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Personal banking
services market study:
Review of the Commerce
Commission's draft report

Report prepared for BNZ
18 April 2024

Deloitte
Access Economics

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Glossary

Acronym	Full name
ACT	Australian Competition Tribunal
ANZ	ANZ Bank New Zealand Limited
ASB	ASB Bank Limited
BNZ	Bank of New Zealand
BOB	Bank of Baroda (New Zealand) Limited
BOI	Bank of India (New Zealand) Limited
CCB	China Construction Bank (New Zealand) Limited
Commission	Commerce Commission
Co-op	The Co-operative Bank Limited
CTI	Cost-to-Income
D-SIB	Domestic Systemically Important Bank
FLP	Funding for Lending Programme
FMA	Financial Markets Authority
GFC	Global Financial Crisis
HHI	Herfindahl-Hirschman Index
H-Statistic	Panzar-Rosse-H-Statistic
ICBC	Industrial and Commercial Bank of China (New Zealand) Limited
IRF	Impulse Response Function
LINZ	Land Information New Zealand
LSAP	Large Scale Asset Purchase
LVR	Loan-to-value
MBIE	Ministry of Business, Innovation and Employment
NBDT	Non-Bank Deposit Taker
NIM	Net Interest Margin
OCR	Official Cash Rate
PIP	Preliminary Issues Paper
RBNZ	Reserve Bank of New Zealand
RBS	Royal Bank of Scotland

[ ]	[ ]
SBS	Southland Building Society
SFA	Stochastic Frontier Analysis
TLF	Term Lending Facility
TSB	TSB Bank Limited
VAR	Vector Autoregressive Regression
Westpac	Westpac New Zealand Limited

Scope and introduction

Purpose

1. Deloitte Access Economics (**we, us** or **our**) have been engaged by Bank of New Zealand (**BNZ**) to review the Commerce Commission's (**the Commission**) Draft Report into personal banking services market study, released 21 March 2024. This report provides our review of the Commission's preliminary findings that:

    1.1. The major banks; ANZ Bank New Zealand Limited (**ANZ**), ASB Bank Limited (**ASB**), Westpac New Zealand (**Westpac**) and BNZ, do not currently face strong competition and can be characterised as a stable oligopoly.

    1.2. There are high levels of observed profitability.

Structure and scope of this report

2. The structure of this report is outlined in Table 1 below:

Table 1: Report structure and content

Chapter	Content
The extent of competition for personal banking services	• Analysis on no clear price leadership, pricing relationships across banks and products, regional differences and discretionary discounting. • The degree to which personal banking products are homogenous. • The extent of competition from Kiwibank. • The extent to which the New Zealand banking sector has been subject to supply- and demand-side shocks. • The extent of switching and multihoming, regulatory conditions of entry and expansion and economies of scale and scope.
Profitability	• The levels of accounting and economic efficiency in the New Zealand banking sector and implications for observed levels of profitability. • Regulatory conditions of entry and expansion explain observed profitability trends.

Source: Deloitte Access Economics

Authors of the report

Liza Van Der Merwe (Partner), Nigel Annett (Partner), Dr Ric Simes (Principal, Australia), Mayuresh Prasad (Associate Director), Elri Pienaar (Manager), Ayden Dickins (Analyst) and Emily Barron (Analyst)

The extent of competition for personal banking products

Key points:

- **Outcomes in dynamic and differentiated markets** with several, but not an infinite, number of firms can **range from intensely competitive to significantly uncompetitive**.

- The Commission's preliminary view is that personal banking services can be characterised as a stable two-tiered 'oligopoly', with Kiwibank 'stuck' in the middle, and a risk of tacit coordination. This suggests an outcome that is not workably competitive.

- **For the Commission's preliminary view to hold true, we consider a range of factors need to be present. Our review of the evidence suggests that many of the factors do not hold**:

  o While **pricing is fundamentally driven by capital markets**, there is **no apparent price leader** for headline rates across mortgages and term deposits. Our empirical analysis also suggests the **presence of dynamic and varying relationships** between advertised rates across multiple products. Analysis of LINZ data suggests **regional differences in competition**, with smaller banks and other institutions such as TSB, SBS and Nelson Building Society providing an increased competitive constraint in certain regions.

  o The Commission also finds **no price leader across effective rates** for new owner-occupier home lending and a weak correlation between headline and effective rates. We acknowledge this latter fact is likely to add to search and switching costs, dampening demand side pressures.

  o We agree that the presence of price matching can act to soften competition in markets. However, in the context of the variability in rates, relationships and regional competitive conditions, **price matching** is likely to be aimed at ensuring banks are competitively pricing and sending signals that they are low-priced (i.e., **competition at work**).

  o We acknowledge personal banking products **are homogenous, but only consider this to be true to a degree**, with non-price factors a key dimension of competition. Discretionary discounts also add an element of differentiation, and the multiplicity of products within personal banking services add further differentiation and reflect that consumers have different preferences across products.

  o The view that **Kiwibank** is 'stuck' in the middle gives disproportionate weight to its current market position. A wider analysis of the available evidence (i.e., its above system growth, consumer perceptions found in the Verian survey and LINZ data-based volume shares) suggest it is a **closer constraint to ANZ, ASB, Westpac and BNZ** than found by the Commission. Reflecting this, and found by the Commission's econometric paper, **market concentration is moderate and has decreased notably between 2016 and 2022**.

  o The banking sector has been subject to **significant disruption from macroeconomic events**, such as the GFC and COVID-19. We consider that the periods of less intense competition, identified by the Commission, coincide with periods of heightened uncertainty and policy interventions by the RBNZ.

  o We agree with the Commission that **impediments to switching are generally *perceived***, rather than actual. **Mortgages are found to be a conduit to switching** across other personal banking services and of late, **switching has increased**. There is **further evidence of increased 'multihoming', use of brokers** and **increased digitalisation**.

- o   We agree that **regulatory conditions impact entry and expansion, and these interact with economies of scale and scope**. However, such regulations exist for a reason, and the trade-off between competition and financial stability needs to be considered carefully.

- **Overall, our review of the evidence suggests competition in personal banking services is more dynamic and effective than the stable oligopoly found by the Commission in its Draft Report**.

   - o   We consider there is differentiated and varying price competition across multiple products, with added variability from regional differences in competition. We consider Kiwibank is a closer competitive constraint to ANZ, ASB, Westpac and BNZ, adding asymmetry to the market. Switching for gateway products such as mortgages have increased of late and may continue to increase through brokers and increased 'multihoming' and digitalisation.

   - o   The consequence of the above is that, in our view, the market is unlikely to be conducive to a situation where banks can reach mutually acceptable outcomes that are workably uncompetitive. We consider, as recently found by the Australian Competition Tribunal, that while personal banking services may be vulnerable to coordination, the conditions for coordination have reduced. Evidence suggests:

      - ▪   Market concentration is moderate and has decreased notably between 2016 and 2022. Although there are symmetries across banks, there are also asymmetries across major banks, such as across volume shares in different regions across banks and volume shares changing over time. There is also no evidence to suggest coordination on non-price aspects and pass-through of changes in regulatory costs.
      - ▪   Prevalence of discretionary pricing is high, accounting for 50% to 60% of home loans, which detracts from price transparency; along with the increasing impact of brokers, which reduces search and switching costs.
      - ▪   The role of capital markets is important, but so too are external macroeconomic factors, leading to times of uncertainty and volatility.
      - ▪   Kiwibank provides a stronger competitive constraint relative to the "maverick" benchmark of Macquarie referred to by the Commission. For example, Kiwibank now has at least 50% of the lowest market share of a "major bank" when compared to Macquarie, which has a share of a third of the lowest market share of a "major bank". The Commission, nonetheless, considers Macquarie to be a disrupter.

Framework for our review

3.   We consider that competition between banks for personal banking services is best characterised by differentiated competition. That is, while price is a key dimension across which banks compete, they differentiate their lending and deposit offerings along a number of lines. Differentiating factors include non-price factors such as the range of products, service, perceptions of trust and security, innovation, product design, customer support, digital capabilities and brand awareness.[1] The nature of competition for personal banking services is also dynamic.

4.   Markets with several, but not an infinite number of firms, that interact over time can be found in all countries across a broad range of sectors.[2] In such dynamic markets, with several, but not an infinite number of firms, a wide range of potential competitive outcomes are possible. The outcome is also difficult to predict. "Folk theorem" of markets with several, but not an infinite number of firms, suggest that "anything can happen", ranging from intensely competitive to

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[1] Commerce Commission "Personal banking services market study – Draft report" (21 March 2024) at [2.55].
[2] See, for example, OECD "Oligopoly markets", available at https://www.oecd.org/daf/competition/oligopoly-markets.htm#:~:text=Oligopoly%20markets%20are%20markets%20dominated,at%20least%20appear%20that%20way.

monopoly outcomes if competitors are "sufficiently patient". Being "sufficiently patient" means valuing future higher prices and profits over current sales at lower prices.[3]

5.   Put simply, outcomes in dynamic markets with several firms, but not an infinite number of firms, can range from intensely competitive to some that are significantly less so.

6.   The Commission's preliminary view on the state of competition for personal banking services suggests an outcome that is closer to an uncompetitive outcome. For this to be true, we consider the following factors would need to be present:[4]

    6.1.   An ability for firms to reach mutually acceptable outcomes or "focal points" and the ability to detect and punish deviations from such outcomes[5], which may, in turn, depend on factors such as:

        6.1.1.   The presence of largely homogenous products.[6]

        6.1.2.   A small number of firms that are of similar size and cost structure.[7]

        6.1.3.   An absence of 'outside' or 'maverick' firms within the market.[8]

        6.1.4.   Stable market conditions with low innovation and uncertainty.[9]

    6.2.   An inability for consumers to easily switch between rival firms.[10]

    6.3.   Impediments to entry and expansion.[11]

7.   These factors are similar to factors the Commission considers "are consistent with the conditions for coordination"[12] and that the Australian Competition Tribunal (**ACT**) considered in its recent decision relating to the proposed merger of ANZ and Suncorp.[13]

Summary of our review

8.   Table 2 below lists the above factors, the Commission's view and our assessment of the evidence against them.

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[3] *Applications by Australia and New Zealand Banking Group Limited and Suncorp Group Limited* [2024] ACompT 1 at [381]. See also Europe Economics "Study on Assessment Criteria for Distinguishing between Competitive and Dominant Oligopolies in Merger Control – Final Report for the European Commission Enterprise Directorate General" (2001) at 15.

[4] We would emphasise this is not a complete list of factors that would need to be present for the likelihood of uncompetitive outcomes.

[5] As many potential outcomes are possible in oligopoly settings, firms need to be able coordinate on one of the many possible outcomes. Focal points, and the ability to detect and punish deviations from such points, may enable firms to reach mutually acceptable outcomes in a market that are above competitive levels – see *Applications by Australia and New Zealand Banking Group Limited and Suncorp Group Limited* [2024] ACompT 1 at [382].

[6] If products are differentiated and firms produce a large number of products, it can be argued that firms will have difficulties in determining a complete schedule of mutually acceptable outcomes – see Europe Economics "Study on Assessment Criteria for Distinguishing between Competitive and Dominant Oligopolies in Merger Control – Final Report for the European Commission Enterprise Directorate General" (2001) at 32.

[7] Asymmetries between firms in terms of factors such as cost structures have been found to make tacit coordination more difficult – see, for example, R Rothschild "Cartel stability when costs are heterogeneous" (1999) 17(5) International Journal of Industrial Organisation 717.

[8] Smaller or 'fringe' firms can play an important role in the ability of firms to reach outcomes that are uncompetitive or collusive. See, for example, R Selten "A Simple Model of Imperfect Competition Where Four are Few and Six Are Many" (1973) 2 International Journal of Game Theory 141.

[9] Unpredictable periods of downturns or high demand may make it difficult for firms to reach mutually acceptable outcomes. Periods of downturns may be interpreted as 'cheating' and growing demand may increase the inventive for firms to deviate from a mutually acceptable outcome and gain market share – see, for example, Julio J Rotemberg and Garth Saloner "A Supergame-Theoretic Model of Price Wars during Booms" (1986) 76(3) The American Economic Review 390.

[10] In a competitive market, customers usually have ready access to the information they need to make well informed purchasing decisions, and the ability to easily switch between rival suppliers – see Commerce Commission "Market Study Guidelines" (2020) at [17].

[11] At its extreme, markets characterised by perfect contestability would keep prices in a market at competitive levels, even only with a few firms in the market – see, John C Panzar, Robert D Willig and William Baumol *Contestable Markets and the Theory of Contestable Markets* (Harcourt Brace Jovanovich, New York, 1982).

[12] Commerce Commission "Personal banking services market study – Draft report" (21 March 2024) at [2.67]. See also Commerce Commission "Mergers and acquisitions guidelines" (May 2022) at [3.89].

[13] Australian Competition Tribunal "Applications by Australia and New Zealand Banking Group Limited and Suncorp Group Limited [2024] ACompT 1" (February 2024) at [F.2.].

Table 2: Factors needed for Commission's preliminary findings to hold true and our assessment of evidence

Factors	Commission's findings	Our assessment of evidence
Price transparency / An ability for firms to reach mutually acceptable outcomes and detect and punish deviations	• A risk of accommodating behaviour (or tacit coordination), as the major banks have broadly similar cost structures, can readily observe and respond to each other's pricing and regularly interact across a range of services.[14] • Established patterns of price matching reduce incentive to compete hard on interest rates.[15]	• No clear price leaders for advertised or effective rates, varying pricing relationships across banks and products, discretionary discounts and regional variability in competition all add to difficulty in achieving mutually acceptable outcomes. • While we acknowledge that price matching may soften competition, we consider the context in which it takes place is crucial. Given no clear price leadership, varied pricing relationships and regional differences in competition, price matching is likely to be a signal that a bank is low-priced and is pricing competitively.
Homogenous products	• Services are largely homogenous.[16] • There is a degree of non-price competition on metrics like brand reputation and service. The strong brands of the major banks reinforce the current market structure, whereas customer service levels do not appear to materially impact shares of supply.[17] • Discretionary discounting is common, being applied to between 50% and 60% of lending by volume.[18]	• Banking products are only homogenous to a degree, with non-price factors such as service quality differentiating products. There is a multiplicity of products in personal banking services (each with distinct consumer preferences and a different set of competitors and strategies). • While prices are advertised and most firms share common cost benchmarks (e.g., the Official Cash Rate, 90-day bank bill yields), discretionary discounts do make it harder to observe competitor prices (Although we acknowledge this latter fact is likely to soften demand side competition).
A small number of firms / High concentration and lack of 'maverick' or outside firms	• The major banks, ANZ, ASB, BNZ and Westpac, do not currently face strong competition when providing personal banking services.[19] • Providers of personal banking services can be split into two-tiers. The first tier comprises the four major banks. The second tier comprises the smaller registered banks and non-banks. Kiwibank is 'stuck in the middle' of these two-tiers.[20]	• Kiwibank was found to have an impact on the pricing of ANZ, ASB, Westpac and BNZ. • The econometrics paper commissioned by the Commission found only moderate levels of concentration in the market and found that it has decreased between 2016 to 2022. • Smaller banks provide constraint on a regional basis, adopt different business models and may focus on particular market segments, lowering conditions to entry as a result.
Symmetries across producers	• It is implied by the Commission's finding that major banks have broadly similar cost structures and do not face strong competition when providing personal banking services.	• There are asymmetries in market shares between ANZ, ASB, Westpac and BNZ. • Kiwibank is a competitive constraint, adding significant asymmetry. The likes of TSB, SBS and Nelson Building Society also drive regional differences in competition.
Little innovation, stable demand and lack of supply shocks/volatility	• Competition between the major banks is sporadic. Each of the major banks has greater or lesser growth ambitions at any point in time, but none are consistently offering 'best in market' home lending interest rates.[21] • There is limited investment and low prioritisation into core banking systems by the major banks and Kiwibank.[22] • There have not been disruptive innovations observed overseas from fintechs and progress towards open banking has been slow.[23]	• Banking products are subject to supply-side and demand-side shocks, especially during periods of global uncertainty such as the GFC or COVID-19 pandemic. • In Deloitte Access Economics' Preliminary Issues Paper (PIP) response, we note that innovation is a broad concept and impacts of ongoing improvements to both processes and existing products need to be considered as part of the assessment in this study.[24]
An inability for consumers to easily switch between rival firms	• Impediments to searching and switching reduces competitive pressure on the major banks.[25] • Consumers of personal banking services tend to be "sticky", with consumers often defaulting to their existing provider when adding or renewing services.[26] • There is a significant degree of customer inertia in personal banking, however some impediments to switching are perceived.[27] • 'Multibanking' (or multihoming) is increasing.[28]	• Impediments to switching are generally *perceived* rather than actual, and there is evidence of increased switching across mortgages, which are a 'gateway' for switching across other products. • Evidence of increased 'multihoming' over time. • Brokers and increased digitalisation are likely to further increase switching.
Impediments to entry and expansion	• The banking sector is highly regulated, and regulation is the "single most important factor constraining providers' ability to enter".[29]	• We agree there are regulatory conditions to entry and expansion, which interact with economies of scale, and are exacerbated by lack of scale in New Zealand.

Source: Deloitte Access Economics

9. In short, evidence points to competition for personal banking services being more competitive and dynamic than the stable oligopoly found by the Commission in its Draft Report:

   9.1. There is a degree of differentiation across personal banking products, driven by non-price factors and discretionary discounts. Evidence suggests that most banks respond to other banks' advertised rates, irrespective of their size and structure. Combined with varying price leadership, dynamic price relationships, and regional differences in competition, this suggests that the ability for banks to achieve mutually acceptable outcomes or to coordinate is difficult.

   9.2. The constraint that Kiwibank provides on ANZ, ASB, Westpac and BNZ is greater than that implied by current market shares alone. Our review of the evidence suggests that Kiwibank acts as a constraint on ANZ, ASB, Westpac and BNZ pricing, has been growing at levels above 'system' growth (implying it is winning market share) and is considered a closer alternative to ANZ, ASB, Westpac and BNZ by consumers (based on the Commission's own survey).

   9.3. Impediments to switching are generally *perceived*, rather than actual, and switching for mortgages, a gateway for wider product switching, has increased of late. There is evidence of increased 'multihoming' over time alongside brokers and increased digitalisation is likely to facilitate further switching.

10. We have noted some inconsistencies in the Commission's Draft Report, which form the basis for its conclusion of a stable oligopoly. We encourage the Commission in its Final Report to resolve these inconsistencies, and consider the impact of them on its findings on the nature of competition for personal banking services. These inconsistencies include, for example:

    10.1. The Commission found that Kiwibank is outside of the top-tier stable oligopoly but also acts to influence the pricing of ANZ, ASB, Westpac and BNZ.

    10.2. The Commission found that there is stable sporadic competition, with price matching and possibility of price coordination but contrasted with the presence of different strategies pursued by different banks at different times, with no clear price leader and a weak correlation between advertised and effective rates.

    10.3. The Commission said that it could not rule out accommodating behaviour for home loans but a lower risk for deposits. This is despite pricing across both home loans and deposits being considered together by banks' pricing committees, as emphasised by the Commission.[30]

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[14] Commerce Commission "Personal banking services market study – Draft report" (21 March 2024) at 31.

[15] Ibid, at 73.

[16] Ibid, at [2.39.6].

[17] Ibid, at 31.

[18] Ibid, at [4.26].

[19] Ibid, at 31.

[20] Ibid, at 31.

[21] Ibid, at 73.

[22] Ibid, at 223.

[23] Ibid, at 223.

[24] Deloitte Access Economics "Personal banking services: Consumer switching, conditions of entry and expansion, profitability and innovation" (7 September 2023), at [67 – 73].

[25] Commerce Commission "Personal banking services market study – Draft report" (21 March 2024), at 195.

[26] Ibid, at 31.

[27] Ibid, at 195.

[28] Ibid, at 34.

[29] Ibid, at 159.

[30] Ibid, at [4.28].

Headline pricing is variable across both mortgage and term deposit products

11. Fundamentally, pricing of mortgage and term deposit products is largely driven by capital markets. Conceptually, this could provide a "focal point" around which tacit coordination could take place (e.g., "leader-follower" behaviour where one firm determines how the market will respond to these changes). However, as discussed in detail below, neither our analysis nor the Commission's finds any evidence of tacit coordination of this form.

12. As the Commission notes, each of the major banks (which includes Kiwibank) have at different times taken best in market position on key home lending products, reflecting their individual strategies at these times. "*None of these five providers have consistently offered lowest headline rates over time*" over a 5-year period to 22 September 2023.[31]

13. We have extended the Commission's ranking analysis on the advertised rates of ANZ, ASB, Westpac, BNZ and Kiwibank, using advertised mortgage and term deposit rates from interest.co.nz data from 4 January 2010 to 30 November 2023. Our analysis focusses on 1-year mortgage products and 1-year $10,000 minimum term deposit products, as these represent a large proportion of products by value.[32]

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[31] Ibid, [4.54], [Figure 4.6] and [4.58].

[32] For term deposits, see RBNZ "Banks: Liabilities – Deposits by size (value) (S45)" (March 2024) and for mortgages RBNZ "Banks: Assets – Loans fully secured by residential mortgage, by time until next repricing (S33)" (March 204). We note that the RBNZ only published data surrounding time to next repricing (as opposed to product duration). However, as the share of mortgages with approximately a year until repricing has been relatively stable, this suggests that 1-year home loan products are relatively common.

Figure 1: Rank of advertised rates for 1-year mortgages, 4 January 2010 to 30 November 2023 (1 indicates 'best' rate)
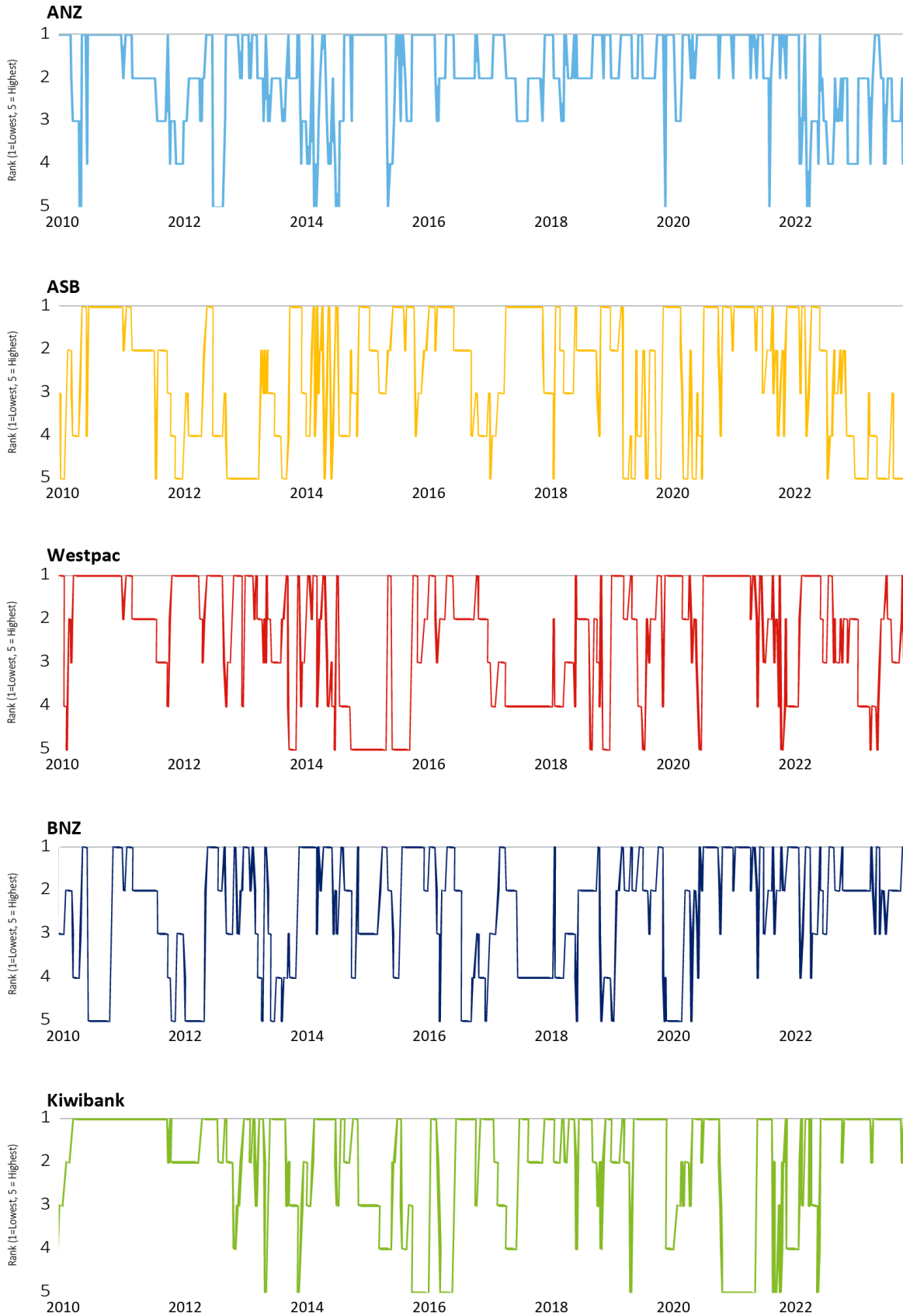
Source: Deloitte Access Economics analysis of interest.co.nz data

Figure 2: Rank of advertised rates for 1-year <u>term deposits</u>, 4 January 2010 to 30 November 2023 (1 indicates 'best' rate)
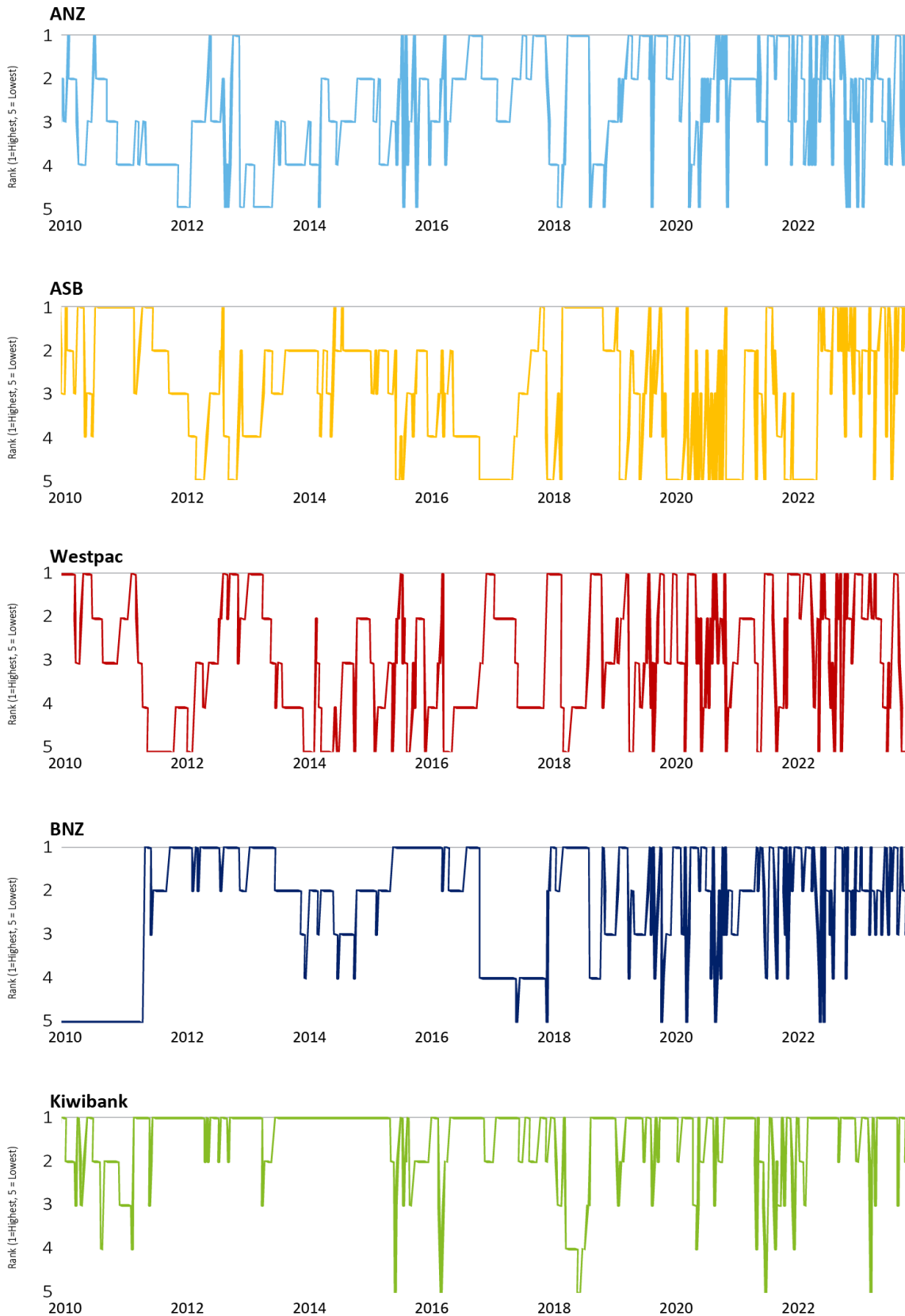
14. As can be seen from Figure 1 and Figure 2 above, and consistent with the Commission's preliminary findings, there is no discernible price-leader or pricing pattern among ANZ, ASB, Westpac, BNZ and Kiwibank across mortgage and term deposit products, at least from weekly advertised pricing data.[33]

15. The Commission also noted that it similarly observed no evidence of a price leader when considering agreed interest rates on mortgages.[34]

16. As the Commission notes, "leader-follower" behaviour can be consistent with (some methods of) tacit coordination:[35]

> This occurs where one firm in the market (the leader) raises prices on the understanding that other firms (the followers) will match this movement. This mutual understanding allows firms to exploit collective market power and drive prices up, creating clear competition concerns.

17. Our analysis of headline rates, as well as the Commission's own analysis, finds no evidence of "leader-follower" behaviour in the market. Instead, analysis of headline advertised rates suggests they are highly variable, meaning that firms are unlikely to be able to reach mutually acceptable outcomes or "focal points" when setting prices.

18. Rather, we consider the evidence points to price competition being present in the market, with factors such as external influences and balance sheet management also impacting how a bank prices its products at any given time.

Our empirical analysis also does not find any discernible pricing patterns for headline rates

Overview of our approach

19. In addition to the price ranking analysis above, we undertook empirical analysis under a model that captures the potential for dynamic and inter-linking relationships between banks' advertised rates for mortgages and term deposits. While the **Appendix** provides further details of the data and methodology, this section of the report provides an overview of the key aspects of our empirical approach.

20. To assess the responsiveness of banks' personal home loan and term deposit advertised rates to each other, we employed a vector autoregressive regression (**VAR**). Under the VAR system of equations, it was assumed that a bank's advertised rates for a particular week depend on:

    20.1. A relevant cost benchmark rate as at that week (e.g., for variable rate mortgages, the 90-day bank bill rate).[36]

    20.2. Previous weeks' advertised rates of that bank's rates.

    20.3. Previous weeks' advertised rates of competing banks' rates.

21. Our analysis was based on weekly interest.co.nz data for advertised rates from 4 January 2002 to 3 November 2023.

    21.1. For the mortgage rates, our analysis was conducted for the advertised variable rate, 1-year fixed, 2-year fixed, 3-year fixed, 4-year fixed and 5-year fixed rate for personal home lending products.

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[33] Given that for many home lending providers, including ANZ, ASB, Westpac, BNZ and Kiwibank, decisions on pricing are made by pricing committees who meet regularly (for example, weekly) - Commerce Commission "Personal banking services market study – Draft report" (21 March 2024) at [4.28] and [4.29] – we consider weekly data is likely to be sufficiently high in frequency to capture discernible pricing patters for personal home lending products.

[34] Ibid, at [4.59.1].

[35] Ibid, at [Footnote 284].

[36] We have included these cost benchmarks to control for the variation in advertised rates that are caused by movements in capital markets.

21.2. For the term deposit rates, our analysis was conducted for advertised 6-month, 1-year, 2-year, 3-year, 4-year, and 5-year rates for personal term deposit products and separately for term deposits of $10,000 and $50,000 minimums respectively.

22. The banks considered under the VAR system of equations estimated were ANZ, ASB, Westpac, BNZ, Kiwibank, and other registered banks (**other banks**). The other banks' advertised rates were calculated as a simple average of advertised rates for personal home lending and term deposit products from registered banks who are not ANZ, ASB, Westpac, BNZ, and Kiwibank.[37]

23. Having estimated the VAR system of equations, we were able to test and verify:

23.1. Whether the relevant cost benchmark is statistically significant in explaining the advertised mortgage and term deposit rates of banks.

23.2. The set of banks that statistically significantly explained the rates of the other banks.[38]

23.3. The patterns of the statistically significant relationships found across different mortgage and term deposit products.

Limitations

24. We would note that our results focus only on the <u>presence</u> of a statistically significant causal relationship (i.e., do the advertised rates of bank X impact those of bank Y), <u>not how economically significant that relationship is</u> (i.e., it cannot tell us by how much the advertised rates of bank X impact those of bank Y).

25. While this is an important consideration in interpreting our results, the analysis can still provide useful insights into the nature of competition in mortgages and term deposits, as it can provide a view on:

25.1. The number of firms across which statistically significant relationships are found.

25.2. How similar banks are in terms of size and structure across which statistically significant relationships are found.

25.3. The patterns of the statistically significant relationships found.

26. Our results suggest a degree of dynamism for mortgages and term deposits. The results from our empirical analysis of mortgage and term deposit products are provided below. Table 3 to Table 5 illustrate the statistically significant relationships found between the relevant cost benchmark and advertised rates for banks (i.e., if the rates of one bank statistically significantly impact the rates of another bank across mortgage and term deposit products). For example, when considering if other banks explain advertised rates in Table 3 below, we find that other banks advertised 5-year mortgage rates statistically significantly impact BNZ and Kiwibank's 5-year mortgage rates at the 99% confidence level, ASB's 5-year mortgage rates at the 95% confidence level and ANZ's 5-year mortgage rates at the 90% confidence level.

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[37] For example, other banks included in the VAR model for advertised floating mortgage rates were Bank of China, HSBC, HSBC Premier, Heartland, ICBC, Kookmin, National Bank, SBS, TSB and Westpac Trust. For the VAR model for advertised $10k minimum 6-month term deposit rates, the other banks variable consisted of Bank Direct, Bank of Baroda, Bank of India, Co-operative Bank, HSBC, ICBC, Kookmin, National Bank and TSB. As the interest.co.nz dataset we used extends back to 2002, several older sub-brands, such as Westpac Trust, are present in our dataset. To account for the possibility that such sub-brands followed and executed different competitive strategies, we included these within other banks variable.

[38] We used Granger-causality to establish whether the rates of one bank are statistically significant in explaining those of another. This is discussed in further detail in the **Appendix**.

Table 3: Deloitte Access Economics' results of price responsiveness for advertised <u>mortgage rates</u>

99% confidence level	95% confidence level	90% confidence level			
Product	Variable	1-year	2-year	3-year	4-year	5-year
Does the cost benchmark explain advertised rates?	90-day bank bill	90-day bank bill	2-year swap rate	3-year swap rate	4-year swap rate	5-year swap rate
Do ANZ rates explain advertised rates?	ASB BNZ Kiwibank Westpac Other banks	BNZ Kiwibank Other banks		Kiwibank Other banks		Other banks
Do ASB rates explain advertised rates?	ANZ BNZ Kiwibank	BNZ Other banks	ANZ BNZ Kiwibank Westpac Other banks	ANZ BNZ Kiwibank Westpac	ANZ Kiwibank Other banks	ANZ Kiwibank Other banks
Do Westpac rates explain advertised rates?	ANZ ASB BNZ Kiwibank Other banks	ANZ BNZ	ANZ ASB BNZ Other banks	BNZ Kiwibank	ANZ BNZ Other banks	ANZ ASB Kiwibank Other banks
Do BNZ rates explain advertised rates?	ANZ ASB Kiwibank Other banks	ANZ ASB Westpac Kiwibank Other banks	ANZ Kiwibank Other banks	Westpac	Westpac	Westpac
Do Kiwibank rates explain advertised rates?	ANZ ASB BNZ Other banks	ASB Westpac Other banks	ANZ BNZ Other banks	BNZ Westpac Other banks	ANZ BNZ Westpac Other banks	ANZ ASB BNZ Westpac Other banks
Do other banks rates explain advertised rates?	ANZ BNZ Westpac	ASB BNZ	ANZ BNZ Kiwibank	ANZ ASB BNZ Westpac	ANZ ASB Westpac	ANZ ASB BNZ Kiwibank

Source: Deloitte Access Economics

Table 4: Deloitte Access Economics' results of price responsiveness for $10,000 minimum advertised term deposit rates

99% confidence level	95% confidence level	90% confidence level			
Product	6-month	1-year	2-year	3-year	4-year	5-year
Does the cost benchmark explain advertised rates?	90-day bank bill	90-day bank bill	2-year swap rate	3-year swap rate	4-year swap rate	5-year swap rate
Do ANZ rates explain advertised rates?	ASB Kiwibank Westpac Other banks	ASB BNZ Kiwibank Westpac Other banks	ASB BNZ Kiwibank	ASB BNZ Kiwibank Other banks	ASB BNZ Kiwibank	ASB BNZ Kiwibank
Do ASB rates explain advertised rates?	ANZ BNZ Kiwibank Westpac Other banks	BNZ Kiwibank Other banks	ANZ Kiwibank Westpac Other banks	ANZ BNZ Kiwibank Westpac Other banks	BNZ Kiwibank Westpac Other banks	BNZ Other banks
Do Westpac rates explain advertised rates?	ANZ ASB BNZ Kiwibank Other banks	ANZ ASB BNZ Kiwibank	BNZ	ASB	ASB Kiwibank Other banks	ANZ Kiwibank Other banks
Do BNZ rates explain advertised rates?	ANZ ASB Kiwibank Other banks	ANZ ASB Kiwibank Westpac Other banks	ANZ ASB Kiwibank	ANZ ASB Kiwibank Westpac Other banks	ANZ Kiwibank Westpac Other banks	ANZ Kiwibank Westpac Other banks
Do Kiwibank rates explain advertised rates?	ANZ ASB BNZ Other banks	ANZ ASB BNZ Westpac Other banks	ANZ ASB BNZ Westpac Other banks	ANZ ASB BNZ Westpac Other banks	ANZ ASB BNZ Westpac Other banks	ANZ ASB Other banks
Do other banks rates explain advertised rates?	ANZ ASB BNZ Kiwibank Westpac	ANZ ASB BNZ Kiwibank				

Source: Deloitte Access Economics

Table 5: Deloitte Access Economics' results of price responsiveness for $50,000 minimum advertised term deposit rates

	99% confidence level	95% confidence level	90% confidence level			
Product	6-month	1-year	2-year	3-year	4-year	5-year
Does the cost benchmark explain advertised rates?	90-day bank bill	90-day bank bill	2-year swap rate	3-year swap rate	4-year swap rate	5-year swap rate
Do ANZ rates explain advertised rates?	ASB, Westpac, Other banks	ASB, BNZ, Kiwibank, Westpac, Other banks	ASB, BNZ, Westpac, Kiwibank	ASB, BNZ	ASB, BNZ, Kiwibank	ASB, BNZ, Kiwibank
Do ASB rates explain advertised rates?	ANZ, BNZ, Kiwibank, Other banks	BNZ, Kiwibank, Other banks	ANZ, Kiwibank, Westpac, Other banks	ANZ, BNZ, Kiwibank, Westpac, Other banks	BNZ, Kiwibank, Westpac, Other banks	BNZ, Other banks
Do Westpac rates explain advertised rates?	ANZ, ASB, BNZ, Kiwibank, Other banks	ASB, BNZ, Kiwibank, Other banks	BNZ, Other banks	Other banks	Kiwibank, Other banks	ANZ, Kiwibank, Other banks
Do BNZ rates explain advertised rates?	ANZ, Kiwibank, Other banks	ANZ, ASB, Kiwibank, Other banks	ANZ, ASB, Kiwibank	ANZ, Kiwibank, Westpac	ANZ, Kiwibank, Westpac	ANZ, Kiwibank, Westpac
Do Kiwibank rates explain advertised rates?	ANZ, ASB, BNZ	ANZ, ASB, BNZ, Other banks	ANZ, ASB, BNZ, Westpac, Other banks	ANZ, ASB, BNZ, Westpac, Other banks	ANZ, ASB, BNZ, Westpac, Other banks	ASB, Other banks
Do other banks rates explain advertised rates?	ANZ, ASB, BNZ, Kiwibank, Westpac	ANZ, ASB, BNZ, Kiwibank, Westpac	ANZ, Kiwibank		ANZ	

Source: Deloitte Access Economics

27.   As can be seen from Table 3 to Table 5 above, we find that:

27.1.   Changes in the relevant cost benchmark for the personal home lending and term deposit products (e.g., the 90-day bank bill rate for 1-year fixed mortgages) are highly statistically significant in explaining:

27.1.1. Almost all banks' advertised rates across all the personal home lending products we analysed.[39]

27.1.2. All banks' advertised rates across all personal term deposit products we analysed.

27.2.   Specifically, we found that out of 90 equations modelled (6 different banks, across 3 product types and 5 product durations), the relevant cost benchmark was statistically significant in 88 of them.

27.3.   For the statistically significant relationships we observe between the relevant cost benchmark and advertised rates for banks, we find the expected positive relationship (that is, an increase in the relevant cost benchmark leads to an increase in the bank's advertised rates) for

27.3.1. All banks for all home lending products

27.3.2. All banks for all term deposit products.

27.4.   In other words, we find, as expected, that capital markets have a key role in explaining the variation in advertised mortgage and term deposit rates.[40]

27.5.   Almost all banks we studied statistically significantly impact at least one other bank across all mortgage and term deposit products[41], meaning banks of differing size and ownership structure impact mortgage and term deposit rates. This evidence suggests that most banks respond to other banks' advertised rates, irrespective of their size or structure.

27.6.   From our analysis we find a degree of dynamism, and variety in the pattern of relationships found, with no particular bank or groups of banks determining advertised rates across both mortgages and $10,000 and $50,000 minimum term deposit products. For example, for advertised mortgage rates, the results indicate that ANZ and Westpac's rates have an impact over the variable rates of every other bank, but that BNZ has an impact on the rates of every bank for the 1-year rates, Kiwibank's rates have an impact on the rates of every bank for the 5-year rates and other bank rates impact ANZ, ASB, BNZ and Westpac's advertised 3-year and 5-year rates.

27.7.   In addition, there are a number of 'indirect' causal relationships. For example, our results for term deposits suggest that the advertised rates of ANZ for the 2-year $10,000 minimum product have an impact on the advertised rates of Kiwibank, who in turn impact the advertised rates of every other bank's 2-year term deposit advertised rates. Similarly, ANZ's advertised rates for the 6-month $10,000 minimum product have an impact on the advertised rates of other banks, who in turn, impact the advertised rates of ANZ, ASB, BNZ, Kiwibank and Westpac.

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[39] We found that for 28 out of 30 total equations for home lending products, the cost benchmark was statistically significant, except for BNZ's one-year and two-year rates, for which the wholesale rate was found to not be statistically significant at any conventional significance level.
[40] We consider this accords with economic theory. Even in hypothetical monopoly settings, the rate of pass-through of an industry-wide change in cost for a monopolistic firm facing a linear demand curve and a constant marginal cost would be expected to be passed through at a rate of 50% - see RBB Economics for the Office of Fair Trading "Cost pass-through: theory, measurement and potential policy implications" (February 2014) at [Chapter 3.3.].
[41] The only exception was ANZ for 2-year and 4-year mortgage products and other banks, who are not found to influence other banks statistically significantly for 2-year to 5-year minimum $10,000 deposit products and the 3-year and 5-year minimum $50,000 term deposit products.

27.8.   Our results are broadly consistent with the Commission's preliminary findings on its review of a broader evidence base, in that Kiwibank has an impact on ANZ, ASB, Westpac and BNZ across mortgages and term deposits.[42]

27.9.   However, we consider that the Commission has understated the likely constraint Kiwibank provides on ANZ, ASB, Westpac and BNZ. We discuss this in more detail in the sections below.

28.   In summary, our results suggest competition across advertised mortgage and term deposit rates can be characterised by the interaction between several banks with differing characteristics, and the presence of dynamic or varying relationships amongst them. Similar to our analysis of headline interest rates in the prior section of the report, we consider the presence of dynamic or varying relationships are likely to make reaching mutually acceptable outcomes when setting prices difficult.

There are important regional dynamics at play

29.   While it is useful to consider the extent of competition for personal banking services on a national basis, and indeed many banks adopt a national strategy,[43] there are important regional dynamics at play which can be overlooked.

Our analysis of Land Information New Zealand data

30.   We have analysed mortgage registration data from Land Information New Zealand (**LINZ**) to understand regional dynamics at play. This analysis of LINZ data enables us to get a view on the proportion of new and refixed mortgages across banks between 1 January 2023 and 6 December 2023. [44] The analysis provides an estimate of volume shares for mortgages across banks.

30.1.   Our analysis uses the title memorials dataset from LINZ. When a mortgage on a property title is registered or varied, it creates an entry in the title instruments table. This table also records information about the location of the property and entities with an interest in the instrument (in the case of a mortgage, the institution issuing the mortgage).[45]

30.2.   We were then able to build a dataset of mortgages registered (or varied) in 2023 (up to 6 December 2023). For each mortgage, we were able to determine the region that the property is in and the name of the institution issuing it. We were then able to use this to calculate estimates of the volume share (of new or varied registrations of mortgages) by bank by land district.[46]

30.3.   We have also mapped the land districts recorded by LINZ onto local government regions.[47] This required combining Northland and Auckland, Waikato and Bay of Plenty, Nelson and Tasman, and Wellington and Manawatu.

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[42] Commerce Commission "Personal banking services market study – Draft report" (21 March 2024) at [4.53].

[43] We note ANZ, ASB, BNZ, Kiwibank and Westpac all commented in their PIP submissions that they adopt a national view of the market. See, for example, BNZ "Bank of New Zealand's submission on the Commerce Commission's preliminary issues paper regarding the market study into personal banking services" (7 September 2023) at [6.4] – [6.6] and Kiwibank "Kiwibank's response to the Commerce Commission's Preliminary Issues Paper" (7 September 2023) at 9.

[44] The LINZ the dataset covered data up to 06 December 2023 as at when we accessed it.

[45] The encumbrancee table, via the encumbrance share and encumbrance tables, links a title instrument to the entity with an interest in it (an encumbrance being an interest in the title such as a lease or mortgage, and encumbrancee being the entity holding that interest). See LINZ "LINZ Data Service: Full Landonline Dataset – Data dictionary and data models" (Version 3.0, July 2023) at [4.19], [4.20], [4.21] & [4.79].

[46] We did this by considering title instruments where the instrument type was recorded as "M", and for each of these looked up the associated "encumbrancee". We could then cut the dataset by land district and calculate volume shares by entity. We note that not all encumbrancees were financial institutions, but the vast majority were. We also tested including "VM" types, however found no entries in 2023. Based on correspondence with LINZ, we understand that often variations can be entered in the dataset as a newly registered mortgage.
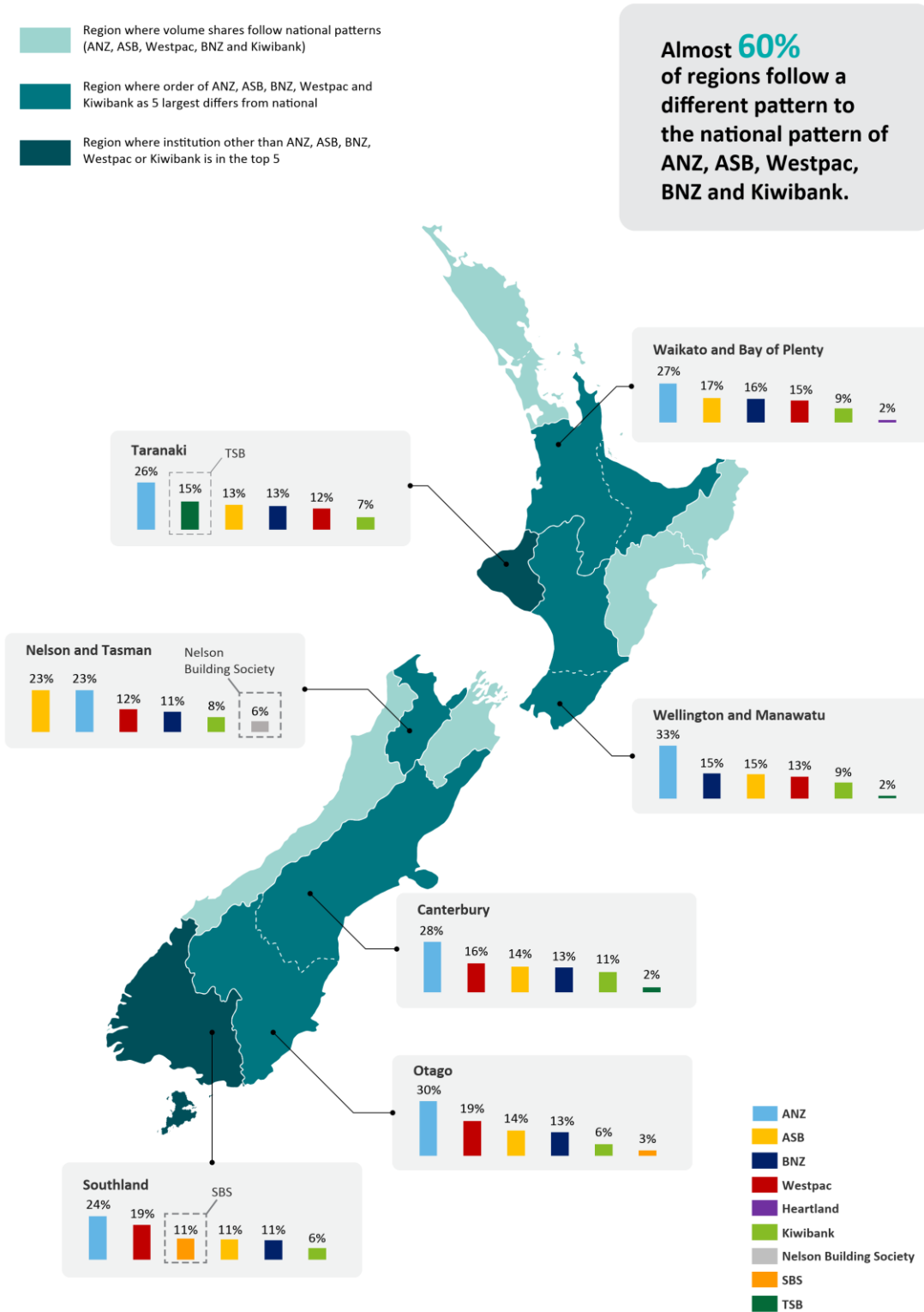
[47] The LINZ land districts and our mapping are North Auckland (Northland and Auckland), South Auckland (Waikato and Bay of Plenty), Hawkes Bay (Hawkes Bay), Gisborne (Gisborne), Taranaki (Taranaki), Wellington (Wellington and Manawatu, as well as the Chatham Islands), Nelson (Nelson and Tasman), Marlborough (Marlborough), Westland (West Coast), Canterbury (Canterbury), Otago (Otago) and Southland (Southland), see LINZ "NZ Land Districts" (March 2024) available at https://data.linz.govt.nz/layer/50785-nz-land-districts/

31. We also undertook cleaning to ensure consistency across entity names (e.g., control for changes in legal names and inconsistent capitalisation), fix spelling mistakes and identify erroneous entries. For example, in 2023, ANZ was entered correctly 29,391 times and we identified 4 erroneous entries with incorrect spelling and/or different legal names.

Results on regional dynamics

32. Figure 3 below shows the results of our analysis of LINZ data. Light blue regions have the same volume share ordering for the 5 largest firms as nationally (i.e., ANZ, ASB, Westpac, BNZ and Kiwibank), while blue regions have a different ordering and dark blue regions have a firm outside of ANZ, ASB, Westpac, BNZ and Kiwibank in the top 5.

33. We observe that, in most land districts (7 out of 12 or close to 60%) the ordering of the five largest banks differed from national volume shares. Kiwibank's share is consistently relatively strong and varies across regions. This indicates there are clear regional variations and provides further evidence to question a finding of a stable oligopoly across ANZ, ASB, Westpac and BNZ.

34. We found that in Taranaki, TSB has the second largest share of mortgages registered, and that in Southland, Southland Building Society (**SBS**) has the third largest share of mortgages registered. We also found that in Nelson, Nelson Building Society has the sixth largest share of mortgages registered (at 6%, not far behind Kiwibank's 8%).

35. We consider this highlights that competition can differ across regions, and suggests that smaller banks (and even non-banks, in the case of Nelson) are able to exercise increased competitive pressures in specific market segments or geographies, likely through enhanced brand awareness and history in that region.

36. We consider that these findings are not consistent with what would be expected under a "stable oligopoly". We find that volume shares vary across geographies, suggesting there is no clear or consistent focal point across geographies. Instead, we observe different competitive dynamics at play in different regions, suggesting that the market structure is not stable.

37. In addition, we consider this to be consistent with the results of our VAR results for mortgages above, which finds that other banks impact the advertised rates of ANZ, ASB, Westpac, BNZ and Kiwibank. It is possible that regional variations in the intensity of competition impact the competitive strategies of ANZ, ASB, Westpac, BNZ and Kiwibank, and given national strategies, impact headline rates.

Figure 3: Estimated regional volume share of registered mortgages from 1 January 2023 to 6 December 2023

Region where volume shares follow national patterns
(ANZ, ASB, Westpac, BNZ and Kiwibank)

Region where order of ANZ, ASB, BNZ, Westpac and
Kiwibank as 5 largest differs from national

Region where institution other than ANZ, ASB, BNZ,
Westpac or Kiwibank is in the top 5

Almost **60%** of regions follow a different pattern to the national pattern of ANZ, ASB, Westpac, BNZ and Kiwibank.

Waikato and Bay of Plenty
27% 17% 16% 15% 9% 2%

Taranaki
TSB
26% 15% 13% 13% 12% 7%

Wellington and Manawatu
33% 15% 15% 13% 9% 2%

Nelson and Tasman
Nelson Building Society
23% 23% 12% 11% 8% 6%

Canterbury
28% 16% 14% 13% 11% 2%

Otago
30% 19% 14% 13% 6% 3%

Southland
SBS
24% 19% 11% 11% 11% 6%

ANZ
ASB
BNZ
Westpac
Heartland
Kiwibank
Nelson Building Society
SBS
TSB

Source: Deloitte Access Economics analysis of LINZ data. Note that we have mapped LINZ land districts onto regional council areas, and therefore results for Northland and Auckland, Waikato and Bay of Plenty, Wellington and Manawatu, and Nelson and Tasman are presented as combined as LINZ land districts group these regions together.

Price matching in the context of variable price leadership and patterns may be competition at work

38. The Commission notes that price competition is sporadic between major banks and that it is often focussed on matching competitors' rates rather than beating them.[48] We agree that price matching, in certain settings, can act to soften competition. The intuition is that price matching removes the incentive to undercut prices in the first place, as it eliminates any potential gains from the price cut as competitors will quickly respond by matching any changes in price.

39. However, it is important to consider the wider context within which price matching is occurring. For example, price matching may be a way of credibly signalling to consumers that a firm is low-priced, with the credibility of this signal being assured by vigilance of informed consumers. This may especially be the case where the optimal price may vary across firms (in this case, the optimal interest rates across a wide variety of lending and deposit products).[49]

40. More generally, it may be the case that the price matching observed by the Commission is competition at work.[50] Banks offer a wide variety of products across lending and deposit products. The competitive strategy of a bank for any particular product may depend on factors such as the consumer mix over products and wholesale funding considerations. Pricing often can reflect implementation of an overall risk management strategy to:

    40.1. Limit maturity risk across products (i.e., too much repricing at the same time). For example, a bank may be exposed to a large proportion of consumers on 1-year products. A strategy to diversify consumer mix and risk over products is to price more aggressively across longer tenured mortgage products.[51]

    40.2. Be used as a means to manage interest rate exposure for those banks without sophisticated Treasury functions.

41. We consider the evidence of no price leadership among ANZ, ASB, Westpac, BNZ and Kiwibank and the varying and dynamic causal relationship we find across advertised mortgage and lending rates and regions, to be reflective of the varying competitive strategies at play for personal banking services at any one point in time. As noted previously, this variability extends to effective interest rates charged on new lending to owner-occupiers, with weak correlation between these effective rates and associated headline rates.[52]

42. Seen in this light, price matching behaviour could be characterised as ensuring a bank is pricing competitively and signalling to consumers that it is low-priced. The presence of price matching in this context may also explain the Commission's observation that market shares appear relatively stable.[53] That is, price matching serves to limit the duration and extent of any competitive advantage from the reduction of rates for lending products and an increase in rates for deposit products.

Personal banking products are homogenous, but only to a degree

43. The Commission's preliminary view is that personal banking services are largely homogenous, and that competition between major banks seems to be strongest for certain focal services such as fixed rate home loans and term deposits.[54]

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[48] Commerce Commission "Personal banking services market study – Draft report" (21 March 2024) at [2.46] and [2.47].

[49] See, for example, Sridar Moorthy and Ralph A Winter "Price-matching guarantees" (2006) 37(2) The RAND Journal of Economics 449.

[50] We note that in the case of the "green home loan top-up" offers considered by the Commission, the interest rate on most the offerings is 0% and that, over time, banks iteratively improved their offerings by expanding what the top-up can cover and maximum value, rather than simply matching the first product offered by Kiwibank – see Commerce Commission "Personal banking services market study – Draft report" (21 March 2024) at [Figure 2.4]

[51] The Commission notes such a dynamic as well – see Commerce Commission "Personal banking services market study – Draft report" (21 March 2024) at [4.43]. Other considerations noted include the need to balance growth across lending and deposit portfolios and the ability to service high volumes of new customers.

[52] Ibid, at [Footnote 285].

[53] Ibid, at [2.39.1].

[54] Ibid, at [2.39.6].

44.   We agree that personal banking services offered across banks are fundamentally the same. However, we consider there are important degrees of variation across pricing, product characteristics and quality dimensions for products such as fixed rate home loans and term deposits, that bring about a degree of differentiation.

Non-price competition is a driver of consumer choice

45.   As the Commission notes: "…with consumers having diverse needs and preferences, non-price aspects of competition are important considerations for consumers, with research showing that some consumers are willing to pay more for quality and services".[55]

46.   The Commission also notes that "Major banks compete on non-price measures, such as a range of products, services, perception of trust and security, digital capabilities and brand awareness to meet these needs"; and "Smaller providers also focus on implementing strong non-price offerings to drive customer growth".[56]

47.   As we have previously noted, non-price factors are an important dimension in driving consumer choice and competitive responses across banks. For instance, a decrease in advertised rates by a competitor may be met by advertising to emphasise non-price factors, rather than in a movement in advertised price.[57] The Commission has noted non-price initiatives may be employed in an effort to minimise volume impacts if a firm's home loan interest rates are above its competitors[58] and Verian survey evidence indicates that for those who have not considered switching, satisfaction with their current provider is a reason for not considering switching.[59]

48.   While at its core, personal banking services offer the same service to consumers, the emphasis on non-price factors, such as service quality, sustainability and digital apps adds differentiation to products being offered by banks. This adds variability to products that are functionally the same (e.g., fixed rate mortgages or term deposits), decreasing the comparability between such products. Importantly, optimal pricing may differ between banks for functionally similar products, depending on the degree of non-price investment or associated expenditure.

Discretionary discounts also add a degree of differentiation and reduces price transparency

49.   Fundamentally, capital markets impact on pricing for lending and deposit products in New Zealand. As a small open economy, New Zealand is subject to movements in capital markets overseas, as well as monetary and fiscal policy locally. The consequence of this is that wholesale cost benchmarks, such as the Official Cash Rate (**OCR**), the 90-Day Bank Bill or swap rates, provide an important input to pricing. Further transparency is provided, as noted by the Commission, across headline interest rates via interest.co.nz, volume or market share information, and profitability information via the Reserve Bank dashboard.[60]

50.   Due to New Zealand being a small open economy, banks may use offshore markets as external funding sources. This means that banks do not fund at wholesale interest rates as they have to pay a credit spread above them. The implication of this is that funding costs above wholesale interest rates fluctuate due to the need to go to offshore markets.[61]

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[55] Ibid, at [2.55].

[56] Ibid, at [2.55].

[57] Deloitte Access Economics "Personal home loans: Price responsiveness as one dimension of assessing competition" (1 December 2023) at [11.2].

[58] Commerce Commission "Personal banking services market study – Draft report" (21 March 2024) at [4.87].

[59] Verian "Personal banking services market study – Research report" (February 2024) at 32.

[60] Commerce Commission "Personal banking services market study – Draft report" (21 March 2024) at [4.94]. However, as we discuss in more detail below, we consider there are other limits to transparency in headline rates for personal banking services. We find that there is no real price leader at any one point in time and differing and dynamic pricing relationships between banks mortgage and term deposit products. We consider this likely limits the ability for banks to achieve mutually acceptable outcomes.

[61] Deloitte Access Economics "Personal banking services: Consumer switching, conditions of entry and expansion, profitability and innovation – A report for BNZ" (7 September 2023) at [123 – 127].

51.   However, the presence of discretionary discounts is likely to add a degree of differentiation for personal banking services and reduce price transparency. As the ACT has recently observed, "[t]he widespread publication by the Major Banks of their standard variable rates for mortgages provides significant price transparency, and changes in their standard variable rates generally follow changes in the cash rate, which serves as a "focal point" for price adjustments"[62], however discretionary discounts necessarily detract from price transparency. In particular: [63]

   51.1.   The use of unpublished discretionary discounts necessarily detracts from price transparency. As found by the Commission, 50% to 60% of all home loans are based on discretionary discounts.[64]

   51.2.   While banks can monitor and take into account market intelligence that they may glean from brokers as to discretionary discounts being offered by rivals, this falls well short of the immediacy and objectivity of published prices, such as the prices prominently posted on signboards at petrol stations or by airlines on their websites.[65]

   51.3.   The impact of the increasing use of brokers on price transparency is likely to be more acute for borrowers than banks, as brokers are likely to press for larger discretionary discounts when negotiating with banks, tending to overstate rather than understate the availability and magnitude of comparative discretionary discounts.[66]

52.   We further note that the Commission found no real price leadership for effective interest rates on new lending to owner-occupiers and a degree of variation between these rates and headline rates. In particular, the Commission found: [67]

   52.1.   That there was no one provider that was consistently offering best in market interest rates (nor consistently offering the highest-in-market agreed interest rates).

   52.2.   A weak *correlation* between relative headline interest rates and relative observed average interest rates on new lending across banks: [68]

   Our analysis of monthly home lending data provided by banks and headline interest rate data from interest.co.nz found correlations between banks' relative monthly average headline and agreed interest rates of around 0.25 to 0.40 among the major banks and Kiwibank.

53.   We consider the degree of differentiation, and therefore lack of price transparency, is likely to be increased by the varying nature of discretionary discounting observed for personal banking services in New Zealand and the weak correlation between headline and effective rates for new owner-occupier home lending.

54.   However, we do acknowledge that a weak correlation between headline and effective rates is also likely to dampen demand side pressures, as it is likely to increase search costs for consumers looking to compare personal banking products between banks.

A wider review of evidence suggests Kiwibank is more of a competitive constraint than found by the Commission

55.   The Commission's preliminary view is that competition for personal banking services is characterised by a stable oligopoly of ANZ, ASB, Westpac and BNZ with no maverick to disrupt them, and that there is a second tier of smaller banks, Non-bank Deposit Takers (**NBDTs**) and other non-bank lenders.[69] The Commission considers Kiwibank as sitting between these two

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[62] *Applications by Australia and New Zealand Banking Group Limited and Suncorp Group Limited* [2024] ACompT 1 at [456].

[63] Ibid, at [457] and [460].

[64] Commerce Commission "Personal banking services market study – Draft report" (21 March 2024) at [4.26].

[65] *Applications by Australia and New Zealand Banking Group Limited and Suncorp Group Limited* [2024] ACompT 1 at [457].

[66] Ibid, at [460].

[67] Commerce Commission "Personal banking services market study – Draft report" (21 March 2024), at [4.59].

[68] Ibid, at [Footnote 285].

[69] Ibid, at [2.22].

tiers of providers and that, while it provides some constraint on ANZ, ASB, Westpac and BNZ, it is not a disrupter of the 'stable oligopoly'.[70]

56.   As discussed further below, we consider there are regulatory conditions of entry and expansion that do make it difficult for banks, including Kiwibank and smaller banks, to enter and expand in personal banking services. These conditions interact with the economies of scale and scope for personal banking services. We consider these factors play a large role in explaining the relatively stable market shares observed by the Commission and observed levels of profitability.[71]

57.   However, a review of the available evidence suggests, in our view, that competition for personal banking services is more nuanced and effective than a two-tier market, with a stable oligopoly at the first-tier, smaller providers in the second-tier, and Kiwibank "stuck in the middle".

Kiwibank has been winning market share off ANZ, ASB, Westpac and BNZ

58.   As the Commission notes, Kiwibank has increased its share of supply since entering the market in 2002[72] and its loan portfolio has performed strongly in recent years, consistently returning higher growth (in percentage terms), than ANZ, ASB, Westpac and BNZ, albeit off a lower base and at a sacrifice of returns.[73] The Commission further notes that a major bank considers Kiwibank's position as the "main default alternative to the main banks"[74] and that Kiwibank's pricing is a constraint on ANZ, ASB, Westpac and BNZ's pricing across mortgages and deposit products.[75]

59.   Despite these features, the Commission does not consider Kiwibank to be a significant constraint to ANZ, ASB, Westpac and BNZ and that it sits between the two-tiers in the market.[76] Part of the reason the Commission reached this conclusion appears to be due to the weight given to Kiwibank's current smaller share of the market or share of total banking assets, relative to ANZ, ASB, Westpac and BNZ.[77]

60.   We would note that market shares, or share of total assets, are not in themselves a complete indicator of a competitive constraint or otherwise. A wider range of factors need to be considered to make this assessment.[78] Our analysis suggests that Kiwibank is more of a constraint than that found by the Commission when considering a wider range of factors.

   60.1.   The extent to which a competitor has grown recently, over and above market growth, is an important indicator of the competitive constraint it provides. In simple terms, proportionally higher growth than market indicates a competitor is successfully winning market share off competitors, likely despite competitive responses from those competitors.

   60.2.   As the Commission has noted, this is true of Kiwibank. The relatively higher growth of Kiwibank's home loan portfolio is reflected in Figure 4, which measures the proportional change in value share for reported housing loans available under the Reserve Bank of New Zealand (**RBNZ**) Financial Strength Dashboard.

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[70] Ibid, at [4.53].
[71] We discuss the impact of regulatory conditions of entry and expansion on profitability in more detail below.
[72] Commerce Commission "Personal banking services market study – Draft report" (21 March 2024) at [2.23.1] .
[73] Ibid, at [4.50].
[74] Ibid, at [4.49].
[75] Ibid, at [4.30.2] and [5.38].
[76] Ibid, at [4.53].
[77] See, for example, Ibid, at [4.48].
[78] This is similar to the view the Commerce Commission takes in relation to market share and concentration measures when assessing mergers and acquisitions – see Commerce Commission "Mergers and acquisition guidelines" (May 2022) at [3.53].

Figure 4: Proportional change in value share – Asset quality Housing Loans series (percentage change, June 2018 to December 2023)[79]
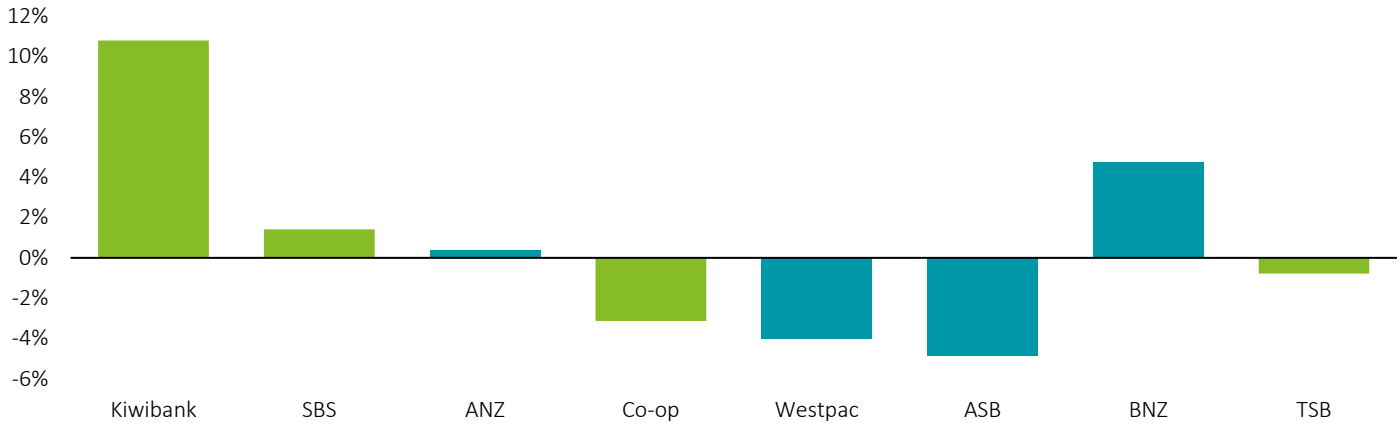
Source: Deloitte Access Economics analysis of RBNZ data on housing loans under the Asset quality – housing loans series. Blue indicates a D-SIB bank. Bank of Baroda, Heartland,[80] Rabobank, Bank of China, Bank of India, China Construction Bank and ICBC are not shown but were included in value share calculations. Value share only includes registered banks.

60.3.   Proportionally higher growth for Kiwibank is also evident for deposits, as measured by the value of deposits held by banks, as demonstrated by Figure 5 below.

Figure 5: Proportional change in value of deposits on balance sheet (percentage change, June 2018 to December 2023)
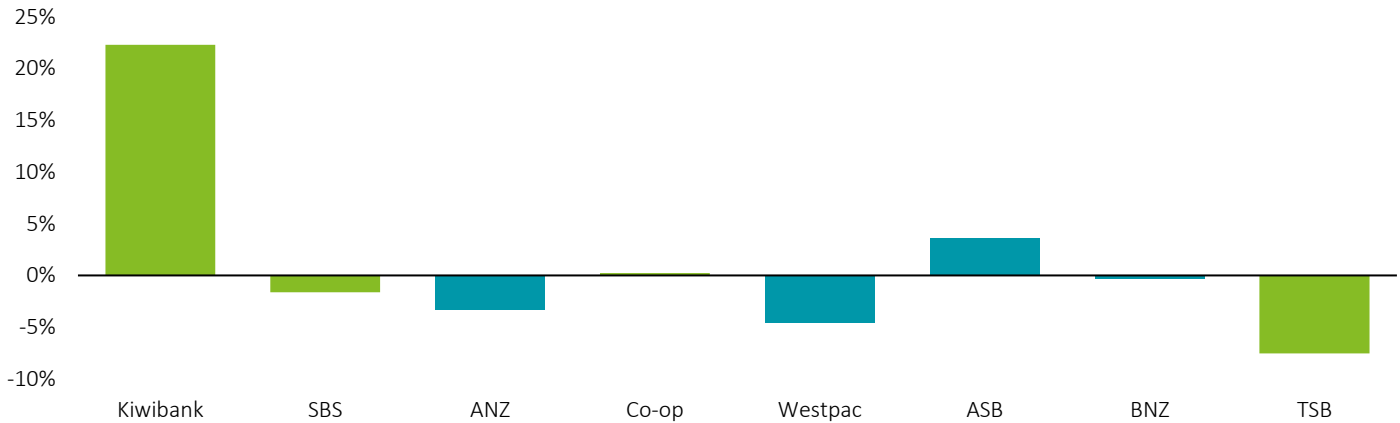
Source: Deloitte Access Economics analysis of RBNZ data on value of deposits on balance sheets. Blue indicates a D-SIB bank. Bank of Baroda, Heartland,[81] Rabobank, Bank of China, Bank of India, China Construction Bank and ICBC are not shown but were included in value share calculations. Value share only includes registered banks.

60.4.   Our findings when considering relative changes in value and volume shares are also supported by the Commission's review of a "broader evidence base" (such as internal strategy and pricing documents), from which they concluded that Kiwibank's pricing does provide "some constraint on the major banks".[82] Taken together, we consider these results suggest that Kiwibank is having a growing competitive impact on the market.

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[79] We note this chart differs from Figure 2 in Deloitte Access Economics "Personal home loans: Price responsiveness as one dimension of assessing competition" (1 December 2023), as this Figure uses the Asset quality – housing loans series data from RBNZ.

[80] Heartland is not shown because we understand them to have only substantively re-entered the provision of conventional home loans in 2020. They were included in calculations.

[81] Heartland is not shown to be consistent with the Figure above but was included in calculations.

[82] Commerce Commission "Personal banking services market study – Draft report" (21 March 2024) at [4.52] and [4.53].

60.5.   The Commission also notes that, in the case of term deposits, "the major banks and Kiwibank tend to closely monitor each other's interest rates".[83]

The Verian Survey evidence and LINZ data suggest Kiwibank is a close competitor

61.   Another factor to consider is how close consumers view competitors to be in a market. The closer two competitors are considered, the more of a constraint each imposes on the other, as there is an increased likelihood consumers may switch should the price be increased or quality degraded.[84]

62.   The Commission's consumer research, undertaken on its behalf by Verian, find the following:

62.1.   95% of consumers surveyed use either ANZ, ASB, Westpac, BNZ or Kiwibank for at least one product. 22% use Westpac, 20% BNZ and 19% Kiwibank.[85]

62.2.   92% of consumers surveyed use either ANZ, ASB, Westpac, BNZ, or Kiwibank as their main bank. 19% use ASB, 17% use Westpac, 14% use BNZ and 12% use Kiwibank.[86]

62.3.   88% of consumers only considered ANZ, ASB, Westpac, BNZ and Kiwibank when first choosing providers.[87]

62.4.   58% of consumers would only consider ANZ, ASB, Westpac, BNZ and Kiwibank if switching in the future.[88]

63.   We consider this evidence, taken as a whole, suggests that consumers currently see Kiwibank as a closer competitor or alternative to ANZ, ASB, Westpac and BNZ. This observed closeness sits in contrast to the Commission's preliminary view that Kiwibank is not a significant constraint to ASB, Westpac and BNZ.

64.   We also analysed the closeness of Kiwibank to ANZ, ASB, Westpac or BNZ based on the LINZ data between 1 January 2023 and 6 December 2023. The analysis suggests Kiwibank is close to either BNZ or Westpac. This is in contrast to the distance implied by the current lending portfolio of Kiwibank when compared to BNZ's, which is less than half.[89]

65.   At a national level, BNZ's share was the 4th highest and stood at 14%, while Kiwibank's share was 5th highest, at 9%. This is largely true at a regional level (also see Figure 3). For instance:

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[83] Ibid, at [5.38].

[84] This is the approach the Commission takes to assessing competition in differentiated product markets - Commerce Commission "Personal banking services market study – Draft report" (21 March 2024) at [3.72].

[85] Verian "Personal banking services market study – Research report" (February 2024) at 13.
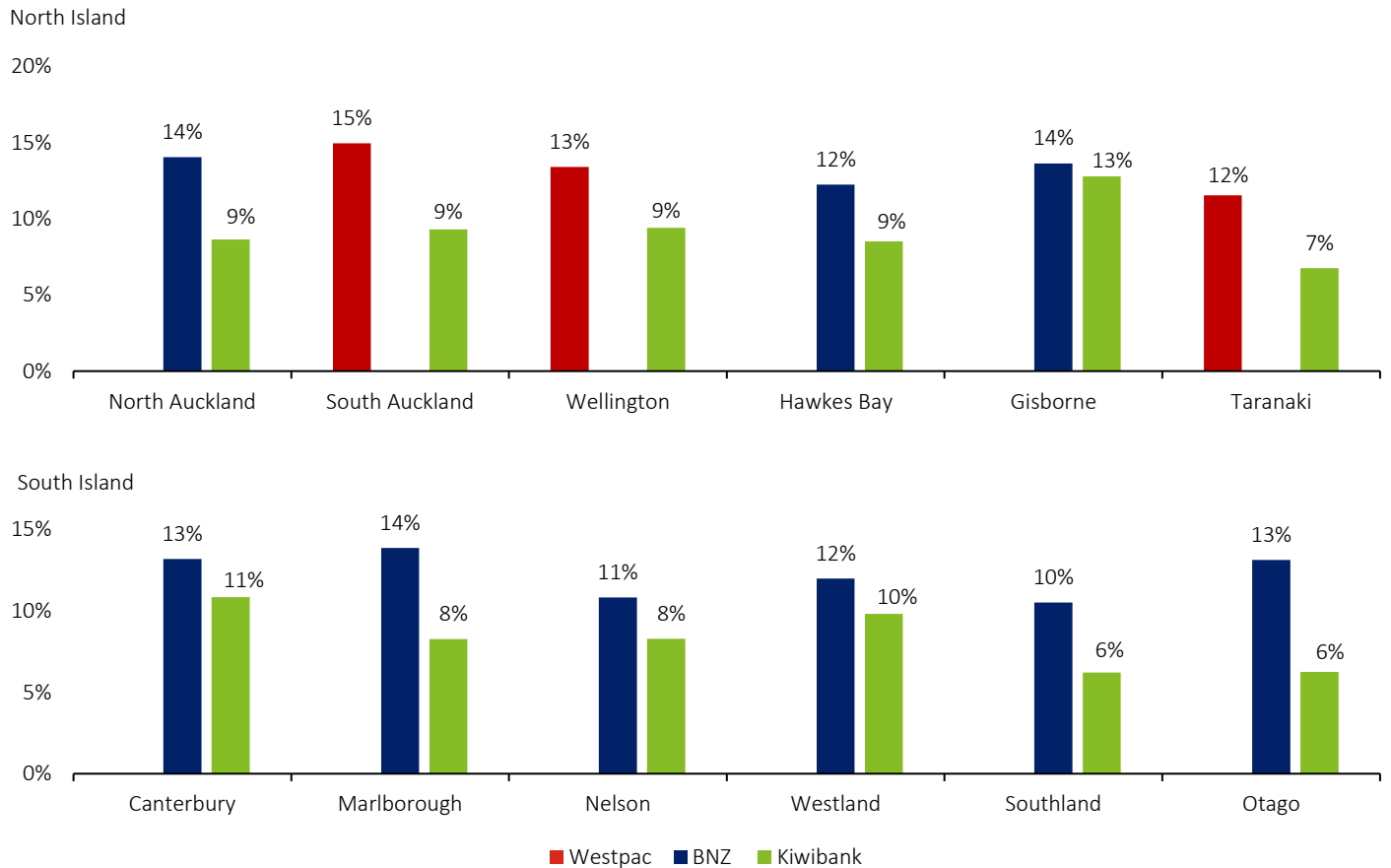
[86] Ibid, at 15.

[87] Ibid, at 35.

[88] Ibid, at 45.

[89] Commerce Commission "Personal banking services market study – Draft report" (21 March 2024) at [4.48].

Figure 6: Estimated regional volume share of registered mortgages of Kiwibank and its next closest rival from 1 January 2023 to 6 December 2023

North Island

South Island

■ Westpac ■ BNZ ■ Kiwibank

Source: Deloitte Access Economics analysis of LINZ data

65.1. At a regional level Kiwibank's volume shares were 5th highest with either BNZ or Westpac being the next closest rival with 4th highest volume shares, as illustrated by Figure 6 above. The exception to this is the Southland and Taranaki regions. In the Southland region, BNZ's share was the 5th highest and stood at 10%, while Kiwibank's share was 6th highest, at 6%. In the Taranaki region, Westpac's share was the 5th highest and stood at 12%, while Kiwibank's share was 6th highest, at 7%.

65.2. The relative closeness in lending volume shares between Kiwibank and its next closest competitor is also highlighted in Figure 6. For all regions, with the exception of the Otago region, the difference between Kiwibank's volume shares and the volume shares of its next closest competitor is less than half.[90]

65.3. We further note that overall Kiwibank's volume share is at least 50% of either BNZ or Westpac at a regional level. This is relatively higher when compared to Macquarie in Australia, which was found to have a market share of a third of the next closest competitor. Both the Commission and the ACT considered this sufficient to support a characterisation of Macquarie as a "maverick" and a disrupter.[91]

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[90] It is only in the Otago region where Kiwibank's market share (6%) is less than half of its next closest competitor, in this case, BNZ (13%).
[91] Commerce Commission "Personal banking services market study – Draft report" (21 March 2024) at [2.70].

Market concentration for personal banking has decreased of late

66.   We consider that the range of factors identified (i.e., the variability in pricing and pricing relationships across a number of products and banks, the constraint that Kiwibank provides on ANZ, ASB, Westpac and BNZ and growth of Kiwibank above "system" levels and the increasing switching recently) is contributing to the decline in concentration for personal banking services seen of late.

67.   While classical measures of market concentration, such as the C4 or C5 concentration indices which measure the market share held by the top four or five largest firms, indicate very high market concentration for personal banking services, the more nuanced Herfindahl-Hirschman Index (**HHI**) suggest concentration is "moderate".[92]

68.   The HHI is calculated as the sum of the square of the market share of *every* firm in the market, meaning it captures concentration dynamics at play outside of the largest four or five firms in a market. A value between 1,500 and 2,500 indicates modest concentration and more than 2,500 reflects high market concentration.[93]

69.   The econometrics paper finds that concentration as measured by the HHI ranges from between 1,930 to 2,080 varying over time and by market share measure (total deposits, total loans and total assets), sitting at around 1,950 at the end of the sample period.

70.   These results suggest that concentration is moderate (being well within the 1,500 to 2,500 band) but also dynamic over time, having decreased between 2016 and 2022.[94] This is consistent with our findings from mortgage registrations volume shares in Figure 3, which demonstrates that the volume shares of Kiwibank has risen over this period while those of ANZ, ASB and Westpac have decreased slightly (and BNZ's has remained stable).

Personal banking services has been subject to periods of uncertainty and change

71.   In the Draft Report, the Commission comments that there is "a lack of market volatility" and that this, among other factors, is "consistent with the conditions for coordination".[95]

72.   While headline indicators for the New Zealand sector have been relatively stable over time (for example, the New Zealand sector was relatively unimpacted by recent banking events in the United States and Europe), this is likely a result of New Zealand having one of the highest capital requirements globally.[96]

73.   These stable headline indicators detract from the fact that personal banking services have been subject to periods of extensive volatility and uncertainty, notably the Global Financial Crisis (**GFC**) and the COVID-19 pandemic. These periods of uncertainty not only had an impact on competition for personal banking services during the crisis, but in the case of the GFC also had a lasting impact.

The GFC exposed how risky the sector can be and caused a permanent shift in funding preferences

74.   The 2007-2008 GFC was characterised by offshore capital markets seizing up virtually overnight, beginning in the United States and rapidly transmitting through the rest of the global financial system. Several major global financial institutions, such as Lehman Brothers, Fannie Mae, Freddie Mac and the Royal Bank of Scotland (**RBS**), amongst others, were either liquidated or bailed out by central banks as a result.

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[92] Professor Dimitris Margaritis & Dr Maryam Hasannasab "Market power in banking: A study of New Zealand banks" (March 2024) at 6-7.
[93] Ibid, at 6-7.
[94] Ibid, at 7.
[95] Commerce Commission "Personal banking services market study – Draft report" (21 March 2024) at [2.67].
[96] PwC for the New Zealand Bankers' Associated "International comparability of the capital ratios of New Zealand's major banks" (October 2017) at page 22, available at https://www.nzba.org.nz/wp-content/uploads/2017/11/PWC-capital-ratios-study.pdf

75. Although no New Zealand banks were bailed out or liquidated during the GFC, there was significant concern that with large institutions overseas failing, it was a very real prospect domestically. Short-term offshore debt funding represented approximately half of New Zealand's banks' balance sheets at the time of the GFC.[97]

76. As a result of the GFC, regulators required banks to shift their funding composition away from shorter-term offshore wholesale debt funding sources to onshore deposits, which are typically considered to be a more stable source of funding. As we have previously observed, this had a lasting impact on the spreads between the rates on lending products and funding sources.[98]

Figure 7: 6-month term deposit, floating mortgage and short-term wholesale rates (2000 – 2024)
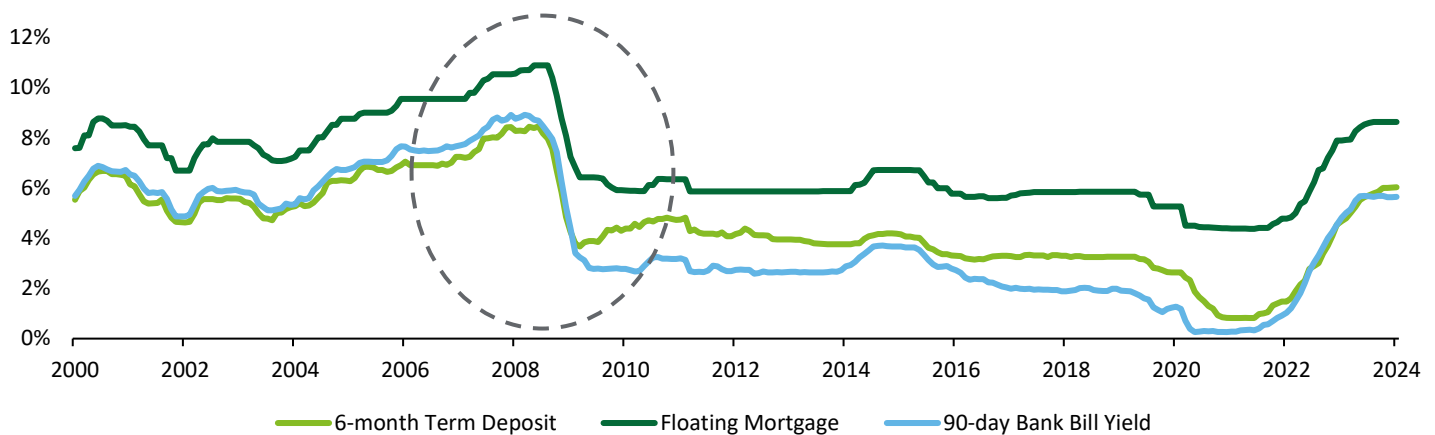
77. Pre-GFC, the 6-month term deposit rate and 90-bank bill yield tracked very closely to each other with the 6-month term deposit typically being lower than the 90-bank bill yield. Post-GFC, this relationship was reversed, and a wedge opened up between the two. This was likely driven by the reduced ability to rely on wholesale funding and an increase in demand from New Zealand banks for onshore funding in the form of retail term deposits. The events that unfolded overseas saw increased pressure from investors, regulators and customers for banks to favour stable, longer-term funding sources such as domestic term deposits.

78. As discussed further below, post the COVID-19 pandemic the demand for retail term deposits by New Zealand banks decreased and the supply of money substantially increased. This resulted in more money within the system that found its way into deposits, therefore, banks' pricing strategy did not need to be as aggressive to raise deposits. This is the reverse of post-GFC environment. This reversal is only just beginning to normalise, whereby term deposit rates are greater than wholesale funding rates.

Periods of less intense competition coincide with heightened periods of uncertainty and external policy interventions

79. The Commission's preliminary view is that competition for personal banking services is sporadic. It notes there are periods when competition is more intense with lower margins, but other times where competition is less intense. It observes that it is particularly true of home loans and term deposits.[99]

80. The Commission's view appears to be based on evidence of measures of market power between 2016 and 2023 and growth relative to lending system growth. In particular:

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[97] Jason Wong (RBNZ) "Bank funding – the change in composition and pricing" (June 2012) at 17.

[98] Deloitte Access Economics "Personal banking services: Consumer switching, conditions of entry and expansion, profitability and innovation – A report for BNZ" (7 September 2023) at [178] – [181].

[99] Commerce Commission "Personal banking services market study – Draft report" (21 March 2024) at [2.39.2].

80.1. Patterns of growth of ANZ, ASB, Westpac, BNZ and Kiwibank, relative to system growth for lending, and in particular, growth broadly in line with system growth between 2020 and 2022.[100]

80.2. On an estimated Lerner Index for loans, which is a measure of the spread between price and marginal costs divided by price. The estimated Lerner Index indicates moderate market power, as it sits above 0 for most banks. The estimated Lerner Index notably increases in 2020 to 2021, before appearing to fall again in 2022[101], indicating a potential reduction in the extent of competition during 2020 to 2021.

80.3. On an estimated Panzar-Rosse-H-Statistic (**H-Statistic**). Values between 0 and 1 are generally interpreted as indicative of imperfect competition. A H-Statistic of less than 0 can be expected under a profit-maximising monopoly. Similar to the Lerner Index, moderate market power is found, with the H-statistic falling closer towards 0 from 2020 to 2021, before increasing again.[102]

81. While it is possible that growth in line with system growth and increases in measures of market power are symptomatic of sporadic competition, we consider there are other plausible explanations for these trends.

Growth at system levels coincides with the COVID-19 pandemic

82. COVID-19 was associated with strict lockdowns in New Zealand, stifling economic activity.[103] It is plausible that banks' competitive strategy between 2020 and 2021 was to consolidate or defend market positions. In addition, banks' strategy at the time may have been to support existing customers with interest rate relief and other support measures, rather than aggressively competing for new customers.[104] This would explain the relative lack of volatility in growth, relative to system growth during this period. Figure 8 below provides a view on the annual home lending growth for ANZ, ASB, Westpac, BNZ and Kiwibank as a ratio of overall home lending growth in New Zealand. As Figure 8 below demonstrates, the period of 'pulling back' (i.e., growth at system levels) coincides to a large extent around the uncertainty caused by COVID-19 and associated lockdowns.

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[100] Ibid, at [4.13.2]. and [Figure 4.3].
[101] Dimitris Margaritis and Maryam Hasannasab "Market power in banking: A study of New Zealand banks" (March 2024) at 16 and [Figure 11].
[102] Ibid, at 17-18 and [Figure 12].
[103] Department of the Prime Minister and Cabinet "Timeline of significant COVID-19 events" (October 2023), available at https://www.dpmc.govt.nz/sites/default/files/2023-10/pr-timeline-significant-events-activities.pdf
[104] See, for example, ANZ "Response to COVID-19 Pandemic" (30 April 2020), available at https://www.anz.com/content/dam/anzcom/shareholder/ANZ-Covid-19-response-30%20April-2020.pdf

Figure 8: Annual home lending growth as a multiple of system growth for ANZ, ASB, Westpac, BNZ and Kiwibank
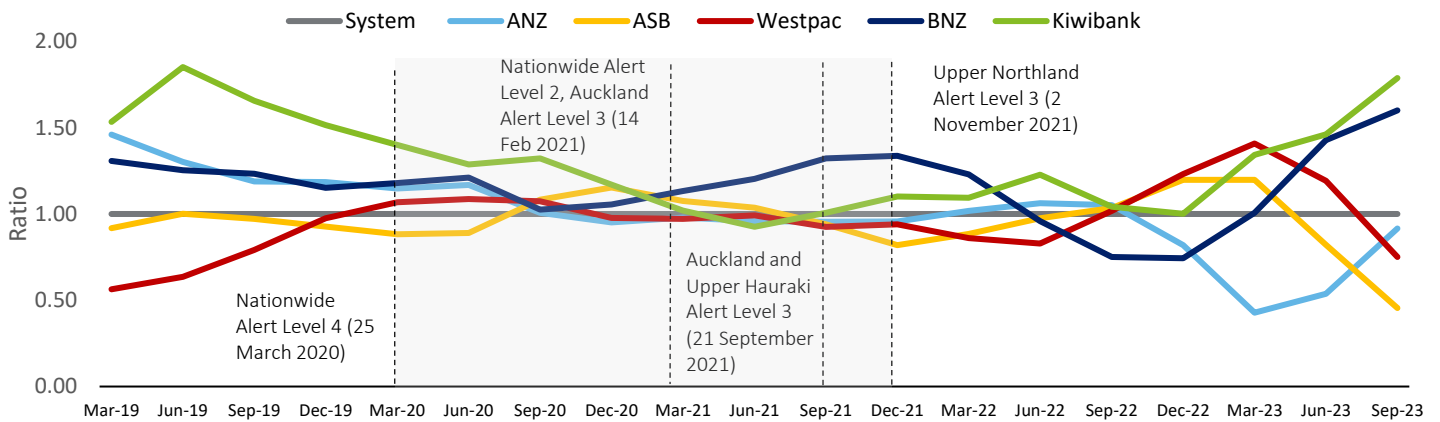
Source: Deloitte Access Economics analysis of RBNZ data.

83. The grey box represents the period under which New Zealand was subject to the Alert Level System[105] (and, therefore, when COVID-19 uncertainty was at its peak). We do not, therefore, consider it appropriate to draw inferences from this period about the nature of competition.

84. Figure 8 also illustrates that growth relative to system has become more volatile since the uncertainty associated with the COVID-19 pandemic has largely subsided.

The impacts of policy intervention

85. During this time, fears that the pandemic would induce a severe global recession frightened global financial markets and, much like the GFC, liquidity became a key concern for New Zealand banks. However, the RBNZ quickly flooded the New Zealand financial system with liquidity through unconventional monetary policy tools such as the Large Scale Asset Purchase programme (**LSAP**)[106] , Funding for Lending (**FLP**)[107] and Term Lending Facility programme (**TLF**).[108]

86. As the RBNZ noted in its November 2023 Financial Stability Report, the FLP provided a low-cost marginal source for long-term stable funding for banks, increasing banks' settlement balances and putting downward pressure on competition for deposits. The LSAP created deposits upon the RBNZ purchasing bonds from the secondary market. The RBNZ observed that the effect of this was that "the high level of liquid assets in the banking system meant that banks could comfortably operate with a higher share of their deposits kept at call".[109] This is demonstrated by the fall in premiums on term deposits over call deposits.

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[105] Department of the Prime Minister and Cabinet "Timeline of significant COVID-19 events" (October 2023), available at https://www.dpmc.govt.nz/sites/default/files/2023-10/pr-timeline-significant-events-activities.pdf
[106] RBNZ "Large scale asset purchase programme" (23 March 2022), available at Large scale asset purchase programme - Reserve Bank of New Zealand - Te Pūtea Matua (rbnz.govt.nz).
[107] RBNZ "More monetary stimulus provided" (11 November 2020), available at More monetary stimulus provided - Reserve Bank of New Zealand - Te Pūtea Matua (rbnz.govt.nz).
[108] RBNZ "Longer-term funding to support business lending" (2 April 2020), available at Longer-term funding to support business lending - Reserve Bank of New Zealand - Te Pūtea Matua (rbnz.govt.nz).
[109] RBNZ "Financial Stability Report" (November 2023) at 39.

Figure 9: Premium on 6-month term deposit compared to on-call savings and term deposits share of total deposits
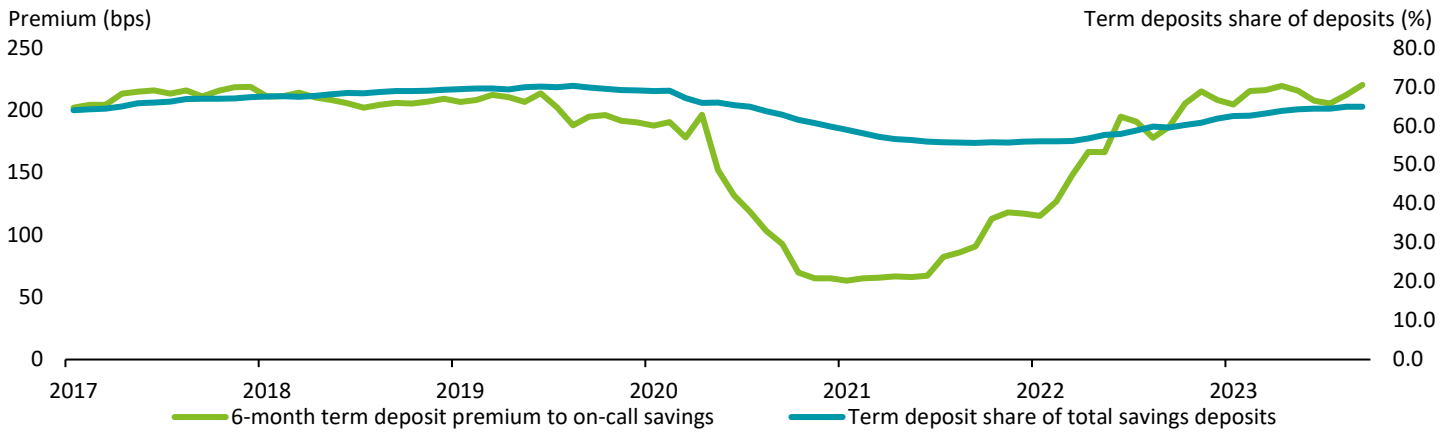
Source: RBNZ

87.   As the RBNZ observes, during this period, banks have experienced higher than average net interest margins (**NIMs**), as the interest income earned on their assets has grown faster than the interest costs paid on their funding. As shown by Figure 10, the increase in NIMs was not because mortgage and term deposit rates did not move downward together when the RBNZ introduced policies to support liquidity (they both bottom-out in mid-early 2021), it was due to the relative size of the moves. Figure 10 shows how the spread between the advertised 1-year mortgage rates and 1-year term deposit rates moved during this period relative to the average spread pre-2020.

Figure 10: Spread between advertised 1-year mortgage rates and 1-year term deposit rates
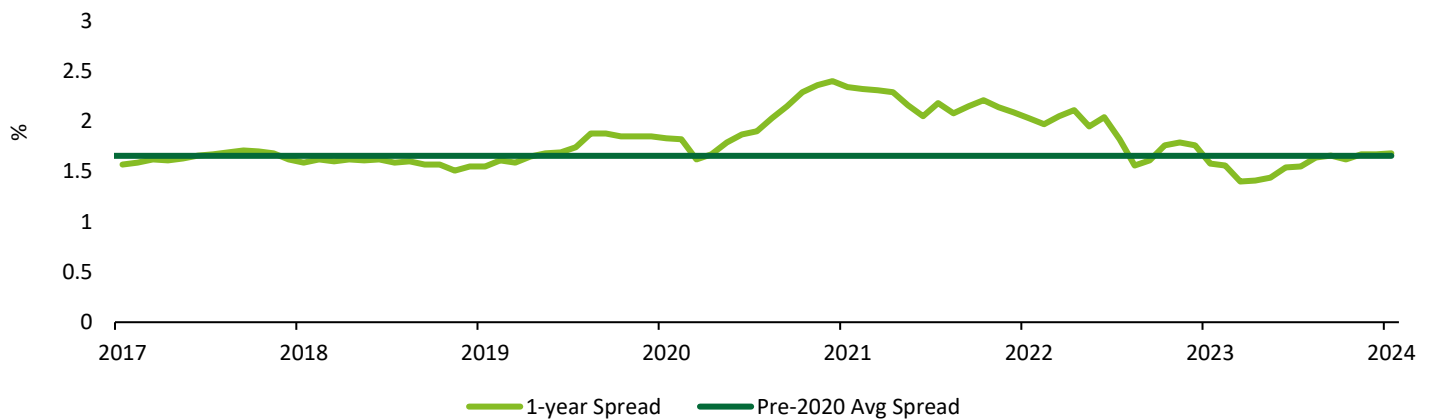
Source: Deloitte Access Economics analysis of RBNZ data

88.   The RBNZ expects over time, as demand for funding increases, that banks are likely to compete more aggressively for deposits, resulting in higher overall funding costs. This could see NIMs decline closer to their long-term averages and could put downward pressure on bank profits.[110]

89.   The elevated levels of measures of market power observed by the Commission between 2020 and 2021 coincide with the impacts of LSAP and FLP discussed above. We therefore consider that the higher measures of market power are likely to be explained by these policy

[110] RBNZ "Financial Stability Report" (November 2023) at 41.

interventions, rather than an episode demonstrating that there is sporadic nature of competition between banks.

Switching for mortgages appears to be increasing

Impediments to switching are generally *perceived*, rather than actual

90. We acknowledge that there is some consumer inertia and consumer switching costs for personal banking services in New Zealand.[111] However, as noted by the Commission, this is a feature of personal banking markets worldwide, with this trend recognised in Australia for retail deposits and home loans and more generally in the United Kingdom.[112] We do not consider this to be an unexpected result in the New Zealand context.

91. We also note that 'inertia' is not the only consideration at play when it comes to consumer switching. We consider it is also important to consider:

   91.1. The "choice process" framework under which switching decisions are made. This is an iterative process under which consumers assess switching decisions.[113]

   91.2. The extent to which consumer decisions not to switch are driven by high levels of satisfaction. For example, Verian found that the most common reason for not considering switching is "[h]appy where I am/no problems", ranging from 56% to 69% of respondents depending on product.[114]

92. Regarding the impediments to consumers switching personal banking products from one provider to another, we consider it is important to note the distinction between actual and perceived impediments to switching.

   92.1. The Verian survey finds that those who did switch *found* the process easier than those who considered switching but did not. For those that switched 62% reported the process to be easy or very easy.

   92.2. However, for those that considered switching but did not, only 36% *believed* the process to be easy or very easy.[115]

93. These results suggest that the process may be easier than expected and provide evidence that that the perceived difficulty associated with switching may be creating a greater impediment than actual difficulty experienced with switching.

94. That is not to say that actual impediments to switching do not exist. The Verian survey finds that a third who considered switching found it easy, but still did not follow through, there were impediments for them being around uncertainty or the availability of better offers. For those that found the process difficult, the majority found the process took too much time, effort or admin, while one in five had difficulty accessing information or help.[116]

Despite *perceived* impediments, there has been increased switching of late

95. We note that there is also evidence to suggest that switching is increasing for some products in the sector.

   95.1. Analysis of the RBNZ data on new residential mortgage lending by purpose finds that in the first quarter of 2024 approximately 20% of new residential mortgage lending was

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[111] Commerce Commission "Personal banking services market study – Draft report" (21 March 2024) at [8.4]

[112] Ibid, at [8.11] and [8.12]

[113] Deloitte Access Economics "Personal banking services: Consumer switching, conditions of entry and expansion, profitability and innovation – A report for BNZ" (7 September 2023) at [27].

[114] Verian "Personal banking services market study – Research report" (February 2024) at 32.

[115] Ibid, at 28.

[116] Ibid, at 28.

due to consumers switching home loans to another provider. This is an increase relative to the pre-COVID-19 period, as demonstrated by Figure 11 below.

95.2. The Verian survey findings point out that home loans are the most commonly switched product[117] and highlights that switching of a home loan to a bank often drives the switching of other products as well.[118]

Figure 11: Changes in provider of home loans as a percentage of total new home lending for all purposes
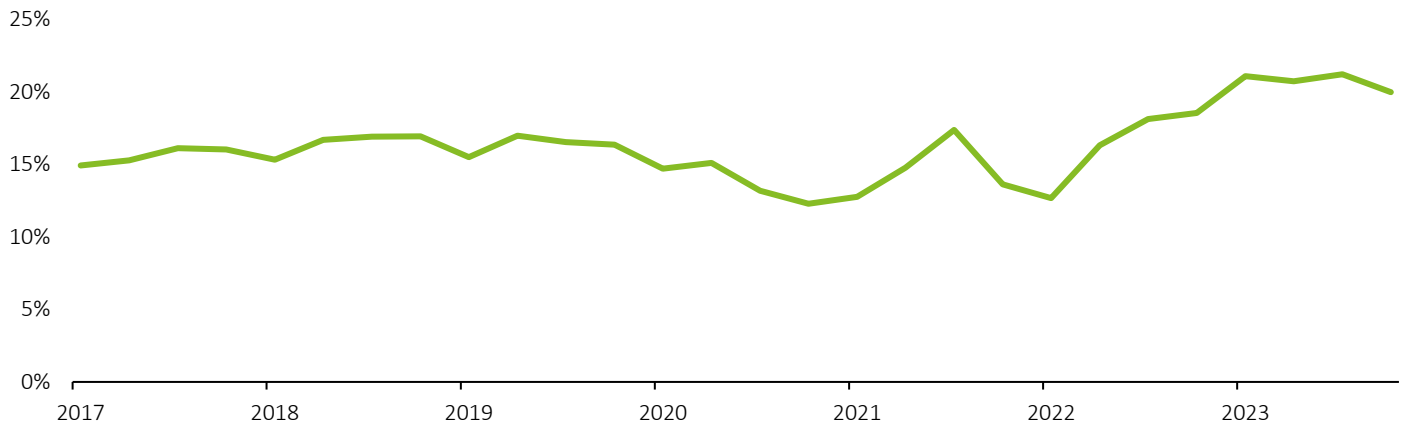
Source: Deloitte Access Economics analysis of RBNZ data

95.3. The Verian survey also finds that for those who considered switching but did not, the most commonly considered product for switching were home loans.[119] As noted in previous submissions, workable competition in the market is supported through the *ability* to switch even if the consumer does not follow through with the action.[120]

95.4. The Commission recognises that multi-banking (consumers who have personal banking relationships with two or more providers) has increased over time due to the reduction in switching barriers.[121] They also indicate that this trend in multi-banking could imply the competitive advantage of main bank relationship is decreasing.[122] Evidence from [ ] suggests a similar trend. Indications below are, generally speaking, that a larger proportion of customers are multihoming within one product type than they were in 2019. This indicates that multihoming, and by extension switching, is increasing over time.

95.5. Figure 12 to Figure 15 below illustrates the absolute change, from July 2019 to June 2023, in the percentage of consumers that have a personal banking product with one provider, for example ANZ, who also have another product of the same type with another provider, for example BNZ. Where other is all providers not listed in the survey but specified by participants.

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[117] Ibid, at 19.
[118] Ibid, at 20.
[119] Ibid, at 24.
[120] Deloitte Access Economics "Personal banking services: Consumer switching, conditions of entry and expansion, profitability and innovation – A report for BNZ" (7 September 2023) at [14].
[121] Commerce Commission "Personal banking services market study – Draft report" (21 March 2024) at [8.13].
[122] Ibid, at [2.11].

Figure 12: [ ]

[ ]

95.6. Figure 12 above, illustrates for savings accounts multihoming is increasing for most banks. In particular [ ].

Figure 13: [ ]

[ ]

95.7. Similar to savings accounts, in Figure 13, [ ].

95.8. As noted by the Commission, the convenience of having a transaction account and a savings account with the same provider may be important to some consumers.[123] Therefore, it is unsurprising that the increase in multihoming, and by extension switching, follows a similar trend for both transaction accounts and savings accounts.

Figure 14: [ ]

[ ]

95.9. [ ]

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[123] Commerce Commission "Personal banking services market study – Draft report" (21 March 2024) at [5.34].

95.10. [ ]

Figure 15: [ ]

[ ]

Source: [ ]

95.11. [ ]

Increased digitalisation and use of brokers is likely to increase switching

96.   Consumer preferences are changing as there is a decreased reliance on physical branches and increased preference for digital services. As we have previously noted, post COVID-19, digital channels (i.e., internet and mobile banking) have become more popular and embedded for most basic banking services. We note that consumer switching is likely to continue to evolve due to the digitalisation of personal banking services. It is likely to change consumer behaviour and expectations of the services they receive.[124]

97.   The Commission observes an increase in the use of mortgage brokers in New Zealand.[125] We have previously noted, mortgage brokers can make personal banking services more competitive as they have access to loan products from a range of lenders, therefore enhancing consumers' knowledge of loan products.[126] This can aid switching via reducing impediments such as search and switching costs.

98.   The importance of brokers in consumer switching of personal banking services was recognised by the ACT:[127]

> [T]he use of brokers has led to a reduction in search and switching costs and has facilitated price competition … brokers are an important driver of competition in the home loans market because they facilitate price transparency for consumers and identify opportunities for repricing and refinancing.

99.   Brokers are a significant source of business for lenders. [ ][128]

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[124] Deloitte Access Economics "Personal banking services: Consumer switching, conditions of entry and expansion, profitability and innovation – A report for BNZ" (7 September 2023) at [58] and [63.2].
[125] Commerce Commission "Personal banking services market study – Draft report" (21 March 2024) at [2.71].
[126] Deloitte Access Economics "Personal banking services: Consumer switching, conditions of entry and expansion, profitability and innovation – A report for BNZ" (7 September 2023) at [51].
[127] *Applications by Australia and New Zealand Banking Group Limited and Suncorp Group Limited* [2024] ACompT 1 at [463].
[128] [ ]

Figure 16: [ ]

[ ]

Source: [ ]

100. The above evidence demonstrates the important role brokers can have in incentivising consumer switching for home loans and personal banking services more broadly.

There are likely some impediments to entry and expansion, owing to an interaction of regulatory conditions and economies of scale and scope

Overview of Draft Report findings surrounding impediments to entry and expansion

101. In the Draft Report the Commission identified that there are high barriers to sustainable new entry and expansion in personal banking services. For example:[129]

    101.1. There are significant fixed costs in providing banking services.

    101.2. Regulation is a condition of entry but also is an important factor that can directly or indirectly affect a provider's ability to expand and grow in the market.

    101.3. The Commission finds that the major banks benefit from lower average funding costs than smaller banks. We note that this may be explained, in part, by the diversity of funding sources major banks have access to.

    101.4. A significant degree of brand recognition and low customer engagement.

Economies of scale and scope as a barrier to entry and expansion

102. New Zealand has a small banking sector when compared to international counterparts. With a population smaller than Sydney, and fewer than two million residential dwellings, the personal banking services sector in New Zealand is relatively small. Yet this market supports five larger bank competitors amongst 27 registered banks as well as 16 registered NBDT and a significant range of smaller financial entities that are also material competitors across various products and services.

103. The small scale may naturally limit the nature and the extent of entry and expansion for personal banking services as there is an inherent trade-off between productive and allocative efficiency.[130]

104. We recognise some conditions to expansion are likely to remain, notwithstanding the reduced importance of branch networks, recent entry into New Zealand (such as Wise, Dosh, Squirrel and Simplicity), and the success of Kiwibank increasing its volume share:

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[129] Commerce Commission "Personal banking services market study – Draft report" (21 March 2024) at [2.20]; [2.20.1] – [2.20.4] and [8.21].
[130] Deloitte Access Economics "Personal banking services: Consumer switching, conditions of entry and expansion, profitability and innovation – A report for BNZ" (7 September 2023) at [84] to [86].

104.1. As the Commission's Draft Report found, scale is important in personal banking services because the provision of banking services involves significant fixed costs.

104.2. It is evident that the relevance of economies of scale is not static. Trends in consumer preferences such as the declining preference for physical retail branches, increasing preference for digital products and services by consumers, may lessen the extent to which economies of scale impact entry and expansion.[131] Branch presence is therefore no longer necessary to compete, and economies of scope is changing in the digital era, for example, new entrants are not burdened by legacy information technology systems.

104.3. As shown above, Kiwibank's proportional change in its value share for both home loans and deposits outweighed any other competitor since 2018.

104.4. Branding and reputation are an important consideration for consumers when choosing their personal banking services. Our findings suggest although this factor may impose conditions for entry and expansion, it is not an insurmountable condition. This is due to the evidence that smaller banks (in terms of balance sheet size), have grown over the past five years for both deposits and mortgage lending.[132] This is also evidenced in Figure 3 whereby the analysis of regional trends exhibit a regional outperformance of TSB and SBS relative to their size in the Taranaki and southland regions respectively. We note that this is in contrast to the findings of the Commission who discuss that the significant degree of brand recognition in the market for personal banking services is an ongoing barrier to entry and expansion of smaller providers in the sector.[133]

105. Due to the nature of economies of scale and scope in personal banking services, it may be more effective and disruptive to have a different business model compared to most banks in New Zealand. For example, Macquarie Bank's growth can be attributed to its commitment to delivering strong service through the advisor channel.[134] This strategy was significantly different to the other major banks in Australia, allowing it to expand in the Australian personal banking market.

Importance of regulation as a condition of entry and expansion

106. We agree that regulation imposes a direct condition of entry and expansion in the personal banking services sector. The Commission notes that regulation is the single most important factor constraining new entry and the ability of existing providers to expand and compete.[135]

107. Our analysis finds that there are several supervisory bodies that influence New Zealand banks and financial institutions. These include but are not limited to: RBNZ, Financial Markets Authority (FMA), the Commission, Ministry of Business, Innovation and Employment (MBIE) and the Treasury.[136] The number of supervisory bodies may be generating impediments to entry and expansion in the sector with conflicting policy goals.

108. It is evident that regulatory factors impose conditions for entry and expansion for personal banking services and may dampen some aspects of competition. However, it is important to note that New Zealand's financial regulatory framework is designed primarily to ensure financial stability which is paramount given the systemic importance of the banking sector in any economy. We do note that regulation should ideally be competitively neutral across banks and other providers where possible, but it is important that the inherent riskiness of a sector participant is still considered to avoid creating moral hazard problems.

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[131] Ibid, at [88] and [89].
[132] Ibid, at [107].
[133] See, for example, Commerce Commission "Personal banking services market study – Draft report" (21 March 2024) at [2.58].
[134] Ibid, at [4.128].
[135] Ibid, at 159.
[136] The Treasury "Regulated parties and key stakeholders", available at https://www.treasury.govt.nz/information-and-services/regulation/systems-we-steward/reserve-banks-institutional-regime/regulated-parties-and-key-stakeholders

Profitability

Key points

- **We do not agree with the Commission's dismissal of high observed levels of efficiency of larger banks as a potential explanation for observed levels of profitability**. In markets where firms have differing costs, capacity constraints and efficiency levels, prices and profits are set by the marginal producer. Firms more efficient than the marginal producer will earn higher than normal returns, even in competitive markets.

- We agree that in a market without impediments to entry and expansion, higher than normal profits would eventually be expected to be competed away. However, regulatory conditions mean we would not necessarily expect this to occur for personal banking services. **In a market with regulatory conditions impacting entry and expansion, even if competition is otherwise working well, we would expect those more efficient firms to continue earning higher return**s.

- We invite the Commission to consider whether **regulatory settings designed to ensure financial stability, rather than a lack of workable competition between current participants**, is fundamentally what explains the persistency of relatively higher profitability for some banks in New Zealand.

Efficiency, economic profit and the marginal producer

109.   In its Draft Report, the Commission identifies that New Zealand banks have relatively low-cost structures when compared to overseas banks,[137] and that larger New Zealand banks have relatively low-cost structures when compared to smaller New Zealand banks[138] (noting the Industrial and Commercial Bank of China (**ICBC**), China Construction Bank (**CCB**) and Bank of China as exceptions). However, while the Commission notes that, under a workably competitive market, "more efficient firms can extract greater returns",[139] they would also expect that "the first tier banks would have competed away profits attributable to their relatively lower cost-to-income (**CTI**) ratio".[140] They also note that in a workably competitive market "we would also expect to see less efficient firms seeking to capture, and compete away, some of those higher returns by expanding".[141]

110.   In this section, we discuss:

110.1.   Why, even under a competitive market, profits attributable to high levels of efficiency will only be competed away until the *marginal* firm is earning a normal return.

110.2.   Why both accounting and economic efficiency are likely to explain the higher profitability of ANZ, ASB, Westpac and BNZ.

110.3.   Why the observed persistency in relatively higher profitability is likely a consequence of the regulatory framework in New Zealand designed primarily to ensure financial stability, given the systemic importance of larger banks to New Zealand's economy.

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[137] Commerce Commission "Personal banking services market study – Draft report" (21 March 2024) at [C91].
[138] Ibid, at [C92].
[139] Ibid, at [C95].
[140] Ibid, at [C96].
[141] Ibid, at [C97].

New Zealand's banks are measured to be relatively efficient under economic and accounting definitions of efficiency

111. As we have previously noted and the Commission finds, New Zealand's larger banks are relatively cost efficient when compared to international peers and smaller New Zealand banks.[142]

    111.1. Figure 17 shows that (at the industry level) the CTI ratio of New Zealand banks has consistently sat below the lower quartile of the Commission's chosen comparator countries.

    111.2. Figure 18 shows that, relative to most smaller banks in New Zealand, ANZ, ASB, BNZ and Westpac tend to experience lower CTI ratios, suggesting the existence of some form of economies of scale and/or scope.

Figure 17: Cost-to-income ratio for selected comparison countries
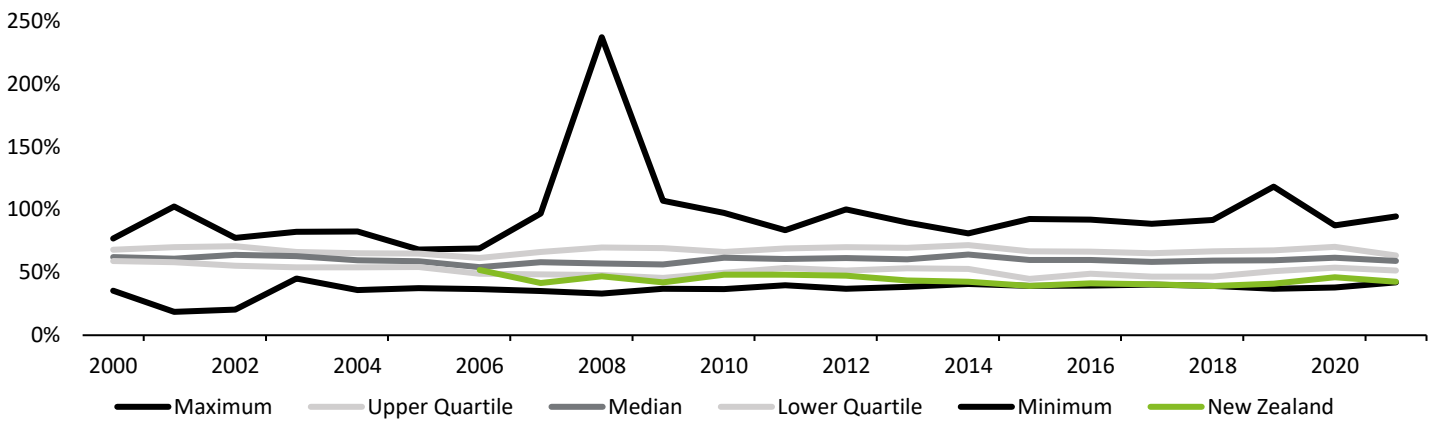
Source: Deloitte Access Economics analysis of World Bank data. Selected countries are the same as those considered by the Commerce Commission.

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[142] Commerce Commission "Personal banking services market study – Draft report" (21 March 2024) at [6.54] and Deloitte Access Economics "Personal banking services: Consumer switching, conditions of entry and expansion, profitability and innovation – A report for BNZ" (7 September 2023) at [189] to [198].

Figure 18: Cost-to-income ratio for New Zealand banks
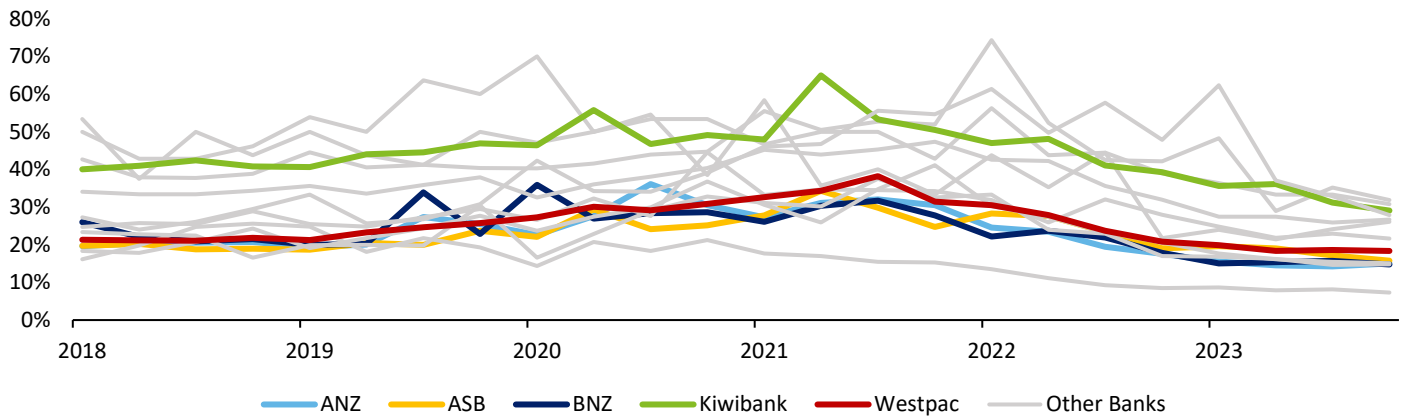
Source: Deloitte Access Economics analysis of RBNZ Financial Stability Dashboard data. Cost-to-income ratio has been calculated as CTI = Operating Expenses / Total Income.[143] Other banks are BOB, BOI, CCB, Co-op, Heartland, ICBC, Rabobank, SBS and TSB.

112. While these measures suggest New Zealand's banks are relatively efficient using accounting measures, there is a very important distinction between the definitions of accounting and economic efficiency. While accounting efficiency is usually achieved by minimising a ratio involving operating costs in the numerator, economic efficiency covers three key components:

    112.1. Technical or productive efficiency, achieved where outputs are produced at the least cost.

    112.2. Allocative efficiency, where resources are allocated to the production of outputs in a way which provides the greatest (economic) benefit relative to (economic) costs.

    112.3. Dynamic efficiency, where industries respond over time to changes in technology and consumer tastes.

113. These are also the three types of efficiency considered by the Commission under its Authorisation Guidelines.[144] Our discussion will focus on productive efficiency and using the optimal combination of inputs.

114. In their paper 'Market Power in Banking: A study of New Zealand banks' (commissioned by the Commission) (**econometrics paper**), Professor Dimitris Margaritis and Dr Maryan Hasannasab (of the University of Auckland) assessed how efficient New Zealand's banks are using economic measures.

115. The econometrics paper considers two measures of efficiency: cost and profit efficiency.

    115.1. Cost efficiency was estimated using stochastic frontier analysis (**SFA**), where total costs are modelled as a function of outputs and input prices. Cost efficiency is therefore defined as the distance between a bank's actual costs and the 'optimal' costs predicted by the frontier.[145]

    115.2. Profit efficiency was similarly estimated using SFA and allows for identifying "inefficiencies in banks' profit generation process, allowing for targeted improvements in resource allocation, risk management, and operational effectiveness". In their model,

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[143] This is consistent with the definition of CTI used by the Commission in its Draft Report and the World Bank in its Global Financial Development Database. Commerce Commission "Personal banking services market study – Draft report" (21 March 2024) at [C4].
[144] Commerce Commission "Authorisation Guidelines" (June 2023) at [63] to [83], available at
https://comcom.govt.nz/__data/assets/pdf_file/0012/91011/Authorisation-Guidelines-June-2023.pdf
[145] Professor Dimitris Margaritis & Dr Maryam Hasannasab "Market power in banking: A study of New Zealand banks" (March 2024) at 7-8.

profit markup is a function of output quantities and input prices, allowing for the existence of imperfect competition.[146]

116. The econometrics paper found that, using both cost and profit measures of economic efficiency, New Zealand's banks are efficient.

116.1. They find that "New Zealand banks operate with relatively high cost efficiency, generally in the 80-90% mark", and we note that ASB, ANZ, BNZ, Westpac and Kiwibank all have estimated cost efficiency levels above 90% for the period considered. As the paper notes, their measure of cost efficiency is made up of both technical efficiency (efficiently converting the chosen inputs into outputs) and allocative efficiency (using the optimal combination of inputs).[147]

116.2. Similarly, they conclude that the profit efficiency analysis presented "further evidence of high efficiency levels for New Zealand banks" and that "profit efficiency ranges in the 75-90% mark for most banks". We note that profit efficiency for ANZ, ASB, BNZ and Westpac for the entire period sits above 90%, with Kiwibank's efficiency declining from around 93% in 2018 to around 87% in 2021.[148]

117. Taken together, analysis of accounting and economic measures of efficiency suggest that New Zealand's banks (especially larger banks) are relatively efficient and likely not only using inputs in an efficient manner, but also using an efficient combination of inputs.

Prices in a competitive market are set by a 'marginal' producer in most markets and differing levels of profitability should be expected

118. In our submission on the PIP, we noted that in a market where firms are faced with differing costs and capacity constraints, the supply curve can be 'upward sloping'. In these cases, the market price in equilibrium is set by the highest cost 'marginal' producer who will only make a 'normal' return at market prices. Lower cost producers or firms will make a margin above (economic) costs in such a situation.[149] Above normal returns reflecting greater efficiency does not necessarily indicate a competition problem.[150]

119. This has previously been acknowledged by the Commission in their market study into the retail grocery sector, stating that "if profitability is persistent in a competitive market, it will generally be confined to a subset of firms that have some form of enduring competitive advantage such as relatively lower costs".[151]

120. On both accounting and economic measures, larger banks such as ANZ, ASB, Westpac or BNZ are found to be relatively efficient, compared to relatively smaller banks such as Kiwibank, TSB Bank (TSB), Heartland, SBS or The Co-operative Bank (Co-op). We consider that the relatively high profitability observed for ANZ, ASB, Westpac and BNZ[152] are driven by these observed efficiencies. We reiterate again that care should be taken attributing excess profitability of a subset of banks as an indication that the market for personal banking services is not workably competitive.

121. In addition, the econometrics paper presents a fixed effects panel regression on the relationship between market power and efficiency (that is, what is the relationship between efficiency measures and market power as measured by the Lerner Index). They find both cost and profit

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[146] Ibid, at 10-11.
[147] Ibid, at 8-9.
[148] Ibid, at 11-12.
[149] Gunnar Niels, Helen Jenkins and James Kavanagh "Economics for Competition Lawyers" (2nd Ed, Oxford University Press, Oxford, 2016) at [1.32].
[150] OXERA for the Office of Fair Trading "Assessing profitability in competition policy analysis – Economic discussion paper 6" (July 2003) at [8.16], available at https://www.oxera.com/wp-content/uploads/2018/03/OFT-Assessing-profitability-1.pdf
[151] Commerce Commission "Market study into the retail grocery sector – Final report" (8 March 2022) at [3.16].
[152] See, for example, Commerce Commission "Personal banking services market study – Draft report" (21 March 2024) at [6.30]

efficiency to be statistically significant in explaining observed market power[153] (and we note that the coefficients estimated suggest economic significance also).

122. While it is important to note that these results alone do <u>not</u> suggest causality, they do find that "causality is more likely to run from efficiency to market power than the other way around".[154] That is, <u>they suggest that firms have market power (i.e., are able to price above cost) *because* they are relatively efficient</u>.

Is the persistency of the relatively higher profitability attributable to regulatory conditions of entry and expansion?

123. The Commission states that they would "expect that the first-tier banks would have competed away profits attributable to their relatively lower CTI ratio" under a workably competitive market.[155] However, this implicitly suggests that the marginal producer is ANZ, ASB, Westpac or BNZ, as opposed to Kiwibank, or a smaller firm such as TSB, Heartland, SBS or Co-op.

124. As discussed above, in most markets, any above normal profit levels will, under a competitive market, be 'competed' away until the marginal firm is earning a normal return. Firms with a lower cost structure (i.e., who are more efficient than the marginal firm) are still able to generate an above normal return, even under a competitive market.

125. The Commission also states that under a workably competitive market they would expect to "see less efficient firms seeking to capture, and compete away, some of those higher returns by expanding".[156]

126. We agree. In a competitive market <u>with no significant impediments to entry, exit or expansion</u>, we would expect over time, less efficient firms would seek to capture, and compete, away higher returns by expanding. A consequence would also be much more variability in market shares and positions over time.

127. However, the nature of personal banking services means that there are inherently conditions which, to a certain extent, inhibit entry, exit or expansion. Fundamentally, New Zealand's financial regulatory framework is designed primarily to ensure financial stability which is paramount given the systemic importance of the banking sector in any economy. As the Commission notes, regulation is the single most important factor constraining new entry and the ability of existing providers to expand and compete.[157]

128. We invite the Commission to consider whether regulatory settings designed to ensure financial stability explain, in large part, the persistence of the relatively higher profitability observed, rather than <u>a lack of workable competition between current participants</u> (which, as discussed above, we do not consider is supported by a consideration of the evidence in the round).

129. Specifically, we invite the Commission to consider that:

129.1. Banks such as Kiwibank, TSB, Heartland, SBS or Co-op are the marginal producers for personal banking services, meaning ANZ, ASB, Westpac or BNZ would generate above normal returns, even under a competitive market.

129.2. The reason that higher returns of ANZ, ASB, Westpac or BNZ have not be competed away are largely due to the regulatory framework that is designed primarily to ensure financial stability.

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[153] Professor Dimitris Margaritis & Dr Maryam Hasannasab "Market power in banking: A study of New Zealand banks" (March 2024) at Table 1.
[154] Ibid, at 19.
[155] Commerce Commission "Personal banking services market study – Draft report" (21 March 2024) at [C95].
[156] Ibid, at [C97].
[157] Ibid, at 159.

Appendix – VAR estimation procedure

130. This appendix sets out the technical details of how we estimated VAR models of advertised mortgage and term deposit rates and carried out hypothesis testing for causality.

Factors relevant to our chosen estimation procedure

131. To adequately assess the responsiveness of banks' advertised mortgage and term deposit rates to each other, we consider that an estimation technique needs to take into account the following factors:

    131.1. The potential that one bank's advertised rates may impact another bank's advertised rates, which may, in turn, impact another bank's advertised rates and so on. In other words, the estimation technique needs to account for the fact that there may be dynamic interrelationships and feedback loops between banks' advertised rates and that they may therefore be determined 'endogenously'.

    131.2. The potential that a bank's advertised rates may be impacted by changes in wholesale costs, and in this case, changes in a relevant cost benchmark.

132. Given these factors, we decided that a VAR model would be a suitable choice. A VAR model allows us to model how a set of endogenous (determined within model) variables interact with, and explain, each other as well as any exogenous (determined outside of model) variables.

133. Specifically, we estimated a VAR model where each bank's rates are a function of the lagged values of its own past rates, lagged values of past competitor rates, and relevant wholesale cost benchmarks as additional explanatory variables exogenous to the system.

Advantages and disadvantages of the chosen VAR model

Our VAR model does not require any priors

134. VAR models are a flexible estimate technique. A VAR model typically expresses each variable of interest as a linear function of its own past values, the past values of other variables being considered and a serially uncorrelated error term.[158]

135. VAR models do not require a priori theoretical knowledge about the underlying relationships among modelled variables. While the lack of theoretical underpinnings of underlying relationships among modelled variables is typically a criticism of VAR models, we consider it is an advantage in this instance.

136. As we discussed above, the economic literature that is relevant to differentiated dynamic competition among several firms suggest a multiplicity of potential outcomes, depending on a number of features that may be present in the market.

137. By using a VAR model, we are able to remain agnostic about the nature of interdependencies between banks' advertised rates and to test which bank's advertised rates statistically significantly explain the advertised rates of other banks.

138. Our VAR models are specified solely based on the data observed. Because we let the data determine the properties and specifications of our model, rather than theoretical principles or priors about the nature of the market for personal banking services, we can test for what the

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[158] James H Stock and Mark W Watson "Vector Autoregressions" (2001) 15(4) Journal of Economic Perspectives 101 at 102.

specification of our models says about the competitive nature of advertised rates for mortgages and term deposits between banks.

Our VAR model does not allow for contemporaneous impacts

139.   As noted previously, we acknowledge that a bank's advertised rates in one week may be impacted by another bank's advertised rates in that same week (i.e., contemporaneously impact a bank's advertised rates), in addition to previous weeks' advertised rates. While there are techniques to model such contemporaneous interactions between banks, they involve setting assumptions about the nature and timing of competition between banks, and in particular, the order in which changes in one bank's rates impact other banks' rates.[159]

140.   We consider that making such assumptions would go towards making assumptions around the nature of competition between banks (i.e., presupposing the order of how each bank's advertised rates respond to those of other banks).

141.   For this reason, we continued to estimate the VAR regression with the assumption that past values of a bank's advertised rates impact rates in a particular week. In addition, given that we applied relatively high frequency weekly data, we would expect in many instances, the past week's advertised rates would indeed impact a bank's advertised rates in the current week.

142.   We also note that in the Draft Report the Commission finds that pricing decisions are typically made by a pricing committee which usually meets weekly (or in response to major events).[160] As such, we believe it is reasonable to use a model whereby pricing decisions are made weekly, based on observed historical rates in the market (up to the week prior) and wholesale costs today, as this is likely to be representative of the information the pricing committees have to hand.

Mortgage rate dataset

143.   We used advertised personal home loan mortgage rates obtained from interest.co.nz to undertake our analysis. Interest.co.nz maintains a database of advertised rates by product and institution (including registered banks, brands of registered banks and non-bank financial institutions) as at Friday of each week, from January 2002 to November 2023. This dataset is also shared with the Reserve Bank of New Zealand (RBNZ) and is therefore considered as a credible dataset.

144.   For 2-year to 5-year fixed products, our analysis covers August 2010 onwards only due to swap rate data availability from the RBNZ.

145.   This dataset contains, for each institution, their 'best rate'. This may take the form, for example, of a discounted rate for borrowers with a loan-to-value (**LVR**) ratio below 80%. In 2022, 92% of new residential mortgage commitments by value had an LVR of 80% or below.[161] This means that the 'best rate' is likely to capture more of the market than a 'standard rate'. Importantly, it also means the dataset is like-for-like and internally consistent.

146.   We undertook cleaning and reformatting of this dataset to obtain a time series of rates by institution and product duration which was used to fit our regression models. Although we had data for non-bank institutions, we decided to consider only registered banks. The rates of registered banks other than ANZ, ASB, Westpac, BNZ and Kiwibank were averaged into an 'Other

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[159] In particular, we could have estimated a SVAR that allows for contemporaneous interactions between advertised rates of banks. However, this would require an explicit assumption be made with regards to Cholesky ordering. Essentially, this means imposing the order with which variables in the SVAR are solved as an underlying assumption. In the context of mortgage rates, this would require assuming a 'first-mover', 'second-mover' and so on, which would risk presupposing a given outcome. Therefore, we concluded that a contemporaneous model would not be suitable.
[160] Commerce Commission "Personal banking services market study – Draft Report" (21 March 2024) at [4.28] to [4.30].
[161] Deloitte Access Economics analysis of RBNZ "New residential mortgage lending by LVR – C30 (Aug 2013 – current)", available at https://www.rbnz.govt.nz/statistics/series/lending-and-monetary/new-residential-mortgage-lending-by-loan-to-valuation-ratio

Banks' variable.[162] We did not specify which banks were averaged into this variable. Instead, any observations for a given date which were from a registered bank (determined by the RBNZ list of registered[163] and formerly registered[164] banks) which was not ANZ, ASB, Westpac, BNZ or Kiwibank, were averaged together to produce the 'other bank' variable.

Term deposit rate dataset

147.   Like with the mortgage rate data, we used advertised term deposit rates obtained from interest.co.nz to undertake our term deposit analysis. interest.co.nz maintains a database of advertised rates by product and institution (including registered banks, brands of registered banks and non-bank financial institutions) as at Friday of each week, from January 2002 to November 2023. This dataset is also shared with the RBNZ, and is therefore considered as a credible dataset.

148.   The term deposit dataset from interest.co.nz contains different rates for products with a different minimum deposit amount (e.g., $10,000). This meant that for a given date, some institutions had multiple term deposit rates for different minimum deposit products (which may or may not be the same rate).

149.   We opted to analyse the rates for the $10,000 and $50,000 minimum term deposits across the available terms of 6-months to 5-years. There were two primary reasons for this:

149.1.   The availability of interest rate data for the $10,000 and $50,000 minimum deposit rates were largely consistent across all of the major banks and most of the other registered banks for the entire time span of the dataset (January 2002 to November 2023). Some minimum deposit rates were discontinued after a certain point in time, and others were only offered by a small subset of banks in the dataset.

149.2.   Data released by the RBNZ in December 2023 relating to banks' balance sheets reveals that term deposits with minimum amounts of $10,000 and $50,000 capture approximately 82% and 38% of the market respectively, by count of term deposit accounts as of December 2023.[165] This suggests the products we chose to analyse are representative of the deposit market and capture the majority of term deposit accounts in New Zealand.

150.   We undertook cleaning and reformatting of this dataset to obtain a time series of rates by institution and product duration separately for the $10,000 and $50,000 minimum deposit rate products, which was used to fit our regression models. Although we had data for non-bank institutions, we decided to consider only registered banks. The rates of registered banks other than ANZ, ASB, Westpac, BNZ and Kiwibank were averaged into an 'other bank' variable.[166]

151.   The banks contained in the 'other bank' variable differs between the $10,000 and $50,000 minimum deposit data, because not all of the other registered banks were consistent across these two offerings. As with the mortgage rate data, the banks included in the 'other banks'

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[162] For example, other banks included in the VAR model for advertised floating mortgage rates were Bank of China, HSBC, HSBC Premier, Heartland, ICBC, Kookmin, National Bank, SBS, TSB and Westpac Trust. For the VAR model for advertised $10k minimum 6-month term deposit rates, the other banks variable consisted of Bank Direct, Bank of Baroda, Bank of India, Co-operative Bank, HSBC, ICBC, Kookmin, National Bank and TSB. As the interest.co.nz dataset we used extends back to 2002, several older sub-brands, such as Westpac Trust, are present in our dataset. To account for the possibility that such sub-brands followed and executed different competitive strategies, we included these within other banks variable.

[163] RBNZ "Registered banks in New Zealand", available at https://www.rbnz.govt.nz/regulation-and-supervision/cross-sector-oversight/registers-of-entities-we-regulate/registered-banks-in-new-zealand

[164] RBNZ "Banks no longer registered in New Zealand", available at https://www.rbnz.govt.nz/regulation-and-supervision/cross-sector-oversight/registers-of-entities-we-regulate/banks-no-longer-registered-in-new-zealand

[165] RBNZ "Banks: Liabilities – Deposits by size (number) (S46)", available at https://www.rbnz.govt.nz/statistics/series/registered-banks/banks-liabilities-deposits-by-size-number

[166] For example, other banks included in the VAR model for advertised floating mortgage rates were Bank of China, HSBC, HSBC Premium, Heartland, ICBC, Kookmin, National Bank, SBS, TSB and Westpac Trust. For the VAR model for advertised $10k minimum 6-month term deposit rates, the other banks variable consisted of Bank Direct, Bank of Baroda, Bank of India, Co-operative Bank, HSBC, ICBC, Kookmin, National Bank and TSB

variable was determined by the registered banks contained in the dataset who were not ANZ, ASB, BNZ, Westpac or Kiwibank.

Model specification and robustness testing

152.   Table 6 shows the VAR equation specifications we applied to both the mortgage and term deposit rates.

Table 6: VAR equations

Regression equations estimated

$$ANZ\ Rate_t = \alpha_0 + \alpha_1 ANZ\ Rate_{t-1} + \cdots + \alpha_2 ANZ\ Rate_{t-i} + \alpha_3 ASB\ Rate_{t-1} + \cdots + \alpha_4 ASB\ Rate_{t-i} + \alpha_5 Westpac\ Rate_{t-1} + \cdots + \alpha_6 Westpac\ Rate_{t-i} + \alpha_7 BNZ\ Rate_{t-1} + \cdots + \alpha_8 BNZ\ Rate_{t-i} + \alpha_9 Kiwibank\ Rate_{t-1} + \cdots + \alpha_{10} Kiwibank\ Rate_{t-i} + + \alpha_{11} Other\ banks\ Rate_{t-1} + \cdots + \alpha_{12} Other\ banks\ Rate_{t-i} + \alpha_{13} Cost\ benchmark_t + \varepsilon_t$$

$$ASB\ Rate_t = \alpha_0 + \alpha_1 ANZ\ Rate_{t-1} + \cdots + \alpha_2 ANZ\ Rate_{t-i} + \alpha_3 ASB\ Rate_{t-1} + \cdots + \alpha_4 ASB\ Rate_{t-i} + \alpha_5 Westpac\ Rate_{t-1} + \cdots + \alpha_6 Westpac\ Rate_{t-i} + \alpha_7 BNZ\ Rate_{t-1} + \cdots + \alpha_8 BNZ\ Rate_{t-i} + \alpha_9 Kiwibank\ Rate_{t-1} + \cdots + \alpha_{10} Kiwibank\ Rate_{t-i} + + \alpha_{11} Other\ banks\ Rate_{t-1} + \cdots + \alpha_{12} Other\ banks\ Rate_{t-i} + \alpha_{13} Cost\ benchmark_t + \varepsilon_t$$

$$Westpac\ Rate_t = \alpha_0 + \alpha_1 ANZ\ Rate_{t-1} + \cdots + \alpha_2 ANZ\ Rate_{t-i} + \alpha_3 ASB\ Rate_{t-1} + \cdots + \alpha_4 ASB\ Rate_{t-i} + \alpha_5 Westpac\ Rate_{t-1} + \cdots + \alpha_6 Westpac\ Rate_{t-i} + \alpha_7 BNZ\ Rate_{t-1} + \cdots + \alpha_8 BNZ\ Rate_{t-i} + \alpha_9 Kiwibank\ Rate_{t-1} + \cdots + \alpha_{10} Kiwibank\ Rate_{t-i} + + \alpha_{11} Other\ banks\ Rate_{t-1} + \cdots + \alpha_{12} Other\ banks\ Rate_{t-i} + \alpha_{13} Cost\ benchmark_t + \varepsilon_t$$

$$BNZ\ Rate_t = \alpha_0 + \alpha_1 ANZ\ Rate_{t-1} + \cdots + \alpha_2 ANZ\ Rate_{t-i} + \alpha_3 ASB\ Rate_{t-1} + \cdots + \alpha_4 ASB\ Rate_{t-i} + \alpha_5 Westpac\ Rate_{t-1} + \cdots + \alpha_6 Westpac\ Rate_{t-i} + \alpha_7 BNZ\ Rate_{t-1} + \cdots + \alpha_8 BNZ\ Rate_{t-i} + \alpha_9 Kiwibank\ Rate_{t-1} + \cdots + \alpha_{10} Kiwibank\ Rate_{t-i} + \alpha_{11} Other\ banks\ Rate_{t-1} + \cdots + \alpha_{12} Other\ banks\ Rate_{t-i} + \alpha_{13} Cost\ benchmark_t + \varepsilon_t$$

$$Kiwibank\ Rate_t = \alpha_0 + \alpha_1 ANZ\ Rate_{t-1} + \cdots + \alpha_2 ANZ\ Rate_{t-i} + \alpha_3 ASB\ Rate_{t-1} + \cdots + \alpha_4 ASB\ Rate_{t-i} + \alpha_5 Westpac\ Rate_{t-1} + \cdots + \alpha_6 Westpac\ Rate_{t-i} + \alpha_7 BNZ\ Rate_{t-1} + \cdots + \alpha_8 BNZ\ Rate_{t-i} + \alpha_9 Kiwibank\ Rate_{t-1} + \cdots + \alpha_{10} Kiwibank\ Rate_{t-i} + \alpha_{11} Other\ banks\ Rate_{t-1} + \cdots + \alpha_{12} Other\ banks\ Rate_{t-i} + \alpha_{13} Cost\ benchmark_t + \varepsilon_t$$

$$Other\ banks\ Rate_t = \alpha_0 + \alpha_1 ANZ\ Rate_{t-1} + \cdots + \alpha_2 ANZ\ Rate_{t-i} + \alpha_3 ASB\ Rate_{t-1} + \cdots + \alpha_4 ASB\ Rate_{t-i} + \alpha_5 Westpac\ Rate_{t-1} + \cdots + \alpha_6 Westpac\ Rate_{t-i} + \alpha_7 BNZ\ Rate_{t-1} + \cdots + \alpha_8 BNZ\ Rate_{t-i} + \alpha_9 Kiwibank\ Rate_{t-1} + \cdots + \alpha_{10} Kiwibank\ Rate_{t-i} + \alpha_{11} Other\ banks\ Rate_{t-1} + \cdots + \alpha_{12} Other\ banks\ Rate_{t-i} + \alpha_{13} Cost\ benchmark_t + \varepsilon_t$$

- Where "Other banks Rate" is a simple average of all other registered banks' advertised rates

- Where "i" is the selected lag length

Source: Deloitte Access Economics

153.   Using the system of equations outlined in Table 6, we fitted a VAR model for floating, 1-year, 2-year, 3-year, 4-year and 5-year mortgage rates, and the 6-month, 1-year, 2-year, 3-year, 4-year, and 5-year term deposit rates for both the $10,000 and $50,000 minimum deposit products. The lag length was initially determined using STATA's varsoc command,[167] and was increased as required to resolve any autocorrelation. We refer to this model as the 'underlying VAR'.

154.   We have used levels for all the variables in our model. This means that our data may be non-stationary and/or cointegrated. Testing for stationarity confirms that our variables are non-stationary of order one. This means that our VAR model cannot be used for certain purposes, such as impulse response function (**IRF**) analysis or forecasting. However, as discussed below,

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[167] STATA "Varsoc – Obtain lag-order selection statistics for VARs and VECMs", available at https://www.stata.com/manuals/tsvarsoc.pdf

there are ways to undertake statistical inference on VAR models with non-stationary and/or cointegrated processes.

155. We then undertook a series of robustness and goodness of fit tests on the underlying VAR models, including stationarity and white noise testing of residuals and ensuring the VAR model was stable. The results of this testing indicated that the models were robust, stable and not impacted by autocorrelation or missing explanatory variables.

Table 7: Underlying VAR specification for advertised mortgage rates

	Floating	1-year	2-year	3-year	4-year	5-year
Lags	8 lags	9 lags	3 lags	4 lags	4 lags	4 lags
Exogenous variable	90-day bank bill yield	90-day bank bill yield	2-year swap rate	3-year swap rate	4-year swap rate	5-year swap rate
Stability	Satisfied varstable[168] stability test	Satisfied varstable stability test	Satisfied varstable stability test	Satisfied varstable stability test	Satisfied varstable stability test	Satisfied varstable stability test
Outcome of residual testing[169]	Residuals of each equation stationary and pass white noise test	Residuals of each equation stationary and pass white noise test	Residuals of each equation stationary and pass white noise test (noting other bank residual only passes at 1% level)	Residuals of each equation stationary and pass white noise test (noting other bank residual only passes at 1% and 5% level)	Residuals of each equation stationary and pass white noise test (except ASB which fails at conventional levels – we note the residuals are still stationary and visually appear robust)	Residuals of each equation stationary and pass white noise test (except ASB which fails at conventional levels – we note the residuals are still stationary and visually appear robust)

Source: Deloitte Access Economics analysis of interest.co.nz data

156. We concluded from these tests that our model is likely to be robust. The white noise test on the residuals indicated that autocorrelation is likely not impacting the model. We note that the ASB residuals for the 4-year and 5-year models did not pass a Portmanteau white noise test. However, every other residual did, and these passed stationarity tests and upon visual inspection appeared suitable.

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[168] STATA "Varstable – Check the stability condition of VAR or SVAR estimates", available at https://www.stata.com/manuals/tsvarstable.pdf
[169] Stationarity of residuals was tested using STATA's dfuller command, while white noise was tested using the wntestq command (Portmanteau test) and results are tested against all significance levels unless noted otherwise.

Table 8: Underlying VAR specification for advertised $10,000 minimum term deposit rates

	6-month	1-year	2-year	3-year	4-year	5-year
Lags	13 lags	12 lags	7 lags	5 lags	3 lags	3 lags
Exogenous variable	90-day bank bill yield	90-day bank bill yield	2-year swap rate	3-year swap rate	4-year swap rate	5-year swap rate
Stability	Satisfied varstable stability test	Satisfied varstable stability test	Satisfied varstable stability test	Satisfied varstable stability test	Satisfied varstable stability test	Satisfied varstable stability test
Outcome of residual testing	Residuals of each equation stationary and pass white noise test	Residuals of each equation stationary and pass white noise test	Residuals of each equation stationary and pass white noise test	Residuals of each equation stationary and pass white noise test	Residuals of each equation stationary and pass white noise test	Residuals of each equation stationary and pass white noise test

Source: Deloitte Access Economics analysis of interest.co.nz data

Table 9: Underlying VAR specification for advertised $50,000 minimum term deposit rates

	6-month	1-year	2-year	3-year	4-year	5-year
Lags	9 lags	8 lags	6 lags	3 lags	3 lags	3 lags
Exogenous variable	90-day bank bill yield	90-day bank bill yield	2-year swap rate	3-year swap rate	4-year swap rate	5-year swap rate
Stability	Satisfied varstable stability test	Satisfied varstable stability test	Satisfied varstable stability test	Satisfied varstable stability test	Satisfied varstable stability test	Satisfied varstable stability test
Outcome of residual testing	Residuals of each equation stationary and pass white noise test	Residuals of each equation stationary and pass white noise test	Residuals of each equation stationary and pass white noise test	Residuals of each equation stationary and pass white noise test	Residuals of each equation stationary and pass white noise test	Residuals of each equation stationary and pass white noise test

Source: Deloitte Access Economics analysis of interest.co.nz data

157. We concluded from these tests that our model is robust. The white noise test on the residuals indicates that autocorrelation is likely not impacting the results.

Causality testing

158.   Because a VAR model represents a system of interacting equations, it is not possible to simply examine the variable coefficients and their respective statistical significance to determine whether an endogenous variable is statistically significant in explaining another.[170] Instead, a test which accounts for how variable values flow through the entire VAR system is required to further test whether there are causal relationships in our model.

159.   A commonly used statistical hypothesis test for causality in a VAR model is Granger-causality. Intuitively, Granger-causality asks whether the inclusion of a variable and its lags in a model produces better estimates of the dependent variable (that is, are the coefficients on the lags statistically different from zero) then if we had not included this variable.[171]

160.   Intuitively, Bank X's rates can be said to Granger-cause those of Bank Y if Bank Y's rates can be better predicted by a model incorporating the histories of both X and Y than Y alone. The null hypothesis of a Granger-causality test is that X **does not** Granger-cause Y. Therefore, rejection of the null indicates that X **does** Granger-cause Y.

161.   For this analysis, we concluded that if the null hypothesis can be rejected at conventional significance levels, then our model is indicating that there is likely a causal relationship. If Bank X is concluded to Granger-cause the rates of Bank Y, then our model is indicating that historically Bank X has had an impact on Bank Y's rates – at least with regards to advertised rates.

162.   However, as noted above, we found the processes in our VAR model to be non-stationary and suspected they may be possibly co-integrated. While usually you could take first-difference or logarithm to overcome the non-stationarity issue, this can result in lost information. Therefore, we opted to leave our model in levels and adopt an established approach to undertaking statistical inference on VAR models with possible non-stationary and/or cointegrated processes.

163.   Toda and Yamamoto set out an approach to undertaking statistical inference on VAR models with potentially non-stationary and/or cointegrated processes in their 1995 paper.[172] They discuss that undertaking pre-tests for stationarity and cointegration can create "severe pretest biases" when undertaking statistical inference. Therefore, when the nature of cointegrating relationships or of the unit roots is of interest, these pre-tests are a useful exercise. But as in our case, when they are not of interest, it is more desirable to have a testing approach which is "robust to the integration and cointegration properties of the process so as to avoid possible pretest biases".

164.   When data is non-stationary, the Wald test statistic for Granger noncausality has a nonstandard asymptotic distribution and when cointegrating relationships are present, we require pretesting of the cointegrating ranks which can cause size distortions in the Wald test for Granger noncausality. This means that it would not be appropriate to simply undertake testing for Granger causality on these VAR models.

165.   Toda and Yamamoto show that even if our processes in levels are non-stationary and potentially cointegrated, we can apply the usual lag selection method as standard asymptotic theory holds for this. Further, they show that if after selecting a VAR system with lag order of k, and which is suspected to have an order of integration at most of d, then we can estimate a (d+k) order VAR model and ignore the coefficients on the last d lags (as we assume these to be zero), then we can test linear and nonlinear restrictions on the first k coefficients using standard asymptotic theory.

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[170] This is because variables in a VAR model may have a first order, second order, and so on, effect on the system. For example, a change in the rates of Bank A may impact those of Bank B and Bank C initially. The consequential change in rates of Bank B and C will impact those of each other as well as Bank A and so on. Because of this effect, it is not sufficient to simply examine the coefficient and statistical significance of a variable in the VAR model.

[171] J.M. Wooldridge "Introductory Econometrics: A modern approach – 6e" (2016) at 590.

[172] Hiro Y Toda and Taku Yamamoto "Statistical inference in vector autoregressions with possibly integrated processes" (1995) 66(1-2) Journal of Econometrics 225-250.

166. By including additional lags, Toda and Yamamoto showed that standard asymptotic theory holds when testing for restrictions on coefficients, even if our processes are non-stationary and/or cointegrated. This can be done without any pre-tests to confirm these properties. Because standard asymptotic theory on testing restrictions holds, this model with additional lags is suitable for use in testing for Granger causality.

167. Therefore, we refitted our underlying VAR models with an additional lag (included as an exogenous variable). This is because we suspect our processes to be integrated of order one at most. This model with the additional lag was used for Granger causality testing.

Limitations of analysis

168. Interpretation of the results and making inferences from them about the nature of competition requires careful consideration of what our VAR analysis does and does not model.

169. The VAR model captures historical trends in how the mortgage and term deposit rates advertised by each bank are related to the rates advertised in the past by both the bank being modelled and other banks, as well as an exogenous wholesale rate benchmark. Therefore, it provides a one-dimensional view of competition and price setting.

170. Because of the issues discussed above, our model is only suitable for causality testing. Causality testing can tell us if a causal relationship is observed, but it can't tell us about the extent of the relationship. Therefore, we were not able to test the relative magnitude of relationships.

171. Our analysis was undertaken on advertised rates. We understand that advertised rates can differ from the rates actually available to consumers. Therefore, our analysis is likely to understate price responsiveness and the prevalence of causal relationships.

172. As we note earlier in this report, banks also compete on many other dimensions (e.g., discounted rates, quality of service, reputation etc.) which are not captured by this model. Banks may respond to competitive factors across different dimensions.

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