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Profitability determinants of deposit institutions in small, underdeveloped financial systems: the case of Fiji

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Abstract

This paper investigates the profitability determinants of deposit–taking institutions in Fiji, a representative South Pacific economy, over the 2000–2010 period. The study uses panel data techniques of fixed effects estimation and generalized method of moments (GMM) to purge time–invariant unobserved firm–specific effects and to mitigate potential endogeneity problems. Market power (measured by the Lerner Index) is a key determinant of profitability, which, *inter alia*, allows institutions to pass on to their clients the interest costs of raising deposit liabilities and the overall cost of operations; the association of both with profitability is positive and highly significant. Moreover, raising deposit liabilities and granting loan beyond a certain point may not be profitable for institutions. Policy implications are considerable, especially for the small, fragile, growth–challenged South Pacific island economies.

Key words: deposit institutions, profitability determinants, Fiji, South Pacific, GMM,
JEL Codes: C23, G21, L2

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Introduction

Numerous single and cross–country studies show inconclusive results regarding the determinants of banks profitability, suggesting that policies of one country may not be suitable for another. To our knowledge there is no bank profitability study of the foregoing nature covering the small, relatively underdeveloped financial systems of the island states in the South Pacific. This study fills that gap. While data limitations restrict our analysis to Fiji, the financial structure, socio–economic, political and demographic cross–country similarities suggest that findings may apply to the rest of the region. As outlined below, this study is important and interesting for a number of other reasons.

The traditional deposit mobilisation and intermediated credit remain the major and sometimes the only viable investment and external financing option across the South Pacific; capital markets are either virtually absent or extremely small, including in Fiji. The demographic[1] and socio–economic conditions too are unfavourable. Small size, insularity, remoteness and proneness to natural disasters, among other things, render these economies highly vulnerable to external forces, threatening sometimes their very economic viability (e.g. Streeten, 1993; Briguglio, 1995; Briguglio et al., 2006; ADB, 2004; UNEP, 2004). Economic growth has not only been a constant challenge, prospects are equally disappointing[2]. Consequently, these economies remain underdeveloped, fragile, burdened with high levels of poverty, unemployment, and experience other socio–economic problems.

Yet, banks across the South Pacific remain highly profitable; returns on assets commonly exceed international averages[3]. Non–bank deposit institutions too are highly profitable; in fact, non–banks appear to be more profitable than banks. In the case of Fiji, for instance, a back of the envelop analysis shows that the returns on assets of both banks and non–banks have remained high even in periods of major external shocks including the 2007 global financial crisis and the coup d'états of 2000 and 2006.

[1] Population size is usually less than a million

[2] Asian Development Outlook for Fiji 2011, http://www.adb.org/documents/books/ado/2011/ado2011-fij.pdf [Accessed: August, 2011].

[3] http://www.pftac.org/Handbooks/Governors%20Paper.pdf

While profitability may be important for the stability of financial systems, especially in light of the continuing global crisis, high profitability may, at the same time, have adverse consequences for the wider economy, including implications for growth of savings and investment, and even pricing out of certain users from the financial system. The functions of financial institutions positively and strongly foster a country's economic growth and development[4], however, activities and practices of institutions that, intentionally or unintentionally, lead to involuntary exclusion of any form are likely to have the reverse effect, i.e. retard economic growth and potentially increase poverty and inequality (Beck et. al., 2007).

In view of the foregoing, if, on one hand, financial institutions in the South Pacific remain highly profitable, and on the other, the economies they operate in continue to struggle with poverty, growth and development, then an understanding of the determinants of profitability of these institutions might be useful in formulating policies aimed at enhancing growth and development via the financial sector. Profitability of institutions may be influenced by a number of factors, including the level of capital relative to total assets, the volume and growth of deposits and loans, operational efficiency, and market power. Take capital for instance. In the case of Fiji, both banks and non–banks appear to be well capitalised; in fact, in the 2000–2010 period, the capital adequacy ratios of both institution types appear to be constantly and distinctly above the minimum required levels[5]. If it is the case that capital levels positively and strongly influence profitability then, a number of policy implications emerge. Higher levels of capital may indicate better soundness—from a financial stability perspective then, incentives to change this relationship may be restricted. However, given that in the South Pacific assets are financed largely by domestic deposits and capital, higher levels of capital financing of assets might indicate lower deposit financing, suggesting, among others, that some deposits may not be reaching financial institutions or are kept away. In the case of the later, as noted above, growth and development implications can be considerable.

[4] For comprehensive literature summaries on the finance–growth nexus, see Levine, 1997, 2005; and Beck et al., 2009.

[5] http://www.reservebank.gov.fj/docs2/1%20Quarterly%20Review%20(March%202011).pdf

This study is also different from most other studies in that it investigates the profitability determinants of both bank and non–bank deposit institutions; most other studies focus only on banks. We are able to do this since, as further explained in section 3, the main activities and business models of both institution types are very similar and confined to the domestic market; regulatory requirements too are similar, suggesting that the profitability determinants might be common. A combined regression analysis also gives us a more reasonable data size for panel analysis; separately they may not be sufficient. Moreover, from a policy perspective, it might be useful to see if common strategies could be applied to all types of deposit institutions.

The rest of the paper is organised as follows. Section 2 briefly reviews the literature; section 3 discusses the data, variables and methodology; section 4 presents and discusses the results; and section 5 concludes with some policy implications.

1.0 Literature review

In studies on determinants of bank profitability, dependent variables typically are return on assets (ROA) and/or return on equity (ROE). Independent variables have included capital, operational efficiency, risk, size, ownership, and market power (e.g. Staikouras and Wood, 2004; Athanasoglou et al., 2008; Garcia–Herrero et al., 2009); the impact of the recent global financial crisis has now also been analysed (Dietrich and Wanzenried, 2011). Interestingly, as the following discussion shows, with respect to a number of these determinants, findings remain inconclusive, having important implications for policy development and action across countries and regions of the world.

Take size, for instance, introduced in the framework to account for existing economies or diseconomies of scale in the market. Smirlock (1985) and Pasiouras and Kosmidou (2007) show that size may positively and significantly influence profitability, explained perhaps by the potentially higher degree of product and loan diversification of larger banks compared to smaller, together with benefits emanating from economies of scale. Berger et al. (1987), on the other hand, show that size may only slightly reduce costs and that very large banks may actually suffer from scale inefficiencies and Micco et al. (2007) find a positive but insignificant relationship between size and profitability. Athanasoglou et al., 2008 find that size is not important for revenue generation.

Similarly, credit and liquidity risks are shown to inconsistently influence bank profitability. Risk management is inherently associated with bank management; poor asset quality and low liquidity levels have been shown to be among the major causes of bank failure. During periods of increased uncertainty, portfolio diversification and/or liquid holdings are commonly enhanced. Abreu and Mendes (2002) find that credit risk, measured by loans to assets ratio, positively influenced the profitability of banks in Portugal, Spain, France and Germany. On the other hand, Bourke (1989) and Molyneux and Thornton (1992), among others, find a negative and significant relationship between the two. Possibly, banks exposed to riskier loans have also accumulated higher volumes of unpaid loans, which might adversely affect profits (Dietrich and Wanzenried, 2011). Similarly, holding higher levels of liquid assets may reduce profitability (Bourke, 1989; Molyneux and Thornton, 1992)

Conflicting results are also found in the case of ownership. While some studies find state ownership to be negatively related with profitability (e.g. Micco et. al., 2007; Iannotta et al., 2007), others show that ownership—state or private—may have no relevance for bank profitability (Bourke, 1989; Molyneux and Thornton, 1992), that empirical evidence may not support the theory that privately owned banks perform better than state–owned. Contrary also to popular belief, age may not positively influence profitability; Beck et al. (2005) find that in the case of Nigeria, for instance, older banks did not perform as well as the newer ones, which were better able to pursue new profit opportunities.

Similarly, regarding market power, studies by Bourke (1989) and Molyneux and Thornton (1992) confirm the structure–conduct–performance (market power) hypothesis that increased market power yields monopoly profits; the relationship is positive and significant. However, results of some other studies (Berger, 1995; Demirguc–Kunt and Huizinga, 1999; Staikouras and Wood, 2004; Athanasoglou et al., 2008) contradict the theory; the relationship may be neither positive nor significant. With respect to equity, empirical evidence suggests that better capitalised banks are more likely to be more profitable (e.g. Bourke, 1989; Demirguc–Kunt and Huizinga, 1999; Abreu and Mendes, 2002; Naceur and Goaied, 2001, 2008; Pasiouras and Kosmidou, 2007; and Garcia–Herrero et al., 2009). However, this may not necessarily be the case in all situations; Heffernan and Fu (2010), for instance, find that in the case of Chinese banks, the relationship may be positive or negative. The level of operational efficiency, measured by the cost to income ratio (Goddard et al., 2009, Dietrich and

Wanzenried, 2011) or overhead costs to total assets (Athanasoglou et al., 2008) is more likely to positively influence profitability; these studies and others (e.g. Bourke, 1989; Molyneux and Thorton, 1992) show that more efficient institutions are more likely to be more profitable.

2.0 Data, Variables and Methodology

For all practical reasons, Fiji's financial system is intermediary based (Sharma and Nguyen, 2011; Sharma and Roca, 2012). The intermediaries fall into two groups: deposit–taking and others. Only deposit–taking institutions are licensed and supervised by the Reserve Bank of Fiji (RBF) and are of two types: banks (may accept demand deposits) and credit institutions (may not accept demand deposits). Otherwise, the main activities and business models of both the credit institutions and banks are very similar, and confined to the domestic market; regulatory requirements too are very similar, suggesting that the profitability determinants might be similar for both institution types. The non–deposit institutions together, excluding the superannuation fund, make up a very tiny proportion of the financial system. The superannuation fund, albeit substantial by asset size, is not really a competitor for the deposit–taking institutions with respect to both deposit and lending activities.

In 2011, there were five banks and 3 credit institutions (hereafter, non–banks, in consonance with the wider use of the term) operating in Fiji and all have been included in this study. The banks include: Australia and New Zealand Banking Corporation Ltd (ANZ); Bank of Baroda (BOB); Bank of South Pacific Limited (BSP); Colonial National Bank Limited (CNB); and Westpac Banking Corporation Limited (WBC). The non–banks include Credit Corporation Fiji Limited (CCFL); Merchant Finance Limited (MF); and Home Finance Company Limited (HFC). These institutions account for 100% of all deposits in the country and, excluding the superannuation fund, around 95% of the total loans of all lending institutions in Fiji. Relevant and complete data for these institutions are available for the year 2000–2010 from Reserve Bank of Fiji[6].

We have used both return on total assets (ROA) and return on total equity (ROE) as measures of profitability, i.e. dependent variables in the regression analysis. In principle, ROA reflects management's ability to generate revenues from assets; while this ratio may be biased due to

[6] http://www.reservebank.gov.fj/default.aspx?page=publishedDS

off–balance–sheet activities, such activities in the case of Fiji, is minimal. ROE is the return to shareholders and is the product of ROA and financial leverage of equity multiplier (assets–to–equity ratio). Institutions with higher equity (and thus lower leverage) will usually report higher ROA but, expectedly, lower ROE. Thus, the analysis of ROE often disregards risks associated with high leverage; moreover, financial leverage is often determined by regulation. Accordingly, ROA may be a better measure of profitability. Nevertheless, we use both.

The independent variables include: capital (CAP); total deposits (DEP); deposit growth rate (DG); total loans (LON); loan growth rate (LG); credit risk (CR); liquid assets (LQA); bank size (SZ); non–interest income (NII); funding cost (FC); operational efficiency (OE); and Lerner Index (LI; measure of market power). Table 1 lists the variables used in this study. The independent variables are defined below.

Table 1: Definitions, notations and expected effect of independent variables on profitability

Variable	Notation	Measure	Expected sign
Dependent			
Return on assets	ROA	Net profit before taxes/total assets	
Return on equity	ROE	Net profit before taxes/total equity	
Independent			
Capital	CAP	Total equity/total assets	+/–
Total deposits	DEP	Total deposits/total assets	+/–
Deposit growth	DG	Annual percentage growth in deposits	+/–
Total loans	LON	Total loans/total assets	+/–
Loan growth	LG	Annual percentage growth in loans	+/–
Credit risk	CR	General reserves for credit losses/gross loans	+/–
Liquid assets	LQA	Total liquid assets/total assets	–
Non–interest income	NII	Non–interest income/gross income	+
Funding cost	FC	Interest expense/total deposits	+/–
Operational efficiency	OE	Operating costs/gross income	+/–
Lerner Index	LI	Difference of revenues and expenses/revenues	+
Size	SZ	Total assets of an institution/total assets of industry	+/–
Institution type	INSD	Bank = 0; non–bank = 1	+

Capital (CAP) is the ratio of total equity relative to total assets. Generally, institutions with higher capital ratios are considered safer and less risky compared to those with lower ratios. However, according to the conventional risk–return theory, these institutions are also expected to have lower returns—institutions with substantial capital funding may be over–cautious, foregoing profitable investment opportunities; accordingly, a negative relationship is expected. On the other hand, better capitalised banks are more likely to remain more profitable during economically difficult times. Further, better capital position is likely to

increase a bank's creditworthiness and thus reduce its funding costs. Moreover, well capitalised banks may require relatively less external funding, including deposits. From this point of view, better capitalised banks are expected to be more profitable; a positive relationship might emerge. Thus, the sign could be negative or positive.

Total deposits (DEP) is defined as the ratio of total deposits to total assets. Since deposit funding is associated with branching, ATM and other costs, banks that rely largely on deposits are likely to be less profitable; a negative sign is expected. However, in the case of Fiji, with extremely small and underdeveloped financial markets, external funding sources are primarily deposits, and expectedly cheap due to limited investment options for savers, among others. Accordingly, higher ratios are likely to positively influence profitability. Thus, the sign cannot be anticipated. *Total loans* (LON) is defined as the ratio of total loans to total assets. Since the main revenue–generating assets of banks in Fiji are loans and advances, higher volumes are expected to generate more profits; a positive sign is expected. However, substantially high ratios might have adverse implications for liquidity and risk of default; the sign therefore can be positive or negative.

We also include the annual *growth in loans* (LG) and annual *growth in deposits* (DG) as independent variables. Generally, if a relatively fast growing institution is able to convert its deposit liabilities into income generating assets, particularly loans, profits are expected to increase. However, if doing so exposes a bank to higher credit risk and/or growth is realised via lower margins, profitability may be reversed. Moreover, high growth rates are likely to be gradually competed away. Thus, the signs may be positive or negative.

Credit risk (CR) is defined as general reserves for credit losses to gross loans. The ratio measures the ability of bank managers to monitor the potential variation in net income resulting from non–payment or delayed payment on credit. Thus, income may decline when loans are not collected at all and/or in time. However, in times of steady good profits, provisions for loans may be reduced as stability of cash inflows allow managers to better handle sudden defaults. Higher provisioning may indicate both a higher likelihood of possible future losses as well as a timely recognition of weak loans by prudent institutions. The sign may be positive or negative.

Liquid assets (LQA) is defined as the ratio of total liquid assets (the sum of cash holdings, balances at central and other banks, market securities etc.) to total assets. In the case of Fiji, and the rest of the South Pacific, capital markets are underdeveloped and very small, if any, and corporate bonds are non–existent. Yet, for many reasons, including liquidity management and perhaps lack of bankable projects, banks invest in state or state–owned enterprise securities. In the case of at least one institution, LQA has constantly been around 60%, occasionally as high as 68%; for other banks, the ratio has varied between 20 to 40%. Since these assets generate no (cash holdings) or little revenue (yield on securities are substantially lower than those on loans), higher ratios are expected to reduce profitability levels; a negative sign is expected.

Non–interest income (NII) is the ratio of NII relative to gross income. In debates and conversations relating to bank profitability in the South Pacific, the attention has mainly been on interest rates; data on lending and deposit rates are also more readily available. Thus, the focus has mainly been on interest income; little attention is paid to revenues generated from non–interest sources including, fee and commission income and trading operations. Moreover, while the financial system in Fiji may be small and underdeveloped, user pay practices, relating to deposits, for instance, are common. In light of this, one might expect NII to prominently influence profitability; a positive sign is expected.

Funding cost (FC) is defined as the ratio of interest expenses relative to total deposits. *Operational efficiency* (OE) is the operating cost to gross income ratio i.e. the operating costs necessary to generate one unit of gross income. In both cases, the relationships are expected to be negative, since high costs are likely to erode profits. However, to the extent that an institution's ability to pass on costs to their clients is a function of market power, the sign may be positive in highly uncompetitive markets, such as Fiji's. Thus, in the case of both FC and OE, the sign may be negative or positive.

The *Lerner index* (LI) is used as a direct measure of the level of competition in the system, i.e. market power of banks. LI is defined as the ratio of the difference between price and average cost divided by price, equivalent to the difference between total revenue and total cost divided by total revenue (Hawtrey and Liang, 2008). The values of the index range from 0 (perfect competition) to 1 (monopoly); the expected sign is positive. *Size* (SZ) is the ratio

of total assets of an institution relative to the total assets of the industry. Since larger banks may have better capacity to offer a wider range of products and diversify their loans portfolio, size may positively influence profitability via risk reduction, enhanced operational efficiency and economies of scale effects. However, agency costs and higher overheads may make extremely large banks less profitable; thus, the sign may be positive or negative.

To empirically estimate the influence of the foregoing determinants on bank profitability, the following linear model is estimated:

$$PROF_{it} = \beta_o + \sum_{j=1}^{j} \beta_1 X^j_{it} + \varepsilon_{it}$$

$PROF_{it}$ is profitability (measured as rate of return on assets and rate of return on equity) of bank i at time t, where $i = 1\ldots N$, $t = 1\ldots T$, β_o is a constant, X^j_{it} are the bank specific explanatory variables as explained in the previous section and ε_{it} is the disturbance term. The above estimation equation may give rise to problems of endogeneity (causality may run in both directions for some variables) and time invariant unobserved firm specific effects, among others. The problems may be amplified with a relatively short time span, as in our case ($t = 10$). Thus, Generalized Method of Moments (GMM), proposed by Arellano and Bond (1991) and extended by Blundell and Bond (1998), is employed here to control for endogeneity. GMM is among the class of instrumental variables (IV) approach which utilises the predetermined and endogenous variables in first differences as instruments with appropriate lags of the specified variables in levels and strictly exogenous regressors are first-differenced to be used as instruments in the first–differenced equation. Since the lagged levels are often poor instruments for first differences, the efficiency of this instrumental approach may be relatively weak. Therefore, Blundell and Bond (1998) propose the System–GMM approach, in which the first–differenced estimator is combined with the estimator in levels to form a more efficient estimator. Nonetheless, for robustness, we estimate the equation using three different techniques: Panel Least Squares (PLS) with AR (1) errors, Fixed Effects Model (FEM) and GMM with AR(1) and AR(2) errors to examine the second–order serial correlation in the residuals.

3.0 Empirical results

Although we present results using the three different techniques mentioned above, in discussing policy implications, we focus on the GMM results. The results from the Arellano-Bond test for AR(2) indicate that there is no second–order serial correlation in the estimated residuals. We use two sets of data for regression analysis—one with all variables described above and another, excluding deposit growth (DG) and loan growth (LG). The reason for excluding DG and LG is to check their co–linearity effects with deposit (DEP) and loan (LON) variables. Table 2 presents the results with all variables, table 3 shows results excluding DG and LG; in both cases, we have six regressions: two profitability measures (ROA and ROE) vis-à-vis three different methods. Results are discussed below.

Table 2: Regression results, all variables

Intercept	**PLS**	**PLS**	**FEM**	**FEM**	**GMM**	**GMM**
	ROA	ROE	ROA	ROE	ROA	ROE
C	-0.0091	-0.0911	0.1193**	1.0964*	-0.0702**	-0.1286
	(0.0178)	(0.1476)	(0.0480)	(0.5858)	(0.0345)	(0.1931)
CAP	0.1912**	-0.2882	0.0938	-0.1809	0.0967**	-0.7718*
	(0.0385)	(0.4471)	(0.0691)	0.5385)	(0.0443)	(0.4042)
DEP	0.0410**	0.2340	-0.0155	0.0208	0.0771***	0.4844
	(0.0196)	(0.1873)	(0.0226)	(0.2219)	(0.0284)	(0.3091)
DG	-0.0090***	-0.0997**	-0.0014	-0.0637	-0.0137***	-0.1259***
	(0.0030)	(0.0490)	(0.0068)	(0.0608)	(0.0043)	(0.0377)
LON	-0.0393	-0.2593	-0.0922***	-0.9784**	-0.0114	-0.2942
	(0.0270)	(0.1678)	(0.0314)	(0.4069)	(0.0321)	(0.2564)
LG	-0.0018	0.0102	-0.0103**	-0.0361	-0.0016	0.0010
	(0.0026)	(0.0157)	(0.0046)	(0.0534)	(0.0045)	(0.0262)
SZ	0.0024	0.3339	-0.1201**	-0.6437	-0.0206	-0.2584
	(0.0151)	(0.2571)	(0.0463)	(0.4716)	(0.0609)	(0.4576)
CR	-0.0112	-0.4850	-0.0543	-0.9824	0.0921***	0.4444
	(0.0579)	(0.3597)	(0.0530)	0.5937	(0.0344)	(0.3966)
OE	0.0455***	0.5516***	0.0670***	0.5981**	0.0280**	0.3718**
	(0.0115)	(0.1537)	(0.0235)	(0.2401)	(0.0137)	(0.1504)
FC	0.0157	0.2068	-0.0217	0.4559	0.0266	0.3940
	(0.0381)	(0.3965)	(0.0672)	(0.6343)	(0.1049)	(1.3473)
LI	0.0529***	0.6147***	0.0755***	0.6526***	0.0340***	0.4052***
	(0.0119)	(0.1620)	(0.0241)	(0.2452)	(0.0099)	(0.1463)
LQA	-0.0609*	-0.1818	-0.1185***	-1.0446	-0.0445	-0.4814
	(0.0290)	(0.2296)	(0.0441)	(0.6550)	(0.0488)	(0.3649)
NII	-0.0189	-0.4175	-0.0552	-0.6167	0.0601	0.4547
	(0.0173)	(0.2273)	(0.0340)	(0.3874)	(0.0645)	(0.5115)
INSD	0.0024*	0.0213	-	-	0.0428*	0.3040
	(0.0115)	(0.1570)	-	-	(0.0214)	(0.1836)
AR(1)	0.6789***	0.3865***			0.8161***	0.6499***
	(0.0222)	(0.1421)			(0.1665)	(0.1576)
AR(2)					-0.0899	0.0207
					(0.1339)	(0.0933)
Adjusted R^2	0.9049	0.6732	0.8682	0.6567	0.8956	0.7393
SE	0.0059	0.0729	0.0070	0.0821	0.0062	0.0604

Note: Standard errors are in parenthesis below the coefficient estimates. *, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively. SE is standard error.

Table 3: Regression results, excluding variables LG, DG

Intercept	**PLS**	**PLS**	**FEM**	**FEM**	**GMM**	**GMM**
	ROA	ROE	ROA	ROE	ROA	ROE
C	0.0006	-0.1744	0.1289	1.1892	-0.0851	-0.3221
	(0.0198)	(0.2152)	(0.571)	(0.6436)	(0.0511)	(0.4067)
CAP	0.0684	-0.3401	0.1028	-0.2698	-0.0139	-1.6329**
	(0.0418)	(0.4663)	(0.0653)	(0.4663)	(0.0507)	(0.6267)
CR	0.0325	-0.3716	-0.0002	-0.6602	0.1638***	0.8967
	(0.0531)	(0.4632)	(0.0552)	(0.4580)	(0.0599)	(0.8066)
DEP	0.0249	0.1717	-0.0107	-0.0804	0.0330	0.2894
	(0.0201)	(0.1603)	(0.0176)	(0.1643)	(0.0197)	(0.1845)
FC	0.0989	0.8212	0.0169	0.6497	0.1507**	2.7896***
	(0.0613)	(0.5829)	(0.0796)	(0.8194)	(0.0637)	(0.7495)
LI	0.0612***	0.7282***	0.0663***	0.6106***	0.0582***	0.8141***
	(0.0143)	(0.1624)	(0.0220)	(0.2063)	(0.0218)	(0.2039)
LON	-0.0382	-0.1860	-0.1014**	-0.9418*	0.0504	-0.1079
	(0.0286)	(0.1726)	(0.0384)	(0.4729)	(0.0533)	(0.4377)
LQA	-0.0603*	-0.1476	-0.1065*	-0.9340	0.0115	-0.4098
	(0.0308)	(0.2148)	(0.0551)	(0.6673)	(0.0498)	(0.4652)
NII	-0.0291**	-0.5020*	-0.0888***	-0.7659**	0.0249	0.4317
	(0.0139)	(0.2754)	(0.0329)	(0.3413)	(0.0463)	(0.4952)
OE	0.0543***	0.6662***	0.0560***	0.5517***	0.0516**	0.7946***
	(0.0138)	(0.2788)	(0.0208)	(0.1951)	(0.0222)	(0.2136)
INSD	0.0174**	-0.0448	-	-	0.0302	0.2501
	(0.0085)	(0.1281)	-	-	(0.0206)	(0.2274)
SZ	-0.0115	0.2950	-0.1274***	-0.7760*	-0.0565	-0.6194
	(0.0177)	(0.2788)	(0.0444)	(0.4455)	(0.0418)	(0.5088)
AR(1)	0.7398***	0.3823***			0.9120***	0.7817***
	(0.0408)	(0.1424)			(0.1844)	(0.0994)
AR(2)					-0.1023	-0.0238
					(0.1623)	(0.0803)
Adjusted R^2	0.8946	0.6576	0.8396	0.6465	0.8966	0.6861
SE	(0.0062)	(0.0747)	0.0078	0.0833	0.0068	0.0663

Note: Standard errors are in parenthesis below the coefficient estimates. *, ** and *** indicate significance at the 10%, 5% and 1% levels respectively. SE is standard error.

Across PLS, GMM and FEM, with all variables, *capital* has a positive relationship with ROA (significant in two of the regressions), and negative but not relationship with ROE (table 2); the results are similar when DG and LG are excluded (table 3). That is, when assets are used as the basis of profitability, the association is positive, when the basis is capital itself, the sign turns negative. Where capital itself is the base, expectedly, an increase in the base is likely to result in lower returns. Heffernan and Fu (2010) also find both positive and negative relationships of capital with profitability measures.

Results are quite consistent in the case of ***Deposit*** (DEP) with both ROA and ROE across different methods; the relationship is mostly positive, with or without DG and LG (tables 2 and 3). It is statistically significant in two regressions; both in the same direction, positive. The results indicate that institutions with higher levels of assets financed by deposit liabilities

are likely to be more profitable. The cost of mobilising and holding deposit liabilities in Fiji is expected to be relatively low for reasons including limited investment options for savers; indeed interests paid on deposits have been relatively low across the South Pacific and the user pay system reduces frequency of demand deposit transactions and thereby, associated maintenance costs.

Interestingly, however, *deposit growth* (DG) has a negative relationship with both ROA and ROE; the relationship is not only consistent across different methods but also statistically significant in four of the six regressions (table 3). The results appear to indicate that while deposit financing may be an important determinant of profitability, some institutions may have reached their optimum deposit–asset ratios and those seeking to expand their deposit base assertively, with the intention of eventually improving profitability, may have to do so at the cost of rising expenses and falling profitability in the meantime. Moreover, institutions may not be able to convert high growth in deposits into high income generating assets; due perhaps to lack of bankable projects (ADB, 2005). Our findings are similar to that of Dietrich and Wanzenried, (2011).

While high deposit to asset ratios may contribute positively to profitability of deposit institutions, high ***loan*** to asset ratios appear to have the opposite effect, i.e. reduce profitability. Across all three methods, using all variables, the association of LON with both ROA and ROE is consistently negative; it is also statistically significant in two of the six regressions (table 2). The results are very similar when DG and LG are excluded; in five of the six regressions the sign is negative and again statistically significant in two regressions (table 3). Moreover, *loan growth* (LG) also appears to be negatively associated with profitability; in four of the six regressions, the sign is negative, including in the instance that it is statistically significant (table 2). Thus, both high levels of loans relative to assets and high growth in loans appear to be unprofitable for deposit institutions in Fiji.

When all variables are included, *credit risk* (CR) is negatively associated with both ROA and ROE in the PLS and FEM regressions and positively in the GMM; the result is statistically significant in only one regression, GMM and ROA. Moreover, the results are similar when DG and LG are excluded; the result is again statistically significant in only one regression, GMM and ROA. Further, when it is statistically significant, the sign is consistent and

positive, indicating that higher levels of provisioning may actually improve profitability. Perhaps, regulatory provisioning requirements have made the institutions relatively conservative, i.e. institutions may be setting provisions at much higher rates relative to actual loss experiences. Perhaps, the cautious stance is driven also by the on–going high levels of uncertainties in the global financial markets. Heffernan and Fu (2010) also find both positive and negative relationships of credit risk with different profitability measures.

The association of *liquid assets* (LQA) with both ROA and ROE is consistently negative across all six regressions, using all variables. When DG and LG are excluded, the association is negative in five of the six regressions. Moreover, including or excluding DG and LG, the results are statistically significant in four regressions: PLS and ROA, and FEM and ROA. Thus, as expected, it appears that high levels of liquid assets are indeed unprofitable for deposit institutions in Fiji. Our findings are similar to that of Bourke (1989) and Molyneux and Thorton (1992). However, contrary to expectations, *non–interest income* (NII) does not appear to positively influence profitability of deposit institutions in Fiji. When all variables are included, the relationship is negative (but not significant) in four of the six regressions. When DG and LG are excluded, the relationship is still negative in four of the six regressions but now statistically significant.

Funding cost (FC) has a positive relationship in eleven of the twelve regressions and statistically significant in two regressions, suggesting that increased costs of mobilising deposits are likely to be passed on to clients, via perhaps increased interest and/or non–interest charges, with the charges being proportionately higher than the cost of funding itself. This notion appears to be confirmed by the unambiguous positive relationship between *Operational efficiency* (OE) and profitability. Interestingly, the relationship is also statistically highly significant across all twelve regressions, suggesting that deposit institutions in Fiji are able to pass on their operational costs to customers via higher spreads to keep profits unaffected. Flamini et al (2009) studying the case of Sub–Saharan Africa, where profits are known to be relatively high, also find a positive relationship between operational efficiency and profitability.

The above finding also suggests that market power in the case of Fiji would be a key determinant of profitability; indeed, the relationship between the *Lerner Index* (LI) and

profitability is also unambiguously positive and statistically highly significant across all 12 regressions. Our findings are similar to those of Bourke (1989), Molyneux and Thornton (1992) and Dietrich and Wanzenried, (2011), confirming the structure–conduct–performance hypothesis that market power yields high profits for deposit institutions in the case of Fiji. Results also show that non–bank deposit institutions may be more profitable compared to bank deposit institutions; the relationship between *institutions type* (INSD) and profitability is mostly positive and occasionally significant.

Conclusion and policy implications

This study investigates the profitability determinants of deposit–taking institutions in Fiji, a representative South Pacific island economy. Across the region, financial systems are small and relatively underdeveloped with capital markets either non–existent or extremely small, including in Fiji. Moreover, the economies are constantly growth–challenged and remain underdeveloped, fragile, burdened with high levels of poverty, unemployment, and experience other socio–economic problems.

Yet, banks across the South Pacific remain highly profitable; returns on assets commonly exceed international averages[7]. The results of this study suggest that market power may be a key determinant of high profitability of deposit–taking institutions in Fiji, and possibly elsewhere in the region. The relationship between market power (measured by the Lerner Index) is not only positive but also statistically highly significant across all twelve regressions, using three different techniques—Panel Least Squares (PLS) with AR (1) errors, Fixed Effects Model (FEM) and Generalised Method of Moments (GMM) with AR (1) and AR (2) errors—and two profitability measures—return on assets (ROA) and return on equity (ROE).

[7] http://www.pftac.org/Handbooks/Governors%20Paper.pdf

It is perhaps due to a considerable level of market power that deposit–taking institutions in Fiji are able to pass on the interest cost of deposit liabilities and overall operational costs to their clients. Funding cost, defined as the ratio of interest expenses relative to total deposits and operational efficiency, defined as the operating cost to gross income are positively and highly correlated with both ROA and ROE, across the three different estimation techniques utilised in this study. Results also suggest that expanding the deposit and/or the loan base beyond a certain level may not be in the best interest of institutions in Fiji; higher levels of capital funding of assets may actually be more profitable.

With the usual caveats in mind, the findings of this study do have important implications for policymakers. On the one hand, the South Pacific economies continue to struggle with growth, poverty and inequality; on the other hand, deposit–taking institutions—the main and sometimes the only source of investment and financing activities in the region—continue to earn very high profits, unabated even by external shocks such as the 2007 GFC. While profitability strengthens institution and systemic stability, very high profits have the potential to reduce the efficiency and effectiveness of the process of financial intermediation, including exacerbating instances of financial exclusion, if high profits imply high cost of borrowing and/or low rates on savings. The implications are likely to more severe where financial markets are small and underdeveloped and firms and individuals rely heavily on financial institutions for funding, such as in Fiji and elsewhere in the South Pacific.

Thus, policymakers may like to consider developing policies and strategies that may lead to a more competitive financial system. Unabated, it is likely that deposit–taking institutions might opt for more capital financing of assets rather than deposit; similarly, high growth in loans is unlikely if profits can be generated otherwise. Both situations would be highly unfavourable for the already growth– and poverty–challenged, economies in the South Pacific.

References

Abreu, M. and V. Mendes, 2002, Commercial bank interest margins and profitability: evidence from E. U. Countries, Working paper series, Porto.

ADB (Asian Development Bank), 2004, Swimming Against the Tide?: An Assessment of the Private Sector in the Pacific, (Asian Development Bank, Manila.).

ADB (Asian Development Bank) 2005 Private sector assessment for Fiji Islands: 'Promise unfulfilled'. Manila: Asian Development Bank.

Albertazzi, U. and L. Gambacorta, 2009, Bank profitability and the business cycle, Journal of Financial Stability, 5(4), 393–409.

Arellano, Manuel, and S. R. Bond, 1991, Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations, Review of Economic Studies, 58, 277-297.

Athanasoglou, P., S. Brissimis, and M. Delis, 2008 Bank–specific, industry–specific and macroeconomic determinants of bank profitability, Journal of International Financial Markets, Institutions and Money, 18(2), 121–136.

Beck, T., M. Fuchs, and M. Uly, 2009, Finance in Africa: achievements and challenges, World Bank mimeo (update)

Beck, T., A. Demirgüç-Kunt and M. Peria, 2007, 'Banking Services For Everyone? Barriers to Bank Access and Use around the World', Policy Research Working Paper 4079. Washington D. C: World Bank.

Beck, T. R. Cull and J. Afeikhena, 2005, Bank privatisation and performance: empirical evidence from Nigeria, Journal of Banking and Finance, 29(8–9), 2355–2379.

Beltratti, A. and R. Stulz, 2009, Why did some banks perform better during the credit crisis? A cross–country study of the impact of governance and regulation, ECGI Finance Working Paper No. 254/2009. (update)

Berger, A., 1995, The profit–structure relationship in banking: tests of market–power and efficient–structure hypothesis, Journal of Money, Credit and Banking, 27(2), 404–431.

Berger, A., D. Hanweck and D. Humphrey, 1987, Competitive viability in banking: scale, scope,, and product mix economies, Journal of Monetary Economics, 20(3), 501–520.

Blundell, R. and S. Bond 1998, Initial conditions and moment restrictions in dynamic panel data models, Journal of Econometrics, 87, 115-143.

Bourke, P. 1989, concentration and other determinants of bank profitability in Europe, North America and Australia, Journal of Banking and Finance 13(1), 65–79.

Briguglio, L.: 1995, 'Small Island Developing States And Their Economic Vulnerabilities', World Development 23(9), 1615–1632.

Briguglio, L., G. Cordina and E. J. Kisanga.: 2006, 'Introduction', in Briguglio, L., G. Cordina and E. J. Kisanga (eds.), Building the Economic Resilience of Small States (Formatek Publishing: Malta), pp 13–29.

Demirguc–Kunt, A. and H. Huizinga, 1999, Determinants of commercial bank interest margins and profitability: some international evidence, World Bank Economic Review, 13(2), 379–408.

Dietrich, A. and G. Wanzenried, 2011 Determinants of bank profitability before and during the crisis: evidence from Switzerland, Journal of International Financial Markets, Institutions and Money, 21, 307–327.

Flamini, V., C. McDonald and L. Schumacher, 2009, The determinants of commercial bank profitability in Sub–Saharan Africa, IMF Working Paper, WP/09/15.

Garcia–Herrero, A., S. Gavilla, and D. Santabarbara 2009 What explains the low bank profitability of Chinese banks? Journal of Banking and Finance, 33(11), 2080–2092.

Goddard, J., H. Liu, P. Molyneux and J Wilson, 2009, Do bank profits merge? Working paper (update).

Hawtrey, K. And H. Linag, 2008. Bank interest margins in OECD countries, North American Journal of Economics and Finance, 19, 249–260.

Heffernan, S. A. and X. Fu, 2010, Determinants of financial performance in Chinese banking, Applied Financial Economics, 20, 1585–1600.

Iannotta, G., G. Nocera and A. Sironi, 2007, Ownership structure, risk and performance in the European banking industry, Journal of Banking and Finance 31(7), 2127–2149.

Levine, R. (1997) Financial development and economic growth: views and agenda, Journal of Economic Literature, 35, 688–726.

Levine, R. (2005) Finance and Growth: Theory and Evidence, In: Handbook of Economic Growth, Eds: Aghion, P. and S. Durlauf, Elsevier: 865–934.

Micco, A., U. Panizza and M. Yanez, 2007, Bank ownership and performance. Does politics matter? Journal of Banking and Finance, 3193), 219–241.

Molyneux, P. and J. Thorton, 1992, Determinants of European bank profitability: a note, Journal of Banking and Finance 16(6), 1173–1178.

Naceur, S. and M. Goaied, 2001, The determinants of the Tunisian deposit banks' performance, Applied Financial Economics, 11(3), 317–319.

Naceur, S. and M. Goaied, 2008, The determinants of commercial bank interest margin and profitability: evidence from Tunisia, Frontiers in Finance and Economics 5(1), 106–130.

Pasiouras, F. and K. Kosmidou, 2007, Factors influencing the profitability of domestic and foreign commercial banks in the European Union, Research in International Business and Finance, 21(2), 222–237.

Sharma, P. and E. Roca, 2012. It is Time to Re–examine the role of stock markets in developing economies, Journal of Asia–Pacific Business, 13(3), forthcoming.

Sharma, P. and T. Nguyen, 2011. Does law really matter for stock market development? The case of a South Pacific island economy: Fiji, 1997–2007. Fijian Studies, forthcoming.

Smirlock, M., 1985, Evidence on the (non) relationship between concentration and profitability in banking, Journal of Money, Credit and Banking, 17, 69–83.

Staikouras, C. and G. Wood 2004 The determinants of European bank profitability, International Business and Economics Research, 3(6), 57–68.

Streeten, P.: 1993, The special problems of small countries, World Development 21(2), 197–202.

UNEP (United Nations Environment Programme).: 2004, Sustainable Development Priorities for South Pacific [online]. Available from: http://www.rrcap.unep.org/pub/sdp/sp.pdf [Accessed: March 2010].