred in the fee structure of banks during the 1990s.

An analytical model to assess bank performance developed by Crowley et al (1995) was also based on an examination of the net interest margin and its components, to provide insight into a bank's performance, including profitability. They considered the impact of deregulation on the banking system across a period from 1984-1994. As with Milbourne and Cumberworth (1991), they found that an increase in competition, as evidenced by a narrowing of margins, occurred only slowly. A greater spur to reduce operating costs came from the need for the banks to recover from the effects of heavy loan losses across the period 1989-1992.

International studies have also used a similar focus on interest margins and profitability when assessing bank performance. For example, Demircuc-Kunt and Huizinga (1999) have undertaken a comparative study of bank profitability involving 7900 individual banks in 80 countries, including Australia. They discussed determinants of interest margins and bank profitability using data including bank interest margins, operating costs and loan loss provisioning as

indicators of the efficiency of the banking system within each country studied. As their findings are aggregated rather than applying to individual countries, this makes any application of their findings to individual countries difficult. They did however also examine the impact of macroeconomic factors on interest margins, concluding that factors such as the inflation rate also explain variations in interest margins.

Another international study of the determinants of bank interest rate margins was conducted by Saunders and Schumacher (2000). Their study covered 614 banks from Germany (151), France (110), Italy (135), UK (32), Switzerland (94), Spain (114) and the USA (110), over a period 1988-1995. They identified three major determinants of interest margins; regulatory, market structure and risk premiums. Their main findings were that variations in the regulatory environment of different countries, incorporating interest rate restrictions, and reserve and capital requirements impacted on the level of bank net interest margins. Similarly, variations in market structures enabled banks in different countries to exercise various level of monopoly power. Banks with greater monopoly power, achieved through either geographic concentration or activity concentration, tended to have higher net interest margins. Interest rate volatility caused by macroeconomic policies was also found to impact on net interest margins. The small size and concentrated nature of the Australian banking system makes comparable empirical studies difficult.

In an attempt to study the impact of financial deregulation on bank risk and risk-adjusted profitability Harper and Scheit (1992) examined the performance of the Australian banking industry both as a whole and for three of the major Australian banks (ANZ, NAB and WPC). They assessed changes in share market perceptions of the riskiness of banks and measured the risk adjusted return to bank capital over the period 1974-1989. They concluded that financial

deregulation did not affect systematic risk of either individual banks or the banking industry as a whole. This is attributed to the perception held by shareholders that banks were protected by a RBA safety net. Harper and Scheit found that shareholders were not earning 'supra-competitive risk adjusted returns' from their shareholdings.

Gizycki (2001) assessed Australian bank risk and profitability by analysing the sources of risk exposure of banks and by using regression analysis to determine the influence of macroeconomic variables on the level of impaired assets incurred by banks. Of the macroeconomic variables considered, the share of interest payments in corporate and household sector income, growth of real credit and property prices showed a strong correlation to bank risk and profitability. Neither Harper and Scheit (1992) or Gizycki examined individual components of profitability generated from within individual banks. Their focus was more heavily weighted towards market perceptions of bank performance and the impact of macroeconomic conditions on bank performance respectively.

Phelps (1991) examined efficiency gains made by Australian banks in the 1980s as a result of deregulation. In particular he was concerned with measuring the extent to which efficiency gains had been passed on to the public via an examination of interest margins. Phelps argued that savings gains can be passed on to customers in a number of ways including: greater diversity of services with no increase in costs, a reduction in fees for existing services and a narrowing of interest rate margins. His study focused on this latter aspect, finding no strong evidence that margins had narrowed. Rather than focus on cost reductions, banks sought loan growth as a way of combating competitive pressures. Harper (1991) considered gains in terms of consumer choice. Consumers as a group benefited from deregulation due to increased choice and product diversity offered by banks. However these gains were offset to some

degree by losses incurred by those whose products had previously been cross subsidised. He concluded that any net gains made by the public following deregulation were therefore indeterminate.

Williams (1998) conducted an empirical examination of the performance of foreign owned banks in Australia. His work focused on determinants such as organisational structure of the banks, timing of entry and some country specific characteristics. Williams did not consider the nature of the Australian banking system or the profitability of Australian banks, only examining the profitability of foreign banks operating within Australia following deregulation.

The discussion above highlights the focus of previous studies on the events prior to and following deregulation of the Australian financial system. Most studies covered the period of the 1980s and early 1990s. There are few studies covering the late 1990s, a time when the full effects of deregulatory changes have had a chance to work their way through the financial system. The ability of the banks to maintain profits in the face of increased competition and declining margins, the growth in importance of non-interest income and the extent to which efficiency gains have been passed on to the public during the late 1990s, are not well researched. This paper addresses this gap in the literature. The methodology applied in this paper follows the widely used methodology of examining bank interest margins and cost structures to determine the profitability and efficiency of banks. In particular this paper follows the approach of Milbourne and Cumberworth (1991) in relation to the examination of profitability and efficiency gains. To examine whether or not efficiency gains have been passed on to the public, trends in bank fees and interest margins are considered. In addition an examination of the distribution of income between shareholders, customers and expenses is made following Crowley et al (1995)



### *Measuring bank profitability and efficiency gains*

This paper uses a standard measurement of performance in terms of profitability. Profit is the difference between revenue and cost. In terms of the banking industry, revenue can be denoted by interest income from bank loans plus fee and other income. Costs refer to the cost of attracting funds, or the cost of commercial funds plus operating costs (including provision for doubtful debts). Hence the profit rate is determined by the following equation as used by Milbourne and Cumberworth (1991):

$$\text{Profit rate} = (A/E)(m + OI/A - EXP/A - PDD/A). \quad (\text{Equation 1})$$

where A = assets, E = total equity, m = the average interest margin (average bank lending rate minus average bank borrowing rate from deposits), OI = other income, EXP = operating expenses, PDD = provision for doubtful debts. Note that unlike Milbourne and Cumberworth, this profit rate is before tax profit. This allows for a more meaningful aggregation of bank data, as differences in taxation treatments are difficult to discover from data provided in the Annual Reports of the banks and can distort outcomes. In calculating assets, data from bank Annual Reports has been deflated to remove contra items such as bill acceptances. This follows the practice adopted by Crowley, et al (1995). A breakdown of the components of the profit rate enables analysis of emerging trends. Assets, equity, net interest income, other income (including fee income), provision for doubtful debts and operating expenses are individually examined. While other variables may also impact on profitability, including size of the bank, economies of scale, and macroeconomic conditions no specific investigation of these variables is attempted here.

Market forces exogenously determine a bank's net interest income – the difference between the average cost of commercial funds and average interest income. As this interest margin reflects the difference between revenue and cost, and hence profitability, analysis of net interest income can be argued to represent the most useful method of determining performance and should be very responsive to market forces (Demirguc-Kunt and Huizinga 1999, Milbourne and Cumberworth 1991, Williams 1998). Although economic theory emphasises analysis at the 'margin' as being more appropriate, due to data limitations, this paper has adopted the practice used by Milbourne and Cumberworth (1991) and used average interest margins.

Labour productivity, labour costs and operating expenses are the criteria used in this paper to determine the efficiency of Australian banks. Labour productivity is measured by real deposits per employee and calculated by  $(\text{deposits}/\text{consumer price index})/(\text{number of full time equivalent employees})$ . Unit labour costs refer to the ratio of the real wage to productivity. The real wage has been calculated by deflating total personnel expenses of each bank by the CPI.<sup>2</sup> Other operating costs are calculated as a ratio of operating expenses to total assets.

This study looks at interest margins, bank fees and the returns to shareholders and depositors to gain further insight into the passing on of benefits from efficiency gains. The proportional distribution of total income between providers of commercial funds (customers), holders of equity (shareholders), and expenses (including provision for bad and doubtful debts), is used to indicate the extent to which efficiency gains have been passed on to the public. A decrease in the distribution allocated towards expenses, accompanied by an increase in the share

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<sup>2</sup> CPI figures were taken from ABS Catalogue 6401.0, Consumer Price Index, CPI All Groups, Weighted Average of Eight Capital Cities, (Base year of each index 1989-90 = 100.0).

being returned to customers, would indicate a passing on of gains to the public (Crowley et al. 1995).

Banks earn non-interest income from a variety of sources including funds management, insurance products, transaction services, advisory services and provision of products to customers. While ventures into these areas are important sources of non-interest income to banks, it is the fees imposed on account servicing and transactions, which in recent times has generated most public debate. Underpinning the banks' ability to increase fee income was the earlier granting of monopoly power to the Australian banks over the payment system. For many years, they had exclusive rights to exchange settlement accounts, a right not granted to credit unions and building societies (via Special Service Providers) until 1994<sup>3</sup>. This special privilege enabled banks to embark on a policy of charging fees for services to counteract 'squeezing' of interest rate margins that occurred especially in the later stages of the 1990s (PSA, 1995). This process has not been without controversy as evidenced by the RBA's Inquiry into Debit and Credit Card Fees (RBA and ACCC, 2000). This paper attempts to provide an indication of how these moves have impacted on the balance between interest income and fee income.

Tripe (2000) indicated the difficulty of measuring the extent of this trend due to inconsistencies in reporting fee and other income in Annual Reports of banks, but concluded nevertheless that a comparison of net interest income to total assets and fee income to total assets provides a useful measure. These measures have been adopted here in addition to a comparison of fee income and interest income to total income. This shows more clearly how their relative importance

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<sup>3</sup> More recently, as a result of the Financial System Inquiry (1997), the Payments System Board has indicated its intention to liberalise access to the payments system and on the 11th November 1999, announced the granting of an exchange settlement account to the Sydney Futures Exchange Clearing House.

has changed. Such a comparison will not allow for a detailed examination of the trends in bank fees as they impact on both households and business in terms of efficiency gains as data required for such an evaluation is not available through banks' Annual Reports.

#### IV. ANALYSIS OF DATA

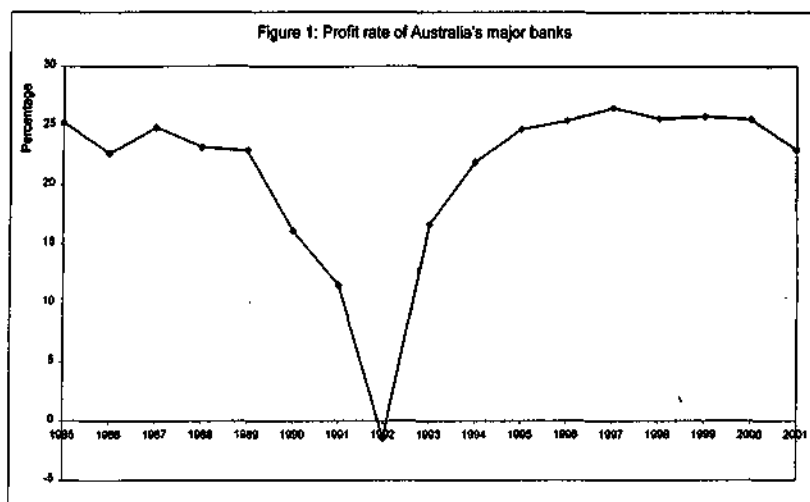
This paper focuses on the banking sector as a whole using Australia's four major banks: ANZ, CBA, NAB and WPC as a proxy for the market. Of the 50 banks currently operating in Australia, the four major banks account for 67% of the market share of the banking sector, 'other Australian owned' banks make up 18% with foreign owned banks accounting for the remaining market share (APRA 2000). Hence using the four major banks as a proxy for the market provides a reasonable indication of overall market trends within the banking sector. Data from the Annual Reports of these banks was collected and aggregated, covering a period from 1984-2001.

*Measuring profitability – via an examination of the profit rate and its components*

##### i) Profit rate

The profit rate as shown in Figure 1 has remained relatively stable across the period at an average of around 21%. A glaring abnormality occurred between 1989 and 1994, when the profit rate fell to a low of negative 1.47 in 1992, before a recovery occurred. This dramatic drop in profitability was largely attributable to heavy loan losses experienced by the banks as discussed later in the paper. These results highlight the importance of examining data over a wider timeframe and within an historical context. Milbourne and Cumberworth (1991) found a fall in profit rate during the 1980s. However seen over time, this fall in the later part of the 1980s can be seen as an aberration. A decline of smaller magnitude occurred in the later stages from 1999 to 2001, which can be

explained by the activities of both CBA and NAB during this period. Following the acquisition of Colonial in 1999, CBA dramatically increased equity holdings as a result of a new share issue to Colonial Shareholders, which increased equity by \$9274m (CBA 2000 p. 107). This increase in equity reduced the profit rate. Problems faced by NAB due to the failure of its American acquisition HomeSide, resulted in a \$3.6 billion write-down, also causing a decline in the profit rate (NAB 2001 p. 2). These two forces combined, outweighed positive performances by ANZ and WPC during this period, dragging the market rate down. The overall stability of profits is interesting given the media coverage of reported increases in bank profitability in recent times. Figures reported in the media refer to nominal dollar values. However, when these nominal values are translated into percentages and expressed as a profit rate, a different light is shed on the performance of the banks as a whole in this respect.



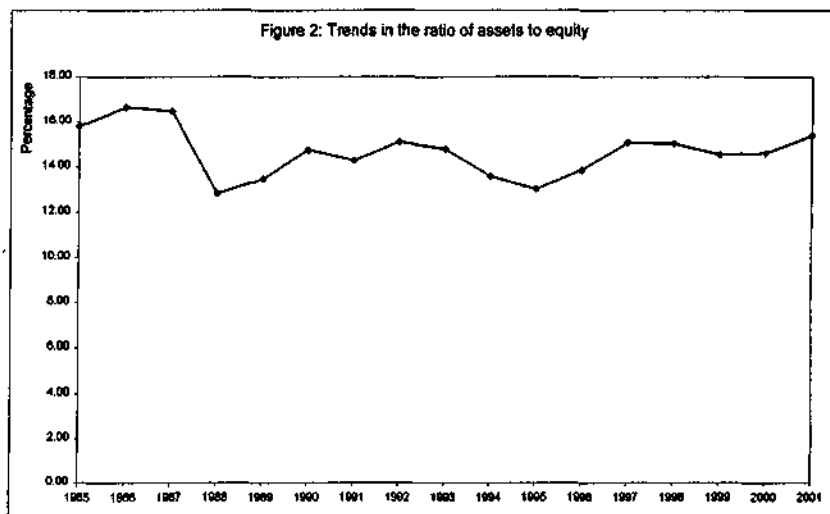
## ii) Trends in asset and equity growth

Figure 2 indicates a slight declining trend in the ratio of average total assets (calculated as a two year average) to equity across the period, with the average

around 14.7%. Due to the relative stability of the ratio of assets to equity, this component of the profit rate contributes little to an explanation in the trends evident in the profit rate. However an individual examination of both assets and equity reveals that while all banks experienced a growth in total assets, this growth has been accelerating from 1994 onwards. NAB has experienced the strongest asset growth of all of the banks. This can be explained by a combination of acquisitions during the 1990s including Bank of New Zealand in 1992, Michigan National Corporation in 1995, County Investment Management in 1997, HomeSide Inc in 1998 and MLC in 2000 (NAB 1996, 1997, 1998, 2000). In addition they have experienced strong loan growth in relation to housing, lease finance and credit cards. CBA also experienced a large increase in asset size from 1999 to 2000 largely attributable to its purchase of the Colonial Mutual Group (CBA 2000). Equity has been calculated here as the sum of incorporated shares (issued and paid up), reserves and retained profits<sup>4</sup>. Equity holdings have fluctuated across the period, as would be expected, as banks alter equity levels in response to changing requirements.

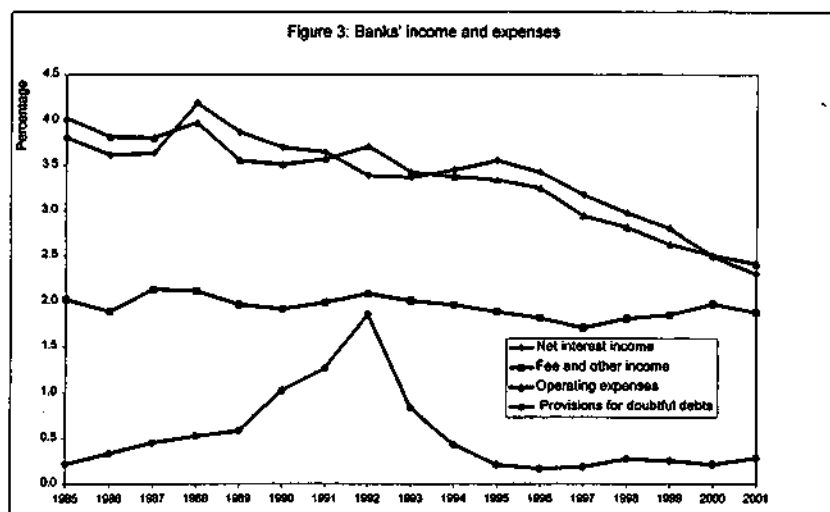
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<sup>4</sup> Capital adequacy guidelines detail the minimum required holdings of equity (capital) for banks as well as the form in which capital can be held. For the most recent capital guidelines refer to the web site of the Australian Prudential Regulation Authority at [www.apra.gov.au](http://www.apra.gov.au)



### iii) Net interest income

The bank lending rate (average interest income) minus the bank borrowing rate from deposits (average cost of commercial funds) determines net interest income. This net interest income is exogenously determined with variations attributable to factors such as entry of new competitors, disintermediation or reintermediation of funds and bank entry into new markets. Each of these factors has impacted on bank activity during the process of deregulation. A trend towards a contraction in net interest income is evident for the market as a whole from 1998 onwards, with this downward trend becoming stronger from 1995 (Figure 3). A narrowing of an individual bank's net interest income, in conjunction with a convergence of this income for the four banks, indicates an increase in the level of competition within the banking industry. These findings support previous work by others including Milbourne and Cumberworth (1991) and the RBA (1999) that a contraction of bank margins was initially slow to occur.



A consistent convergence in net interest income across each of the banks comprising the market became apparent from 1994. The slowness with which net interest income fell and the absence of a strong convergence between banks during the period between 1988 and 1993 can be attributed to a number of factors. Firstly, there was a lack of real competition in the retail market during this period. Milbourne and Cumberworth (1991) argued that the introduction of foreign banks did not increase competition in retail markets as these new entrants tended to focus their operations in the wholesale market. It was not until the emergence during the mid 1990s of non-bank competitors, particularly in the home loan market, that the banks felt competitive pressures. The convergence and contraction of net interest income is most strongly defined following their introduction. Secondly, the high level of non-performing loans experienced in the late 1980s and early 1990s meant that the ability of the banks to operate on reduced margins was curtailed until bad debts could be brought under control. Competitive pressures were insufficient to force banks to reduce margins at a time when profits were being severely eroded due to a high level of loan losses. This high level of bad loans was not an Australian phenomenon with banks in



many countries experiencing difficulties at this time (Tallman and Bharucha 2000).

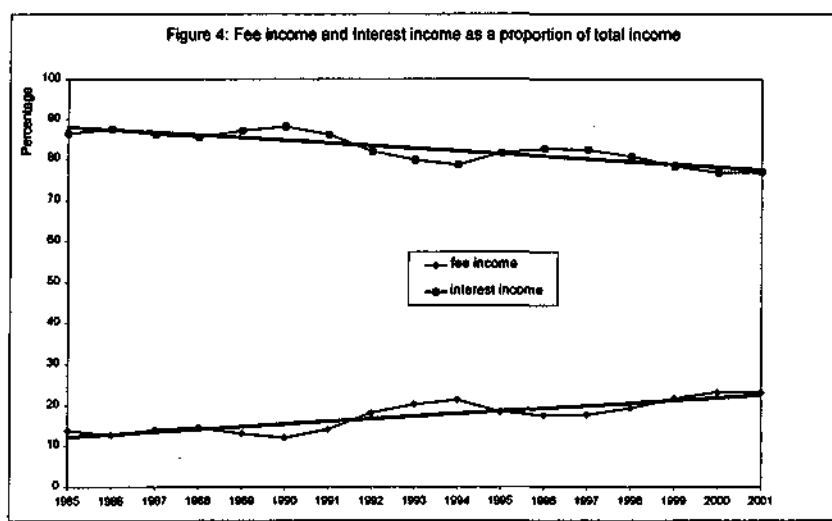
It is interesting to note that although net interest income fell during the late 1990s, profitability did not. From 1995 until 1999, the profit rate returned to its average rate of around 21%, at a time when narrowing and convergence of bank margins (indicator of increased competition) is most apparent. This supports findings of Gizycki and Lowe (2000) that Australian banks had maintained profitability in the face of increased competition and decreased interest margins. Increased earnings from other sources is one way of explaining the stability of bank profits in the face of reducing net interest income and increasing competition.

#### iv) Other income

Other income refers to non-interest income earned from various fees (loan fees, bank fees associated with bill issuance and guarantees, account keeping and transaction fees, service and management fees etc). It also includes other non-interest income such as foreign exchange income, rental income and profit on sale of premises.

'Other income' has remained relatively stable averaging 2% over the entire period 1985-2001 (Figure 3). At first glance, this appears to reduce the credibility of complaints in the media of significant increases in fees and charges imposed by banks. However 'other income' reported here is measured as a ratio of other income to total assets. The significant growth in assets across the period counteracts the growth in other income, which in nominal terms, has also been significant. Other income and total assets both grew at a rate of approximately 12% over the period of the study. Hence, changes in other income, measured as a ratio of total assets, do not show a clear contribution to any increases in

profitability. A comparison of other income and interest income as a proportion of total income, gives a different view of the increase in importance of other income. Figure 4 clearly shows the decline in importance of interest income as a proportion of total income, and the relative increase in significance of other income. However this figure can also be misleading if a decline in net interest income also led to a decline in total income (Tripe 2000). This research found that across the period 1985-2001, average total income grew at a rate of 8%, net interest income increased at an annual average of 7.3%, while other income increased by 11.7%. This clearly shows that non-interest income was a contributing factor to the maintenance of bank profitability and provides an explanation as to why banks were able to maintain profitability even though margins were narrowing.



Of concern to consumers is the perception that there has been a dramatic increase in fees applying to them. The banks' Annual Reports do not provide a breakdown of the proportion of other income obtained from households and business, reporting only a total figure. However, there is some justification for

this concern as highlighted recently by the RBA (2001 p2). While banks received 66% of total fees from business and 34% from households in 2000, the proportion received from households in 2000 represented an increase of 18% from 1999; in comparison, business faced an increase of 12%.

#### v) Operating Expenses

A comparison of operating expenses and net interest income in Figure 3 highlights a close relationship between these variables. From 1995, onwards, the contraction in net interest income has been shadowed by a contraction in operating expenses. It is only in 2000-2001 that the decline in net interest income was greater than the decline in operating expenses. This decline in operating expenses is the main explicator of how banks have been able to achieve and maintain improvements in their profit rates. The fall in operating expenses can be attributed to efficiency gains achieved in a number of areas as discussed below.

#### vi) Provisions for bad and doubtful debts

The peak in PDD occurring in 1992 (see Figure 3), clearly explains the trough in the profit rate also experienced in that year as illustrated in Figure 1. Non-performing loans impact on bank profitability in two ways. Firstly, banks must directly write off loan losses and increase provisioning for further expected losses. Secondly, there is a 'funding drag' effect caused by the need to continue to fund loans at the market rate, unmatched by income from non-performing loans (RBA 1993). During the early 1980s increases in asset prices fuelled an increase in lending to the commercial property market. Unfortunately the combination of global recession contributing to a reduction in the level of domestic economic activity, combined with a sharp drop in asset prices during the late 1980s resulted in an unexpectedly high level of loan losses for the banks (Gizycki 2001, Tallman and Bharucha 2000). It was not until these loan losses

were brought under control, that profit rates were able to recover. Despite banks' exposure during the Asian crisis causing a slight rise in PDD levels, the level of PDD has remained on average around 0.22% across the period 1995-2001.

### *Efficiency*

A decline in operating expenses as a proportion of total assets serves as a base indicator of the existence of efficiency gains. The ability of the banks to achieve reductions in operating expenses is directly related to their ability to achieve productivity gains and lower per unit labour costs. The level of real deposits per employee has been used in Table 1 to measure productivity. Data commences in 1992, as prior to this not all banks recorded employee numbers in a similar fashion. As can be seen from Table 1, the market recorded a consistent improvement in all of these measures of efficiency – real deposits per employee, unit labour costs and operating expenses (measured as a ratio of total assets). Unit labour costs and operating expenses showed a similar annual average rate of decline over the period of 3.8% and 4.7% respectively. Contributing to the fall in operating expenses has been the reduction in both staff numbers and branches as illustrated in Table 2. These gains are overshadowed by the much more significant productivity gains in real deposits per head amounting to an annual average of 9% across the period.

These results however should be interpreted with caution as using ratios of operating expenses and net interest income to assets to identify long run trends in efficiency and margins is not entirely appropriate when, as has occurred here, average assets grow during the period and the mix of business changes. Phelps (1991) points out that these trends do not distinguish any variation in the cost of intermediation as the mix of services provided alters. Nor do they allow for a distinction between changes in payment system costs. Phelps identified the former cost as being of more relevance to the level of interest rate margins.

Furthermore, reductions in costs may also be offset by outlays in technology. The overall impact on costs of such outlays is however unclear as expenditure on technology, while initially adding to costs, should lead to efficiency gains thereby reducing costs in the long run.

**Table 1: Efficiency gains**

Year	Real deposit per employee	Unit labour costs	Operating expenses/assets
1992	1369325	0.5093	0.0371
1993	1457381	0.5075	0.0342
1994	1557399	0.4757	0.0337
1995	1629551	0.4678	0.0333
1996	1780361	0.4466	0.0324
1997	2025656	0.4250	0.0294
1998	2416186	0.3819	0.0281
1999	2576296	0.3785	0.0262
2000	2854171	0.3418	0.0250
2001	2974463	0.3589	0.0241

**Table 2: Changes in bank branch and staff numbers**

Year	Branches	Staff (full time equivalent)
1992	8477	168030
1993	8316	159872
1994	7627	152178
1995	7258	150624
1996	7435	155249
1997	6775	148403
1998	6604	142337
1999	6273	136542
2000	6103	137192
2001	5357	129532

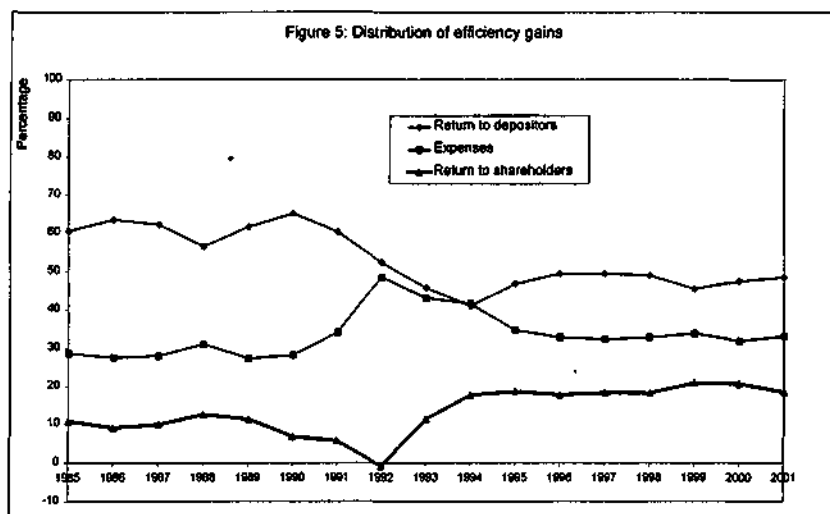
### *Passing on of efficiency gains*

As illustrated above, the banks have clearly made efficiency gains following on from the trough in profit rates experienced in 1992. Phelps (1991) argues that a narrowing of margins indicates the passing on of efficiency gains to the public due to either an increase in interest rates paid on deposits and/or a reduction in interest rates charged on loans. Hence a narrowing of margins would indicate gains made by either depositors or borrowers, or both. As shown in Figure 3, a narrowing of margins has occurred with this contraction for the market as a whole being more evident after 1998. This indicates some degree of benefits flowing on to bank customers.

At the same time as margins have narrowed, bank fees have increased. From the data available in this paper, it is not possible to draw any conclusions as to whether or not the overall benefits received from a narrowing of margins has been greater than or less than the costs born by the public by the imposition of these fees. Moreover any such conclusions should also take into consideration benefits received from the wider product choice available to the public in relation to fees paid.

Another way of gauging the extent to which efficiency gains have been passed on to the public is to consider how these efficiency gains have been shared between shareholders and customers. This is based on an allocation of total income to shareholders, customers and expenses carried by the banks. The return to shareholders is calculated as a percentage of equity to total income and return to customers is calculated as the average cost of commercial funds as a percentage of total income. Figure 5 indicates that up until 1990 customers were receiving an average share of 60% with shareholders returns of around 10%. From 1990 onwards the return to depositors fell sharply and from 1996 onwards

has remained fairly constant at around 50%. After reaching a low in 1992, return to shareholders has managed to rise and remain steady at around 20%. With the exception of the period 1990–95 expenses as a proportion of total income have remained relatively stable at around 30%. This indicates that the increase in return to shareholders from 1995 onwards has come at the expense of customers lending support to view that efficiency gains have not been passed on to customers.



## V. CONCLUSION

This paper analyzes several aspects related to bank performance in an era of deregulation. The wider time frame (1985-2001) of this paper relative to previous studies has enabled a systematic examination of the components of bank profitability.

Anticipated effects of deregulation on the banking industry included an increase in competition resulting in a reduction in net interest margins, reduced profitability, efficiency gains via cost reductions and an increase in non-interest income. Despite these anticipations, apart from the period 1988-1992, the profit

rate has remained stable at around 21% across the period 1985-2002. The aberration in profit levels in these years was due to the substantial loan losses that banks experienced rather than being an effect of increased competition. A consistent convergence in net interest margins only became apparent from 1994 onwards, a period when profitability had been restored. Although increased competition did eventually result in a narrowing of margins, the impact of this was not felt on profitability.

Banks have been able to maintain profitability through gains in productivity and cost reductions. Real deposits per employee, unit labour costs and operating expenses were used to measure gains in productivity and cost reductions. Gains in productivity as evidenced by growth in real deposits per head, outstripped gains made in the area of cost reductions.

The paper also investigated the contribution of non-interest income to profitability. The research found that the proportion of non-interest income to total assets was relatively stable. However, when measured as a proportion of total income, non-interest income shows an increase in relative importance. While total income, interest income and non-interest income all demonstrated positive growth, the rate of growth of non-interest income was higher. This increase in non-interest income together with efficiency gains has enabled banks to maintain profitability in the face of increased competition and narrowing margins.

Narrowing of interest margins indicates an increase in benefits flowing to the public, as does an increase in product choice. However the extent to which these benefits are negated by increased fees is unclear. Measuring the extent to which efficiency gains have been distributed between shareholders and customers, provides an alternative gauge of the beneficiaries of efficiency gains. According



to this measurement shareholders, rather than the public, have been the main beneficiaries of efficiency gains.

The above results need to be considered keeping in mind that although the four major banks contribute to around two-thirds of the banking systems assets, the behavioural responses of smaller banks also need to be considered. Furthermore, data reporting procedures of the four major banks in some cases are different and have occasionally changed. Bank mergers have also affected asset growth and influenced operating expenses.

Although there is evidence of an increase in competition within the Australian banking system bringing with it efficiency gains, there is scope for further research in this area by including both a larger number and wider range of financial institutions. Fee income is also an area that can be investigated further. Due to data limitations, the relative importance of fee income, its components and its impact on various sections of society could not be investigated and hence strong conclusions could not be drawn on the extent to which efficiency gains have been passed on to the public.

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