The Impact of non Interest Income on Bank Risk in Australia

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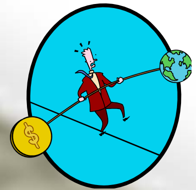


Research Question

How has bank income diversification impacted upon bank risk?

Background

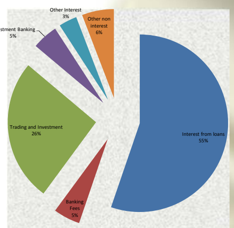
The last two decades has seen bank revenue evolve away from the ‘traditional intermediation model’ towards increased income from non interest income.

What are the benefits of this study?

$ Provides more information about the factors impacting upon bank risk.

$ Banks are under increased scrutiny post GFC and increased regulation; these debates should be informed by facts.

All Banks Revenue Composition



Bank fees on deposit and loan accounts are only a small proportion of total revenue

Interest Income is still the most important

What is new about this study?

$ No Australian evidence to date.

$ Applies data drawn from the confidential quarterly return provided by all Australian bank to the Australian Prudential regulation Authority (APRA).

$ These data has not been analysed by external researchers.

$ Applies new measure of bank revenue risk.

Research Design and Method.

$ Data covers 2002 to 2008.

$ All banks in Australia.

$ Feasible GLS estimation to control for autocorrelation and heteroscedasticity.

Model Design

$ Four measures of bank risk (i) volatility of Return on assets, (ii) volatility of return on equity (iii) distance to default (z score) (iv) distance to breach of capital regulations (regulatory z score)

$ Volatility measured using range based variables (log [high value – low value])

$ Controls for portfolio composition, size and bank type.

$ Break revenue into six categories to determine which contribute to bank risk or risk reduction.

First stage results:

$ Does revenue diversification reduce bank risk?

$ Specialisation reduces bank risk

$ Size effects

$ Bank type

$ Non interest income increases risk

	Range based volatility of ROA	Range based volatility of Profits	- (Z score)$^{-1}$	- Regulatory Z score^{-1}	Range based volatility of ROA	Range based volatility of Profits	- (Z score)$^{-1}$	- Regulatory Z score^{-1}
Revenue HHI	-0.000106***	-6.01e-05***	-2.14e-05***	-0.00107				
	(1.63e-05)	(1.43e-05)	(3.66e-06)	(0.00119)				
Log Average Revenue	-0.465**	0.252	-0.115***	-6.684	-0.366	0.546**	-0.112**	-5.696
	(0.227)	(0.206)	(0.0422)	(27.67)	(0.276)	(0.249)	(0.0500)	(23.56)
(Log Average revenue)^2	0.00884	0.0150***	0.00304***	0.198	0.00665	0.00745	0.00314**	0.160
	(0.00582)	(0.00540)	(0.00109)	(0.678)	(0.00718)	(0.00657)	(0.00131)	(0.580)
Major Bank	0.730***	0.916***	-0.0195	-0.431	0.581***	0.899***	-0.0561	1.157
	(0.125)	(0.126)	(0.0325)	(8.696)	(0.158)	(0.164)	(0.0371)	(6.030)
Other Domestic Bank	0.618***	0.344***	-0.000431	2.620	0.0726	0.152*	-0.0405**	-0.312
	(0.0697)	(0.0633)	(0.0220)	(5.185)	(0.0776)	(0.0855)	(0.0185)	(4.331)
Foreign Bank	-0.141*	0.0923			-0.190**	0.0161		
	(0.0826)	(0.0663)			(0.0818)	(0.0742)		
Non Interest income as a percent of revenue (%)					0.0153***	0.00704***	0.00190***	0.0909
					(0.00215)	(0.00203)	(0.000337)	(0.0786)
Constant	5.812***	7.335***	1.161***	58.07	3.984	4.119*	0.920*	46.62
	(2.201)	(1.959)	(0.403)	(282.2)	(2.662)	(2.369)	(0.477)	(239.7)
Observations	1,229	1,229	559	507	1,229	1,229	559	507
Number of Banks	59	59	26	26	59	59	26	26
Wald chi^2	190.5	11876	68.85	4.174	220.3	7220	87.07	12.21

***, **, * significant at 1%, 5% and 10% levels respectively

$ Answer:

$ NO

$ Increased revenue concentration is associated with lower risk

Second stage Results: Which components of revenue increase or decrease bank risk?

$ Increases Risk

$ Decreases Risk

$ Increases Risk

$ Increases Risk

	Range based volatility of ROA	Range based volatility of Profits	- (Z score)$^{-1}$	- Regulatory Z score^{-1}
Weight Non Interest income from banking activity	0.0360***	0.0301***	0.00108	2.297**
	(0.00495)	(0.00585)	(0.00173)	(0.939)
Weight Trading and Investment Income	-0.00333**	-0.00559***	0.00168**	0.158
	(0.00156)	(0.00138)	(0.000694)	(0.237)
Weight Investment Banking Fees	0.0304***	0.00818**	0.00154**	0.184
	(0.00390)	(0.00394)	(0.000670)	(0.240)
Weight Interest Other	0.00388	-0.00482*	-0.00359	0.492
	(0.00367)	(0.00255)	(0.00486)	(1.404)
Weight Non interest income other	0.0139***	0.0116***	0.00218***	-0.204
	(0.00385)	(0.00326)	(0.000595)	(0.339)
Log Average Revenue	-0.569**	0.187	-0.0621	39.30
	(0.253)	(0.261)	(0.0640)	(34.75)
(Log Average revenue)^2	0.0134**	0.0177**	0.00194	-0.889
	(0.00664)	(0.00694)	(0.00163)	(0.848)
Major Bank	0.131	0.386**	-0.0454	-9.741
	(0.164)	(0.184)	(0.0438)	(12.51)
Other Domestic Bank	-0.224**	-0.0518	-0.0312	4.101
	(0.0901)	(0.0747)	(0.0288)	(11.69)
Foreign Bank	-0.233***	-0.0736		
	(0.0789)	(0.0649)		
Constant	5.396**	7.317***	0.390	-442.3
	(2.425)	(2.468)	(0.626)	(355.5)
Observations	1,229	1,229	559	507
Number of Banks	59	59	26	26
Wald chi^2	319.4	8631	77.09	12.60

***, **, * significant at 1%, 5% and 10% levels respectively

Overall results

$ Trading and investment revenue reduce bank risk.

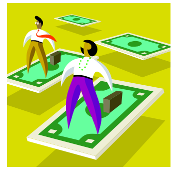
$ Decreasing returns to scale in risk reduction

- $ Bigger banks are less risky, but only up to a point, the major banks are most likely beyond that point. (This applies ONLY to risk reduction and scale.)

$ Model does not work as well for distance to default (z score) measure.

- $ Australian banks are well-capitalized and so the marginal impact of revenue changes on risk are small.

$ Specialisation is risk reducing but non interest income is riskier than traditional revenue.



Implications

$ Bank revenue composition is important in determining bank risk.

$ Non interest income (except for Trading and Investment income) is risk increasing.

$ Australian banks are well capitalised and marginal changes in revenue composition is unlikely to change their level of risk.

$ Choosing banks for peer analysis should consider revenue composition.