

Bank Competition in New Zealand and Australia

Donald Chan^{*}
Department of Finance, Banking and Property,
Massey University
Private Bag 102 904 NSMC
Auckland
New Zealand
Ph: +64 21 116 0410
Email: D.W.Chan@massey.ac.nz

Christoph Schumacher
Department of Commerce
Massey University
Private Bag 102 904 NSMC
Auckland
New Zealand
Ph: +64 9 4140800 ext 9274
Email: C.Schumacher@massey.ac.nz

David Tripe
Department of Finance, Banking and Property
Massey University
Private Bag 11-222
Palmerston North
New Zealand
Ph: +64 6 350-5799 ext 2337
Email: D.W.Tripe@massey.ac.nz

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^{*} Corresponding author and presenter.

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Abstract

This article examines competitive conditions in the New Zealand and Australian banking industries. Competition is measured using the Panzar-Rosse model. While there is debate in the literature as to whether a bias causes the H-statistic to be closer to perfect competition when using a scaled dependent variable in the Panzar-Rosse model, we have opted to use an unscaled dependent variable in this study. Our results show that during the period 1996 to 2005 in New Zealand the market operated under monopolistic competition conditions and for the period 1998 to 2005 in Australia, bank revenues appear to be earned under monopoly or conjectural short run oligopoly conditions. These results are not unexpected as both markets are dominated by a small number of large banks.

JEL classification: G21; L1; D40;

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1. Introduction

New Zealand's banking industry is considered to be competitive and financially stable. Reserve Bank Governor Allan Bollard noted in the May 2006 Financial Stability Report that the "banking sector was profitable, well capitalised and able to bear increases in impaired assets as economic conditions become more challenging."

Within the market, competition is deemed to be strong given that there have been new entrants into the market as well as mergers and exits over the last few years. The New Zealand market could be considered as contestable as the barriers to entry are relatively straightforward and can be low for players with a sound financial backing. Barriers to exit are also low; prior bank and other financial institutions exits have shown that other market participants are likely to acquire any business that is being exited.

Public perception may consider the market to be competitive but at the same time lacking competitiveness in certain areas and products. However, considering the size of the population and comparing this with the number of competing banks, there may be cause to suggest that banks are indeed competing aggressively for market share.

Evidence from past literature suggests that the traditional approach of equating few banks or concentration with market power is not enough (Northcott, 2004). This is because concentration is not a sufficient indicator of competitive behaviour and that other market factors will have an influence on how firm's conduct their business within the market.

In the case of New Zealand, the local banking industry consists predominantly of foreign owned banks. Of the sixteen registered banks, only two are New Zealand owned. However, within the

marketplace the four largest Australian banks stand out as the dominant market players, with these same banks also playing a strong role in the Australian market.

For the past few years, banks in New Zealand have been profitable. Statistics from the Reserve Bank of New Zealand (RBNZ) reveal that Net Profit after Tax figures for the entire market between 2000 and 2005 has generally been consistent with year-to-year increases (except in 2003) over the five year period. However, the exit of Superbank from the market in August 2006 due to the competitive mainstream residential lending market provides a basis for research to study whether this market was highly competitive, or if the larger players in the market acted anti-competitively.

Using Panzar-Rosse (1987) statistic as a basis for assessing competitive conditions in the New Zealand banking market, Smith and Tripe (2001) found that results suggests that from 1996 to 1999, total bank revenues appeared to be earned under conditions of monopolistic competition and from 1998 to 1999 that the competitive behaviour of the New Zealand market changed from being monopolistic in nature to becoming more openly competitive. However, since this study, the New Zealand industry has seen new entrants as well as leavers in the market.

For this reason, there is a motivation to look at the New Zealand banking industry and to investigate new strategies that can make this industry more competitive. We also apply a variation of the Panzar-Rosse model to test other explanatory variables that differs from those used in the Smith and Tripe (2001) study.

In addition, comparing the competitiveness of the New Zealand banking industry against Australia is important as the dominant banks are Australian owned and that any changes that are adopted in that market may have flow-on effects to their New Zealand operations. Further

comparison with other countries may help determine New Zealand's competitiveness in relation to the rest of the world.

Section 2 presents a review of the Panzar-Rosse model that will be used. Section 3 presents our methodology, and our results and conclusions are presented in Sections 4 and 5.

2. Literature Review

Previous literature has shown that there have been a number of ways of observing and measuring bank competition. It is generally accepted that these methods can be categorised as structural and non-structural approaches. The structural approach to the measurement of competition includes the Structure-Conduct-Performance paradigm (SCP) and the efficiency hypothesis. The SCP paradigm is used to investigate whether a highly concentrated market causes collusive behaviour among the larger banks resulting in superior performance, whereas, the Efficient Structure (Efficiency) Hypothesis investigates whether it is the efficiency of larger banks that enhances their performance (Clark, 1988; Berger, 1995).

Shaffer (1993) commented on earlier studies of banking competition that examined the statistical relationship between structure and either profitability or price. These studies revealed that even when a positive correlation was found, that the results failed to provide a sharp benchmark for competitive returns and consequently the exact degree of competition remained in doubt. This is further supported by Northcott (2004) who finds no consensus in the literature as to which competitive structure optimises both efficiency and stability, and that suggests that the goal may not be to eliminate market power - but to facilitate an environment that promotes competitive behaviour.

The non-structural approach tries to measure competitive conduct directly and does not rely on a relationship between structure, conduct and performance (Glöde, 2005). Some of these factors could include bank revenue behaviour, risk profiles, entry and/or exit barriers and the general contestability of the market. Models such as those developed by Panzar and Rosse (1987), Bresnahan and Lau (1982) test competitive conduct and the use of market power, and stress the analysis of banks' competitive conduct in the absence of structural measures.

While the Herfindahl Hirschmann Index is considered to be part of the structural approach, we use it in our analysis to get a general idea of the market we are testing.

2.1 Herfindahl Hirschmann Index (HHI)

The Herfindahl Hirschmann index (HHI) is a measure of the size of firms in relationship to the industry and an indicator of the amount of competition among them. It is defined as the sum of the squares of the market shares of each individual firm and is mainly sensitive to the degree to which market share is held by the largest firms (Honohan & Kinsella, 1982; Rhoades, 1993). As such, the index can range from 0 to 1 (or 0 to 10000 if percentages are written as whole numbers) moving from a very large amount of very small firms to a single monopolistic producer. Decreases in the HHI generally indicate a loss of pricing power and an increase in competition, whereas increases imply the opposite.

The United States Department of Justice (DOJ) separates values of the HHI index into three categories. For HHI values below 0.1 (or 1000) then the market is considered to be unconcentrated. Values between 0.1 to 0.18 (1000 to 1800) indicate that a market is moderately concentrated. Finally, values of the HHI index above 0.18 (1800) indicate high concentration.

In terms of banking, Rhoades (1993) discusses the DOJ's modified guidelines of interpreting the HHI for mergers in the banking industry. These guidelines specified that if a bank merger would result in (1) a post merger HHI in a market of less than 1800 or (2) in a change in the HHI of less than 200 (less than 50 in other industries), it is likely that the market structure would not reach a concentration level, or concentration would not increase enough, such that firms in the market would have the market power to maintain prices above the competitive level for a significant period.

To get a general idea of the New Zealand and Australian banking market, the HHI was calculated on banks' total assets from 1996 to 2005. The results as indicated in Table 1 show on average that New Zealand's banking market was more concentrated than the Australian market with concentration increasing further from 2003-4 onwards reflecting the ANZ's acquisition of the National Bank of New Zealand.

Table 1 - Herfindahl Hirschmann Index (HHI) Values for New Zealand Banking Market 1996-2005

Year	New Zealand	Australia
1996	1629	1182
1997	1580	1125
1998	1603	1200
1999	1636	1157
2000	1566	1176
2001	1528	1168
2002	1521	1248
2003	1821	1245
2004	2040	1182
2005	2087	1125

Looking at the Australian market, we can see that the market is moderately concentrated. While there have been a number of mergers of banks during this period, it is not evident that the banking sector has become significantly more concentrated as a result. This could suggest that the smaller banks could have grown and improved their market share.

The usefulness of the HHI to detect and stop harmful monopolies however, is directly dependent on a proper definition of a particular market (which relies primarily on the opinion of substitutability). However as pointed out by Fahrer and Rohling (1994) and Smith and Tripe (2001), while the data can be easily obtained to calculate the index, the measure is still static and cannot tell us about any collusive behaviour that may have occurred by market participants.

2.2 Panzar-Rosse Model

The Panzar-Rosse (P-R) model was developed as a non-structural estimation technique to assess the level of monopoly power being exercised in a particular market. It uses standard comparative statics analysis to obtain testable restrictions on a firm's reduced form revenue equation which must be satisfied by any profit maximising firm. The model investigates the extent to which a change in factor input prices is reflected in equilibrium revenues earned by a firm. Under perfect competition, an increase in input prices raises both marginal costs and total revenues by the same amount as the rise in costs. For a profit maximising monopolist, an increase in input price increases marginal costs (upward shift of the marginal cost curve), reduces equilibrium output and consequently reduce total revenues. (Panzar & Rosse, 1987; Nathan & Neave, 1989).

There are a number of assumptions that need to be considered for the P-R model and these are (a) banks are profit maximizing, single product firms facing normally distributed revenue and

cost functions; (b) Banks produce revenues using labour, capital and intermediated funds (mainly deposits) as inputs (Sealey & Lindley, 1977); (c) Higher input prices are not associated with higher quality services that generate higher revenues; and (d) Banks are operating in long run equilibrium.

The model can be written as follows. Let R_i^i be the marginal revenue (MR) function and C_i^i be the marginal cost (MC) function of bank i . where x_i represents outputs of bank, n represents the number of banks, w_i is a vector of m input prices, z_i is a vector of exogenous variables that shift the revenue function, and t_i is a vector of exogenous variables that shift the cost function.

$$MR = R_i^i(x_i, n, z_i) \quad (1)$$

$$MC = C_i^i(x_i, w_i, t_i) \quad (2)$$

Banks maximize their profits where MR=MC:

$$R_i^i(x_i, n, z_i) - C_i^i(x_i, w_i, t_i) = 0 \quad (3)$$

Therefore at a market level at equilibrium, the zero-profit constraint must also hold.

$$R^*(x^*, n^*, z) - C^*(x^*, w, t) = 0 \quad (4)$$

In log-linear form, the MC and MR functions are written as:

$$\ln MC = \alpha_0 + \alpha_1 \ln OUT + \sum_{i=1}^m \beta_i \ln FIP_i + \sum_{j=1}^p \gamma_j \ln EX_{COST_j} \quad (5)$$

$$\ln MR = \delta_0 + \delta_1 \ln OUT + \sum_{k=1}^q \xi_k \ln EX_{REV_k} \quad (6)$$

Where OUT is the output of the bank, FIP are the factor input prices and EX_{COST} are other variables exogenous to the cost function and EX_{REV} are other variables related to the bank-

specific demand function. Therefore the equilibrium output value at the point of profit maximisation where MC is equal to MR in equilibrium is written as:

$$\ln OUT^* = \frac{(\alpha_0 - \delta_0 + \sum_{i=1}^m \beta_i \ln FIP_i + \sum_{j=1}^J \gamma_j \ln EX_{COST_j} - \sum_{k=1}^K \xi_k \ln EX_{REV_k})}{(\delta_1 - \alpha_1)} \quad (7)$$

The price level is given by the inverse demand function which in log linear form is:

$$\ln p^* = \xi + \ln \left(\sum_i OUT_i^* \right) \quad (8)$$

The reduced form revenue equation is the product of equilibrium output and price level and can be written as:

$$\ln II_{it} = \alpha + \sum_{m=1}^M \beta_m \ln FIP_{it} + \sum_{j=1}^J \gamma_j \ln EXF_{it} + \sum_{i=1}^{i-1} D_{it} + e \quad (9)$$

The subscript i and t values represent bank i at time t . M denotes the number of factor input variables, J denotes the number of exogenous bank specific variables. II represents interest income, FIP represents the three factor inputs - the annual funding rate, price of personnel expenses and price of physical capital expenditure. EXF represents other bank specific exogenous factors that may be considered as having a relationship with the dependent variable. D represents a dummy time variable for $i-1$ banks as we have left the constant variable in our regression equation, and e represents an error term.

The P-R model provides a measure (also referred to as the ‘‘H-statistic’’) between 0 and 1 of the degree of competitiveness of the industry. It is calculated from a reduced form revenue equation and measures the sum of elasticities of total revenue of the firm with respect to the firm’s input prices that can be written as follows:

$$H = \sum_{i=1}^m \frac{\delta R_i^* w_{R_i}}{\delta w_{R_i} R_i^*} \quad (10)$$

In this case, the change in factor input prices is represented by δw_{R_i} and δR_i^* represents equilibrium revenues earned by bank i . The formal derivation of the H-statistic can be found in Panzar and Rosse (1987). Based on the reduced-form revenue equation (9) above, it can also be written as $H = \beta_1 + \beta_2 + \beta_3$.

As we can see in Table 2, the banking industry is characterized by monopoly or perfect cartel for $H \leq 0$, monopolistic competition or oligopoly for $0 < H < 1$, and perfect competition for $H = 1$.

Table 2 Discriminatory power of H.

Values of H^{Comp}	Competitive Environment Test
$H \leq 0$	<ul style="list-style-type: none"> • Monopoly equilibrium: each bank operates independently as under monopoly profit maximisation conditions (H is a decreasing function of the perceived demand elasticity). • Perfectly colluding oligopoly • Conjectural variation short-run oligopoly: The number of firms in the industry is fixed and each firm makes decisions based on assumptions about what the other firms' reactions will be to its own actions.
$0 < H < 1$	<ul style="list-style-type: none"> • Monopolistic competition free entry equilibrium (H is an increasing function of the perceived demand elasticity). Individual firms face an inelastic demand curve and therefore revenues increase less than proportionately to the changes in factor input prices.
$H = 1$	<ul style="list-style-type: none"> • Perfect competition. Free entry equilibrium with full efficient capacity utilisation. • Natural Monopoly in a perfectly contestable market.
Values of H^{Eqm}	Equilibrium Test
$H = 0$	Equilibrium
$H < 0$	Disequilibrium

Source: (Panzar & Rosse, 1987; Nathan & Neave, 1989; Shaffer, 1993)

2.2.1 Mis-specification of the Panzar-Rosse Model

The choice of the dependent variable in estimating the Panzar-Rosse (P-R) H-statistic has varied in past studies. Previous studies have used a scaled dependent variable i.e. revenue divided by total assets (Molyneux, Lloyd-Williams, & Thornton, 1994; Hondroyiannis, Lolos, & Papapetrou, 1999; Bikker & Haaf, 2000; Hempell, 2002; Perera, Skully, & Wickramanayake, 2006). While the literature is elusive as to why a scaled dependent variable should be used, Perera et al., (2006) suggest that scaling helps to remove firm level differences as well as provide for a better approximation. Other papers argue that the use of a scaled dependent variable could be interpreted as a lending rate or “price” and therefore can change the nature of the P-R model from being a revenue equation to being a price equation (Vesala, 1995; De Bandt & Davis, 2000; Bikker, Spierdijk, & Finnie, 2006). Vesala argues that those studies that employ a scaled dependent variable treat total assets or bank outputs as an exogenous variable to account for an increasing revenue effect of banks’ asset sizes. This may cause a bias as the theoretical P-R model treats output as an endogenous choice variable for banks.

Bikker et al (2006) further investigates whether the use of a price equation (rather than a revenue equation) causes a misspecification in the P-R model. Under a simple single product monopoly model (with a demand curve of constant price elasticity and a constant return to scale Cobb-Douglas technology) when a price equation is used the H-statistic tended to be biased towards 1 instead of below zero (as described in Table 2 above). For an oligopoly model, similar results were found where the H-statistic would be equal to 1 rather than being a value between 0 and 1. In the case of the perfect competition model, since the bias illustrated in the monopoly and oligopoly examples for the H-statistic tended to be close or equal to 1, the authors concluded that the impact of the misspecification would not lead to the wrong conclusion about the market

structure. While, these results are not conclusive proof for all types of monopoly or oligopoly models, the authors do believe that the impact of the misspecification would be similar under different assumptions and/or market conditions.

Similarly, the selection of explanatory variables can also have an adverse effect in determining the H-statistic as the same misspecification could occur if total assets or another scaling factor is used (Bikker et al., 2006).

3. Methodology

For our analysis, we have used a similar model to that used by Bikker et al (2006) as a number of the explanatory variables that are used reflect the bank's behaviour and risk profile that may affect revenues. We have not added a scaling explanatory variable such as total assets, deposits or equity to minimise the effect of misspecification on our results.

This P-R model is quite different to the approach taken by Smith and Tripe (2001) and therefore we are not simply repeating a previous study.

The reduced form revenue equation that we will use is:

$$\ln II_{it} = \alpha + \beta_1 \ln AFR_{it} + \beta_2 \ln PPE_{it} + \beta_3 \ln PCE_{it} + \gamma_1 \ln LNS_{it}/TA_{it} + \gamma_2 \ln DPS_{it}/F_{it} + \gamma_3 \ln EQ_{it}/TA_{it} + \gamma_4 \ln OI_{it}/II_{it} + D_{it} + \varepsilon \quad (11)$$

Where II represents interest income, AFR is the annual funding rate, PPE represents the price of personnel expenses and PCE is the price of physical capital expenditure. As these input prices cannot be observed directly, AFR is represented by the ratio of interest expense to total funds, PPE is approximated by the ratio of annual personnel expenses to total assets, and PCE is the ratio of other non-interest expenses to fixed assets. Other bank-specific factors are included as

control variables that reflect bank behaviour and risk profile that may affect the bank's revenues. Credit Risk is accounted for by the ratio of customer loans to total assets (LNS/TA). The ratio of customer deposits to the sum of customer deposits and short term funding represents features of the funding mix (DPS/F). The ratio of equity to total assets accounts for the leverage reflecting differences in the risk preferences across banks (EQ/TA). The ratio of other income to interest income is included to take into account the increasing role of banking activities other than financial intermediation that draw partially on the same inputs (OI/II). D represents a dummy time variable for $i-1$ banks as we have left the constant variable in our regression equation. Finally, e represents the error term. The subscript i and t values represent bank i at time t .

In addition, the test for long-run equilibrium will be performed with the following equation:

$$\ln ROA_{it} = \alpha + \beta_1 \ln AFR_{it} + \beta_2 \ln PPE_{it} + \beta_3 \ln PCE_{it} + \gamma_1 \ln LNS_{it}/TA_{it} + \gamma_2 \ln DPS_{it}/F_{it} + \gamma_3 \ln EQ_{it}/TA_{it} + \gamma_4 \ln OI_{it}/II_{it} + D_{it} + e \quad (13)$$

Following Claessans and Laeven (2004) and Casu and Giradone (2006) the measure of ROA is actually calculated as $\ln(1+ROA)$ to adjust for small negative values of ROA due to occurrences of losses for some of the smaller banks in our Australian data.

3.1 Bank Data Sample

For the New Zealand banking market, data was gathered from annual reports and data that were available on the Fitch-IBCA Bankscope database. The period of study for the purposes of this research was from 1996 to 2005. However, due to limitations of some of the annual data, there were some banks that were omitted from the sample for that particular year. In addition, banks such as Deutsche Bank, Citibank and other commercial or merchant banks were omitted as the nature of the business were significantly different to those of the retail banks which we are

investigating. The number of New Zealand banks used was 6 and represents approximately 85% of the total New Zealand market in terms of total assets in 2005.

It is not anticipated that the omission of banks in a sample for a country as small as New Zealand would cause significant bias to the results.

Similarly for the analysis of the Australian banking market, data was gathered from the Bankscope database for the period between 1998 and 2005. Again, there were some omissions of smaller banks due to the different nature of their business to the retail banks or due to data being unavailable. The number of Australian banks used was 12 and represents approximately 84% of the Australian market in terms of total resident assets in 2005.

4. Results

Results of the P-R model are presented in Tables 3 and 4 in the Appendix.

4.1 New Zealand

Table 3 presents the results of the P-R H-statistic. The unscaled H-statistic of 0.5659 would suggest that the competitive environment in New Zealand could be described as displaying monopolistic competitive behaviour. Looking at some of the explanatory variables one point of interest is that the personnel expenses variable is negative in relation to interest revenue. This could indicate cost cutting efforts by banks of reducing labour and increasing capital spending in areas such as technology. Both the funding mix and leverage variables also display a negative relationship to revenue but are not statistically significant.

Wald tests (F-statistics) were conducted to test whether or not the calculated H-statistics are statistically different from zero and unity. The F-statistic of 2.74 for $H=1$ cannot be rejected at

the 5% or 10% significance levels. However, the hypothesis that $H=0$ can be rejected. This would imply that the value of the H-statistic is statistically different from zero, but not statistically significantly different from one and therefore we cannot reject that banks were not exhibiting monopolistic competitive behaviour during this time.

The test for long run equilibrium produces an H-statistic of -0.0043 that is close enough to zero and is further supported by the Wald test indicating that the long term equilibrium criterion has been met.

4.2 Australia

The results in Table 4 paint a different picture for the Australian competitive environment. The unscaled H-statistic is less than zero indicating that the market environment exhibits monopoly behaviour. The H-statistic for long run equilibrium is 0.0031 which is close to zero and would therefore indicate the data fits the long-run equilibrium criteria.

The personnel expense variable is reported to be negative, and as in the case of New Zealand, we can speculate that Australian banks have also reduced their labour expenses. All three factor input variables are statistically significant.

Looking at the Wald tests, we cannot reject the F-statistic for $H=0$ at the 5% or 10% significance levels. The value of H is not statistically significantly different from zero, but is statistically different from unity and therefore we cannot reject that there were not any form of conjectural variation oligopoly or monopoly conditions in the Australian market.

The test for long run equilibrium produces an H-statistic of -0.0022 is also close to zero and is further supported by the Wald test indicating that the long term equilibrium criterion has been met.

5. Conclusion

We have used the Panzar-Rosse (P-R) model to assess the competitive behaviour of both the New Zealand and Australian banking markets from the periods 1996-2005 and 1998-2005 respectively. The dependent variable Interest Revenue (unscaled) was chosen as previous research had commented that a scaled dependent variable such as Interest Revenue/Total Assets - changed the nature of the P-R model from being a revenue equation into a price equation and that there was potential for a bias result in the H-statistic towards 1 (perfect competition). An equilibrium test was also conducted to satisfy the long-run equilibrium assumption of the P-R model.

Our results suggest that there are differences in terms of competitive behaviour between the New Zealand and Australian markets. It would appear from the data that the New Zealand market does not demonstrate oligopolistic behaviour, rather that the market is considered to be a little more open for new entrants but any increases in revenue earned would be slower than changes in factor input prices.

The Australian market only just falls into the monopolistic / oligopolistic behaviour category based on the set of explanatory variables used. While the factor input variables were all statistically significant, we would expect that changes to the H-statistic would occur if other explanatory variables were used.

Do these results reflect the true nature of the New Zealand and Australian banking industry? The implication that the New Zealand market behaves more competitively than the Australian market may be a point for more debate, as it is contrary to what one would expect from looking at the HHI results. Both markets show as being relatively oligopolistic, but there are nonetheless signs of significant competition. We hope that testing for the validity of these conclusions using some alternative approaches such as the Bresnahan-Lau model will generate insights in which we have greater confidence.

Appendix

Table 3 Panzar-Rosse H-Statistic Results for New Zealand

Predictor	II			ROA		
	Coefficient	T	P	Coefficient	T	P
Constant	7.6272	7.07	0.000***	0.0222	1.08	0.284
AFR (IE/FUN)	0.5903	2.14	0.038*	0.0010	0.26	0.795
PPE (PE/TA)	-0.3110	-1.15	0.256	-0.0041	-0.91	0.367
PCE (ONIE/FA)	0.2866	2.83	0.007**	-0.0012	-0.82	0.416
LNS/TA	4.2242	6.75	0.000***	0.0184	3.22	0.002**
DPS/F	-0.0851	-0.22	0.827	0.0057	1.28	0.208
EQ/TA	-0.0795	-0.79	0.435	0.0023	1.30	0.201
OI/II	0.2132	0.95	0.348	0.0067	1.96	0.056*
H	0.5659			-0.0043		
Wald Test (F-statistic) for testing H=0	4.65		0.0367**	0.90		0.3481
Wald Test (F-statistic) for testing H=1	2.74		0.1053			
R^2	0.9763			0.7067		
Adj. R^2	0.9696			0.6249		
No. Of Observations	56			56		

*** significant at 1% level, ** significant at 5% level, * significant at 10% level.

Table 4 Panzar-Rosse H-statistic Results for Australia

Predictor	II			ROA		
	Coefficient	T	P	Coefficient	T	P
Constant	6.4367	8.22	0.000***	0.0273	2.54	0.013
AFR (IE/FUN)	0.5541	2.96	0.004***	0.0048	2.49	0.015
PPE (PE/TA)	-0.9248	-4.86	0.000***	-0.0029	-1.95	0.056
PCE (ONIE/FA)	0.2378	2.30	0.024**	0.0012	1.24	0.218
LNS/TA	0.6976	1.42	0.161	0.0169	2.85	0.006**
DPS/F	0.3903	1.50	0.137	0.0005	0.23	0.816
EQ/TA	0.7933	3.29	0.002**	0.0034	1.37	0.174
OI/II	0.0614	0.46	0.644	0.0049	3.69	0.000***
H	-0.1329			0.0031		
Wald Test (F-statistic) for testing H=0	0.18		0.6719	1.09		0.3011
Wald Test (F-statistic) for testing H=1	13.16		0.0005***			
R^2	0.9830			0.7958		
Adj. R^2	0.9788			0.7455		
No. Of Observations	87			87		

*** significant at 1% level, ** significant at 5% level, * significant at 10% level.

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