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# Determinants of bank credit in small open economies:

# The case of six Pacific Island Countries

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**Determinants of bank credit in small open economies:**
**The case of six Pacific Island Countries**

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## Abstract

This paper examines the changes in bank credit to private sector across six economies in the South Pacific. An extensive time–series and cross–country panel data allow us to draw new and broader lessons compared to existing research, which have tended to focus mostly on single countries with shorter time periods. Results show that rising average lending and inflation rates may be detrimental to credit growth, and that deposit and asset size contribute positively to credit growth. Results also indicate that stronger economic growth leads to higher credit growth. A number of policy implications emerge and are also discussed.

**JEL:** G21, E44, E51, C23

**Keywords:** bank private sector credit, South Pacific, cross–country analysis

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## 1.0 Introduction

An expanding body of literature shows that finance matters for growth. As summarised by Levine (2005), research suggests that: (i) countries with better functioning banks and markets grow faster, but the degree to which a system is bank–based or market–based is not important; (ii) these conclusions do not seem to be influenced by simultaneity bias; and (iii) better functioning financial systems alleviate external financing constraints that may otherwise hinder firm and industrial growth and expansion, suggesting that this is one mechanism through which financial sector development matters for growth. Indeed, while a financial system assists in mobilising savings, transforming maturities, and capital accumulation, it is ultimately via improvements in resource allocation and productivity growth that finance helps economies grow more quickly (Beck et al., 2000; Wurgler 2000; Love, 2003; Beck et al., 2011).

Naturally, this raises the question of how to develop financial sectors, i.e. what are the determinants of banking and/or market development. These questions seem particularly important for developing economies and more so for small island developing states (SIDS) such as those in the South Pacific. While developing a sound understanding of the determinants of financial development may indeed require synthesizing and extending insights from across disciplines, including economics, political science, law and history (Levine, 2005), it is also conceivable that what works for one country/region may not necessarily work for another; thus, countries and regions might need to explore their own determinants. For example, Sharma and Nguyen (2010) show that, legal institutions, potentially the most prominent determinant of financial development to date, may not be as relevant for the South Pacific as elsewhere; Fiji's banking sector appears to have developed reasonably well despite relatively weak creditor legal rights and average enforcement quality. The country's stock market, on the other hand, does not seem to have done as well despite better shareholder legal rights and enforcement quality Sharma and Nguyen (2011).

Moreover, while both bank–based and market–based systems may contribute equally to growth, where one is more or less *the* financial sector, such as in the South Pacific—the banking sector is more or less *the* financial sector—it makes sense to focus on the

determinants of banking development[1]. Further, since credit to the private sector is an important mechanism through which financial development matters for growth[2], it also makes sense to better understand the factors of bank credit to private sector. Accordingly, this study examines the influence of some common factors, including 'financial', on bank credit to private sectors across six economies of the South Pacific: Fiji, Papua New Guinea, Solomon Islands, Vanuatu, Samoa and Tonga. As identified in section 4, common factors of bank credit may include lending and inflation rates, and a country's level of economic growth itself, among others.

To our knowledge, this is the first study to do the above. For the first time such a wide number of countries across the South Pacific have been included in a cross–country study on the foregoing issues. For the first time, time series data expanding 28 years—1982–2009—has been utilised to undertake the above study. The wide cross–country and long time series data help to strengthen consistency of results, important especially where lessons are to be drawn from empirical results. The findings also provide useful insights into how the situation in small island developing states might compare with that of larger developing or developed economies.

Results show that average lending rate and inflation are negatively correlated with bank credit to private sector; rising costs of living and borrowing are likely to reduce demand for credit. On the other hand, banks with larger deposit funding and assets may be more willing to provide credit. Stronger credit growth may also be influenced by stronger economic growth (GDP) itself—stronger economic growth may increase demand for more credit and thus lead to higher credit growth. Our results are similar to findings in 38 emerging market economies across the European Union, Middle East and Africa, Asia and Central America (Guo and Stepanyan, 2011). Policy implications emerge. For example, policies to keep average lending rates and inflation in check would appear useful. Similarly, policies and strategies to enhance domestic deposit mobilisation efforts would also be useful.

[1] In the South Pacific, stock markets are either non–existent or small and extremely illiquid; bond markets are thin with virtually no corporate issues, and money markets sparse. Similarly, the non–bank financial institutions sector is also relatively small.

[2] Moreover, the recent credit crisis has reminded us of the crucial role banks play in supplying the much needed credit, especially in situations of serious financial distress, to avoid economic ruin and/or for growth.

The rest of this paper is organised as follows: section 2 outlines the financial structure in the South Pacific: section 3 identifies some common determinants of bank credit to private sector; section 4 discusses the data and methods; section 5 presents and discusses the results; and section 6 concludes.

## 2.0 Financial structure in the South Pacific

This section provides an overview of the financial structure in the South Pacific. Among others, the intentions are to understand the extent to which firms and corporations may be bank–dependent for financing their operations and how the aggregate demand and/or supply of such funding is likely to be influenced by changes in factors identified later. Comparing some characteristics of the sector in the South Pacific with other regions/countries gives some indication of the relative importance of banks. For the purpose, we take Fiji and Tonga from the South Pacific group; in a subsequent analysis we include all six South Pacific economies. Fiji is the most financially developed economy in the region and is one of only two with a stock market; Tonga on the other hand, is the least populous of the six economies (103,000 in 2010), with no stock market or much of a capital market. Also, we take data from the most recent available year, 2009.

Both Fiji and Tonga, together with the rest of the South Pacific economies in the sample fall in the World Bank's East Asia and Pacific (EAP) region. In terms of income category, in 2009, Fiji was classified by the World Bank as an "Upper Middle Income" country (UMI) and Tonga as a "Lower Middle Income" country (LMI). It is then useful to compare Fiji and Tonga's structures with at least one UMI and one LMI country in the EAP region; we take Malaysia and Thailand, respectively. It is also useful to compare their structures with their immediate developed, high income neighbours, Australia and New Zealand. In examining the financial structures, we focus on the relative sizes of the banking and stock market sectors; we take bank assets (BANK) and market capitalisation (MCAP) to GDP, respectively. Tonga does not have a stock market and persuaded by preliminary analysis that Fiji's may be very small, we look also at the stock market activity across the countries; we examine the value of total shares traded on the stock market (TRADE). Data on these measures are obtained from the updated, on–line version of the Financial Structure Database, which is described in Beck et al. (2009).

As table 1 shows, Fiji's stock market (MCAP 12.93% of GDP in 2009) is indeed very small compared to the country's banking sector (65.42% of GDP), suggesting that firms and industries in Fiji would be heavily bank–dependent for formation, growth and expansion. This proposition is reinforced by the TRADE figure—the total value of shares traded—perhaps a better indication of the effectiveness of a stock market; a large stock market (MCAP) is not necessarily an active one, it is the level of activity or liquidity that really determines how effectively a market is able to accomplish its functions (Sharma and Roca, 2012). In 2009 Fiji's TRADE was only 0.02% of GDP compared to 349.45% for Australia, 83% for Malaysia, 35.87% for Thailand and 13.59% for New Zealand. The other South Pacific economy with a stock market is Papua New Guinea; here, TRADE was 0.44% of GDP in 2007 (2009 figures not available).

**Table 1: Financial structure in the South Pacific and elsewhere (% GDP, 2009)**

| | **Fiji** | **Tonga** | **Australia** | **New Zealand** | **Malaysia** | **Thailand** |
|---|---|---|---|---|---|---|
| BANK | 65.42 | 86.43 | 128.61 | 154.55 | 98.64 | 83.53 |
| MCAP | 12.93 | NA | 179.01 | 25.36 | 210.61 | 78.59 |
| TRADE | 0.02 | NA | 349.45 | 13.59 | 83.00 (07)* | 35.87 |

*2007; 2009 figures not available.
NA = not applicable (no stock market in Tonga.
Source: Beck et al (2010), see footnote 4 for URL details.

To better understand the extent to which firms and industries in the South Pacific may be dependent on banks for funding, we also examine the extent of private sector credit by banks relative to private credit by all financial intermediaries. To clarify, private sector credit is the value of credit by all financial intermediaries to the private sector divided by GDP; we denote this by PRVY. This measure excludes credits issued by the central and development banks. Moreover, it excludes credit to the public sector, credit to state–owned enterprises, and cross claims of one intermediary on another. Thus, PRVY captures the amount of credit channelled from savers, via all intermediaries, to private firms. Similarly, credit to the private sector by banks only is denoted by BPRVY. Thus, the difference between PRVY and BPRVY indicates credit by non–bank financial institutions (NBFIs). Alternatively, the relative extent of BPRVY may be ascertained from the BPRVY/PRVY ratio with higher ratios indicating more bank financing.

Data on PRVY and BPRVY are also obtained from the updated, on–line version of the Financial Structure Database, which is described in Beck et al. (2009). The data for the six economies of the South Pacific are shown in table 2. In the table, bank share is denoted by B–Share. As the table shows, except for Solomon Islands (SLB), banks' share of credit to private sector has mostly been 90–100% of the total.

**Table 2: Private sector credit by all financial institutions (PRVY) and by banks only (BPRVY) in six economies of the South Pacific, 1980–2009**

To conserve space, the table shows data for ten–year intervals only; the data for every year from 1980 to 2009 are similar to that displayed in the table i.e. banks (B–Share) have constantly dominated credit to firms across Fiji, Papua New guinea, Solomon Islands, Tonga, Western Samoa and Vanuatu.

| Country | year | PRVY(%) | BPRVY(%) | B-Share(%) |
|---|---|---|---|---|
| FJI | 1980 | 19.60 | 18.42 | 93.98 |
| FJI | 1990 | 32.46 | 30.79 | 94.87 |
| FJI | 2000 | 33.03 | 29.62 | 89.68 |
| FJI | 2009 | 60.87 | 56.53 | 92.86 |
| PNG | 1980 | 13.01 | 13.01 | 100.00 |
| PNG | 1990 | 29.21 | 29.21 | 100.00 |
| PNG | 2000 | 16.91 | 16.91 | 100.00 |
| PNG | 2009 | 28.82 | 28.00 | 97.15 |
| SLB | 1980 | 20.45 | 12.19 | 59.64 |
| SLB | 1990 | 25.70 | 19.88 | 77.38 |
| SLB | 2000 | 23.42 | 11.46 | 48.95 |
| SLB | 2009 | 52.90 | 52.90 | 100.00 |
| TON | 1980 | 12.31 | 12.31 | 100.00 |
| TON | 1990 | 34.02 | 34.02 | 100.00 |
| TON | 2000 | 49.59 | 49.59 | 100.00 |
| TON | 2009 | 88.38 | 87.96 | 99.52 |
| WSM | 1982 | 7.38 | 7.38 | 100.00 |
| WSM | 1990 | 11.27 | 11.27 | 100.00 |
| WSM | 2000 | 28.74 | 28.74 | 100.00 |
| WSM | 2009 | 51.13 | 51.10 | 99.94 |
| VUT | 1980 | 33.46 | 33.46 | 100.00 |
| VUT | 1990 | 32.35 | 32.35 | 100.00 |
| VUT | 2000 | 35.36 | 35.36 | 100.00 |
| VUT | 2009 | 59.96 | 58.27 | 97.17 |

The above analysis reveals that the banking sectors in the south Pacific *are* more or less the financial sectors; stock markets are either non–existent or extremely small and illiquid, and non–bank financial institutions similarly unimportant. Moreover, the banking sectors appear

relatively strong and profitable. Banks in the region are predominantly foreign, including and prominently, Australian[3]. In fact, in some cases, such as Fiji, Solomon Islands and Tonga, domestic banks are entirely absent; for example, in Fiji, all five banks were foreign in 2009, and have been most of the time. One advantage of this is that in addition to domestic regulations, the foreign banks are also monitored by their home country supervisors; the case of ANZ and WBC in point—the domestic regulatory framework essentially entails an adaptation of the BIS policies and guidelines.

The health of the banking system can also be gauged by the profitability performance of banks, especially during the Global Financial Crisis (GFC) period when many banks worldwide made losses and even collapsed. The overall bank profitability in the South Pacific appears relatively high (PFTAC, 2011); as shown in table 3, average return on assets (ROA) of banks in the region has been notably high by international standards; even advanced banking systems, such as Australia and New Zealand, tend to yield much lower (1–2%) ROAs compared to the South Pacific's (4–5%). Similarly, a number of other regions appear to yield lower returns compared to South Pacific. The PFTAC also notes in its report that the credit risk does not appear to have been excessively high in recent years.

**Table 3: Banks' average return on assets, South Pacific and other countries and regions**

| | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|
| South Pacific | 5.2 | 4.9 | 4.0 | 2.8 |
| Australia | 1.5 | 1.4 | 0.7 | 0.9 |
| New Zealand | 1.7 | 1.6 | 1.3 | -- |
| Latin America | 2.2 | 2.1 | 1.9 | 1.9 |
| Sub–Saharan Africa | 3.0 | 2.5 | 3.3 | -- |
| Mid East & Central Asia | 2.2 | 2.1 | 1.4 | -- |
| Emerging Europe | 1.6 | 1.7 | 1.3 | 0.3 |

Adopted from PFTAC, 2011

To summarise the analysis so far, the banking sectors *are* the financial sectors in the South Pacific; moreover, banks are well regulated and supervised, adequately capitalised, highly profitable and not exposed to excessive risks. If bank credit to the private sector does foster economic growth and development then, in view of the foregoing, there would appear to be very little reason to argue that banks in the South Pacific would not be able to expand their

[3] ANZ and WBC operate in all six countries and are among the largest; for example, in Fiji their combined market share has been around 70% (Sharma and Brimble, 2012).

private sector credit portfolios. The question is: what might influence such expansion? That is, what determines private sector credit in the South Pacific? We identify some factors in the next section.

## 3.0 Determinants of bank private sector credit

Research has identified legal institutions (La Porta et al., 1997, 1998; Demirguc–Kunt and Maksimovic, 1998; Beck et al., 2003), politics (Rajan and Zingales, 2003) and culture (Garretsen et al., 2004) as macro–level factors that might explain the notable variations in the level of financial development across countries. Accordingly, there has been intensified exploration of how these may be improved to enhance a country's financial development process. In the case of the South Pacific though, at least the most prominent of these—legal institutions—appear to be less relevant compared to elsewhere (Sharma and Nguyen, 2010, 2011). The relevance of culture and politics are yet to be examined.

While culture and politics may well influence the level of bank private sector credit in the South Pacific, a question that comes to mind is: what about the influence of ordinary financial factors such as interest and inflation rates? Would an increase in the interest and/or inflation rate lead to more or less private sector credit? Similarly, does the existence of a stock market influence the level of bank credit? Literature appears to support the theory that stock markets augment financial development. Would then the level of bank credit to private sector be more in Fiji and Papua New Guinea compared to other economies? What about the level of deposits raised and the size of a bank? Are banks with more deposits or more assets likely to provide more credit? These questions have not been answered for the South Pacific and appears as important as examining the influence of macro–level determinants, including legal institutions, politics and culture.

Take lending rates, for example. In the South Pacific, controls on lending rates have often been used to influence the level of bank credit generally, and occasionally to selected industries and sectors. Interest rates have otherwise been a subject of debate and concern across the region, the main contention being that rates are excessively high. Across the region, interest rates have been noticeably divergent over the last 30 years; moreover, they have tended to generally decline. For example, in the 1980s, average rates in Samoa were around 18.5% (the highest in the region) whereas that in Tonga was around 10%. In the

1990s and 2000s, the rates averaged around 12% in both Samoa and Tonga. Similarly, the rates in Vanuatu have dropped substantially from around 17% in the 1990s to around 7% in 2000s. How have regulations, and differences and declines in lending rates influenced bank credit to the private sector? The answers are not known.

Similarly, although relatively cheap and the main source of funding, there are noticeable differences in deposit funding of banking sectors. Banks in Vanuatu, for example, appear to have the highest deposit funding—bank deposit to GDP ratio over the 30 year period had increased from an average of around 87% in the 1980s to 100% in 2000s. Samoa's ratio had also increased and in fact doubled over this period but has always remained much lower than Vanuatu's; Samoa's ratio in the 2000s was around 38%. Generally, the ratio for all countries had increased over this period but remained noticeably divergent. It may be noted that bank deposits in the South Pacific are largely domestically mobilised; implications of cost of foreign funds would then not be relevant for bank credit.

Differences also persist in the size of the banking sectors across the region. For example, with average bank assets to GDP ratio of around 15%, Samoa had the smallest banking sector in the 1980s; Fiji's at 33% was among the largest. In 2000s, however, Samoa's average ratio had increased to around 42%, making its banking sector now almost equivalent to Fiji's (44%). Similarly, Tonga's ratio had increased substantially from 24% in 1980s to 64% in 2000s, making its banking sector the largest with respect to asset size. As a further example, Papua New Guinea's ratio of 28% in 2000s remained equivalent to that in 1980s, and by asset size, one of the smallest banking sectors in the South Pacific, equivalent to Solomon Islands.

Similarly, differences persist across other factors that are likely to influence the level of bank credit to private sector, including the rate of inflation, the existence of a stock market and GDP itself. For instance, stock markets exist in only two of the six economies—Fiji and Papua New Guinea and here too, the duration has been different—Fiji has had a stock market since 1979, PNG since 1999. Similarly, the GDP of the six economies have been divergent.

While there are likely to be other factors, such as collateral, borrowing firm's capital and creditworthiness, that might influence the level of bank credit to private sector, data availability—time series and cross–country—limits our analysis to the above independent

variables only, that is, to: average lending (ALR) and inflation (INF) rates, bank size in terms of assets to GDP (BANKY), the level of deposit funding relative to GDP (BDY), the presence of a stock market (SM), and the level of GDP itself (GDP). In a recent study examining the determinants of bank credit in 38 emerging market economies across the European Union, Middle East and Africa, Asia and Central America, Guo and Stepanyan (2011) also include some of the above variables in their analysis, namely, deposits, GDP, and inflation. Data and methodology are discussed next.

## 4.0 Data and methodology

To examine the influence of the above identified factors on bank credit to the private sector in the South Pacific, we use the most extensive data set available—1982–2009; the data is complete for the six countries in our sample, making it a balanced panel. The data have been obtained largely from two sources: BDL's financial structure data set[4] and the World Bank's database[5]. The variables used in the analysis are described above and summarised in table 4. Average lending (ALR) and inflation (INF) rate are expected to be negatively correlated with bank credit to private sector (BPRVY); an increase in both ALR and INF are expected to result in BPRVY falling. Similarly, banks with more deposit funding and larger asset size are expected to be more willing to provide credit to the private sector. In light of the reverse causality debate, while BPRVY might lead to higher GDP, higher GDP might also lead to more BPRVY. Results and discussion of the analysis are presented in section 5 below.

**Table 4: Data series, sources and expected sign**

| Variable | Descriptor | Database/source | Expected sign |
|---|---|---|---|
| BPRVY (dep) | Bank private sector credit | BDL, 2009 | |
| ALR | Average lending rate | World Bank | Negative |
| INF | Inflation rate | World Bank | Negative |
| BDY | Bank deposit to GDP | BDL, 2009 | Positive |
| BANKY | Bank assets to GDP | BDL, 2009 | Positive |
| SM | Stock market (0 = yes; 1 = no) | World Bank | Positive |
| GDP | Gross domestic product | World Bank | Positive |

[4] BDL refers to Beck, Demirguc–Kunt and Levine. The researchers have been providing data on numerous financial development and structure measures, starting 1960 across around 175 countries since 1997. Updated, on–line version of the Database is available at: http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/0,,contentMDK:20696167~pagePK:64214825~piPK:64214943~theSitePK:469382,00.html

[5] http://data.worldbank.org/

To empirically estimate the influence of the identified variables on bank credit to private sector in the South Pacific, the following reduced form linear model is specified:

$$Q_{i,t} = \alpha_{i,t} + \sum_{k=1}^{n} \beta_k G_{i,t} + \sum_{k=1}^{n} \beta_k Z_{i,t} + [\mu_i + \varepsilon_{i,t}] \quad (1)$$

$$t = 1, \ldots, T: k = 0, 1, 2, \ldots, n$$

where $Q_{i,t}$ is the dependent variable, $G_{i,t}$ consists of the endogenous variables, $Z_{i,t}$ is a vector of control variables, $\mu_i$ is the unobserved bank specific time invariant effect which allows for heterogeneity, $\varepsilon_i$ and is a disturbance measure which is assumed to be independent across observations. Due to econometric issues such as the existence of endogeneity and data size, we utilize Generalized Method of Moments (GMM), proposed by Arellano and Bond (1991) and extended by Blundell and Bond (1998). In addition, GMM allows the use of instrumental variables which produce more precise and accurate estimators. Thus exogenous variables, the lagged dependent variable and the lagged endogenous variables are utilised as instruments. Instruments should be both relevant and valid, i.e. correlated with the endogenous regressors and orthogonal to the errors (Baum et al., 2003). The over–identifying restrictions are tested via the commonly employed *J* statistic of Hansen (1982). If the null hypothesis is rejected, it implies that the instruments are not satisfying the orthogonality conditions required. Further, in the context of GMM, the moment conditions are only valid if there is no serial correlation in the idiosyncratic errors. Accepting the null hypothesis at higher order, AR(2), implies that the moment conditions are valid. Second order autocorrelation test (to look for second order correlation in differences to check for first order serial correlation) is thus used to endorse the validity of the models in this regard. The extended equation can be modelled as:

$$BPRVY_{it} = \alpha_{it} + \beta_1 ALR_{it} + \beta_2 BANKY_{it} + \beta_3 BDY_{it} + \beta_4 INF_{it} + \beta_5 SM_{it} + \beta_6 GDP_{it} + \mu_i + \varepsilon_{it} \quad (2)$$

where all the variables are defined as in table 4 and section 3.

## 5.0 Results, discussion and policy implications

The results of the GMM regression analysis are provided in table 5. For robustness, we estimate the model by taking ALR, BANKY and BDY initially—we call these benchmark specifications—and then introduce INF, SM and GDP in two separate stages. Thus, we have results of three models: Model 1 includes ALR, BANKY and BDY; model 2 includes all variable in model 1 plus SM; and model 3 includes all variables in model 2 plus GDP. As the table shows, the signs are consistent across the three models; moreover, the significance of the independent variables included in model 1 does not change even as INF and SM (model 2) and GDP (model 3) are introduced. The Hansen test shows no evidence of over identifying restrictions as the *p* value of *J* statistics is not significant in any model. The equations indicate that a negative first order autocorrelation is present. However, second order autocorrelation is rejected as indicated by the non–significant *p* values for AR(2) errors, thus implying that the estimates are consistent.

Average lending rate (ALR), as expected, is negatively correlated with bank credit to private sector (BPRVY); the relationship is significant at 1%. Similarly, inflation (INF) too produces the expected negative sign and is significant at 1%. Thus, it appears that rising ALR and INF are likely to cause BPRVY to decline; the results are consistent across all the models. Growth in banks' deposit funding (DEPY) and assets (BANKY), on the other hand, are likely to boost growth in BPRVY; both have positive relationships with BPRVY and are also significant at 1% across all models. Likewise, economic growth itself is likely to boost the growth in BPRVY via a feedback loop. Similarly, stock markets might encourage greater private sector credit by banks.

**Table 5: GMM results**

| Intercept | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| C | 0.0036 | -0.0372 | -0.3150 |
| | (0.0260) | (0.0313) | (0.0252) |
| ALR | -0.0056*** | -0.0032** | -0.0039*** |
| | (0.0143) | (0.0014) | (0.0012) |
| BANKY | 0.8785*** | 0.9455*** | 0.8715*** |
| | (0.0371) | (0.0413) | (0.0511) |
| BDY | 0.0532*** | 0.0967*** | 0.0847*** |
| | (0.0143) | (0.0978) | (0.0511) |
| INF | | -0.0002*** | -0.0003*** |
| | | (0.0001) | (0.0001) |
| SM | | 0.0245* | 0.0352* |
| | | (0.0104) | (0.0068) |
| GDP | | | 0.0001** |
| | | | (0.0001) |
| AR(1) | 0.2906*** | 0.3320*** | 0.3266*** |
| | (0.0765) | (0.0866) | (0.0850) |
| AR(2) | -0.0736 | 0.0015 | -0.0221 |
| | (0.0573) | (0.1066) | (0.1061) |
| Adjusted $R^2$ | 0.8805 | 0.8856 | 0.8796 |
| *J* Statistic | 0.054 | 0.918 | 0.063 |
| | [1.00] | [1.00] | [1.00] |

Note: Standard errors are in parenthesis below the coefficient estimates. *, ** and *** indicate significance at the 10%, 5% and 1% levels respectively; *p* values for *J* statistics are in brackets.

A number of policy lessons emerge. Given that rising average lending rates and inflation are likely to be detrimental to bank private sector credit growth, policies to keep these in check would appear to be useful. Here, Reserve Bank of Fiji's recent policy on "interest rate spreads" appears to be in the right direction. Essentially, beginning January 2011, the policy requires banks in Fiji to publish in a daily newspaper "the reasons for an increase in interest spread above 4.00 percent", which might include, among others, "an increase in lending rates"[6]. Given that domestic deposits make up almost all, if not all, of the liability funding of banks in Fiji, it would not appear to be easy to rationalise raising lending rates on the basis of rising cost of borrowings. Given the wide cross–country similarities in banking systems, other economies might find it useful to consider a similar policy for their banking system as well.

[6] http://www.reservebank.gov.fj/docs2/Final%20Interest%20Spread%20Disclosure%20Policy_Banking%20Supervision%20Policy%20Statement%20No%2017.pdf

As noted above and elsewhere, domestic deposits overwhelmingly make up a large, if not the entire, liability funding of banks in the South Pacific[7]. As the results of this study indicate, since growth in deposit funding is likely to lead to growth in bank credit to private sector, it would appear useful to explore ways to encourage greater mobilisation of deposits by banks, including paying greater attention to issues relating to affordability, accessibility, eligibility and other oft–debated practices that inadvertently keep savers away from banks. Using information from 193 banks in 58 countries, Beck et al. (2008) find substantial cross–country variation in barriers to bank services; in many countries a significant share of the population are without a decent banking service. The *Financial Access 2010* report (CGAP and World Bank, 2010) estimates that globally around half of the households have no access to a bank account.

To exemplify, 700 dollars—more than the country's GDP per capita—is required to open a checking account in Cameroon; minimum requirements are not a practice in South Africa and Swaziland. Similarly, in Sierra Leone, the cost of maintaining a checking account is as high as 25% of the country's GDP per capita; no such fees exist in Philippines. The South Pacific economies included in our study appear to have missed out in the Beck et al. (2008) or other cross–country studies and surveys on financial exclusion but anecdotal evidence suggests that financial exclusion is as important a concern in these economies. For example, a survey conducted by the PFIG (2009) found that about 109,000 households in Fiji (around 55% of the total) were without proper savings, credit and other financial services. The survey further finds that the untapped savings demand, largely present in the rural areas, stands at least at FJD70 million, equivalent to 5% of commercial banks' total deposits in 2009 and the unmet demand for credit, present mainly in the urban areas, is at least FJD57 million dollars, equivalent to 2% of commercial banks' total loans and advances in 2009. The Reserve Bank of Fiji has been aware of the problems and has actively been encouraging and requiring banks in Fiji to address financial exclusion problems in the country.

Thus, strengthening the domestic deposit base could be a key to sustained and stable growth of bank credit to private sector in the South Pacific. In a study spanning 38 emerging market economies across the European Union, Middle East and Africa, Asia and Central America,

[7] Apart from domestic deposits, banks are normally required to maintain an adequate level of capital relative to assets, based essentially on the BIS Capital Adequacy framework.

Guo and Stepanyan (2011) find that robust and stable domestic deposit growth has been a key reason in the case of countries experiencing little or no deceleration in growth during the Global Financial Crisis.

## 6.0 Conclusion

Theoretical and empirical evidence demonstrating the importance of finance for growth has resulted in an explosion of research identifying and examining the determinants of financial sector development, including that of bank private sector credit, an important mechanism for the finance–growth channel. What may be appropriate for one country or region may however not be suitable for another. What determines bank private sector credit in the South Pacific's small island developing states? It appears that legal institutions, the most prominent macro determinant may not be as relevant as elsewhere. Ironically, the influence of some ordinary factors such as lending rates, inflation, deposit and asset size, stock markets, and the level of economic growth itself are not known. This study fills this important gap in literature by examining the influence of the foregoing on bank private sector credit across six economies—Fiji, Papua New Guinea, Samoa, Solomon islands, Tonga and Vanuatu—over a 28 year period—1982–2009.

While there are likely to be other factors, such as collateral, borrowing firm's capital and creditworthiness, that might influence the level of bank credit to private sector, data availability—time series and cross–country—limits our analysis to the above independent variables only, that is, to: average lending and inflation rates, bank size in terms of assets to GDP, the level of deposit funding relative to GDP, the presence of a stock market, and the level of GDP itself (GDP).

Results show, as expected, that rising lending rates and inflation may be detrimental for credit growth, deposit and asset size are positively related, and that economic growth leads to credit growth. These results are similar to findings of 38 emerging market economies across the European Union, Middle East and Africa and Central America. Policy implications are discussed including a need to keep lending and inflation rates in check and to encourage greater mobilisation of domestic deposits.

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