

## **It is Time to Re-examine the Role of Stock Markets in Developing Economies!**

Parmendra Sharma and Eduardo Roca

*Department of Accounting, Finance and Economics, Griffith University,*

*Brisbane, QLD, Australia*

**Manuscript Updated: November 2011**

### **Abstract**

While the many perceived benefits of a stock market may have led to their rapid formation, and development aspirations across economies, emerging findings that stock markets may not be as useful as previously thought, even a detraction in the case of some developing economies, raises the question of how practical stock markets may be in different situations. In light of the foregoing and using Fiji as an example, this study argues that it is indeed time to re-examine the role of stock markets in developing economies with a view to restructuring the financial system for improved efficiency and effectiveness.

**KEYWORDS.** Fiji, South Pacific, developing economies, stock markets, financial systems

\*Correspondence should be sent to Parmendra Sharma. Email: [p.sharma@griffith.edu.au](mailto:p.sharma@griffith.edu.au); Tel:

+61 (07) 37357834; Fax: +61 (07) 37353719

## **It is Time to Re-examine the Role of Stock Markets in Developing Economies!**

### INTRODUCTION

The many perceived benefits of a stock market—including a viable alternative to banking systems and an important ingredient in fostering economic growth—appear to have had considerable influence on international organisations such as the World Bank, IMF and ADB in advocating the introduction and development of stock markets in developing economies; governments and other stakeholders of recipient countries have been equally excited about the idea. Consequently, recent decades have witnessed a visible and rapid structural change to financial systems of many developing economies, from virtually nil or significantly low activity to stock markets being promoted to become an integral part of these financial systems (e.g. Jefferis, 1995; Moss et al. 2007; Smith, 2009).

In light of the expected considerable gains, ostensibly, a question that arises is: what can be done to accelerate the development of stock markets in developing economies. However, if it is also the case such as that alluded to by Sharma and Nguyen (2010) and others<sup>1</sup>, that the stock market in some of these economies may have, even after reasonably long periods, been a detraction and/or misallocation of scarce resources, then a different question appears equally valid: are stock markets practical in all situations. Mitchell's (2010a, b) recent findings that stock markets in even large industrialised economies such as the U. S. may not have been as instrumental in facilitating economic growth as previously thought, casts further doubt on the suitability, and importantly, questions the large amounts of resources employed in developing stock markets in some developing economies.

With respect to stock market issues in developing economies, one region that appears to have been insufficiently studied is the South Pacific; literature has tended to focus on Africa (e.g.

Hearn, B and J. Piesse, 2009; Jefferis, 1995; Kenny and Moss, 1998), Latin America (e.g. De la Torre et al. 2007) and elsewhere. The South Pacific island economies—fragile states especially vulnerable due to their small size, limited economic diversity, remoteness from major trade and commercial centres, unsustainable exploitation of natural resources, and weak governance (e.g. Briguglio et al. 2006) is expected to provide new evidence of the situation in developing economies.

In the South Pacific, stock markets exist in only two economies—Fiji and Papua New Guinea. Of the two, not only is Fiji's financial sector more developed (ADB, 2005) but there also is a perception that the country's stock exchange could become a regional exchange (Sharma, 2009). Accordingly, in this study, we use Fiji as an example of a developing economy.

Interestingly, Fiji's case reinforces the situation in Africa, Latin America and elsewhere: stock markets in some developing economies may have been barely successful in accomplishing their functions. More generally, in some of these economies, stock markets are unlikely to generate the expected benefits even in several decades and may be less useful than previously thought; in fact, the idea of a stock market in some cases may have been amiss. This article proposes a gradual withdrawal of stock markets from financial systems of these economies. It also proposes that the available scarce resources be re-directed to developing the banking sector and other more suitable alternatives such as micro finance and venture capital.

The rest of paper is organised as follows: section 2 reviews the literature on the case *for* stock markets; section 3 discusses the importance of size and liquidity for effective market

operations; section 4 examines the size and liquidity of Fiji's stock market; section 5 examines the potential for growth of Fiji's stock market; section 6 provides a case *against* stock markets; section 7 revisits and sheds light on a question we pose in the introduction: are stock markets practical in all situations; and section 8 concludes.

### THE CASE *FOR* STOCK MARKETS

The existence and growth of stock markets alongside banking sectors appear to have important advantages for a financial system and the wider economy. Specifically, stock markets compliment banking systems in providing five broad financial functions, essential for proper functioning, growth and development of economies: (i) information production and capital allocation; (ii) corporate governance; (iii) risk management; (iv) savings mobilisation; and (v) the exchange of goods and services (e.g. Merton and Bodie, 1995). For instance, markets compliment banking systems in reducing the large costs and disincentives investors face in relation to acquiring and processing information on firms, managers and economic conditions necessary for investment decisions, which in turn improves resource allocation and may also accelerate economic growth.

Similarly, markets enable providers of capital to monitor and influence how firms use that capital. In providing alternative and effective corporate governance mechanisms, markets not only help boost savings mobilisation from disparate agents but also enhance the flow of capital to profitable projects (Stiglitz and Weiss, 1983). Markets also play an important role in diversifying risks associated with individual projects, firms, industries, regions and countries. In making it easier for investors to diversify risks, markets encourage a portfolio shift towards projects with longer maturities, higher risks but also higher expected returns

(e.g. Gurley and Shaw, 1955; Obstfeld, 1994), which may otherwise be avoided since risk averse savers are unlikely to relinquish control of their savings for long periods.

More generally, markets are seen to alleviate inefficiencies created by predominant banking systems and/or to fill the gaps. For instance, bank-dominated systems may encourage bankers to extract rents and thereby discourage firms to undertake innovative, profitable ventures (Rajan, 1992). Bank-based systems may otherwise hinder innovation and growth; firms with close ties to a 'main bank' have relatively greater access to capital and are less cash constrained and thus tend to employ conservative, slow growth strategies, use more capital intensive processes and produce lower profits relative to those without a main bank (e.g. Morck and Nakamura 1999; Weinstein and Yafeh, 1998).

Banks may also be less effective gatherers and processors of information in new, uncertain environments involving innovative products and processes (Allen and Gale, 1999). Further, self-interest motives of banks are likely to promote bank-firm collusions, resulting in the interests of other creditors being adversely affected and having grave consequences for corporate governance of firms as well as banks themselves. For example, removal of inefficient managers by outsiders may become rather difficult where these managers have a close link with the bankers (Black and Moersch, 1998). Moreover, these relationships may result in banks misrepresenting the accounts of firms to the public and systematically failing to discipline management (Wenger and Kaserer, 1998).

In times of adverse shocks, markets tend to do a better job of identifying, isolating and bankrupting distressed firms and thereby preventing them from aggravating already affected economies (Rajan and Zingales, 1999). Banks, on the other hand, may find it difficult to liquidate firms they have had long-term and perhaps, multidimensional relationships with. In this sense, markets do a better job in overseeing firms and improving resource allocations.

With respect to corporate governance, that of the banks themselves may sometimes be questionable (Caprio and Levine, 2002). Large information asymmetries between bank management on one hand and equity and debt holders on the other may confound monitoring and control of insiders (Furfine, 2001; Morgan, 2002). Exacerbated by opacity, an outcome usually is the emergence of large, controlling owners (Caprio, et al., 2003), who are likely to exploit both shareholders and the government (e.g. in case of a deposit insurance).

In addition, notwithstanding causality, a large number of studies demonstrate that stock market development may have a positive influence on a country's growth. For instance, using data of 42 developed and developing countries over 1976–1993, Levine and Zervos (1998), show that in some cases a one standard deviation increase in initial stock market liquidity increased a country's per capita GDP by 15%. Similarly, Demirguc–Kunt and Maksimovic (1996), using the data of 30 developed and developing countries over 1980–1991, show that firms grow relatively faster in countries with active stock markets than otherwise. More recently, Bakaert et al (2005) reiterate that stock market liberalisation influences a country's growth in real GDP per capita<sup>2</sup>.

To summarise, stock markets and their development may have important implications for financial sectors and the wider economy, including: (i) providing the basic financial services; (ii) minimising inefficiencies created by bank–dominated systems; (iii) providing a richer set of risk management tools, which allow greater customisation of risk management instruments; and (iv) fostering economic growth.

## SIZE AND LIQUIDITY: PRE–REQUISITES FOR EFFECTIVE STOCK MARKET OPERATION

Notwithstanding the above important functions of stock markets, it appears that the effectiveness of markets in accomplishing these functions may depend *inter alia* on their size

and level of activity or liquidity, particularly liquidity (e.g. Levine and Zervos, 1998; La Porta et al., 1997; Bernstein, 1987) such that, smaller and more importantly, less liquid markets may find it difficult to discharge their functions adequately. While size is a reflection of the number of companies listed on an exchange, liquidity is the ease and speed at which agents can buy and sell their stakes in companies; initial investors are able to sell more easily, quickly and cheaply their stake in a company as market liquidity increases. Since savers are now less likely to be stuck with an undesirable investment, liquidity encourages them to invest in higher-risk projects. Paradoxically, the easier it is to exit from ownership, the more attractive the ownership is in the first place. Inadequate liquidity makes a stock market trading less attractive as an investment option, with adverse consequences particularly for long-term projects (Garcia and Liu, 1999). Consequently, persistently illiquid stock markets are likely to gradually stagnate.

Liquidity also makes it easier to disguise private information and profit from its trading, encouraging thus agents to expend resources in researching firms as markets become more active (Grossman and Stiglitz, 1980; Kyle, 1984; Holmstrom and Tirole, 1993). Higher levels of information production and the comfort of knowing that a relatively low-cost exit is available have positive implications for capital allocation (Merton, 1987). Similarly, providers of capital are better able to monitor firms and exert corporate governance as the volume and frequency of trading increases (Jensen and Meckling, 1976). For example, the information required to link managerial compensations to stock prices, which helps reduce agency problems (Diamond and Verrecchia, 1982; Jensen and Murphy, 1990), becomes more readily available as the frequency and scale of trading increases, which in turn, also reduces liquidity risks (Levine, 1991).

In view of the above, there are likely to be serious doubts about the ability of an extremely small and inactive market to produce timely and useful information, allocate resources, diversify risks and make a meaningful contribution to economic growth. Such lack of ability is likely to be compounded where the market also has limited potential for improvement, is unprofitable without state support, which has been escalating while the growth of the country itself is declining and remains fragile, raising the question: does such a country *really* need a stock market, in contrast to: how to develop a stock market. We pursue this question in a while, using Fiji as an example, but we need to establish first that Fiji's market is indeed small, inactive, has limited potential for development and is unprofitable.

#### THE CASE OF FIJI'S STOCK MARKET: SMALL, ILLIQUID AND, UNPROFITABLE

In this section, for reasons stated in section 1, using Fiji as an example of a stock market in developing economies, we examine the market's size, liquidity, potential for development and its profitability. In a subsequent section, we look at the question of whether Fiji really needs a stock market. We commence with a background, to put things in perspective.

#### Background

The beginnings of a stock market in Fiji dates back to 1979 when the Suva Stock Exchange (SSE) was established. However, at this stage, operated by the state-owned Fiji Development Bank, it was only a 'trading post' where buyers and sellers occasionally met and transacted directly; there were no brokers and listing requirements (Sharma, 2009). Nevertheless, in February 1996, following a period of discussion and debate, the Fiji government accepted ADB-hired consultants' technical and expert advice and recommendations that a properly functioning stock market and an independent capital markets regulator was the way forward for Fiji's financial sector (SPSE, various). Based on

extensive consultations and discussions with the representative from the government, and the financial and private sectors, the ADB report confirmed the potential for a viable and effective capital market in the country. Moreover, public seminars run by the consultants appeared to have reinforced local understanding and enthusiasm of various potential stakeholders, including private companies. Of the 6000 registered companies in Fiji at the time, a survey identified around 50 potential local and foreign-owned private companies for listing, and estimated initial public offerings totalling FJD100 in the next two years. A call market and the Capital Markets Development Authority (CMDA) were officially established later in 1996.

Events of the years following the establishment of the call market and the CMDA, witnessed more and more attention diverted to further development of the stock market. These events included: (i) comprehensive public awareness and investor education campaigns and programs; and (ii) workshops for companies, accountants, market intermediaries and exchange officials. The government and the SPSE continue to be committed to promoting stock market development in Fiji (SPSE, 2009).

#### Market size and liquidity

##### *Basic approach*

We use market capitalization to GDP (MCAPY) to measure the relative size of Fiji's stock market and total value of shares traded to GDP (TRADEY) to measure its relative activity or liquidity. Both are commonly used respective measures (Sharma, 2009) and the entire data are in equivalent US dollars. Our analysis focuses on the year 2005 as this is the most recent year for which we have been able to access, for as many developed and developing countries as possible, the most complete relevant data. Coincidentally, this is also the year just prior to

the 2006 coup d'état in Fiji, an event likely to upset stock trading. However, for robustness, we also analyse Fiji's comparative situation for the year 2000, and compare our results with that of another recent study, that by Sharma and Nguyen (2010). In our sample, altogether, there are 107 countries.

Comparative analysis is made with individual countries as well as groups of countries. In case of the latter, we use the World Bank's income groupings where Fiji is classified as an 'upper middle' income (UMI) country. Since Fiji is also a small island developing state, comparison is made with this group of countries as well. For deeper analysis, comparison is made with South Africa, the UMI country in the sample with the largest market size in 2005 and with Australia, the closest developed and industrialised economy to Fiji. The source of our data is NationMaster, an online worldwide statistical database covering a wide range of economic, financial and other issues<sup>3</sup>.

#### *Market size*

The number of firms listed on SPSE generally increased over the 1997–2007 period, from 9 to 16. Consequently, total MCAP also increased from around FJD140m to FJD810m or by 478%. It should be noted, however, that the increase in MCAP has strongly been influenced by one particular company—Amalgamated Telecom Holdings Limited (ATH). Incorporated in 1998, ATH was established to consolidate Government's investments and interests in the telecommunications sector. ATH has constantly held around one-half of the total MCAP. In 2009, for example, its share was 50%. As one can imagine, the total MCAP of companies listed on SPSE would decline substantially without ATH.

On an international basis, in 2005, Fiji's MCAPY at 0.215 ranked among the lowest across developed and developing countries worldwide. Countries with markets smaller than Fiji's included Namibia, Georgia, Uruguay, Paraguay, Swaziland, Guyana, Uganda, Mongolia, Armenia, Kyrgyzstan and Uzbekistan—all in the 'lower to lower-middle' income group (LI, LMI); except Uruguay (UMI). Moreover, across the 25 'upper middle' income' (UMI) group of countries, to which Fiji is associated with, Fiji's market size was almost the smallest, ranked 24, it was only slightly bigger than Uruguay's. Fiji's market was also among the smallest across the 13 LI countries in the sample (figure 1).

Among the SIDS in the sample, the story is the same—Fiji is almost the smallest market. Moreover, Fiji's market was only 0.1% and 0.07% the size of South Africa's and Australia's markets, respectively. We find similar results when comparing Fiji's situation with other countries for the year 2000. As figure 1 shows, for both 2000 and 2005, the size of Fiji's stock market appears very small compared to the average market size in the various income groups and the SIDS. The foregoing analysis indicates that Fiji's stock market is extremely small. Moreover, the situation becomes more worrying without ATH; its market appears much smaller compared to various individual and groups of countries discussed above.

**[Figure 1 about here]**

Using a smaller sample size (56 countries) but an overlapping set of countries, a longer time period—1997–2007, a different source of data, but a similar measure of stock market size—market capitalization to GDP (MCAPY)—Sharma and Nguyen (2010) arrive at the same conclusion, that Fiji's stock market is indeed small. In the main, the authors find that MCAPY had generally increased over the period, which helped in reducing the gap between

Fiji's MCAPY and that of other developing economies. Nevertheless, in absolute terms, Fiji's MCAPY remained far below the level of comparable countries either in the UMI or SIDS group. Within the latter group, Fiji's stock market remains one of the smallest, roughly equal to that of Guyana's, and noticeably smaller than that of economies such as Barbados, Jamaica, or Trinidad and Tobago.

### *Market liquidity*

While Fiji's market capitalization may not compare too well with individual and/or groups of countries worldwide, its own trends are not too discouraging. However, as the following discussion shows, the picture that emerges regarding liquidity in the market appears far less encouraging; not only does Fiji's liquidity performance not hold up well on an international basis, worryingly, its own trends are declining.

In 2005, Fiji's market liquidity (TRDEY) at 0.002 was extremely low compared to most of the 107 developing and developed countries in the sample; where Fiji appears to fare better, the TRADEY of the respective countries' stock markets were equivalent to Fiji's, making these stock markets together, largely inactive. Across the UMI group of countries, again, Fiji's market was almost the least liquid, better than only Uruguay's (figure 2). Similarly, Fiji's market was also almost the least liquid compared to the LI group of countries as well as the SIDS; better than only Uganda's and Guyana's, respectively. Compared to South Africa and Australia, the results were even more compelling than the size contrasts; respectively, only 0.00093% and 0.00043% as liquid. As figure 2 further shows, the results are similar when Fiji's liquidity is compared to other countries for the year 2000.

**[Figure 2 about here]**

Using a similar measure of stock market liquidity—total value traded to GDP (TRADEY)—Sharma and Nguyen (2010) also conclude that liquidity in Fiji’s stock market has been extremely weak over the 1997–2007 period; among the lowest in both the SIDS group and the UMI group, and has shown no tendency to catch up with comparable countries. Indeed, in international comparisons of TRADE scores, Fiji often looks like a clear outlier. The more worrying issue is that activity in the market is also falling, which contrasts sharply with the corresponding conclusion for MCAPY: in terms of this size indicator, Fiji was able to narrow at least some gap between itself and comparator group averages, including those mentioned above. While irrelevant on an international basis, the ATH listing does improve the overall size (MCAP) of Fiji’ stock market; its listing, however, makes little difference to the market’s liquidity. With or without it, liquidity is infinitesimal and, deteriorating.

#### Profitability of the SPSE

In addition to the small size and low activity, the stock exchange itself appears unprofitable and unable to operate independently—relies considerably on annual government grants to survive. The grants, which have increased over the years (figure 3), are recorded as income; excluding which, the net profits before tax (NPbt) have mostly been negative over the 1997–2007 period. The SPSE admits that its operations would be severely affected without the annual government grants (e.g. SPSE, 2005).

**[Figure 3 about here]**

#### POTENTIAL GROWTH OF FIJI’S STOCK MARKET

If liquidity and size are indeed critical prerequisites for effective operation of a stock market, then, per above analysis, there is much to be desired of Fiji’s stock market; the inability of the

stock exchange to operate independently and profitably aggravates the situation. Furthermore, as shown in this section, the future looks unpromising; from the views of the Chief Executives of the stock exchange to an analysis of fundamentals and experiences elsewhere, the picture that emerges is the same: Fiji's stock market is highly likely to remain small and inactive in the next several years. Below, we provide brief evidence to validate our claims.

#### The SPSE's views

For a number of years, the Chief Executives (CE) of the SPSE appear to have been sceptical about the future of the exchange. For example, in 2001, five years after the establishment of a call market, the CE in his report on "future plans" observed that market liquidity was not only a challenge for the SPSE but also a mammoth task and efforts to encourage more listing and trading was a huge strain on the already constrained resources (SPSE, 2001:10). In consonance with our proposal (section 4), the SPSE recognises liquidity as a crucial ingredient for the market's growth and development; a liquid market, the SPSE believes, ensures quick entry and exit thereby minimising the costs and risks to investors. The future plans also included getting more listings and continuing with investor education programs.

The above observations appear to have become a norm with no real improvements to listing and/or liquidity in sight. In 2009, for example, the CE observed that market liquidity remained a challenge, presumably, still a mammoth task, which continues to strain the much constrained resources. Perhaps the following comments and observations sum up the present situation and the future prospects for a stock market in Fiji: in 2007, acceding that SPSE ranked as "one of the smallest exchanges on the globe", the CE observed that "the idea of going public still remains foreign to a number of successful businesses in Fiji" (SPSE,

2007:6). Indeed, constant detailed submissions to the government for attracting new listings and regular visits to potential companies to discuss pre- and post-listing issues and concerns does not appear to be making much difference. Unfortunately, this situation is unlikely to change in several decades. That is, both listing and trading is likely to remain major problems. With respect to listing, perhaps it is worth mentioning here that while the numbers have increased, albeit slowly, the well-known and established, multi-million dollar local businesses across sectors are not listed and there is little hope that they will in the future.

#### Private companies: financing preference

The persistent listing and liquidity problems experienced by the SPSE suggests, among other things, that with respect to formal financial sector finance, private sector firms in Fiji might prefer debt-financing to equity. The debt financiers, in turn, are more likely to be banks. Indeed, as Sharma and Brimble (2010) show, the country's banking sector is not only substantially larger compared to the stock market but it is also the dominant sector across institutions; e.g. over the period 1970–2007, around 92% of all financial institution credit to the private sector was provided by banks. One advantage of debt over equity-financing is that the former ensures greater retention of ownership and business control, which perhaps is more attractive to the numerous family-owned, –controlled and –run businesses, indicating that even if more savings could be channelled towards the stock market, there would remain a shortage of companies to invest in.

The issue of relationship-based debt-financing versus dispersed ownership and loss of control (even partial) associated with equity-financing appears to be an important consideration in other countries with small and inactive stock markets as well. Hearn and Piesse (2009), for example, find this to be an impediment to the development of the very

small and liquidity–constrained Swaziland and Mozambique stock markets in the African region. The two markets remain among the smallest and with extremely low liquidity across the 19 or so African markets; in 1995, these and five other newly established markets in Africa were among the world’s smallest and most illiquid (Kenny and Moss, 1998).

Another likely explanation for private firms’ preference for debt–financing appears to lie in the size of majority domestic companies. Hearn and Piesse (2009) note that, in the case of many African countries, including Swaziland and Mozambique, majority of the firms are small and medium, and that these firms find bank credit to be more accessible and cheaper compared to equity raising via stock markets. In the case of Fiji as well, firm size may be a deterrent to listing (Sharma, 2009).

State owned enterprises: political considerations

While a debt–financing preference is likely to keep private sector firms from listing, political considerations are likely to keep the state owned enterprises (SOEs) from listing. As Kenny and Moss (1998) note, preparing SOEs for listing requires financial and managerial restructuring and making unpopular retrenchments. The process not only is complex and expensive but also requires a high level of political commitment. Privatisation and economic control are usually sensitive issues especially where economic power is concentrated in ethnic or otherwise small groups such that the benefits of privatisation are unlikely to be shared equally across the wider community. As has been the fear that Indians and Kikuyus in Kenya, the Lebanese West Africa, the Ibos in Nigeria, and the White Zimbabweans and Bamileke in Cameroon would further dominate the economy after privatisation (Kenny and Moss, 1998), so appears to be the fear that privatisation would substantially increase the dominance of non–natives in the case of Fiji. Further, the natives, representing more than

half the population, appear less inclined to participate in any stock market activity (Sharma, 2009). These considerations thus are likely to keep SOEs from privatising and listing in the years ahead.

#### Domestic and foreign demand and market volatility

In expecting the smaller African markets to develop both in size and liquidity, Kenny and Moss (1998) were cautious, among other things, of a lack of domestic participation. They argued, on one hand, that where foreign participation is limited and private external capital insignificant, domestic participation could help build international and/or regional credibility. On the other hand, though, they recognise that reluctance on the part of locals to invest in their own stock markets may signal a vote of no confidence to the outside world. Years later, domestic demand in African markets remains weak (Hearn and Piesse, 2009).

Where markets remain small and relatively illiquid, lack of domestic demand does appear to be a contributing factor; domestic savers may prefer to invest in less risky but also, less productive forms, reducing thus the amount of capital available for expansion of the market. In the case of Fiji's stock market, lack of domestic demand remains indeed problematic. Firstly, investors are few and the common strategy is to buy and hold stock; for example, there were only 170 trades recorded in the entire year of 1997, the first full year after the establishment of the call market, and around 508 recorded for the entire year of 2008 (SPSE, various). Secondly, demand may be heavily skewed; most trading occurs in a few stocks which account for a considerable proportion of the total market capitalization, as is likely to be the case across developing economies generally (Singh, 1997; Yartey, 2008; Yartey and Adjasi, 2007).

With the persistent lack of domestic demand, the participation of foreign investors appears highly unlikely, which exacerbates development of stock markets in small developing economies. However, in the event that Fiji's stock market was able to attract foreign funds, new problems would emerge. Interconnectedness with global financial markets would aggravate volatility in the market, with the possibility of major damages under extreme conditions such as the GFC. The worldwide experience of the magnitude of losses related to volatility is likely to keep the SPSE guarded about foreign investors. Similarly, foreign investors are likely to remain discouraged about the likelihood of damaging local political events and policies such as coup d'états and unexpected devaluations. Moreover, events such as the GFC are also likely to prompt the government to enforce price and capital controls, exacerbating thus the consequences of the crisis and destroying the presence of any investor confidence. Even while Fiji's stock market is unconnected to global financial markets, it remains relatively volatile due to the high likelihood of aforementioned events

**[Figure 4 about here]**

Ostensibly, more trading is required for a stock market such as Fiji's to develop but with more trading will come more volatility. However, as markets develop and mature, speculation appears to increasingly replace investment, which tends to put undue pressure on management to focus on short-term stock price rather than long-term business health leading to more and more volatility in markets and even to collapse (Mitchell, 2010a).

#### Political and macroeconomic environment

Political instability, arising, for example, from coup d'états, can be a major deterrent to stock market development. Likewise, a country's macroeconomic management and practices

influence the development of stock markets such that, sound management and practices are likely to foster development. In the case of Fiji, this too appears to be lacking. Together, these generate high levels of uncertainty and doubt rather than confidence in the government and the economy, which ostensibly have grave consequences for stock market development. For local and foreign investors alike, such risk-prone environments are likely to witness highly cautious investment, if any, and rapid divestment.

In addition to internal political and economic management problems, Fiji's economy is also small and fragile, has weak savings culture and relies heavily on imported primary commodities and inputs, which make the economy highly vulnerable to shocks (e.g. Briguglio et. al. 2006; Sharma and Brimble, 2010). Based on similar characteristics of African markets, Kenny and Moss (1998) expected these markets to remain extremely unstable in the short to medium term. Indeed, at least two of these markets—Swaziland and Mozambique—remain extremely small and illiquid more than a decade later (Hearn and Piesse, 2009).

#### THE CASE AGAINST STOCK MARKETS

The preceding sections have shown that Fiji's stock market remains very small, extremely inactive, has limited potential for growth and is propped up by government grants. These findings suggest that a stock market in a country like Fiji may not be ideal. To augment our case, we review, in this section, the theoretical case *against* stock markets. We do this by reverting to two key perceived benefits of stock markets that we outlined in introducing this paper, i.e. that stock markets may be viable alternatives to banking systems and important ingredients in fostering economic growth.

## Alternative to banking systems

Regardless of a financial system being predominantly bank-based or market-based, while a system can operate without markets, it can not without banks. Banks, the major intermediaries in any financial system, usually mainly, and sometimes entirely, provide access to a country's payment system and the means for managing money. Further, they are the usually the main conduits for implementing central banks' monetary policies and the main institutions for small savers and borrowers.

Apart from the above, a number of arguments have been forwarded in favour of bank-based systems, which in essence, are derived from a critique of the role of markets in providing financial functions. For example, it is argued that rapid information production and dissemination by markets may in fact impede incentives for identifying growth-enhancing innovative projects (Stiglitz, 1985). By privatising firm information acquired via long-term relationships, banks on the other hand, may mitigate such potential disincentives created by markets (Gerschkenkron, 1962; Boot et al., 1993). Moreover, powerful banks may be able to more effectively collect debt from firms compared to markets (Rajan and Zingales, 1999).

While banks themselves may have corporate governance issues, markets too have not avoided criticisms (Shleifer and Vishny, 1997). For example, insider information may mitigate the effectiveness of takeovers (Stiglitz, 1985). The rapid public dissemination of costly information creates disincentives for acquiring information, making effective takeover bids and wielding corporate control (Grossman and hart, 1980). Takeovers may also be deterred by certain actions of insiders, which may reduce the disciplinary effects of markets (DeAngelo and Rice, 1983). The possibility of an incestuous relationship between the board of directors and management may also reduce the effectiveness of takeovers (Jensen, 1993).

There are also problems associated with diffuse shareholders' inability to adequately monitor insiders. This problem is usually mitigated by the emergence of large, concentrated ownerships. However, concentrated ownerships are usually not diversified (Acemoglu and Zilibotti, 1997) and may benefit themselves at the expense of minorities, debt holders and others, having adverse implications for corporate finance and resource allocation. Large shareholders are likely to maximise the private benefits of control at the expense of minorities, including paying themselves special dividends and exploiting business relationships with other firms they own that profit themselves at the expense of the corporation (DeAngelo and DeAngelo, 1985; Zingales, 1994). Moreover, these large investors may seek to take on higher risks, which is likely to benefit them but could hurt the debt holders. Further, the resultant market power of concentrated ownerships could potentially corrupt political systems and distort public policies (Morck, et al., 2005).

Thus, argue the proponents of bank-based systems, the above fundamental shortcomings prohibit markets from doing a good job of acquiring information about firms and monitoring managers, having implications for resource allocation and growth. Banks, on the other hand, do not suffer from these flaws and so are expected to do a better job at researching firms, monitoring managers and allocating resources.

#### Fostering economic growth

Notwithstanding any of the arguments against or other drawback of stock markets discussed above, if there is a reasonable hope that stock markets may foster economic growth for a country like Fiji, stock markets should still be given an opportunity to remain part of the financial system and to develop. However, as the following shows, even this benefit of stock

markets is not convincing in the case, interestingly, not only of developing but developed economies as well.

In the case of developing economies, even as stock markets began to proliferate across countries, some researchers warned that markets were not appropriate for all developing economies, claiming that they might impede rather than facilitate economic growth. Singh (1997), for example, argued that some characteristics of mature stock market, including volatility, deterrence of risk-averse savers and speculative investors, were likely to not only be highly problematic for developing markets but also have a negative impact on the country's overall economic development. Some empirical support to Singh's claims is provided by Yartey and Adjasi (2007). The authors examine the correlation between stock markets and economic growth in the case of 14 African countries, using three indicators of stock market development—market capitalization relative to GDP, value of shares traded to GDP and turnover ratio (value traded/market capitalization). The findings are inconclusive; total value of shares traded appears to have a positive impact on growth market capitalization but market capitalization and turnover have no significant impacts. Moreover, inclusion of the South Africa market, an exceptionally large market by African standards, may have influenced the results such that even the value of shares traded may have little influence on economic growth.

In another study, Sarkar (2006), using a the data of 31 developing economies over the 1976–2005 period, finds little or no relationship between stock market development and growth rates of fixed capital formation. In the case of Brazil and Argentina, for example, there was no relationship between stock market development and capital formulation. The author

concludes that there was limited usefulness in pursuing a stock market development program for accomplishing development goals in developing economies.

In the case of developed economies, a recent study by Mitchell (2010a) claims that even well-established and mature markets such as the U.S. stock markets have rarely been significant in financing the country's industrial expansion, raising thus a doubt about the significance of the stock market-economic growth link. The case presented is that a significant public equity market in the U.S. emerged when industrialisation had already reached a stage of reasonable maturity; the railroads were financed largely with government subsidies and debt and industrial corporations including major oil companies and U.S Steel were financed with retained earnings and debt. The U.S. industrialisation may thus have been accomplished with little significant stock market financing; U.S. corporations appear to have been capable of high productivity without significant public equity financing, not only in the formative stage of industrialisation but beyond as well.

Mitchell (2010b) goes on to argue that stock markets are not necessary to finance industrial production, may actually create distortions in production incentives and may be detrimental to economic growth. Similarly, Singh (1997) points out that stock markets may not have played a significant role in the post-war industrialisation of the Asian giants—Japan, Korea and Taiwan. Such findings tend to cast a doubt on the usefulness of stock markets for economic growth; if, contrary to popular belief, a stock market may have been less useful for economic growth in the case of industrialised countries, then it may be less useful for developing economies as well. More generally, even while Levine (1997) concludes, in a comprehensive survey of literature on finance-growth, that finance does appear to matter for growth, the author admits that the distinction between a bank-based system and a market-

based system appears irrelevant and that other evidence suggests that banks may be more closely correlated with growth than stock markets.

## IT IS TIME RE-EXAMINE THE ROLE OF STOCK MARKETS IN FIJI AND OTHER DEVELOPING ECONOMIES

The preceding sections have shown that Fiji's stock market remains very small, extremely inactive, has limited potential for growth and is propped up by government grants. It has also been shown that there are inherent weaknesses in stock market systems, particularly in the case of developing economies. These findings suggest that a stock market in a country like Fiji may not be ideal and therefore, we argue that it is time for the country to start considering other alternatives. Continuing with the stock market in a country like Fiji would, as Kenny and Moss (1998) suggest, merely be a symbol of international legitimacy, a symbol only of prestige.

When the idea of a stock market in Fiji was being discussed, at no point did it appear from any report prepared by the ADB-hired consultants or the government or any other literature, of a slightest doubt of the viability of a stock market in the country. In fact, hopes of a vibrant stock market and promises of its potential for development, led the government to believe that it could even become a regional stock exchange, resulting in a suitable name change in 2000 from SSE to SPSE (South Pacific Stock Exchange) in preparation for the expansion. So was the case for the regulator of the capital markets; the Capital markets Development Authority (CMDA). However, the government recently decided, after thirteen years, that a separate regulator for capital markets was not feasible and appropriate for Fiji; the CMDA was closed in 2009 (RBF, 2009). Insufficient growth of the capital markets and unsustainable escalating costs had prompted the government to take this action. The

government now needs to make a similar decision about the country's stock market, based on similar arguments—insufficient past and potential growth, and unsustainable escalating costs.

The government's decision to close the CMDA appears to be based on the Reserve Bank of Fiji's (RBF) recommendation. Ironically, RBF had initially supported the idea and lobbied for an institution like CMDA, together with the ADB-hired consultants. However, the courage displayed by RBF to reverse or revise its support for the CMDA reflects an important emerging thinking—there *is* a need to review and revise earlier positions and conventional wisdom (Soros, 2010; Krugman, 2009; Levitt and Dubner, 2006), lest we be judged as holding on to our ideas and protecting our self-esteem even if we have been getting things wrong in the past (Taleb, 2007).

Fiji does not have to stick with stock markets at all costs. In the first place, the stock market has been shown theoretically as well as empirically, to be prone to certain weaknesses, particularly in less developed countries other than Fiji. There is a need to engage in substantial rethinking of the contribution of stock markets in different situations; more specifically, the question is: are they *really* needed in developing economies like Fiji, Swaziland, Mozambique, Malawi, Tanzania, Uganda, Namibia, Georgia, Uruguay, Paraguay, Guyana, Mongolia, Armenia, Kyrgyzstan, Uzbekistan, Barbados, Jamaica, and Trinidad and Tobago. The answer we are inclined to provide is: *not really!* We are of the view that in these economies, it may be time to retreat from the banking-plus-stock market model to banking plus other alternatives. We leave this investigation, however, to future research.

## CONCLUSION

This paper identifies a re-examination of the role of stock markets in developing economies as a timely issue. Using Fiji as an example of a stock market in the South Pacific, a region little studied with respect to developing economy stock market matters, the paper analyses and examines a number of issues, both at the broader level and in relation to Fiji specifically. It begins by providing a theoretical case in favour of stock markets and proceeds to demonstrate that size and liquidity are two crucial ingredients for effective operation. In the case of Fiji, the paper finds that the market has been deficient in both; it remains small and extremely illiquid after several years of operation. The paper then goes on to show that, in addition, there is limited potential for growth and there also are valid arguments against stock markets in general.

In view of the above, sceptical that being patient and redoubling the effort and/or getting the sequence right will bear much fruit, this paper suggests that there is a need to revisit basic issues and reshape expectations. The paper does not refute claims that the financial sector provides essential services for the proper functioning of individual and world economies or that it promotes growth but it does suggest that in the case of economies such as Fiji's, the stock market component of the developed world's financial structure may be a misfit in the accomplishment of these objectives.

To be sure, stock markets may indeed be useful in some developing economies but in the case of persistently small and illiquid markets, for better outcomes, there appears to be a genuine case for examining other models, which would importantly include banking systems, plus, perhaps venture capital and microfinance. We leave the investigation of the alternatives, however, to future research. Further investigation on the subject of this paper,

on issues other than size, liquidity, including for example, market efficiency, corporate governance, risk and returns, nature of investors may also be useful in providing a better understanding of the relevance of stock markets in some less developed countries. For now, in the case of some of these economies, including Fiji, taking a step back from the current bank-plus-stock market model and re-examining other alternatives, appears prudent.

## References

- Acemoglu, D. and Zilibotti, F. (1997). Was Prometheus unbound by chance? Risk, diversification, and growth. *Journal of Political Economy*, 105, 709–775.
- ADB (Asian Development Bank). (2005). *Private sector assessment for Fiji Islands: 'Promise unfulfilled'*. Manila: Asian Development Bank.
- Allen, F and Gale, D. (1999). Diversity of opinion and financing of new technologies. *Journal of Financial Intermediation*, 8, 68–89.
- Bekaert, G., Harvey, C. R. and Lundblad, C. (2005). Does financial liberalization spur growth? *Journal of Financial Economics*, 77(1), 3–55.
- Bernstein, P. L. (1987). Liquidity, stock markets, and market makers. *Financial Management*, 45–62.
- Black, S. W. and Moersch, M. (1998). Financial structure, investment and economic growth in OECD countries. In S.W. Black and M. Moersch (Eds.) *Competition and convergence in financial markets: The German and Anglo-American models* (pp. 157–174). New York: North–Holland Press.
- Boot, A. W. A., Greenbaum, S. J. and Thakor, A. (1993). Reputation and discretion in financial contracting. *American Economic Review*, 83, 1165–1183.
- Briguglio, L., Cordina, G. and Kisanga, E. J. (2006). Introduction. In L. Briguglio, G. Cordina and E. J. Kisanga (Eds.) *Building the economic resilience of small states* (pp 13–29). Malta: Formatek Publishing.
- Caprio, G. and Levine, R. (2002). Corporate governance in finance: concepts and international observations. In R. E. Litan, M. Pomerleano, and V Sundarajan (Eds) *Financial sector governance: The roles of the public and private sectors* (pp 17–50). Washington DC: Brookings Institution.

- Caprio, G., Laeven, L. and Levine, R.. (2003). *Governance and bank Valuation*. Working Paper, No. 10158. National Bureau of Economic Research.
- De la Torre, A., Gozzi, J. C. and Schmukler, S. L. (2007). *Capital market development: Whither Latin America?* Policy Research Working Paper 4156. Washington DC: World Bank.
- DeAngelo, H. and Rice, E. (1983). Anti-takeover amendments and stockholder wealth. *Journal of Financial Economics*, 11, 329–360.
- DeAngelo, H. and DeAngelo, L. (1985). Managerial ownership of voting rights: A study of public corporations with dual classes of common stock. *Journal of Financial Economics*, 14, 33–69.
- Demirgüç-Kunt, A. and Maksimovic, V. (1996). Stock market development and firm financing choices. *World Bank Economic Review*, 10, 341–370.
- Diamond, D. W. and Verrecchia, R. E. (1982). Optimal managerial contracts and equilibrium security prices. *Journal of Finance*, 37, 275–287.
- Furfine, C. H. (2001). Banks as monitors of other banks: evidence from the overnight federal funds market. *Journal of Business*, 74, 33–57.
- Garcia, V. F. and Liu, L. (1999). Macroeconomic determinants of stock market development. *Journal of Applied Economics*, 2(1), 19–59.
- Gerschenkron, A., (1962). *Economic backwardness in historical perspective—A book of essays*. Cambridge: Harvard University Press.
- Grossman, S. J. and Stiglitz, J. (1980). On the impossibility of informationally efficient markets. *American Economic Review*, 70, 393–408.
- Grossman, S.J. and Hart, O. (1980). Takeover bids, the free-rider problem, and the theory of the corporation. *Bell Journal of Economics*, 11, 42–64.

- Gurley, J. G. and Shaw, E. S. (1955). Financial aspects of economic development. *American Economic Review*, 45, 515–538.
- Hearn, B and Piesse, J. (2009). Barriers to the development of small stock markets: A case study of Swaziland and Mozambique (August 20, 2008). *Journal of International Development*, forthcoming. Available at SSRN: <http://ssrn.com/abstract=1242444>
- Holmstrom, B. and Tirole, J. (1993). Market liquidity and performance monitoring, *Journal of Political Economy*, 101, 678–709.
- Jefferis, K. (1995). The Botswana share market and its role in financial and economic development. *World Development*, 23(4), 663–678.
- Jensen, M. (1993). The modern industrial revolution, exit, and the failure of internal control systems. *Journal of Finance*, 48, 831–880.
- Jensen, M. and Murphy, K. (1990). Performance pay and top management incentives. *Journal of Political Economy*, 98, 225–263.
- Jensen, M. and Meckling, W. R. (1976). Theory of the firm, managerial behaviour, agency costs and ownership structure. *Journal of Financial Economics*, 3, 305–360.
- Kenny, C. J. and Moss, T. J. (1998). Stock markets in Africa: emerging lions or white elephants? *World Development*, 26(5), 829–843.
- Krugman, P. (2009). How did economists get it so wrong? *The New York Times*, [online]. Available from: <http://www.nytimes.com/2009/09/06/magazine/06Economic-t.html> [Accessed: January 2010].
- Kyle, A. S. (1984). Market structure, information, futures markets, and price formation. In G. Storey, A. Schmitz and A. H. Sarris (Eds.) *International agricultural trade: Advanced readings in price formation, market structure, and price instability*. Westview: Boulder.

- La Porta, R., Lopez-de-Silanes, F., Shleifer A. and Vishny, R. (1997). Legal determinants of external finance. *Journal of Finance*, 52, 1131–1150.
- Levine, R. (1991). Stock markets, growth, and tax policy. *Journal of Finance*, 46, 1445–1465.
- Levine, R. (2003). Stock market liquidity and economic growth: theory and evidence. In L. Paganetto and E. S. Phelps (Eds.) *Finance, research, education, and growth* (pp 1-24). New York: Plgrave MacMillan.
- 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 P.Aghion and S. Durlauf (Eds.) *Handbook of economic growth*, (pp 865–934). Elsevier.
- Levine, R. and S. Zervos (1998). Stock markets, banks, and economic growth. *American Economic Review*, 88, 537–558.
- Levitt, S. D. and Dubner, S. J. (2006). *Freakonomics*. London: Penguin books Ltd.
- Merton, R. C. (1987). A simple model of capital market equilibrium with incomplete information. *Journal of Finance*, 42, 483–510.
- Merton, R. C. and Bodie, Z. (1995). A conceptual framework for analyzing the financial environment, In Crane, et al (Eds.) *The global financial system: A functional perspective*, (pp 3–31). Boston: Harvard Business School Press.
- Mitchell, L. E. (2010a). *Who needs the stock market? Part 1: The empirical evidence*. Working paper. The George Washington University Law School.
- Mitchell, L. E. (2010b). *Toward a new law and economics: The case of the stock markets*. Working paper 495. The George Washington University Law School.
- Morck, R. and Nakamura, M. (1999). Banks and corporate control in Japan. *Journal of Finance*, 54, 319-340.

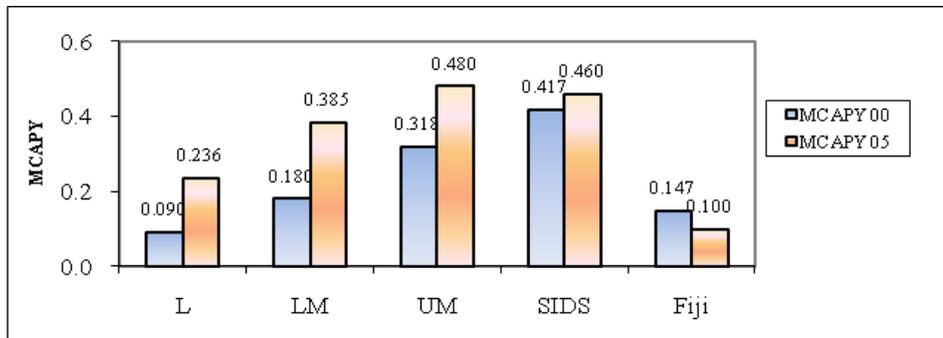
- Morck, R., Wolfenzon, D., and Yeung, B. (2005). Corporate governance, economic entrenchment and growth. *Journal of Economic Literature*, 43(3), 655–720.
- Morgan, D. (2002). Rating banks: risk and uncertainty in an opaque industry. *American Economic Review*, 92, 874–88.
- Moss, T. Ramachandran, V. and Standley, S. (2007). Why Doesn't Africa Get More Investment? Frontier Stock Markets, Firm Size And Asset Allocations Of Global Emerging Market Funds. Working paper 112. Center for Global development.
- Obstfeld, M. (1994). Risk-taking, global diversification, and growth. *American Economic Review*, 84, 1310–1329.
- Rajan, R. G. (1992). Insiders and outsiders: The choice between informed and arms length debt. *Journal of Finance*, 47, 1367–1400.
- Rajan, R. G. and Zingales, L. (1999). Which capitalism? Lessons from the East Asian crisis. *Journal of Applied Corporate Finance*, 11, 40–48.
- Rajan, R. G. and Zingales, L. (2003). The great reversals: The politics of financial development in the twentieth century. *Journal of Financial Economics*, 69(1), 5–50.
- RBF (Reserve Bank of Fiji). (2009). *Transfer of the administration of the CMDA to the Reserve Bank of Fiji* [online]. Available from: <http://www.rbf.gov.fj/docs/Press%20Release%20No%2034%20Transfer%20of%20the%20Administration%20of%20the%20CMDA%20Act%20to%20the%20Reserve%20Bank%20of%20Fiji.pdf> [Accessed: March 2010].
- Sarkar, P. (2006). Capital accumulation in less developed countries: Does stock market matter? Working paper 06/06. India: Jadavpur University.
- Sharma, P. (2009). *Financial development in Fiji*. Unpublished PhD Thesis. Australia: Griffith University.

- Sharma, P. and Brimble, M. (2010). Sustainable development in the small states of the South Pacific: Toward a corporate social responsibility for international banks. *Fijian Studies*, forthcoming.
- Sharma, P. and Nguyen, T. (2010). Does law really matter for stock market development? The case of a South Pacific island economy: Fiji, 1997–2007. *Fijian Studies*, forthcoming.
- Shleifer, A. and Vishny, R. W. (1997). A survey of corporate governance. *Journal of Finance*, 52, 737–783.
- Singh, A. (1997). Financial liberalisation, stock markets and economic development. *The Economic Journal*, 107, 771–782
- Smith, G. (2009). Martingale in European emerging stock markets: Size, liquidity and market quality. *The European Journal of Finance*, 15(3), 249–262.
- SPSE (South Pacific Stock Exchange), (various). *Annual Reports* [online]. Available from: <http://www.spse.com.fj/About-SPSE/SPSE-Annual-Reports.aspx>. [Accessed: Jan-May, 2010].
- Soros, G (2010). *The living history of the last 30 years: Economic theory, politics and policy* [online]. Available from: <http://ineteconomics.org/sites/inet.civicactions.net/files/INET%20C%40K%20Paper%20Session%201%20-%20Soros.pdf> [Accessed: May 2010].
- Stiglitz, J. E. (1985). Credit markets and the control of capital. *Journal of Money, Credit and Banking*, 17, 133–152.
- Stiglitz, J. and Weiss A. (1983). Incentive effects of terminations: applications to credit and labour markets, *American Economic Review*, 73(5), 912–927.
- Taleb, N. N. (2007). *Foiled by randomness: the hidden role of chance in life and in the markets*. London: Penguin Books Ltd.

- Weinstein, D. E. and Yafeh, Y. (1998). On the costs of a bank-centered financial system: evidence from the changing main bank relations in Japan. *Journal of Finance*, 53, 635–672.
- Wenger, E. and Kaserer, C. (1998). The German system of corporate governance: A model which should not be imitated. In S.W. Black and M Moersch (Eds.) *Competition and convergence in financial markets: The German and Anglo-American models*, (pp 41–78). New York: North-Holland Press.
- Yartey, C. A. (2008). The determinants of stock market development in emerging economies: Is South Africa different? Working Paper 08/32. Washington DC: International Monetary Fund.
- Yartey, A. C. and Adjasi, C. K. (2007). Stock market development in sub-Saharan Africa: critical issues and challenges”, Working Paper 07/209. Washington DC: International Monetary Fund.
- Zingales, L. (1994). The value of the voting right: a study of the Milan stock exchange experience. *The Review of Financial Studies*, 7, 125–148.

## FIGURES

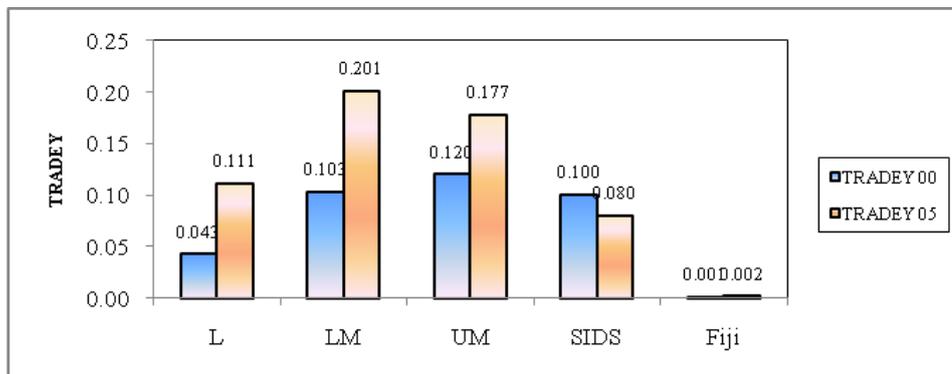
FIGURE 1. Market Capitalization to GDP (MCAPY) For Fiji and Averages of Comparable Groups of Countries, 2000 and 2005



Source: NationMaster at <http://www.nationmaster.com/statistics>

Figure 1 shows the market capitalization, for the year **2000** and 2005, for Fiji and averages of comparable countries grouped by World Bank's income classifications where, UMI = upper middle income group; LMI = lower middle income; and LI = lower middle income. Fiji falls in the UMI group and is also a SIDS (small island developing states). As the figure shows, compared to the averages of these groups, Fiji's market capitalization is extremely low, an indication of how small the country's stock market is.

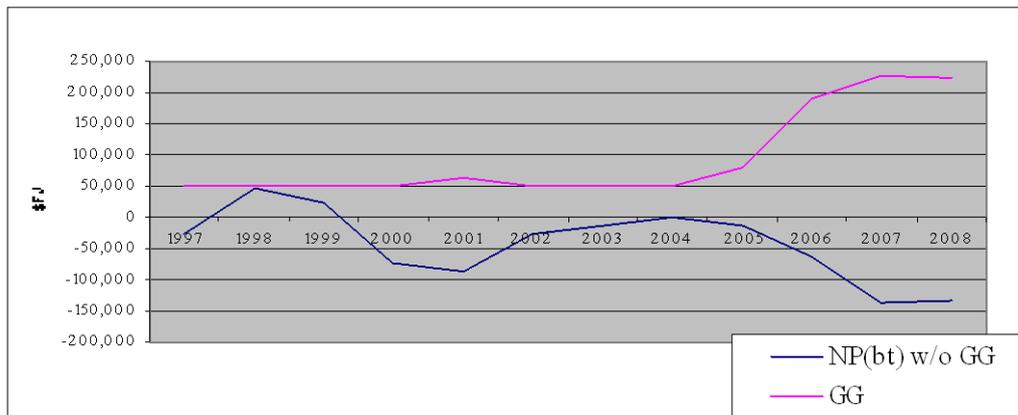
FIGURE 2. Value of Shares Traded To GDP (TRADEY) For Fiji and Averages of Comparable Groups of Countries, 2000 And 2005



Source: NationMaster at <http://www.nationmaster.com/statistics>

Figure 2 shows the value of shares traded, for the year 2000 and 2005, for Fiji and averages of comparable counties grouped by World Bank's income classifications (please see figure 1 for details). As the figure shows, compared to the averages of these groups, Fiji's TRADE is worse than the corresponding MCAP comparison (figure 1), an indication that the country's stock market is extremely illiquid and much worse than its MCAP situation.

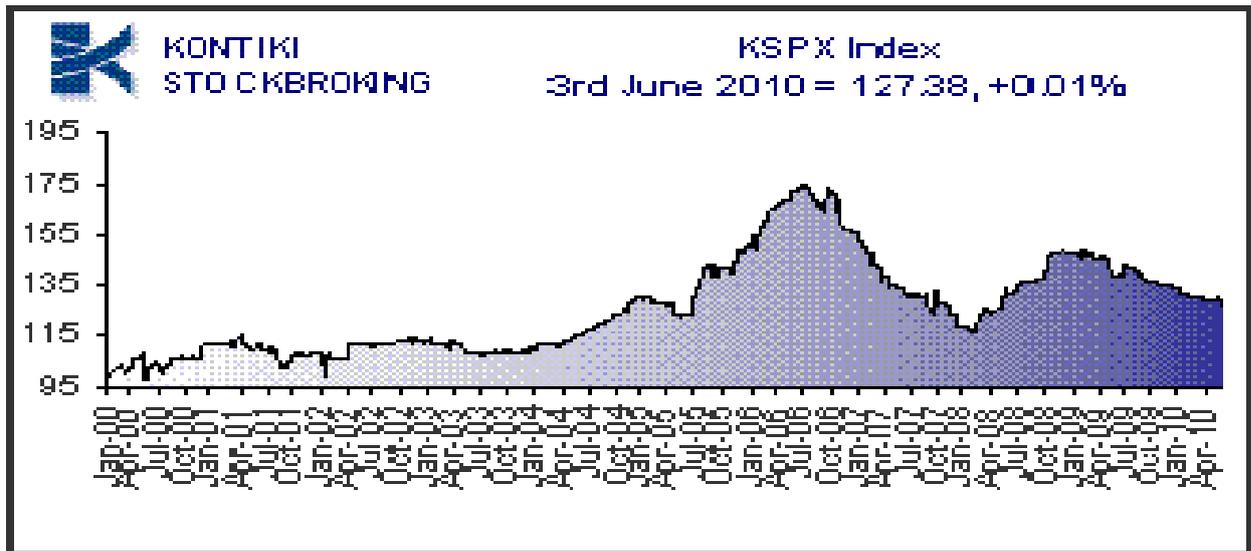
FIGURE 3. Profitability of the South Pacific Stock Exchange, 1997—2008



Source: SPSE (various) Annual Reports.

Figure 3 shows the net profit before tax (NPbt) of the South Pacific Stock Exchange without government grant (GG) together with the amount of GG. As the figure shows, government grant increased sharply from 2005 and correspondingly, profits without GG fell sharply. Generally, w/o GG, the stock exchange would constantly be operating in a loss over this period, and presumably, always.

FIGURE 4. South Pacific Stock Exchange, KSPX Index, 2000–2010



Adopted from: Kontiki Capital at <http://www.kontikicapital.com/pages.cfm/stock-broking/share-trading/kspx-index.html>

Figure 4 shows the KSPX share price index for the period Jan 2000 to April 2010. Prepared by Kontiki Stockbroking Limited, an investment company in Fiji, the KSPX is composed of the market-weighted average of the all companies listed on the SPSE. As the figure shows, even while unconnected to global financial markets, the market remains volatile. Note, for instance, the volatility in the 2007–2008 period, a time of worldwide instability.

## Endnotes

<sup>1</sup> Including Hearn and Piesse (2009); De la Torre et al. (2007).

<sup>2</sup> For a detailed survey of the relevant literature, please see Levine (1997, 2005).

<sup>3</sup> <http://www.nationmaster.com/statistics>