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Savings, Investment and Financial Development in Fiji: An Econometric Analysis

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I dedicate this thesis to my parents, who have been and are always, enormously supportive.

Abstract

The vital role of savings, investment and financial sector development in the growth process has been at the heart of economic policy reforms in many developing countries. The key purpose of this study is to examine the determinants of savings (i.e. national and private), investment (i.e. private corporate and non-residential) and the relationship between finance and growth (i.e. causality, stock market development and McKinnon's complementarity hypothesis) for the case of Fiji. This study applies the Auto-regressive Distributed Lag procedure to cointegration and the modified WALD test for non-Granger causality to time series data for various models over the period 1961-2005. The study sets the economic growth literature in the historical perspectives for Fiji and undertakes a comprehensive empirical examination that will enhance the knowledge and future development of economic policies aimed at increasing economic growth.

The importance of savings, investment, and the financial sector in contributing to economic growth in developing countries has been clearly highlighted in the literature. Fiji has been chosen as the case study in this analysis due to poor growth performance during the past 20 years. The military coups of 1987 led to political instability and policy failures that had a disastrous impact on the economy through low levels of economic activities. The economic uncertainty experienced by the nation led to various negative effects on capital accumulation, savings, investment and the financial sectors development. This not only diminished business activities, but also affected the household sector in terms of consumption, savings, investment, higher prices and social development. In the wake of the 1987 political and economic crisis, extensive macroeconomic, financial and trade sector reforms were undertaken which represented a revolutionary break from the past policies of import protection, high rates of inflation, agricultural dependence and financial repression.

Given the devastating political, economic and social crises, and the poor performance of the economy, this study evaluates the key financial factors to enhance growth. In particular, savings, investment and financial sector development and the policy implications for long term economic growth are investigated. These considerations point to the need for

undertaking in-depth investigations to bring together theoretical and empirical analysis in the context of Fiji's economic development. First, the savings-growth performance is examined using an empirical framework based on the lifecycle model. Second, the analysis examines investment and the role of capital formation in growth acceleration in the post independence period based on the theoretical considerations of the neo-classical investment theories. Third, financial sector development and economic growth relationships are examined. In particular, the direction of causality between the financial sector and economic growth, the impact of stock market and financial liberalisation, and the applicability of McKinnon's complementarity hypothesis are investigated for Fiji. The political and economic turmoil that Fiji has experienced suggest various actions required to improve the performance of the economy and also the key economic factors necessary to enhance growth. The findings initiate a number of policy implications that require attention in order to address Fiji's poor economic performance. This is particularly important to reduce the high incidence of poverty which still remains a challenge for policymakers.

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List of Abbreviations

ADB	Asian Development Bank
ADF	Augmented Dickey Fuller
ANZ	Australia and New Zealand banking group limited
ARDL	Autoregressive Distributed Lag
CMA	Central Monetary Authority
CMDA	Capital Markets Development Authority
CPI	Consumer Price Index
DC	Developed Countries
DF	Dickey Fuller
EU	European Union
ECM	Error Correction Model
FDB	Fiji Development Bank
FIBS	Fiji Islands Bureau of Statistics
FDI	Foreign Direct Investment
FNPF	Fiji National Provident Fund
GDP	Gross Domestic Product
GDS	Gross Domestic Savings
GFCF	Gross Fixed Capital Formation
GNP	Gross National Product
IFS	International Financial Statistics
IMF	International Monetary Fund
LAR	Liquid Asset Ratio
LCM	Lifecycle Model
LDC	Least Developed Countries
MWALD	Modified Wald Test
MSG	Melanesian Spearhead Group
NBF	National Bank of Fiji
NIC	Newly Industrialised Countries
OECD	Organisation for Economic Co-operation and Development

OLS	Ordinary Least Squares
PACER	Pacific Closer Economic Relations
PICTA	Pacific Island Countries Trade Agreement
PIH	Permanent Income Hypothesis
R&D	Research and Development
RBF	Reserve Bank of Fiji
SEED	Social and Economic Equity for the Disadvantaged
SPARTECA	South Pacific Regional Trade and Economic Cooperation Agreement
SPSE	South Pacific Stock Exchange
ULAD	Unimpaired Liquid Assets Ratio
UN	United Nations
VAT	Value Added Tax
VAR	Vector Autoregressive Model
WB	World Bank
WOSED	Women's Social and Economic Development Programme
WTO	World Trade Organisation

Chapter 1

Introduction

1.1 Background to the Study

One of the most imperative discussions in the economic growth literature has been over the roles of savings and investment in spurring sustainable economic growth and improvements in income equality. Likewise, uncertainty regarding the role of financial liberalisation in the growth process has been a key issue in the debate amongst academics and policymakers. It is not difficult to exaggerate the importance of economic growth as it has the ability not only to effectively eliminate poverty but also to provide social and economic activities for welfare and development. Accordingly, macroeconomic theories addressing the savings-investment-growth nexus and the role of financial liberalisation have emphasised the vital contributions and linkages of these factors in the developed and developing nations' growth processes. This is because sufficient resources and efficiency in resource use are crucial in developing countries, as they often tend to suffer from capital deficiency. Also, it has generally been noted that the bulk of financial resources have to come from domestic sources (Little 1982; Lewis 1984), and thus domestic savings has an essential role to play in spurring increases in funds and thus promoting investment, higher profits and faster growth.

A considerable amount of theoretical and empirical work on the determinants of savings and investment, in both developed and developing countries, has been undertaken by the three major schools of economic thought; i.e. the Keynesians, neo-classicalists, and endogenous growth theorists. During the period of Keynesian dominance, investment was viewed as a consequence of "animal spirits" (Keynes, 1936), and savings was believed to be determined solely by the level of income. The neo-classical resurgence and the pioneering works of McKinnon (1973) and Shaw (1973) saw financial liberalisation brought to the forefront of the economic growth debate. The lifecycle and permanent income saving models emerged, highlighting the additional impacts of variables such as population growth and wealth on savings decisions. Additionally, the neo-classical investment theories surfaced which highlighted the importance of the cost of capital, real rate of interest and the role of the capital stock. The main emphasis was

placed on both resource accumulation and efficiency of resource use. In more recent years endogenous growth theories, which highlight the importance of investment in human capital and new knowledge, have come to the forefront of the debate regarding the savings-investment-growth nexus. Overall, whilst the competing schools of economic thought do not necessarily consent over the theoretical basis of the savings-investment-growth nexus, they do agree over the existence of a positive relationship between the variables. As a consequence of this fact, and in light of the hardship associated with low levels of economic growth, it is an obvious policy decision to target savings and investment to improve growth prospects.

Athukorala and Sen (2002) note that there is a growing concern that the burgeoning empirical literature on the savings-investment-growth nexus is unbalanced, due to existing studies being primarily conducted using multi-country cross-sectional data. Likewise, failures by the competing schools to obtain a theoretical consensus over the key determinants and their relationship with savings, investment and economic growth, further highlights the importance of examining country specific determinants in order to target savings and investment via economic policy. Additionally, moves by many developing and developed countries towards financial liberalisation and the stance of the World Bank and International Monetary Fund on the matter, means that the effect of financial liberalisation on savings and investment is an important consideration.

The failure of small island economy's, such as Fiji, to improve their economic growth performance means that empirical consideration of the determinants of savings and investment provides an important basis for policymakers to implement key reforms. This is particularly true given that the United Nations millennium development goals provide a number of targets to be met by 2015 which many of the South Pacific Island nations will require external assistance to meet those goals (United Nations 2000). Fiji's first five year plan, drawn up at independence in 1970, set a number of goals, targets, and strategies towards achieving economic growth. During the period of political stability, i.e. pre-1987 period, targeted levels of economic growth were achieved in many of these years; however the two military coups in 1987 adversely impacted on the key growth factors that previously contributed to higher growth rates. The uncertainty generated by the political upheaval caused an outflow of skilled labour, reduction in foreign capital

inflows, low agricultural output, a decline in tourism earnings, and low levels of tax revenue.

The adverse impact of the crucial growth factors created a unique economic system which failed to attract the required levels of savings and investment and therefore led to decline in many economic activities. Due to concerns over the poor performance of Fiji's economy the World Bank and International Monetary Fund (IMF) suggested a series of market orientated macroeconomic, trade and financial sector reforms that were implemented from 1990 onwards. While the reforms did begin to show some limited signs of success in terms of improving Gross Domestic Product (GDP) levels, another severely disruptive coup was staged in 2000 which had an immediate adverse impact on growth. Once again the country embraced the disastrous effects when economic activities failed to achieve higher levels of growth, poverty increased substantially, law and order began to fail, investment declined and land property rights were affected. Overall, the economy moved towards a fragile state. The most recent military coup of December 5th 2006 will exacerbate the economic, social and political crises experienced since the 2000 coup. Policy initiatives aimed at increasing various growth factors including savings and investment, as well as external assistance, is required to address the concerns in Fiji.

1.2 Aims and Objectives

This study empirically analyses savings, investment and financial liberalisation in Fiji over the period 1961-2005. The purpose of this research is to provide a comprehensive assessment of the trends, patterns and determinants of savings, investment and the financial sector. In particular, this study assesses the impact of shifts towards financial liberalisation on economic growth both directly and via savings and investment. The other objectives of the study are as follows: first, to summarise the important features, determinants and implications of the differing stances regarding savings, investment and financial liberalisation in the literature. Second, to preview Fiji's economy since independence in 1970, whilst paying particular attention to the reforms undertaken since 1987. Third, to examine whether those determinants highlighted in the literature such as financial liberalisation indicators, population growth, remittances, dominance of the agricultural sector, capital stock, cost of capital, private and public investment, wealth,

and political instability impacted significantly on Fiji's savings and investment levels over the period of study.

Few studies have been undertaken which address only some aspects of savings, investment and growth nexus for Fiji; therefore the success of the financial sector reforms undertaken since the late 1980s has yet to be sufficiently assessed. Likewise, a complete understanding of the determinants of savings and investment in Fiji is yet to have been achieved. The comprehensive analysis for the savings, investment and financial sector development undertaken in this study, using several theoretical literature and empirical evaluation, have not been previously done. It is anticipated that the findings of this study will enhance the knowledge of the determinants of savings and investment and financial sector in Fiji. The results will provide an indication of whether further financial sector reforms would initiate benefits for growth and therefore provides key policy lessons to remove harmful effects to enhance growth.

1.3 Data and Methodology

The primary data used in this study has been collected during visits to the Reserve Bank of Fiji (RBF), South Pacific Stock Exchange (SPSE) and Fiji Islands Bureau of Statistics (FIBS). The secondary data sources are the World Bank (2005b) *World Development Indicators*, the International Monetary Fund (various) *International Financial Statistics Yearbook*, the Organisation for Economic Cooperation and Development (2005) *Geographical Distribution of Financial Flows to Developing Countries*, FIBS (various) *Current Economic Statistics* and the FIBS (various) *Census of Industries*. A comprehensive data set has been constructed through these primary and secondary sources. The data for the rate of depreciation of capital stock has been estimated using Rao and Rao (2005). The investment values for the period 2002 to 2004 have been estimated by the RBF. The data period for the models estimated in this study is for the period 1961-2005, however the estimation period for various models differs based on the availability of the data for the variables utilised in each model.

Time series procedures have been utilised and the appropriate econometric methodologies have been employed throughout the study. In particular, the Auto Regressive Distributed Lag (ARDL) approach to cointegration has been used to assess the key determinants of savings, investment, and financial liberalisation in Fiji. This methodology has the

advantage for small sample size properties (Pesaran and Pesaran, 1997). Additionally, the recently developed modified WALD test for Granger non-causality and the Vector Autoregressive methodologies have been used to assess the relationship between financial liberalisation and economic growth models. The technical details of these procedures have been discussed during the relevant chapters of this study.

1.4 Chapter Outline

The structure of this study is as follows: Chapter 2 provides a review of the relevant literature surrounding the savings-investment-growth nexus during the three key periods of economic thought; i.e. Keynesian, neo-classical and new growth. A review of the burgeoning literature addressing the impact of financial liberalisation is also undertaken. Specific emphasis is placed on the works of McKinnon (1973) and Shaw (1973) and their views on financial repression. Chapter 3 presents an overview of the performance of Fiji's economy in the post-independence period in terms of labour market, trade and financial sector performance, capital accumulation, investment, savings, and economic growth. Particular emphasis is placed on discussing the reforms undertaken in the macroeconomic, trade and financial sectors. Chapter 4 makes an empirical contribution to the knowledge on savings. The private and national savings models, data employed, ARDL methodology and empirical results for savings in Fiji over the period 1970-2004 are presented. A detailed discussion of the results and a comparison to existing studies in the literature is provided.

Chapter 5 continues the analysis by looking empirically at private sector investment in Fiji over the period 1970-2004. The empirical contribution in this chapter involves the estimation of regression equations on time series data for private corporate sector and non-residential business investment. A discussion of the results once again ensues. An empirical assessment of the direct effect of financial liberalisation on economic growth, the impact of stock market development, and the applicability of McKinnon's complementarity hypothesis is undertaken in Chapter 6. The three-pronged assessment provides a comprehensive evaluation of Fiji's financial sector and thus makes an important empirical contribution. The study concludes in Chapter 7 by summarising the empirical findings and presenting the overall conclusions and policy implications for Fiji. It also suggests areas for future possible research.

Chapter 2

Literature Review

2.1 Introduction

Over time the role of financial factors in determining economic growth has been viewed differently by the competing schools of economic thought. The financial sectors role in creating an environment conducive for savings and investment makes it paramount in promoting the economic progress of developing countries. Higher levels of savings provide a greater pool of loanable funds for investment activities, thus savings and investment are important when prescribing economic growth enhancing policies. In evaluating the theories of the savings-investment-growth and finance-growth relationships this chapter seeks to shed light on the puzzle of how financial factors impact on economic growth. The issues discussed in this chapter will be empirically analysed for the case of Fiji in later chapters; in particular, the impact of financial and stock market reforms and the determinants of savings and investment are investigated.

There has been considerable debate in the economic growth literature over the roles of savings and investment. Particular attention has been paid to developing countries which tend to lack the financial resources required for economic growth. Section 2.2 provides an overview of the proceeding debate by introducing the differing interpretations of the savings-investment-growth nexus provided by the Keynesians, neo-classicalists and new growth theorists. The importance of the financial sector in creating an environment conducive for economic growth has also received attention in the empirical and theoretical literature. During the period of Keynesian dominance financial repressionist practices were the norm in many developing economies; however during the neo-classical revival the seminal works of McKinnon (1973) and Shaw (1973) presented a theoretically positive relationship between financial liberalisation and economic growth. The dominance of this hypothesis amongst academics and policy makers resulted in moves toward financial liberalisation in many developing economies during the early 1980s. This strand of the literature is discussed in more depth in section 2.3. The final section presents a summary and concluding remark.

2.2 Savings, Investment and Growth – Changing Perspectives Overtime

The savings-investment-growth nexus has received varying interpretations in the economic growth literature. The following section introduces the differing views of the relationship held by the competing schools of economic thought. Section 2.2.1 discusses the era of Keynesian dominance in economic thinking. During the 1950-60s when Keynesian ideologies were in vogue, capital accumulation and financial repression were deemed to generate economic growth. However, a resurgence of classicalist thinking occurred in the early 1970s and saw a change in emphasis towards efficiency of resource allocation and financial liberalisation. This shift in economic thinking is discussed in section 2.2.2. Finally, since the mid-1980s another change in thinking regarding the role of physical investments in promoting economic growth has occurred. The recent era of new growth economics and the burgeoning empirical studies presenting the determinants of economic growth are discussed in section 2.2.3.

2.2.1 Keynesian Dominance

The wide acceptance and dominance of Keynesian ideologies during the 1950-60s meant that development strategies were interventionist in nature and based on capital accumulation. Contrary to the classicalist description, Keynes (1936) suggested that consumption and investment are determined independently of the real interest rate. Savings was proposed to be a function of income and income was seen as a function of investment. Investment expenditure was viewed as an important determinant of the level of employment, investment volatility and the business cycle (Snowdon, Vane et al. 1994). Keynes asserted that the chronic tendency for the savings propensity to exceed the incentive to invest was the cause of aggregate instability, thus to rectify the problem a method to stabilise investment expenditure at a level sufficient to absorb the full employment level of savings was required (Snowdon, Vane et al. 1994).

Keynesian philosophy suggested that mobilization of domestic and foreign savings would generate sufficient investment for developing countries to achieve the takeoff necessary for economic growth. Accordingly, policies to achieve economic growth during the 1950s and 1960s were based on savings promotion as guided by Keynesian monetary theories. Mild inflation was thought to stimulate savings and investment by

raising the nominal rate of return, decreasing the cost of capital and redistributing profits to higher wage earners with a larger propensity to save. Due to the potential for volatility in the interest rates Keynes queried its efficacy in determining investment decisions. Financial repression was believed to break the vicious circle of low savings, investment and economic growth by encouraging capital accumulation. Consequently, domestic capital markets were not empirically assessed and the wider role of financial development in the growth process was largely ignored (Athukorala and Sen 2002).

Keynesian short run unemployment theories, which stress the importance of capital accumulation in achieving growth, were extended by Harrod (1939) and Domar (1946) in an attempt to analyse the relationship between investment, employment and growth. The Harrod-Domar model asserts that the rate of growth is determined by national savings and the capital-output ratio. Investment plays a dual role in terms of representing an important component of the demand for the economies output and the increase in capital stock. In the absence of government the growth rate will be positively related to the level of savings and investment. Specifically, if savings are greater than investment then the economy is predicted to experience faster growth rates (Todaro and Smith 2003).

The Harrod-Domar model was further extended by the two gap model, which argues that developing economies face constraints to growth because there exists a gap between domestic savings and investment (savings gap) or a shortage of foreign exchange to finance imports of capital and intermediate goods (foreign exchange gap) (Chenery and Bruno 1962; Chenery and Strout 1966). The foreign exchange gap was proposed to be larger and more prominent in developing countries, and subsequently foreign aid initiatives of allocating capital and technical assistance were set up to provide external finance for importing new capital goods.

The structural change models developed by Lewis (1954), Chenery and Syrquin (1975), and Chenery, Robinson and Syrquin (1986) also reinforced the Keynesian relationship between savings and income by highlighting the transformation mechanism between agricultural subsistence and modern manufacturing sectors. Lewis (1954) asserts that development of the modern sector will result in an increase in the countries profits and

marginal propensity to save, thus spurring greater levels of economic growth.¹ The patterns of development analysis of structural change undertaken by Chenery and his co-authors highlighted not only the vital role of savings and investment, but also the importance of other changes in the economic system, in achieving economic growth.² Similar to the two-gap models limited availability of savings and foreign exchange was proposed to be the main restraint on investment.

During the period of Keynesian dominance the development process was viewed as a series of successive stages where by the emphasis was placed on getting the right level of savings, investment and foreign aid (Todaro and Smith 2003). Import substitution, particularly in the area of manufactured goods, became crucial to the process of industrialisation and thus was viewed as vital to economic development. Lewis (1954) believed that the failure of developing countries to achieve economic growth was a consequence of primary commodity dependence. To rectify this problem and therefore be able to compete in overseas markets manufacturing activities were encouraged. Free trade was seen to reinforce the existing comparative advantages in primary commodity production and so countries insulated their economies through the use of protectionist policies such as high tariffs and restrictive quotas. "Import substitution policies became the hallmark of development strategies for manufacturing and the underlying rationale for trade policy" (Krueger, 1997, p.4).

The 1950s and 1960s in developing countries were characterised by economic growth strategies based on protectionism and control over foreign trade. Furthermore, domestic market policy interventions such as selective credit policy industrial licensing, price controls and the establishment of state owned enterprises to undertake manufacturing activities in key sectors often reinforced inefficient protectionist policies and thus exacerbated growth problems (Athukorala and Sen, 2002, p.7). In the next step the resurgence of neo-classical thought regarding savings, investment and economic growth is discussed.

¹ This view is based on the assumption that the marginal propensity to save is greater from an increase in profits than wages (Athukorala and Sen, 2002).

² Increased savings and investment were perceived as necessary but not sufficient conditions for economic growth (Todaro and Smith, 2003).

2.2.2 The Resurgence of Neo-Classical Economics

The resurgence of neo-classical ideologies in the late 1960s occurred as a consequence of the failure of many developing countries to experience sustainable economic growth under import-substitution policies. Whilst a few gains were initially made, the rate of growth had eventually become limited to the growth of domestic demand (Athukorala and Sen, 2002). Import substitution policies came under attack as high cost inefficient industries had emerged in many developing countries and failures to make economically sensible trading decisions were widespread (Krenin 1979; Irwin 1996; Krueger 1997). Consequently the gap between developing countries and their already developed counterparts increased further in many cases.

At the same time as import substitution policies were coming under attack another significant development arose. Many East and South East Asian economies were beginning to experience impressive rates of economic growth under export promotion strategies. Krueger (1997, p. 10) notes that "...the reversal from an import-substitution strategy, the opening up of the economy, and that the relative uniformity of the incentives across the board were necessary, if not sufficient, conditions for success." Export led growth strategies promoted the growth of income and also lead to structural transformation in the Newly Industrialised Countries (NICs) (Chow 1987; Chai 1994; Beck, Demirguc-Kunt et al. 2004). By getting the macroeconomic fundamentals right, such as low inflation and competitive markets, East and South East Asian economies were able to achieve notable success in accomplishing economic growth and reducing poverty (Bustelo 1998). The experience of the NIC's highlighted the importance of sound development policies, tailored interventions and rapid accumulation of physical and human capital (World Bank 1993). The variables of particular importance in generating economic growth included reducing population growth rates, better-educated workforces; secure property rights, high levels of domestic savings and private investment, productivity improvements in agriculture, macro-economic stability, productivity growth and selective government intervention. The combination of export promotion strategies and getting the basics right proved to be an elevating combination for the formerly depressed economies of the NIC's.

Traditional Keynesian thinking with regard to savings maintained dominance amongst economists until Kuznet (1946) demonstrated that, for the case of the United States, the theory did not agree with the empirical fact that the long-term savings to income ratio had not increased over time. In response to the puzzle Friedman (1957) argued that Keynes's original proposition was incorrect since it was derived from empirical observations referring to total income as opposed to permanent income. Friedman's Permanent Income Hypothesis (PIH) proposes that temporary changes in income will have no impact on consumption as there is a heavy reliance on past behavior when making decisions.

Other models describing how individuals determined their consumption patterns emerged. In particular, the Lifecycle Model (LCM) gained much prominence in the literature. The LCM asserts that because income varies systematically over the course of peoples lives individuals will attempt to spread life time consumption evenly by accumulating savings during periods of high income and using these to smooth consumption during periods of low income such as retirement (Modigliani and Brumbergh 1955; Modigliani 1966; Modigliani 1970; Modigliani 1986). Also the life-cycle hypothesis rests on the assumption that capital markets are sufficiently developed to allow people to borrow against future earnings. Wealth is assumed to not vary proportionately with income in the short term; consequently those with a higher income are assumed to have a higher average propensity to consume. However, in the long run wealth and income grow at a constant ratio resulting in a constant average propensity to consume. The main inference of the LCM is that growing per capita income levels or higher population growth rates will increase the lifetime resources of the young relative to the old, thus resulting in an increase in aggregate savings.

A seminal contribution to the neo-classical school was made by Solow (1956) and his critique of the Harrod-Domar model. The Harrod-Domar model had presented two unlikely conclusions; first that economies tend to experience either prolonged periods of increasing or falling unemployment rates and/or prolonged periods of rising or falling capacity utilisation, and second, that an economy could improve its long-term economic growth rate by simply increasing its levels of investment (Solow 1994). By making the output capital ratio endogenous, Solow (1956) avoided this first conclusion. Additionally, Solow (1956) asserted that it is the private savings decisions of

households which established the level of investment.³ This was a clear rejection of the Keynesian stance that investment behaviour was the result of “animal spirits”. The Solow model suggested that an economy would eventually arrive at a “steady state” determined by population growth, the savings rate, and the rate of economic depreciation of capital. Once operating at the steady-state the levels of output per person, consumption per person, and the capital-output ratio all remain constant. This implies that it is ultimately only technological progress which determines the level of output per worker and economic growth. The Solow model clearly marked the beginning of modern growth theory as it provided a formal basis for the large number of empirical assessments of the neo-classical growth models (Schmookler 1952; Kendrick 1956; Denison 1968) and significantly contributed to our understanding of economic growth (Nelson 2005).⁴

The neo-classical school clearly emphasised the importance of resource accumulation, in terms of labour and technology, and efficiency of resource use. They argued that output growth occurs as a result of increases in capital, population growth, or labour quality and quantity. The role of savings and investment in promoting economic growth was clear-cut as they were viewed to both positively impact on resource accumulation. In particular, the neo-classicalists suggest open economies would experience income convergence at high levels due to low capital labour ratios and higher returns of investment (Todaro and Smith, 2003).

Allocation of resources and the problem of distribution were also of major concern to the neo-classical economists. They argued that competitive forces, operating through variations in relative prices and factor substitution, create a tendency toward full employment and exploit the economic growth potentials of the economy (Pancio 2003). The neo-classicalists, in addition, emphasised the importance of efficiency of resource uses. Rapid investment expansion was viewed to not promote sustained economic growth unless efficiency was achieved. Athukorala and Sen (2002, p. 11) suggest that

³ Savings is assumed to be equal to investment.

⁴ Schmookler (1952) and Kendrick (1956) investigated economic growth in the United States and found evidence that the level of growth in output had been significantly greater than could be reasonably attributed to input growth alone. Denison (1968) undertook a similar examination of the growth of European economies and found evidence that growth of total factor productivity accounted for the bulk of productivity growth.

“... there was ample evidence that in most countries the employment outcome of investment centred growth was dismal as the protectionist trade regimes induced a palpable shift in investment towards capital intensive product lines”. Through this mechanism of efficiency the neo-classical counterrevolution presented a challenge to prevailing development thought based on three different approaches; i.e. free market analysis, public-choice theory and the market-friendly approach.

The free market analysis recognised the existence of imperfections in developing economies factor and product markets and suggested that governments have a role in facilitating the operation of markets through non selective interventions (Todaro and Smith, 2003). Public choice theory suggested that governments can do nothing right and accordingly a capitalist approach to investment would be more efficient and potentially Pareto optimal. Likewise, the market friendly analysis argued that markets are efficient and provide the best signals for investment opportunities, thus government intervention is unnecessary (Todaro and Smith, 2003). In light of the potential negative impact of government intervention on the savings-investment-growth nexus, the neo-classicalists asserted that financial repression will retard economic growth by reducing capital accumulation. Brought to the forefront by economists such as McKinnon (1973) and Shaw (1973), this literature along with a mass of empirical studies strongly critiqued the previous financial repressionist approaches encouraged by economists of Keynesian persuasion. This literature is discussed in more depth in section 2.3 below.

The neo-classical models of economic growth significantly challenged the merits of the two-gap models proposed by Chenery and his co-authors. Bender and Lowenstein (2005) note that the focus of the two-gap model is purely on the availability of savings and foreign exchange and not on the efficiency of use of these resources. They suggest that once efficiency and a non-constant capital-output ratio are taken into account the two-gap model turns into a Harrod-Domar type one-gap model, with domestic savings and capital inflows as the sole determinants of a countries ability to grow. Easterly (1999) empirically tested the relevance of the two-gap model and concluded that there is no theoretical or empirical justification for assuming that filling the financing gap will raise investment or growth in the short run. This he argues is because recipient countries are more likely to consume than save aid flows.

A burgeoning number of empirical investigations of the determinants of savings began to emerge in the neo-classical literature. The results of empirical tests of the permanent income hypothesis tended to confirm that savings is greater out of transitory than permanent income (Friend and Taubman 1966; Williamson 1968; Loayza, Schmidt-Hebbel et al. 2000; DeJuan, Seater et al. 2003). However, recently Corradini (2005) found evidence that rejects the validity of the PIH. Mikesell and Zinser (1973) suggest that efforts to find support of the LCM have not been as successful as those investigating the validity of the PIH. Deaton and Paxson (1997; 1999; 2000) have found mixed results concerning the LCM. In particular, Deaton and Paxson (1999) found that the lifecycle mechanism does not explain savings in Taiwan. Similarly, Deaton and Paxson (1997) found results unfavourable to the hypothesis using a cohort method of estimating age-savings profiles.⁵ However, Deaton and Paxson (2000) identify problems with this method of estimation which once corrected leads them to find evidence favourable to the lifecycle hypothesis.⁶ Others studies to have found evidence supportive of the LCM include Athukorala and Sen (2002), Browning and Crossley (2001), Kelley and Williamson (1968), Loayza et al.,(2000), and Ozcan, Gunay, and Ertac (2003).

Modigliani's proposition that high levels of economic growth will have a positive effect on the level of savings has also received empirical attention. In particular, Kuznet (1960) undertook a pioneering cross-sectional study of the relationship and found evidence of a tendency, although not a consistent tendency, for countries with high per capita income levels to have higher savings rates. Other studies supportive of the proposition include Landau (1971), Loayza, Schmidt-Hebbel and Serven (2000), and Paxson (1996). Paxson (1996) suggests that there are two reasons why higher growth might increase savings. First, life cycle theory implies that higher growth increases life-time wealth of younger savers relative to older dissavers thereby increasing the savings rate. Second, models of consumption with habit formation imply that consumption responds slowly to unexpected income growth therefore increasing savings in the short term.⁷

⁵ Deaton and Paxson (1997) used a cross section of household surveys from Taiwan, Thailand, Britain, and the United States to assess the validity of the life-cycle explanation of savings.

⁶ Deaton and Paxson (2000) note first that household surveys don't typically collect comprehensive information on private and public pension schemes; and second that there are problems in how to define cohorts as in developing countries many households are multigenerational. They address this issue by estimating individual savings profiles.

⁷ Paxson (1996) found evidence that lifecycle and habit formation only explain a small portion of the observed cross country relationship between savings and growth.

An influential contribution to the discussion on the relationship between savings and investment was made by Feldstein and Horioka (1980) who found empirical evidence that the two variables were highly correlated. Their findings and consequent suggestion that there was imperfect capital mobility across national boundaries generated much debate in the literature.⁸ Studies undertaken by Agbetsiafa (2002), Bahmani-Oskooee and Charkrabarti (2005), and Narayan (2005; 2005) provide support for Feldstein and Horioka's results. Other researchers have however questioned their findings (Murphy 1984; Baxter and Crucini 1993; Barkoulas, Filizetkin et al. 1996). In particular, Baxter and Crucini (1993) and Murphy (1984) found evidence that larger countries have larger saving-investment correlations as they have a greater impact on the world interest rate.

Research regarding the phenomenal catch-up of the East Asian countries in the period post-world war two also began to emerge. The success stories of Korea and Taiwan in particular stood out (World Bank, 1993). Research revealed that a combination of growth in total factor productivity, high rates of growth in physical capital stock, and investments in human capital were the main drivers of high rates of economic growth (Baumol, Nelson et al. 1994; Nelson 2005). The importance of technology and investment in human and physical capital began to receive attention in the emerging literature due to the evidence of convergence clubs as well as theoretical publications which highlighted the inability of the Solow model to explain recent economic phenomenon. In the next step these emerging new growth models are discussed.

2.2.3 New Growth Theory

The recent new growth theory casts doubt on the explanatory ability of the Solow model. The Solow model had identified two possible sources of variation in output of workers; i.e. differences in capital per workers and effectiveness of labour. However, Romer (2001) insinuates that differences in capital per worker between industrialised and developing economies are far smaller than those needed to account for the differences in output per worker. The differences in capital per worker Solow is attempting to explain would require enormous differences in the rate of return to capital which simply do not occur (Lucas 1990). Romer (2001) proposes that the Solow models treatment of the

⁸ The findings of Feldstein and Horioka (1980) suggest that increases in domestic savings, *ceteris paribus*, will flow directly into domestic investment.

effectiveness of labour as exogenous is incomplete. The new growth literature asserts that Solow and the other neo-classical economists fail to explain what causes technology to improve over time. Simply accumulating capital and improving the quality of the labour force ignored the important influence of the increasing returns associated with new knowledge (Cortright 2001). The inclusion of human capital by Lucas (1988), and the emphasis on the generation of new knowledge by Romer (1986), provided the backbone to the endogenous theories of economic growth., which emphasise that growth rate differentials across countries occur as a consequence of endogenous outcomes of the economic system (Romer 1994). Savings and investment continued to be viewed as pivotal in achieving economic growth. This is because the increasing returns associated with knowledge accumulation are viewed as the main driver of economic growth, and thus investment in new knowledge is vital. In particular, Romer (1990) highlights the importance of externalities associated with investments in research and development (R&D) on economic growth. Similarly, Lucas (1988) highlights the importance of externalities associated with education.

New growth empirical studies support the proposition that investment has been the key determinant of economic growth in developing countries. North (2005) notes that the literature, which attempts to explain the phenomenal success experienced by developing countries such as the NICs can be broken into two groups: accumulation theories and assimilation theories. Accumulation theories suggest that high investment rates have moved economies along their production function (De Long and Summer 1991; Jones 1994; Krugman 1994; Young 1995; Athukorala and Sen 2002). In particular, Atuhukorala and Sen (2002) suggest that high investment rates have been the most robust indicator of inter-country variations in growth rates. De Long and Summer (1991) and Jones (1994) investigated investment in machinery and equipment and found that it is more important than the accumulation of total capital in achieving rapid and sustainable growth. Assimilation theories suggest that it is entrepreneurship, innovation, and learning which result in economic growth (Nelson and Winter 1982; Pack and Westphal 1986; Amsden 1989; Romer 1990; Beddies 1999). For instance, Romer (1990) concludes that the stock of human capital directly determines the growth rate, and that further integration into the worlds markets will increase economic growth. Overall, the new growth literature supports the view that investment may not be the sole engine of

growth; however it continues to place capital accumulation at the centre of the growth process.

New growth empirical investigations highlight that developing countries have small inflows of investment, even though they potentially offer high rates of return, due to low levels of complementary investment in human capital, infrastructure, and research and development (Romer 1986; Barro 1990). Consequently, there is an important role for public policy in promoting economic growth through direct and indirect investment in human capital formation and the encouragement of foreign private investment in knowledge intensive industries (Todaro and Smith 2003). Investment in new knowledge is asserted to result in boundless growth creation opportunities. Jarboe and Atkinson (1998) found evidence that the social rate of return to research is typically two to five times higher than the private rate of return. These spillovers may be rectified by strong property rights and patents, however further development of technology may be stifled by taking such an action (Nelson and Romer 1996).

The literature relating to investment has recently investigated the impact of conventional determinants such as tax incentives (Bird 1992; Cummins, Hassett et al. 1995; Schmidt-Hebbel, Serven et al. 1996). In particular, Bird (1992) notes that attempts to change the tax system, so as to direct the allocation of resources, may lead to large systematic distortions. Nonconventional determinants such as enforcement of property rights, elimination of unnecessary regulation, and the impact of corruption on investment projects have also received attention in the literature (Shleifer 1994; Mauro 1995; Schmidt-Hebbel, Serven et al. 1996). The importance of property rights is well established in the literature; however Shleifer (1994) notes that clearly defined property rights must be complemented with a judicial system that ensures enforcement. Similarly, Mauro (1995) highlights that high levels of corruption combined with poor contract enforcement procedures are associated with significantly worse than average investment performance. Accordingly, investment and growth can potentially be promoted by eliminating unnecessary regulations and reforming the civil service to reduce corruption (Schmidt-Hebbel et al., 1996).

Additional determinants of long-run growth identified in the emerging new growth literature include the education system, strength of property rights, tolerance of diversity,

macroeconomic expectations, inward orientation, physical and human capital investment rates, population growth, government consumption expenditure, export shares, initial levels of income, quality of government policies and openness to trade, economies of scale and learning by doing (Grossman and Helpman 1991; Syrquin 1998; Collier and Gunning 1999; Sala-i-Martin 2002). Recent literature also highlights the negative effect of political instability, military coups, high levels of corruption, and limited political freedom on growth. These variables have been highlighted by Gounder (2002; 2005) to have been particularly detrimental to economic growth in the case of Fiji.

A large body of research has also recently emerged which suggests that higher growth leads to higher savings and not vice versa (Carroll and Weil 1993; Rodrick 1998; Attanasio, Picci et al. 2000; Carroll, Weil et al. 2000; Deaton and Paxson 2000). In particular, Rodrick (1998) suggests that countries that undergo savings transitions don't necessarily experience increases in their long-run growth rates. Therefore policies should be aimed at improving the productivity of investments rather than providing savings incentives.

There is beginning to be a merger between the old and new growth theories (Salvadori 2003). Dutt (2003) points out that when compared to earlier writings on growth and technological change there is little evidence to suggest that the new growth literature has made progress in terms of addressing new ideas, and of understanding the actual growth experiences of capitalist economies with regard to productivity changes. Similarly, Turnovsky (2003) suggests that many of the new growth models are hybrids of neo-classical models. Even so, new growth theory has made an important contribution to the economic growth literature to the extent that it has emphasised the importance of macroeconomic and institutional factors, knowledge, and human capital in explaining growth. Identification of additional variables which induce high savings and investment levels has also resulted in a better understanding of how to generate economic growth. In the next section the literature relating to the impact of financial liberalisation on economic growth is discussed.

2.3 The Financial Sector Overview

It was the pioneering work of Schumpeter (1911) which first brought attention to the important role of financial intermediation in the growth literature. However, whilst discussion of the financial sector dates back to Schumpeter (1911) the debate did not gain momentum until the early 1970s. That is not to say that the role of the financial sector was not discussed in the literature during this period. Keynes *General Theory* (1936) highlighted the potential damage that could be caused by financial systems in capitalist economies.⁹ Tobin's (1965) portfolio allocation model demonstrated that capital to labour ratios and per capita incomes may be increased by financial repression. Additionally, Robinson (1952) and Patrick (1966) clearly illustrate interest amongst economists regarding the impact of financial factors on economic growth prior to the 1970s.¹⁰ It was however the seminal works of McKinnon (1973), Shaw (1973) and Goldsmith (1969) which brought the debate to the forefront. In particular, Goldsmith (1969) suggested that the financial sector plays an important role in promoting economic growth as it facilitates the movement of funds to the investment with the highest social return, and thus accelerates growth. The emerging neo-classical literature viewed financial liberalisation as a positive determinant of economic growth, as it increases the availability of finance for investment opportunities and the quantity of domestic savings. However, the failure of many developing countries to experience marked improvements in economic growth under financial liberalisation strategies and despondency over theoretical assumptions generated a number of counter-arguments by the neo-structuralists.

2.3.1 Financial Liberalisation

The financial sector has two distinctive roles in the economy: i.e. first, to facilitate payment through developing an accepted medium of exchange; and second, to mobilise savings and allocate credit in the economy. Any positive effects on growth can however be diminished by natural imperfections such as imperfect competition, informational

⁹ Keynes (1936) suggests that the existence of a liquidity trap would distort equilibrium levels of savings and investment and consequently result in a fall in real income so as to reduce the level of savings.

¹⁰ Robinson (1952) suggests that economic growth creates demand for financial instruments. Patrick (1966) highlighted the potential for mutual causality between the financial sector and economic growth.

asymmetries, adverse selection and by financial repression practices. McKinnon (1973) noted that repressions in the financial sector exist as a consequence of government policies that tend to smother incentives to save and invest in developing countries. Similarly, Shaw (1973) noted that the failure of developing countries to experience growth was a result of shallow finance retarding the growth process. Ultimately financial market distortions generate low savings and investment levels, hence financial liberalisation and the removal of trade restrictions creates an environment conducive to economic growth (McKinnon, 1973).¹¹

The influential works of McKinnon (1973) and Shaw (1973) assert that financial sector development facilitates economic growth through widening access to domestic and international capital markets, and improving efficiency of capital allocation by switching savings away from unproductive assets. Investment efficiency is also improved as loans are rationed via interest rates rather than banks and the public sector, self-investment at low and even negative real rates of return is decreased which causes a shift away from excessively capital-intensive investments and techniques, and the importance of the curb market is reduced (Balassa 1991). Shaw (1973) asserts that deepening of the financial sector increases the real size of the monetary system whilst generating opportunities for profitable operation of other institutions.

McKinnon (1973) and Shaw (1973) criticised financial repression by suggesting that when below equilibrium interest rates are widespread capital flight prevails, thus reducing the level of domestic savings available for investment. They stress that because most investment in developing countries is dependent on self-financing the key to inducing economic growth is offering high freely determined real interest rates. More specifically, McKinnon's complementarity hypothesis suggests that offering high real interest rates will result in large and fast growing cash balances and a reduction in the level of self-finance, thus resulting in economic growth. Similarly, Shaw's debt intermediation view proposes that higher real interest rates increase the flow of loanable

¹¹ Berthelemy and Varoudakis Berthelemy, J. C. and A. Varoudakis (1996). Models of Financial Development and Growth: A Review of the Recent Literature. Financial Development and Economic Growth : Theory and experiences from Developing Countries. N. Hermes and R. Lensink. London, Routledge: 7-29.

suggest that financial repression practices impose costs in terms of efficiency, reduce the level and quality of savings and also place limitations on the expansion of the financial sector as a result of the chronic compression of interest rates.

funds, which raises the ratio of private domestic savings to income and encourages economic growth. Additionally, it was asserted that liberalisation will have an effect on curbing the level of inflation prevalent in the economy. In particular, McKinnon (1973) notes that higher deposit rates cause a portfolio shift of households in favour of bank deposits, which increases the supply of bank credit to firms and has a strong supply-side effect that results in a higher level of output and lower inflation rate.

The theoretical aspects of McKinnon (1973) and Shaw's (1973) work was formalized in the mathematical models of Kapur (1976) and Mathieson (1980). In Kapur's price stabilisation model financial liberalisation causes a reallocation in household's portfolios in favour of bank deposits, which consecutively increases the supply of credit to finance working capital and raises output levels. The importance of targeting not only the rate of growth through financial liberalisation, but also the rate of inflation at later stages was stressed. Mathieson (1980) extended Kapur's work and suggested that integration of financial reform and stabilization policies will avoid short run difficulties which can lead to bankruptcies of financial intermediaries. These models imply that economic growth can be increased by abolishing institutional interest rate ceilings, abandoning selective or directed credit programs, eliminating the reserve requirement tax and ensuring that the financial system operates competitively under conditions of free entry (Fry 1995). "The theoretical models of Kapur (1976) and Mathieson (1980) provide important theoretical, rather than empirical, insights, reflecting the proposition of the Liberal school" (Gupta and Karapatakis 2005) As applied empirical models do not exist for this view, the contribution of Fry (1979; 1980) is relied on to empirically derive the same conclusion that higher deposit rates raise the demand for money and lower inflation. More sophisticated models have emerged which address the finance-growth nexus theoretically and empirically. These are discussed below.

2.3.2 Endogenous Growth Models of Financial Development

The emergence of second generation financial growth models, which seek to explain how financial intermediaries appear and provide a justification for financial intermediation, have shed further light on the McKinnon-Shaw argument (Greenwood and Jovanovic 1990; Roubini and Sala-i-Martin 1992; King and Levine 1993). They highlight that financial systems encourage the release of savings for investment and

improve allocation of funds through pooling funds, reducing informational constraints, enabling diversification of investment and evaluation of investment projects. By reducing informational asymmetries and facilitating resource mobilisation financial institutions are asserted to contribute positively to economic growth by directing investment towards more profitable projects and allowing firms to better diversify their portfolio of productive but risky investments.

In line with Schumpeter's (1911) view of financial intermediaries and the works of McKinnon (1973) and Shaw (1973); King and Levine (1993) argue that financial services impact positively on economic growth by allowing for more efficient capital allocation and improvements in productivity.¹² This is because the financial sector improves the screening of fund seekers, encourages mobilization of savings, lower costs of project evaluation due to economies of scale and provide opportunities for risk management (Wachtel 2003). Similarly, Greenwood and Jovanovic (1990) stress the important role of financial intermediaries in collecting and analysing information and thereby facilitating the flow of funds to projects with high social returns. Bayomi (1993) investigated the impact of financial deregulation using a lifecycle based model and found that financial liberalization reduces restraints related to going into debt so as to smooth consumption during early stages of a consumer's life. Beck, Levine and Loayza (2000) and Calderon and Liu (2002) identify that financial sector development enhances growth through more rapid capital accumulation and technological changes. Specifically, Beck et al., (2000) suggest that financial conditions influence the rate of growth in the economy by affecting the quality rather than the quantity of investment.¹³

Emerging empirical evidences highlight that efficient and well functioning stock markets are at the core of most developed countries (Tun-Wai and Patrick 1973; Demircuc-Kunt and Levine 1996; Levine and Zervos 1998; Choe and Moosa 1999; Allen and Gale 2000; Wachtel 2003; Beck and Levine 2004; Rousseau and Wachtel 2005). This conviction is derived from the observation that stock markets differ from banks in terms of the services provided and are thus viewed as the providers of finance for economic

¹² Schumpeter suggests that financial intermediaries impact on economic growth by affecting the allocation of savings and not necessarily the rate of savings (Beck, Levine and Loayza, 2000).

¹³ Beck, Levine, and Loayza (2000) emphasis the importance of legal and accounting reforms that strengthen creditor rights, contract enforcement and accounting practices, in boosting financial development and thus accelerating economic growth.

development. In particular, Wachtel (2003) suggests that stock markets are important as they provide a potential exit mechanism, encourage both international and domestic investors to transfer their surpluses from short-term assets to the long term capital market, and provide important information that improves financial intermediations efficiency.

Demirguc-Kunt and Levine (1996) recently found empirical support that stock market size and liquidity is positively correlated with financial intermediary development. They suggest that with increases in per capita income and wealth, stock markets will emerge which complement bank lending. However, Stiglitz (1985) proposes that stock markets will not produce the same improvement in resource allocation and governance as banks. Similarly, Boyd and Prescott (1986) note the importance of banks in decreasing informational problems and improving credit allocation. Naughton (1999) notes that countries in the early stages of development are better off refining the ability of the banking sector to effectively allocate funds as an open stock market increases the possibility of capital flight.

Understanding how financial development promotes economic growth is an important consideration addressed by the second generation financial growth models. Levine (1997) highlights that financial development can potentially affect economic growth through two “channels”: i.e. investment (capital accumulation) and productivity improvements. Empirical investigations of the “channels” have been undertaken in the literature (De Gregorio and Guidotti 1995; Bossone 1999; Benhabib and Spiegel 2000; Xu 2000; Schich and Pelgrin 2002; Shan and Morris 2002; Ghirmay 2005). In particular, De Gregorio and Guidotti (1995), Bossone (1999), and Greenwood and Jovanovich (1990) suggest that it is through improving efficiency that finance increases investment. Ghirmay (2005) and Benhabib and Spiegel (2000) found that financial development works through both channels. Other studies have found evidence that financial development results in higher productivity growth (Guillaumont-Jeanneney, Hua et al. 2006).

Whilst much of the literature supports the finding that financial development produces economic growth it is less clear-cut whether financial development alleviates poverty. Greenwood and Jovanovic (1990) suggest that the process of financial development can produce greater inequality even in the absence of financial repression. They find that in

the early stages of development when financial exchange is unorganised, growth is slow. However, as income levels rise the financial structure becomes more extensive, thus economic growth quickens and income disparities widen. Only at maturity, when a fully developed financial structure is in place, will a stable distribution of income occur and economic growth peak. Other studies have however found that financial development enhances growth and reduces inequality (Galor and Zeira 1993; Green, Kirkpatrick et al. 2003; Beck, Demirguc-Kunt et al. 2004). In particular, Galor and Zeira (1993) suggest that credit constraints impede the flow of capital to poor individuals with high return projects, thus financial development will impact positively on growth and income equality.

A number of recent empirical studies have highlighted that financial sector development must be individually tailored to specific needs in order to encourage growth. In particular, before financial liberalisation can be effectively undertaken inflation must be curbed, government supervision effectively put in place, and appropriate capital and reserve requirements set (Balassa 1991). Beck (2006) identifies the paramount importance of improving private sector confidence, creditor and minority shareholder rights, credit reporting processes, accounting standards and provision of accurate financial statements. Similarly, Fry (1995) clearly highlights the importance of macro stability, a sound regulatory framework, bank supervision and institutional reforms. There is an emerging consensus that financial sector reform must be supported by structural reforms, prior to and during the process, in order positively affect welfare and economic growth (Daitoh 2003). Wachtel (2003) similarly emphasises that the sequencing of financial sector development is important from a policy perspective. Patrick (1966) and Kumbhakar and Mavrotas (2005) assert that productivity growth will not only be affected by development in the financial sector, but also by the stage in the development process. Less developed economies will benefit more than economies with developed financial institutions especially with respect to supply-leading development. Abiad and Mody (2005) investigated the cause of reform and suggest that reforms may be the result of regional diffusion effects, or triggered by changes in the balance of decision making. For example, Fiji's political coups in 1987 and 2000 have been the reasons to take financial sector reforms to enhance growth. They imply that even minor reforms are potentially large conquests since the reform process tends to generate its own momentum.

Liberalization of the economy from the constraints of repression became accepted as a basic part of the agenda for development over the period of neo-classical dominance. In fact, McKinnon (1988) suggests that those countries which undertook financial sector reforms have tended to achieve remarkable success. For example, increased credit availability in the Philippines has been important in stimulating economic growth. Tolentino (1989) notes that the reforms undertaken in the Philippines were a gradual process, and transitional measures such as guarantees and insurance played a vital role. Not all countries have however benefited similarly from liberalization endeavours, which was clearly illustrated by the 1997 East Asian financial crisis (Brooks and Quieser 2000; Amess and Demetriades 2001). The stark contrast in results between countries that implemented financial liberalization policies stimulated empirical interest which has further highlighted ambiguity surrounding the finance-growth nexus. A vast empirical literature addressing the relationship between financial liberalisation and economic growth has emerged. Table 2.1 presents the empirical findings of recent studies and thus highlights that the bulk of the literature supports the existence of the positive relationship between finance and economic growth.

Table 2.1 Empirical Studies of the Finance-Growth Nexus

Study	Country	Finance- Growth Relationship
Aretis, Demetriade, Fattouch, and Mouratidis (2002)	6 developing countries	Positive
Bekaert, Harvey and Lundblad (2001)	95 countries	Positive
Hermes and Lensink (2005)	25 emerging market economies	Positive
Fry (1979)	Turkey	Positive
Roubini and Sala-i-Martin(1992)	52 developing countries	Positive
Bandiera, Caprio, Honohan, Schiantarelli (2000)	8 developing countries	Negative
Gelb (1989)	34 countries	Positive
Demir (2005)	3 South American countries	Negative
King and Levine (1993)	77 developing countries	Positive

The impact of financial intermediaries on the level of domestic savings rates and attracting foreign capital has also achieved divergent empirical results. For instance, Beck, Levine and Loayza (2000) found evidence in support of Schumpeter’s view that financial intermediaries impact on the allocation of savings and not the rate of savings. Loayza, Schmidt-Hebbel and Servens (2000), Bandiera, Caprio, Honohan and Schiantarelli (2000), Hermes and Lensink (2005) and Bayoumi (1993) found evidence

that financial liberalization is detrimental to savings.¹⁴ Mikesell and Zinser (1973) found that interest rates were more significant in determining the channels into which savings flowed than in altering savings propensities. In contrast, Warman and Thirlwall (1994) found that financial savings is positively related to real interest rates. They however established no evidence that higher real interest rates lead to higher total saving, investment and economic growth and thus concluded that any favourable effects of financial liberalisation must come through raising the productivity of investment.

The influence of the financial sector on the average efficiency of investment has also received attention in the literature (McKinnon 1973; Shaw 1973; Greenwood and Jovanovic 1990). In particular, the view that the financial sector plays an important role in influencing the average return to investment has found support from Fry (1979) and Branson and Schwartz (1989). However, a recent study by Odhiambo (2003) found that for South Africa and Tanzania there has been no transfer of capital from low to high return projects. Similarly, Guha-Khasnobis and Bhaduri (2000) found that for the case of India there has been no marked improvement in efficiency of investment in the period since stock market liberalisation. Several empirical studies have also failed to reach a clear consensus with respect to the existence of a complementarity effect suggested by McKinnon (see Table 2.2).

Table 2.2 Empirical Studies of the Complementarity Hypothesis

Study	Country	Complementarity effect
Odhiambo (2005)	South Africa	Support
Ahmed and Ansari (1995)	Bangladesh	Support
Khan and Hasan (1998)	Pakistan	Support
Kar and Pentecost (2001)	Turkey	Support
Kendall (2000)	Guyana	Support
Roubini and Sala-i-Martin (1992)	52 Developing countries	Support
Gupta (1984)	25 Asian and Latin American countries	No support
Ozer (2003)	Turkey	No support
Fry (1978)	10 Asian developing countries	No support
Mwega, Ngola, and Mwangi (1990)	Kenya	No support

¹⁴ Bandiera et al (2002, pp. 257) conclude that “only when the data are pooled and one assumes that the long run coefficients are equal across countries can we find evidence of a significant, positive, interest rate effect on savings, and even then the effect is small.”

The divergent conclusions drawn from the empirical studies suggest that results must be interpreted with a certain amount of caution, particularly as financial liberalization has generally been accompanied by other economic reforms and thus identification problems have the potential to emerge (Fry, 1995). Similarly, Gelb (1989) notes that due to poor proxies for financial development, the diffused nature of any relationship and reverse causality it is difficult to confidently isolate any relationship. The causal relationship between finance and growth is discussed in detail below.

2.3.3 The Causal Relationship between Finance and Growth

Patrick (1966) developed two hypotheses to explain the potential causal relationships between finance and growth; i.e. demand-following and supply-leading finance. The former suggests that it is economic growth that generates the additional demand for financial services. The latter suggests that by creating financial institutions and expanding their services will induce growth. This argument suggests two functions of the financial sector as follows: first to transfer resources from traditional sectors to modern sectors; and second, to promote and stimulate an entrepreneurial response in these modern sectors. Patrick (1966) proposes that in the earlier stages of development whilst supply-leading development is not a precondition to growth it is likely to come *a priori* to demand-following development. However overtime, as the process of real growth occurs, the demand-following response becomes more forceful (bi-directional response). Based on this proposition many developing countries in the post-1970s undertook financial restructuring and liberalisation programmes.

The potential relationships between financial development and economic growth identified by Patrick (1966) have motivated empirical investigations. Three streams of findings exist in the empirical literature; i.e. those that support supply-leading, demand-following, and bi-directional responses. Empirical and theoretical support for Patrick's demand-following hypothesis has been provided by Gurley and Shaw (1967), Goldsmith (1969), Demirguc-Kunt and Levine (1996), and Odhiambo (2004). In particular, Odhiambo (2004) overwhelmingly rejects the supply-leading hypothesis for the case of South Africa and thus suggests economic policy should be aimed at stimulating the real sector of the economy in order to spur further development. Theoretical support of the

supply-leading hypothesis has been provided by McKinnon (1973), Murinde and Eng (1994), Fritz (1984), King and Levine (1993), Choe and Moosa (1999), Gupta (1984), Beck, Levine and Loayza (2000). King and Levine (1993), for example, found that financial systems improve the possibility of successful innovation thus increasing economic growth.

Despite the large number of studies supporting Patrick's supply-leading hypothesis, a number of studies have revealed the existence of a bi-directional relationship between the financial sector and economic growth (Fritz 1984; Woo 1986; Murinde and Eng 1994; Calderon and Liu 2002). Fritz (1984), for example, found that in the case of the Philippines financial intermediation causes economic growth in the earlier stages of development and the causation was reversed during the later stages. Similarly, Calderon and Liu (2002) and Woo (1986) suggest that, whilst supply-leading responses appear to be the dominant force in both developing and developed nations, there is an important demand-following response in more developed nations. Consequently, developing countries are likely to benefit more from financial development. In the next step the neo-structuralists counter arguments to financial reform are presented.

2.3.4 The Neo-Structuralists Opposition to Financial Liberalisation

The analysis of the McKinnon-Shaw school has been criticised by economists such as Taylor (1983), Van Wijnbergen (1982;1983) and Buffie (1984) who using a Tobin-style portfolio approach predict that financial liberalisation will be detrimental to economic growth.¹⁵ The distinctive feature of their analysis is the assumption that curb markets are important sources of finance in developing countries.¹⁶ The significance of the curb market was previously dismissed by Shaw (1973), who suggested that it was an imperfect substitute for indirect financial assets, and similarly by McKinnon (1973), who suggested that the importance of curb markets would decline following financial liberalisation. However, the neo-structuralists assert that the curb market is competitive and efficient, and thus a vital source of finance in developing countries. Buffie (1984)

¹⁵ Tobin (1965) and Johnson's (1967) substitutability hypothesis regards money as a substitute for physical assets. Any increase in the rate of interest on a monetary asset would result in a portfolio shift towards such assets. A reduction in capital accumulation and economic growth with consequently occur (Gounder, 2006).

¹⁶ The curb-market refers to the informal money market.

suggests that the process of financial deepening will result in households substituting out of the curb market and thus potentially reducing the real supply of credit available, the quantity of investment and the rate of economic growth. "Once we allow for ramifications in the curb market financial liberalization becomes a perilous undertaking" (Buffie, 1984, p. 320). Likewise, Taylor (1983) and Van Wijnbergen (1983) claim that high interest rates on deposits will not necessarily lead to increased financial intermediation, due to shifts out of the curb-markets which are not subject to reserve requirements.¹⁷ In particular, if substitution is mainly from the curb-market to time deposits, and not from currency to time deposits, then raising the time deposit rate is likely to be contractionary in the short-run. This is because raising the real interest rate will increase the real curb-market rate, and thus growth rates will be stunted and inflation is likely to increase in the short run.¹⁸ In fact, Van Wijnbergen (1983) notes that due to the short-run consequences and possible conflict with long-run targets a McKinnon-style stabilization policy has never been implemented to the best of his knowledge.

The neo-structuralists highlight the ambiguity surrounding the theoretical effects of financial liberalisation. They stress that whilst resource allocation in the financial sector must be based on economic efficiency there are a number of impediments that arise. First, whilst financial liberalization may in theory result in a Pareto efficient resource allocation the presence of information constraints makes this unlikely. In particular, Stiglitz (1994) suggests a rise in the level of interest rates will lead to an increase in the amount of adverse selection thus increasing credit rationing. Second, it can be argued that removing current distortions in the financial market may uncover further distortions and thus fail to be welfare enhancing. Government intervention may not always be warranted and sometimes the cure may be worse than the disease due to the impact of self-interest in the public sector.

¹⁷ Taylor (1983) suggests first, that high interest rates on deposits are likely to simply result in a portfolio shift towards that asset and thus not actually result in a higher level of savings occurring due to crowding out. And second, that even if the crowding-out is unimportant it is still possible that newly generated savings would not necessarily be transformed into new capital formation.

¹⁸ Taylor's model implies that an increase in the interest rate in the curb market will raise the price level via a cost-push effect but at the same time lower the price level by reducing investment demand. No matter which effect dominates overall there will be a decrease in economic growth associated with an increase in the interest rate (Fry, 1995).

Studies undertaken by Lim (1987), Van Wijnbergen (1982), and Fung, Ho and Zhu (2005) found support for the neo-structuralists views. Specifically, Van Wijnbergen (1982) found that the substitution between the curb-market and time deposits was of greater importance than substitution between currency and time deposits. He also found evidence that higher deposit rates lead to higher inflation in the short run.¹⁹ Similar evidence of increasing level of inflation was found by Fung, Ho and Zhu (2005). Recently, Rousseau and Wachtel (2005) have queried the existence of any dynamic cause-effect relationship between finance and economic growth. Their findings suggest that in the past 15 years the finance effect on growth has been a disappearing phenomenon. Furthermore, the 'classic' results disappear when fixed or random effects are included into the standard growth models specification, which suggests that financial depth may be standing in for other unobserved country-specific factors in the classic prescription.

The remarkable improvements in economic growth experienced by Japan, Korea, Taiwan and Singapore, under a system distinctly different from the free market solution, also provide stimulus for the neo-structuralists assault on financial liberalisation (see Haggard and Lee, 1995). In particular, Haggard and Lee(1995) suggest that liberalisation may be an appropriate strategy when distortions are large. However, conditions are not similar across countries and thus there is a continuing need for government intervention in the financial market. Nonetheless, studies have emerged in the literature that question the assumption made by the neo-structuralists that curb-markets are perfectly competitive. In particular, Chandavardar (1985) and Owen and Solis-Fallas (1989) highlight that curb markets are highly segmented and inefficient. Owen and Solis-Fallas (1989) suggest that the linkages between the formal and informal sectors of the credit market are relatively weak and therefore there are limits to the ability of excess demand for credit to spill over between the sectors. Owen and Solis-Fallas (1989, p. 354) conclude that “ ...the new structuralists warning over the dangers of financial liberalization may well be justified on other grounds, but their modelling of the workings of the curb markets and their labelling of cash and inflation hedges as equivalent ‘unproductive’ assets run the risk of misdirecting future work in the area.”

¹⁹ Due to Van Wijnbergen's (1982) neglect of substitution between physical assets and time deposits Balassa (1991) and Gupta and Karapatakis Gupta, R. and A. Karapatakis (2005). *Financial Liberalization: A Myth or Miracle Cure?* University of Pretoria, Department of Economics Working Paper Series. question his results.

Cho (1990) suggests that the different conclusions on the effects of liberalisation by the competing schools of thought arise solely from the differing perceptions of the efficiency of banks and the curb markets in financing investment. In essence, the differences between the McKinnon-Shaw school and the neo-structuralists lie not in their view about financial liberalisation but with regard to their approach. The neo-structuralists message is ultimately the same as the McKinnon-Shaw school; that is to reduce the size of the inefficient and repressed sector and to expand the efficient and liberalised sector. The question comes down to whether the curb-markets are more efficient than the financial sector in developing economies. Conceptually Cho (1990) suggests that the intermediation rate of the informal sector is lower than that of banks and therefore the banking sector can allocate funds more efficiently, as informal markets fail to identify productive borrowers and experience high risk. The case for investigation of financial liberalisation, savings and investment in Fiji is presented below.

2.4 Savings, Investment and the Financial Sector in Fiji

The significance of the role of savings, investment and the financial sector in generating sustainable economic growth has been highlighted above. Whilst views over the roles of these variables in promoting growth differs amongst the various schools of thought, recent theoretical and empirical studies (in the neo-classical and new growth schools of thought) have provided strong evidence of the importance of savings and investment. Similarly, the financial liberalisation literature provides weighty evidence in favour of the positive impact of financial sector development on economic growth. With these views well established in the literature, this particular study seeks to establish whether savings, investment, and financial sector development have had a similar role in the case of Fiji and thus prescribe growth enhancing policy recommendations.

Fiji has experienced low levels of economic growth and consequently high levels of poverty since the 1980s and political instabilities have been a significant contributor to this poor economic performance (Gounder 1999; Gounder 2002). The impact of the political coups in 1987 and again in 2000 has also likely been a detrimental effect on the levels of savings and investment. In light of the poor economic performance, reforms in the macroeconomic, trade, and financial sectors have been undertaken. The impact of gradual moves towards greater financial liberalisation in enabling savings to be directed

towards profitable investments is important to gauge from a policy perspective. The success of financial liberalisation and the determinants of savings and investment have only received limited empirical attention for the case of Fiji. This research assesses the impact of the financial reforms and the determinants of savings and investment, and thus will provide a strong basis for targeted policy reform and highlight further key areas for research.

2.5 Summary and Conclusion

This chapter provides an overview of the theoretical and empirical evidences of the role of financial factors in generating economic growth. It focuses on the savings-investment-growth nexus and the impact of the financial sector on economic growth. From a theoretical stance the role of savings and investment in spurring sustainable economic growth is noted in all three key periods of the economic growth literature. In particular, the important role of capital accumulation (investment) in generating economic growth is illustrated in one form or another by all the schools of thought. The neo-classical school is distinguished from the literature due to its emphasis on both capital accumulation and efficiency of resource use as the key determinants of growth. The main result of discussion, to date, with regard to the savings-investment-growth nexus is that investment and savings, as well as variables which capture certain aspects of the policy regimes, and underlying forces present in a specific developing country, should be examined when attempting to explain economic growth. Further detection of the variables which impact on savings and investment for the case of Fiji will be undertaken in the following chapters of this study.

Within the finance-growth literature there is a theoretical consensus that financial conditions are likely to affect the rate of economic growth. McKinnon (1973), Shaw (1973) and their supporters expect a positive impact on the rate of economic growth in both the short and medium term as a result of financial liberalisation. Oppositely, the neo-structuralists predict stagflationary effects will arise from financial liberalisation in the short run. The two schools differ in their basic assumptions with regard to their treatment of the importance of the curb market in developing economies. There is some merit in the neo-structuralists assertion as to the importance of informal financial markets in developing economies, particularly in the case of small island economies such

as Fiji, where curb markets do play a role in financing households and firms. However, the assumption that they are highly efficient and effective markets is questionable.

In the last twenty five years many developing countries have undertaken varying aspects of financial liberalisation. The experiences of developing countries such as the South-East Asian economies reveal a correlation with financial crisis that can be explained partly by existing inefficiencies and distortions in the financial structure becoming exposed, and by failures to develop a strong regulatory framework prior to liberalisation. The impact of institutional factors in determining whether liberalisation is successful has been clearly illustrated by these cases. Consequently, it has been asserted that financial liberalisation can potentially spur sustainable economic growth if a gradual approach is taken in conjunction with macroeconomic reform programmes that have been tailored to suit the individual country circumstances. This has theoretically been the approach adopted in Fiji; however the extent of its success to this date has not been gauged. Within the financial liberalisation literature there is also agreement that country specific circumstances have had a major effect on the outcomes of moves towards financial liberalisation. For this reason, individual countries studies are vital in prescribing effective targeted policy. The next chapter will provide an examination of the financial sector in Fiji. This is then followed by an empirical assessment of the key determinants of savings and investment, and the impact of Fiji's financial sector reforms on economic growth.

Chapter 3

Macroeconomic Structure of Fiji

3.1 Introduction

Fiji is one of the most populated and developed South Pacific island countries. However, since achieving independence in 1970, various development challenges including relatively limited natural resources, economic and environmental vulnerability, and limited access to the global markets have proved to be major obstacles in achieving improvements to enhance economic growth. In fact, Fiji is amongst the group of Melanesian Island nations which recent evidence identified as having poverty levels approaching those of the world's poorest countries (United Nations Human Development Report 2005). Especially concerning is that Fiji's human development ranking, which is based on life expectancy, education and income, has dropped from 44th (out of 177 countries) in 1998 to 92nd in 2005 (UNCP, 2005). Given the downward nature of these trends government intervention has occurred in the macroeconomic, trade and financial sector in an attempt to improve the standard of living.

Fiji's lethargic economic growth rates over the last decade and a half are partly attributable to the political instability caused by the coups in 1987 and 2000. This is because the coups caused an exodus of skilled labour; decreased private and foreign investment; reduced the trade balance and liquidity in the banking system; reduced foreign exchange reserves; and resulted in devaluations of the currency. These adverse impacts and the poor performance of the economy have ultimately undermined the reform packages put in place and consequently little has improved in the recent years. The United Nations (1996) notes that the problems of unemployment, the growing imbalance in income distribution, and the pressure on government to provide social services in the face of sluggish economic growth have created problems that must be met with policies aimed at increasing investment, and the development of new methods to achieve growth.

The critical role of the financial sector in curbing the incidence of poverty and spurring economic growth is well established in the literature. An assessment of the economic policy actions undertaken in Fiji is important in order to understand the countries two

crucial growth factors, i.e. savings and investment, and examine the extent and effect of financial liberalisation in Fiji. This chapter provides a discussion of Fiji's financial sector and addresses the country's macroeconomic performance in terms of economic growth, savings, and investment. In particular, this chapter examines the macroeconomic, financial and trade sector reforms undertaken in Fiji since independence in 1970, in order to highlight the key features of the country's policy regime. The trends noted in the level of saving, investment and economic growth are also examined with an eye to identifying their determinants. The chapter is set out as follows; section 3.2 provides an overview of Fiji's macro-economy with particular reference to the trends in economic growth, savings and investment. Given the deleterious impact of the military coups of 1987, section 3.3 examines the economic and financial sector reforms undertaken in the post-1987 coup period. The significance of the study is presented in section 3.4. The final section presents the summary and conclusion of the chapter.

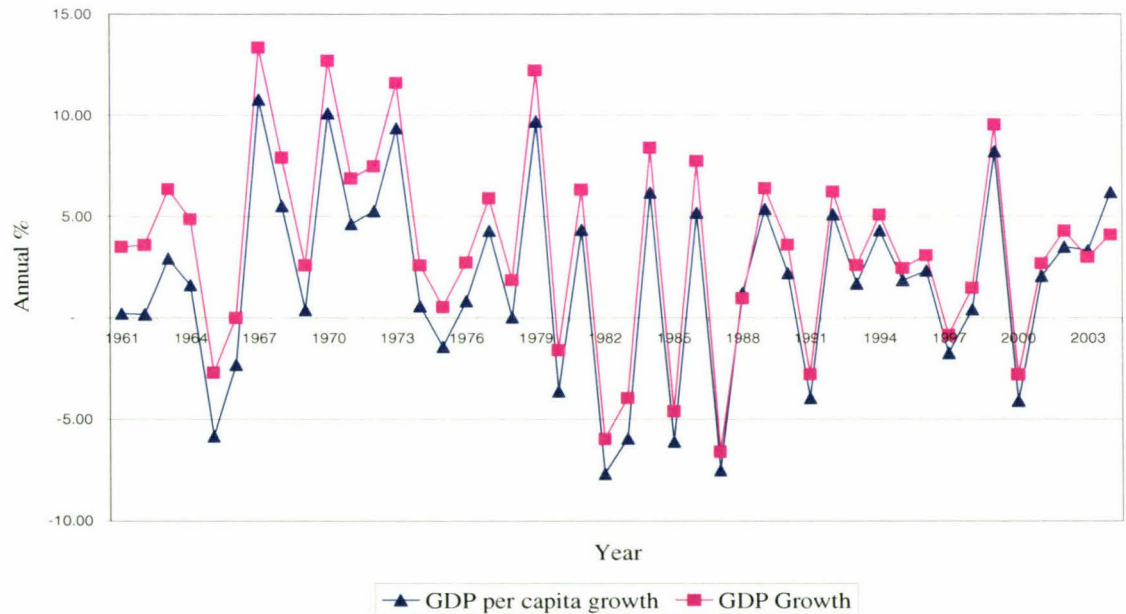
3.2 Fiji's Macro-Economy

Prior to independence in 1970 Fiji's approach to economic policy reflected the mixed ancestry of the country's two major ethnic groups (i.e. the Fijians and the Indo-Fijians). The economy was characterised by: the traditional hierarchical social structure of the indigenous Fijians; a colonial inheritance with a benevolent civil service which operated separately from the state so as to maintain law and order; a model of the Indian civil service with its complex social pyramid; and a tradition of the European and Indian traders self sufficiency (Kasper, Bennett et al. 1988). Fiji's approach to macro-economic and development policy was highly interventionist in nature and has maintained certain characteristics of this tradition, even though a market orientated approach was adopted during the 1980s. In terms of macroeconomic performance, Fiji has experienced a mixed history with Gross Domestic Product (GDP) being characterised by periods of prosperity, but more frequently by periods of sluggish growth. Agriculture, manufacturing and the service sectors have been the main contributors to GDP. The sections below examine in depth Fiji's macro-economic performance and the underlying trends and patterns of the key factors of growth and the policies utilised over time.

3.2.1 Economic Growth Performance

During the 1970s Fiji experienced positive per capita GDP growth, particularly during the years immediately after independence. The period was characterized by high levels of consumer confidence, strong labour market growth, a large inflow of foreign capital, and increases in investment rates and business activities. However during the 1980s a series of natural disasters, the oil crisis, and political instability resulted in a severe reduction in the rate of economic growth. In particular, the uncertainty over Fiji’s social and economic future, which surfaced due to the two military coups staged in 1987, caused a contraction in GDP growth (Figure 3.1). During the post-1987 coup period the economy experienced a decrease in the number of hours of employment, cuts to public capital expenditure, an increase in the government deficit and the balance of payments deficit, liquidity constraints, an acceleration of inflation, departure of skilled labour, decline in public and private investment, and a rapid depletion of foreign exchange reserves (Kasper, Bennett et al. 1988; Gounder 2002). Reductions in the previously healthy rate of economic growth ensued.

Figure 3.1 GDP and GDP per capita Growth Rates, Fiji, 1961-2004



Source: World Bank (2005).

During most of the 1990s economic growth displayed positive increasing trends, with the exception of 1997 when the land tenure issues caused a contraction in growth. In 2000, Fiji was again thrown into economic and political turmoil, which immediately led to poor growth performance. Attempts by policy makers to re-establish the growth rates

achieved during the 1970s had limited success, and thus standards of living have continued to fall. Recent economic reforms have only had limited success due to limitations in access to global markets and natural resources, the impacts of political instability and environmental disasters (i.e. cyclones and droughts), and the small and isolated nature of the economy. For example, Sampson (2005) notes that the smallness effect for the Pacific Island economies and political instability negatively impact on growth.

Fiji's policy reforms undertaken in the post-1987 coup period resulted in mainly positive rates of GDP growth for most years. These outcomes however failed to be high enough to dramatically curb the incidence of poverty. The Governor of the Reserve Bank of Fiji (RBF), Savenaca Narube (2005), notes that although growth rates since 1996 have generally been positive and averaged around 2.4 percent they have failed to transform into overall improvements in the standard of living. Those benefits which have arisen from improvements in GDP, although small, have tended to be unevenly distributed across the population and thus have had little impact on the incomes of the urban and rural poor.

The 1970s and early 1980s were also characterised by high and turbulent rates of inflation, however economic reforms undertaken in the early 1990s saw significant reductions in the level of inflation and its volatility (Figure 3.2). Over the period 1994-2004 inflation in Fiji averaged around 3 percent and was mainly imported from overseas as opposed to created by domestic factors such as labour markets (Gokal and Hanif 2004). Gokal and Hanif (2004) found weak support that these levels of greater macro stability have impacted positively on Fiji's growth.²⁰ However, despite improvements during the post-1987 coup period, Fiji has failed to achieve and maintain high rates of economic growth. This is problematic as low economic growth rates have high costs in terms of increased income inequality and the incidence of poverty (Sharma 2004). There have also been serious costs in terms of capital and human resources in the long run (Gounder 2002). The continued sluggish growth has been attributed to agricultural dependence, fluctuating primary commodity prices and incomes, continued political

²⁰ This is because high levels of inflation can potentially eat away at a nation's socio-political stability and its economic growth potential Kasper, W., J. Bennett, et al. (1988). Fiji : Opportunity from Adversity? New South Wales, Centre for Independent Studies.

instability, an exodus of skilled labour, and low levels of capital accumulation. The performance of the trade sector is discussed next.

Figure 3.2 Inflation (consumer prices), Fiji, 1970-2005



Source: World Bank (2005).

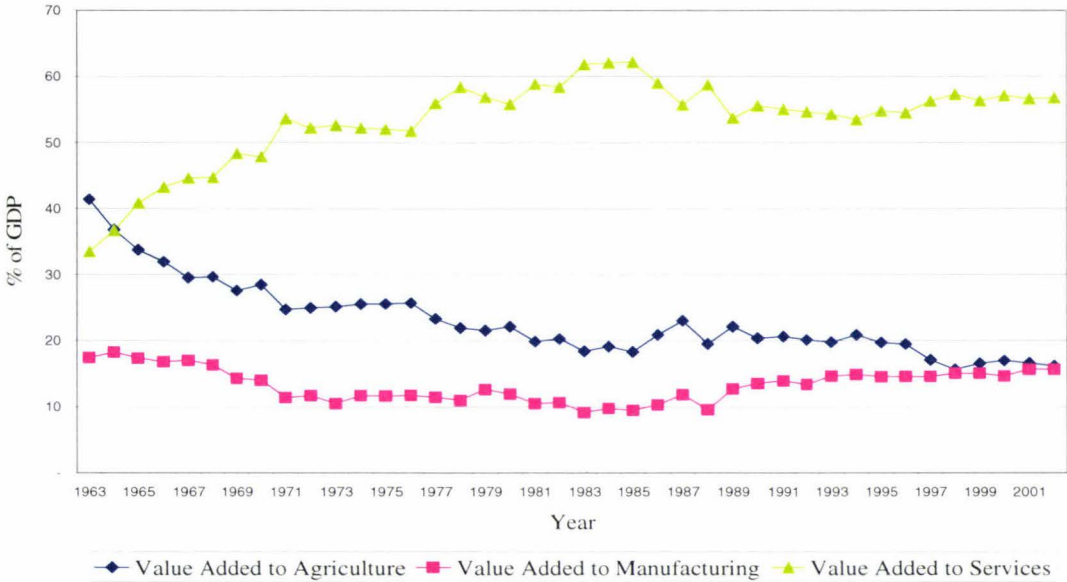
3.2.2 Trade Sector Performance

Trade is the engine of growth for developing countries like Fiji as it plays a crucial role in determining the countries economic prosperity. Fiji’s trade regime constitutes of three components; bilateral agreements, regional trade agreements, and the World Trade Organisations (WTO) multilateral trading system. Bilateral trade agreements of a reciprocal nature are held with Australia and New Zealand, whilst non-reciprocal agreements are held with smaller trading partners in the Pacific Islands such as Tonga. Fiji is also a member of regional trade agreements, such as the Melanesian Spearhead Group (MSG) Trade Agreement, the Pacific Island Countries Trade Agreement (PICTA), and the Pacific Closer Economic Relations (PACER) which grant specific privileges and immunities to signatories.

Fiji has traditionally relied heavily on agricultural products as its main source of export earnings. During the 1970s and 1980s the government pursued a development strategy based on seeking to secure full employment by using the country’s natural resources (Akram-Lodhi 2000). This level of dependence on agriculture has continued in recent years with Fiji exporting \$F235 million worth of sugar in 2002 (Fiji Mineral Resources

Department 2005). However, the level of value added to agricultural products has dropped considerably since the 1960s when it was equal to approximately 40 percent of GDP to around 16 percent of GDP in 2004 (see Figure 3.3). This reduction is likely to have had adverse impacts on Fiji’s economy and to have contributed to the incidence of poverty as approximately 60 percent of poor households derive their income from the agriculture sector (Sharma, 2004).

Figure 3.3 Value Added by Sectors: Agriculture, Manufacturing and Services, Fiji, 1963-2002



Source: World Bank (2005).

The sugar industry in Fiji is by far the largest agricultural industry, contributing around 10 percent of GDP, directly employing 12 percent of the labour force and supporting as much as 25 percent of the Fiji’s population (EUROPA 2005). The industry has proved to be a foundation of the economy and even under import-substitution policies it was the economies main export item and contributor to GDP. The success of the sugarcane industry can, in part, be attributable to Fiji’s preferential access to the European Union (EU). Hermann and Weiss (1995) note that Fiji has received a price that not only averaged between 2.5 to 3 times the world market price, but which also was significantly more stable than the world price. However, due to internal failures to improve productivity and externally induced changes related to declining preferential access, the sugarcane industry has faced several problems (EUROPA 2005). Specifically,

preferential access to the EU is set to finish in 2008 and consequentially reductions in international returns from sugarcane are likely to occur (Narayan and Prasad 2004).

The Fiji Sugar Corporation (FSC) estimates that the removal of internal price supports for sugar in the EU will result in the price received falling by 23 percent in 2006 (OXFAM 2005). In 2003 sugar accounted for 93 percent of Fiji's exports to the EU and thus changes will be a huge blow to the industry (EUROPA 2005). The sugarcane industry is at a turning point and thus the Asian Development Bank (ADB) and government have drawn up reform plans in an attempt to avoid any significant disruptions. It is still however uncertain how the level of sugarcane production will be affected. Both the ADB and Fiji government claim that production levels may not fall, however others such as the Fiji Sugar Cane Growers Council (FSCGC) are less optimistic (Narayan and Prasad 2004). Narayan and Prasad (2004) agree with the FSCGC's view that sugar production levels will fall, and suggest that a 30 percent reduction in production would result in a drop in GDP by 1.8 percent and a decline in real welfare by around 1.5 percent. Their findings clearly highlight the continued importance of the sugar cane industry to Fiji's economic prosperity.

Dependence on agricultural products is problematic as they tend to capture low prices in international markets and thus reducing Fiji's dependence on agricultural products, and in particular sugarcane, has been central to policymaker's decisions. The colonial government first recognised the importance of diversifying the sugarcane dominated economy and consequently put forward various policies including legalising tax free trade of tourism goods and generous tax incentives (Bossem and Faust 1995). During the post-independence era governments have maintained similar policy stances and consequently economy wide shifts away from dependence on raw agricultural products, in terms of employment and exports, and towards the service and manufacturing industries have occurred.

Services, value added, as a percent of GDP has increased significantly since 1963 and by far outweighs the contributions of the agriculture and manufacturing sectors (see Figure 3.3). In particular, the tourism industry has flourished making it in recent years the fastest growing industry in terms of jobs and foreign exchange earnings. However, the coups in 1987 and 2000 caused a significant drop in the number of tourists and many

airlines companies discontinued services to the Fiji Islands. Tourism earnings in 1999 were estimated to be at F\$558.6 million and in 2001 had dropped to F\$489 million, as the effects of the coup began to be felt (Prasad and Reddy 2002). Since the 2000 coup, the tourism industry has begun to pick up again and displays further potential for growth, which in light of the current sugarcane industry crisis is likely to be vastly important for achieving economic growth.

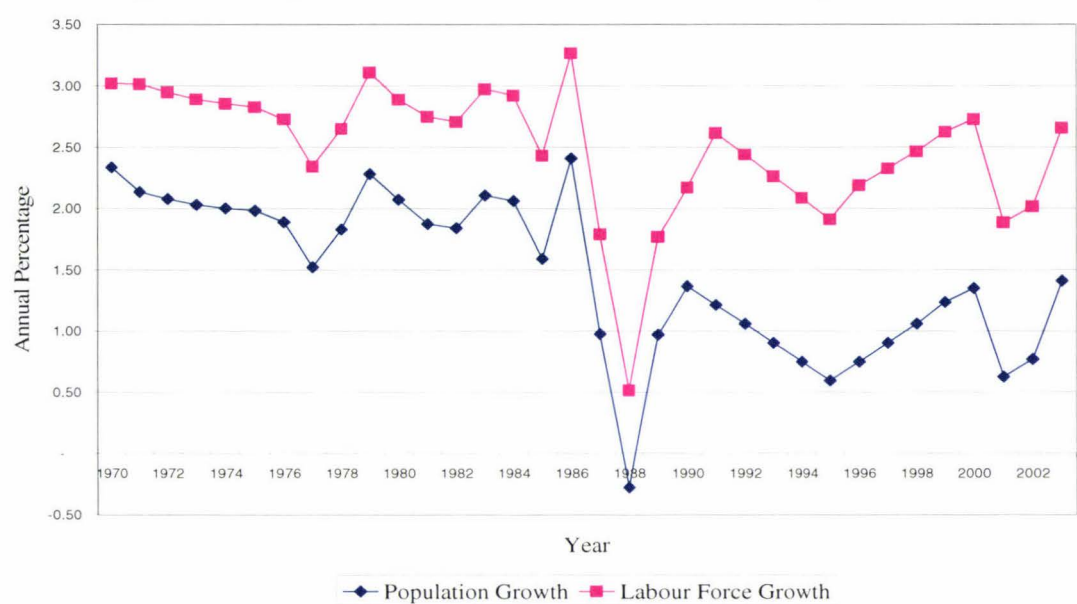
Greater international competitiveness since 1987 resulted in improvements in the value added to manufacturing as a percentage of GDP (Figure 3.3). The major manufacturing industry contributing to this improvement has been the garment industry which has benefited from large currency devaluations, restrictions on nominal wage changes, and the promotion of tax free factory schemes which coincided with changes to the rules of origin provisions of the South Pacific Regional Trade and Economic Cooperation Agreement (SPARTECA). Specifically, the amount of garment exports rapidly increased from F\$100,000 in 1988 to F\$123 million in 1990 (United Nations Economic and Social Commission for Asia and the Pacific 1998). The garment industry has also played an important role in attracting foreign investment, creating employment and further developing the skill base of the labour force. The industry has recently been adversely impacted by political instability, reductions in Australian tariffs forcing garment firms to compete with other countries, and the expiry of the WTO agreement on all textiles and clothing in January 2005 (Storey 2004). He suggests that the wages earned from the garment industry impact on the lives of up to 20 percent of Fiji's urban population, and thus large scale redundancies from the industry would likely aggravate economic hardship and social tensions. The discussion presented above clearly identifies the negative impact on economic growth where declines in the export capacity of the sugarcane and garment manufacturing industries have had on the nation. The trends experienced in terms of labour market performance and capital accumulation are discussed next.

3.2.3 Labour Market Performance and Capital Accumulation

High levels of economic growth during the 1970s are in part attributable to Fiji's high levels of skilled labour during the period. The political coups in 1987, however, had an immediate negative impact on the population and total labour force growth rates, as a

steady stream of skilled workers left Fiji (Figure 3.4). This exodus of skilled labour was particularly harmful to the growth of the export and investment sectors. Gounder (2005) notes that the rate of growth in the labour force, particularly skilled labour, has not increased sufficiently in recent years to meet market demands or the challenges Fiji faces with regard to globalisation. The persistent loss of skilled workers has seriously dampened Fiji's productive capacity by reducing the countries ability to attract investment, as is reflected by the countrys capital formation trends.

Figure 3.4 Population and Labour Force Growth, Fiji, 1970-2004

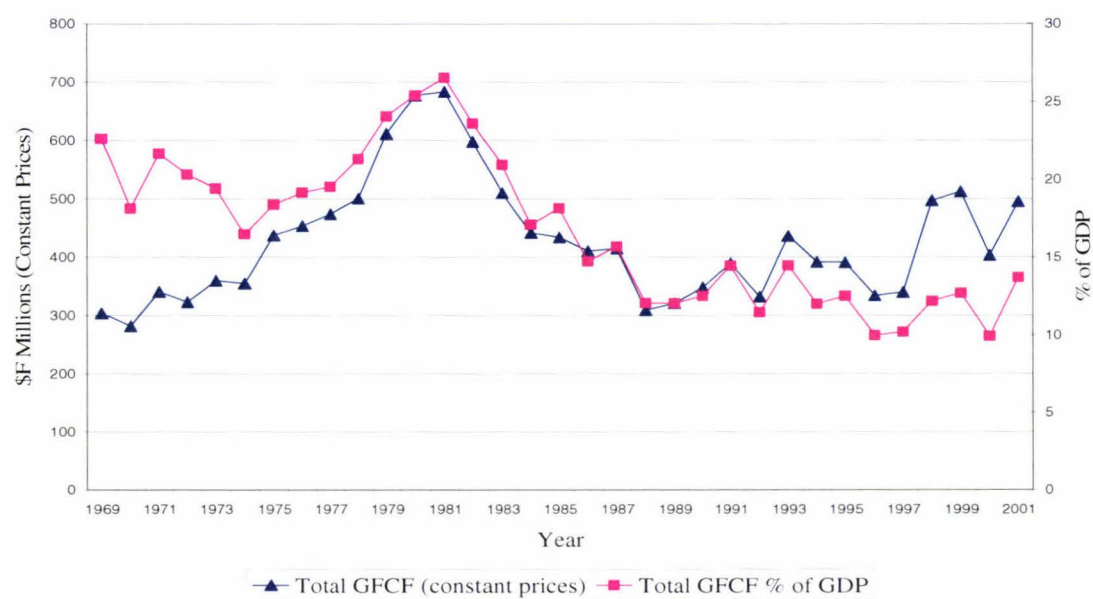


Source: World Bank (2005).

Gross Fixed Capital Formation (GFCF) has been emphasised by the conventional growth literature as a key component in achieving higher levels of growth. In the post-independence period GFCF as a share of GDP indicated a steady increasing trend, however between 1980 and 1988 a sharp decline ensued (Figure 3.5). By international standards Fiji's capital accumulation has compared poorly since 1989, as GFCF has failed to return to the levels achieved in the late 1970s. In particular, since the 1990s Fiji's GFCF has averaged below 15 percent of GDP which is concerning since GFCF levels of at least 25 percent of GDP are required to achieve a long run growth rate of 5 percent (Rao 2004; Asian Development Bank 2005). Low rates of capital accumulation are a consequence of low national savings and poor availability of credit resulting in low investment levels. Consequently, foreign aid and Foreign Direct Investment (FDI) have

played important roles in attempting to accumulate the required level of capital resources to achieve economic growth in Fiji.

Figure 3.5 Total Gross Fixed Capital Formation, Fiji, 1969-2001

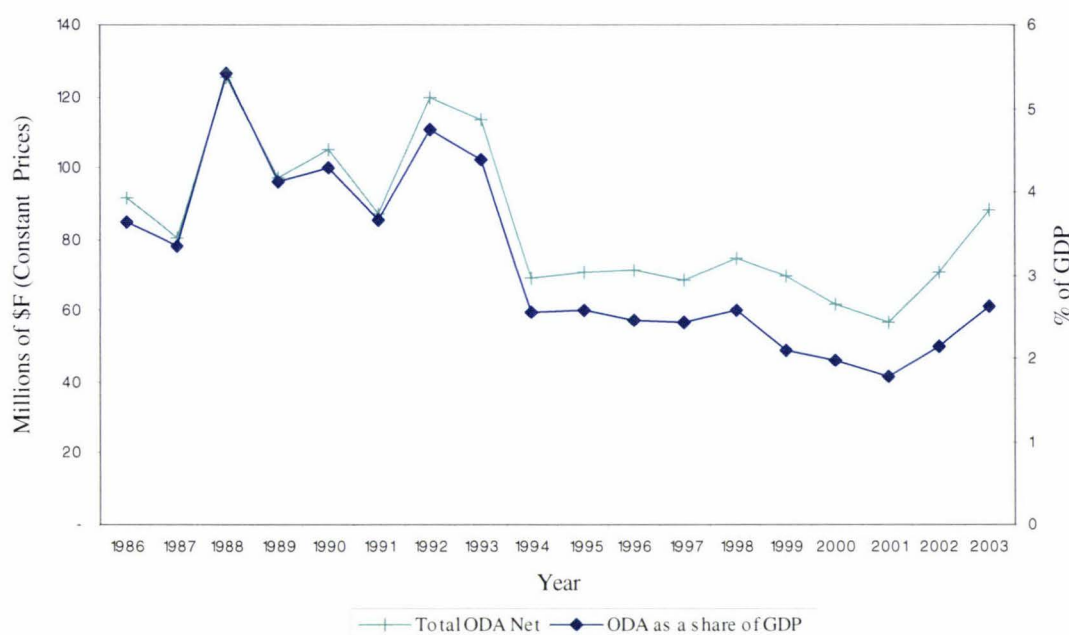


Source: World Bank (2005b) and International Financial Statistics (various).
 Note: Gross Fixed Capital Formation (GFCF).

International donor agencies such as the World Bank, the ADB, and bilateral aid donors have played an important role in the Pacific Island developing countries by providing funds for capital accumulation. The aid provided by bilateral donors has been particularly important, with the Japanese government in the late 1990s providing the largest amount of aid.²¹ Gounder (2001) and Sampson (2005) note that New Zealand and Australia contribute a substantial proportion of aid to Fiji, which has in recent years amounted to about one third of Fiji’s total aid. Despite the large and vital role of multilateral and bilateral donor agencies play in Fiji, the aid to GDP levels are lowest amongst the Pacific Island nations and have been so for the last twenty five years (Sampson 2005). In fact, the level of official development assistance has decreased considerably since the early 1990s (see Figure 3.6), as a partial consequence of the political environment.

²¹ In 1999 the Japanese government provided US 35.million of aid to Fiji (OECD, 2001).

Figure 3.6 Fiji's Total Official Development Assistance, 1986-2003



Source: OECD (2005).

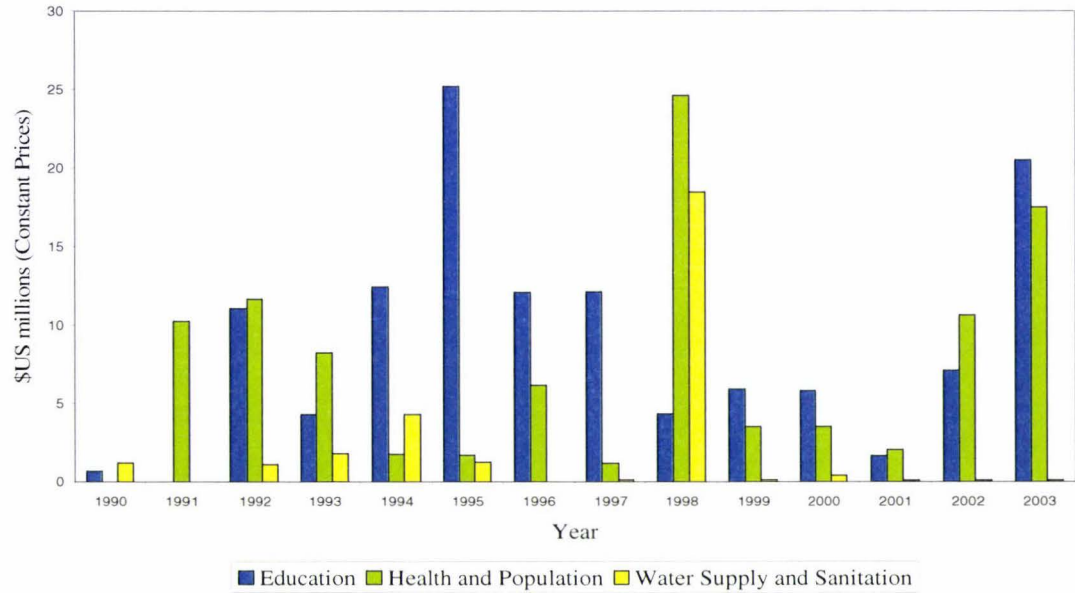
Foreign aid provided by the World Bank since 1971 have been directed towards improving infrastructure and capital accumulation in the telecommunications and electricity sectors. Likewise, bilateral assistance since 1975 has been focussed on improving social infrastructure, law and order, and the provision of health and education services to rural areas. Table 3.1 and Figure 3.7 indicate aid flows by sectors. Substantial amounts of aid have been allocated to education and health and these remain key priority sectors for social development. The other priority sectors for further assistance, noted by the World Bank (2005), include transportation and communications, energy, agriculture, natural resources, water and sanitation, and finance.

Table 3.1 Fiji's Bilateral Aid Commitments by Sectors (US\$M, 2000 constant prices), 1975-2003

Year	Social Infrastructure and Services	Economic Infrastructure and Services	Production Sectors
1975-1979	1.22	12.52	1.45
1980-1984	8.29	1.73	7.59
1985-1989	3.99	0.76	13.40
1990-1994	25.76	1.21	5.24
1995-1999	30.98	1.14	9.58
2000-2003	23.43	1.02	3.67

Source: OECD (2005).

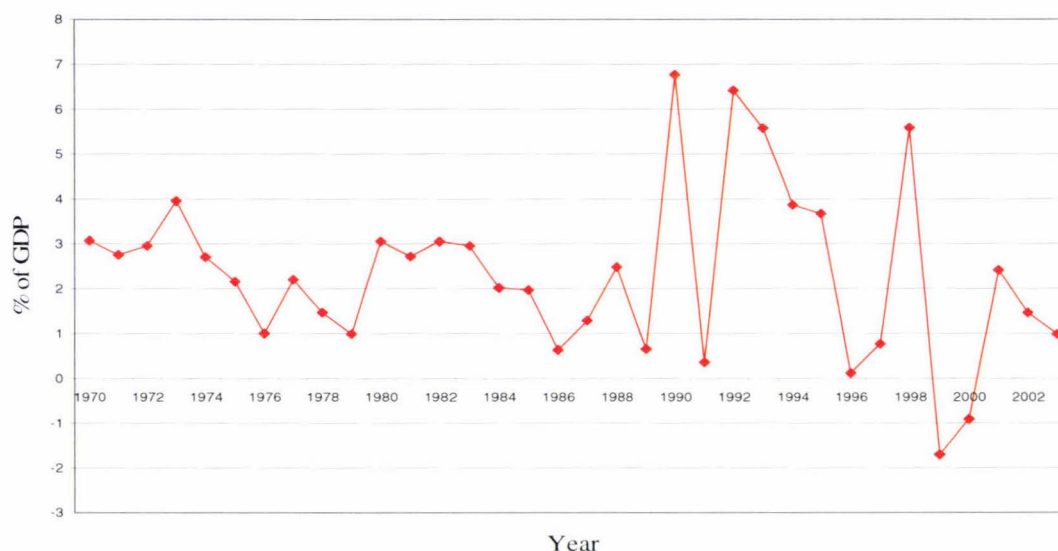
Figure 3.7 Official Development Assistance provided for improving Social Infrastructure in Fiji, 1990-2003



Source: OECD (2005).

Equally important to the role of aid in terms of achieving the desired level of resources for economic growth has been FDI. Specifically, FDI is relied on to meet Fiji's needs in terms of natural resources, tourism, transport, and financial services (Gounder 2006). Political instability however has had a negative impact on overall levels of FDI flows, as can be noted from the reductions in FDI as a percentage of GDP in the post coup periods (Figure 3.8). The continued low levels since 2000 is concerning as FDI flows generally contribute to increased output, exports, foreign exchange, tax revenues and employment, as well as access to improved technology, new skills (i.e. management and marketing skills), improved access to export markets, and social and physical infrastructure (Duncan, Cuthbertson et al. 1999). Low levels of FDI resulted in a lack of growth enhancing factors which has negatively affected capital accumulation and economic growth. The savings and investment patterns experienced in Fiji are presented in the next stage of this analysis of the macro-economy.

Figure 3.8 Foreign Direct Investment (% of GDP), Fiji, 1970-2003



Source: World Bank (2005).

3.2.4 Investment and Savings

The impact of savings and investment on economic growth has been viewed differently by the competing schools of economic thought, as discussed in Chapter 2. Recent thinking has highlighted that the levels of investment and savings, as well as variables which capture certain aspects of the policy regimes and the underlying forces present in the economy, should be emphasised when attempting to explain economic growth. Low levels of savings and investment in recent years have restricted the growth enhancing factors of production in Fiji, and thus contributed to the incidence of poverty.

During the 1970s Fiji attracted a high level of private investment due to the efforts of the government in establishing Fiji as an export-processing zone (Seruvatu and Jayaraman 2001). Completion of hydroelectricity, road and water supply projects in the early 1980s further contributed to provide a favourable environment for private sector investment. High levels of private investment were the major driver of total investment up until 1987 when a steady downward trend in private investment began as a consequence of the uncertainty generated by the military coups. Overall, private sector investment diminished substantially from the previous high levels of around 15 to 20 percent of GDP in the 1970s and 1980s, to around 4 percent of GDP in 2001 (see Figure 3.9). Knapman and Zhukov (2001) note that low levels of private investment in the Pacific Island developing countries can be linked to slow growth in two ways: first, its signifies

a lack of access to finance due to the inability of use land as collateral and lack of track record for borrowers; and second, it implies there is a lack of profitable investment opportunities which can be partially attributable to frequently changing government policies. Gounder (2005) similarly empirically determined a strong favourable effect of private investment in Fiji on economic growth. The impact of the uncertainty inherent of political turmoil on the expectations of returns from private investment has however provided a harsh blow to attempts to improve economic growth in Fiji.²²

Public investment in infrastructure has played a crucial role in Fiji's economy in terms of capacity expansion. For example, during the 1980s the construction of hotel complexes and roads and in the late 1990s the purchase of aircrafts contributed considerably to Fiji's economy (Seruvatu and Jayaraman, 2001). However, the government in the post-1987 coup period has often failed to use investment funds for capacity building, but rather has used funds for public sector consumption.²³ Specifically, Jayaraman (1996) found that since 1976 government investment has not been complementary to private investment, and during the periods of political instability public expenditure has been channelled toward funding consumption activities in order to restore law and order. Gounder (2006) notes that by providing a market system which functions efficiently, the social and economic infrastructure are required to facilitate and implement private investment plans and so public investment can smooth the path for competition and generate sizeable spill over effects for the private sector.

Total investment to GDP has exhibited steadily decreasing trends in the period since 1980 (see Figure 3.9).²⁴ In 2001 total investment to GDP was around 15 percent which in light of Rao's (2004) finding emphasizes that investment conditions need to be improved to achieve sustainable growth.²⁵ Levels of total investment in Fiji are low by developing country standards and highlight the important impact of private sector expectations on

²² Gounder's (2005) empirical results show that a decline in private sector investment since 1987 has led to a decrease in the level of contribution to growth.

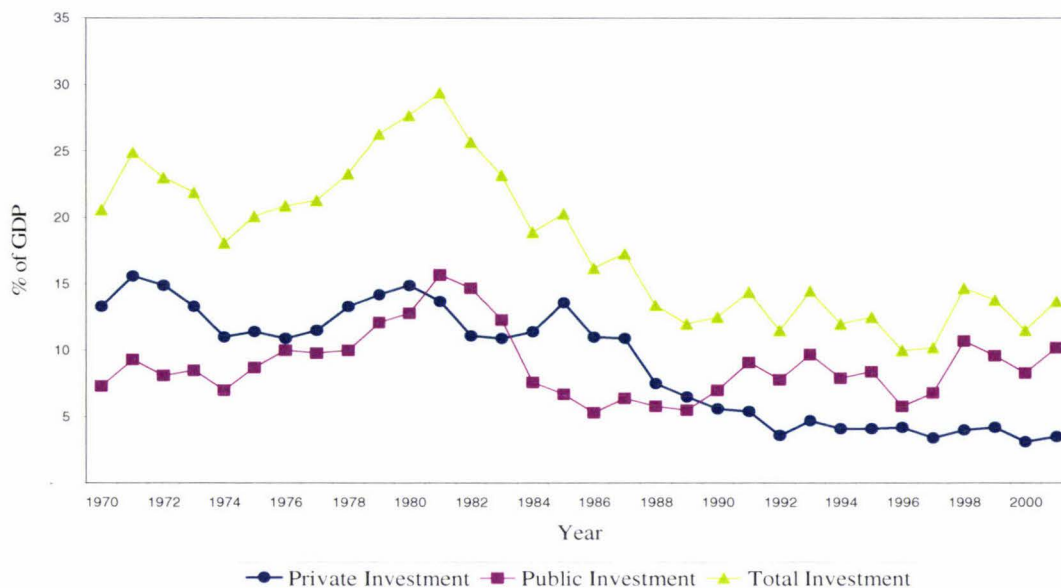
²³ Kububola (2002) notes the excessive cost of funding the public service and the consequent lack of funds available for roads, water, sewage, education and health etc.

²⁴ Gounder (2005) highlights that Fiji has good investment policies however the coups affected negatively on overall investment levels thus impacting negatively on economic growth.

²⁵ Rao (2004) is similarly supported by the Asian Development Bank (2005) findings that suggest a 25 percent investment ratio is required for a level of growth of 5 percent.

investment behaviour (Seruvatu and Jayaraman 2001; Gounder 2005). Duncan (2004) suggests that improvements in investment levels can be achieved by improving the time taken for FDI to be approved, improving protection of property rights, reducing the brain drain and reducing the costs of telecommunications in Fiji (Duncan 2004).

Figure 3.9 Total, Public and Private Investment (% of GDP), Fiji, 1970-2001



Source: RBF (various).

Private sector investment in Fiji has been financed mainly through domestic savings where as public sector investment has tended to be financed through foreign capital flows; i.e. mainly through foreign aid (Gounder, 2006). However, the post-1987 coup period has been characterised by a large reduction in the level of foreign capital flows, which has impacted on the level of domestic investment. As a result policies to attract foreign investment via incentives such as tax holidays and accelerated depreciation allowances have been put in place. However, the ADB (2006) notes that these incentives tend to make investment more capital intensive then it would be if a free market approach was taken. They suggest that coupled with the existing problems associated with capital markets and business financing, it is not surprising that the rate of investment is low or that many local entrepreneurs prefer to emigrate than invest in Fiji. Likewise, Knapman and Zhukov (2001) point out that excessive price and wage controls in the Pacific Islands have distorted market signals and discouraged investment.

National savings has been a vital component in financing domestic productive investments and promoting capital accumulation, especially in light of the declining level of aid flows to fund public investment projects since 2000. Fiji has traditionally had low savings levels by developing country standards. Of particular concern however is that since 1987 the level of Gross Domestic Savings (GDS) as a percentage of GDP has been exhibiting a relatively low and downward trend (see Figure 3.10). The Pacific regional strategy report attributed this declining trend to a high propensity to consume, shallow financial systems, and the narrowness of the monetized portion of the economy (World Bank 2000). Other possible reasons include high unemployment, low wages and the engagement of a large proportion of the population in the informal sector (Reddy, Naidu et al. 2005). Narayan and Narayan's (2006) investigation of national savings in Fiji suggests that because savings are positively correlated with the level of economic growth, low economic growth has resulted in low incomes and thus low levels of savings. Given the importance of savings in financing investment activities these declining trends are of concern.

Figure 3.10 Gross Domestic Savings (% of GDP), Fiji, 1960-2001

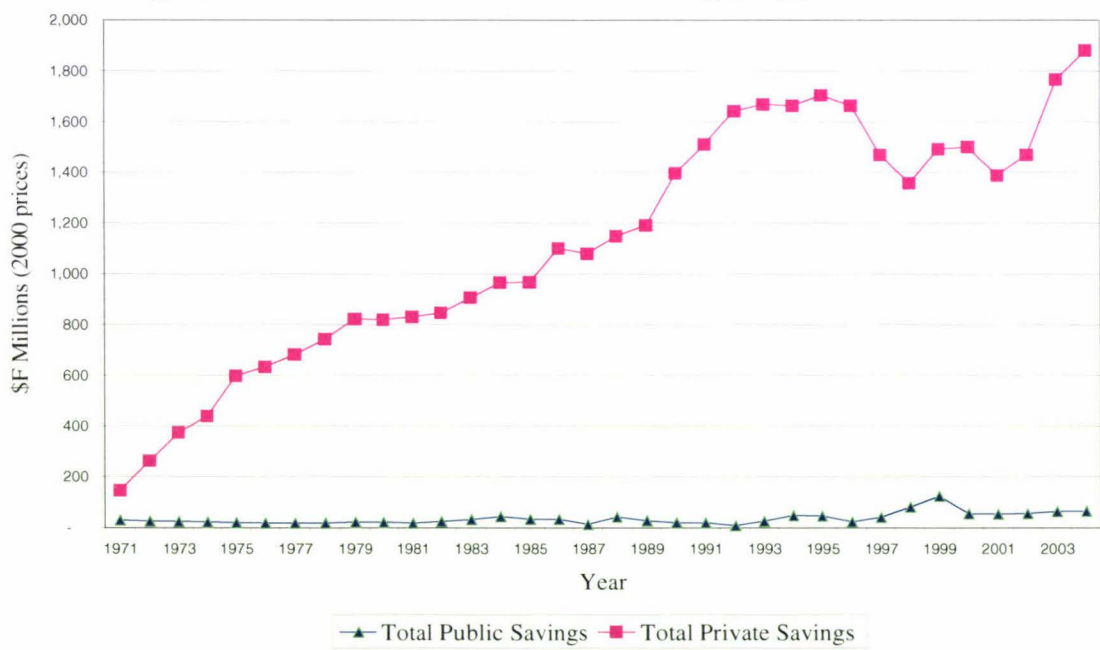


Source: World Bank (2005).

A break down of the overall level of savings reveals that private sector savings (non-government deposits plus Fiji National Provident Fund (FNPF) contributions) contribute the principal share to overall national savings (Figure 3.11). Private savings steadily rose from 1976 but began to decrease from the mid-1990s onwards, as the land leases expired and many people lost their livelihoods (Reddy and Naidu 2001). A recent investigation

into the savings behaviour of the two major ethnic groups in Fiji by Reddy et al., (2005) found that Indigenous Fijians generally do not save and those who do have a low savings rate. They also found evidence that most Indo-Fijians save and their savings rates are high. The large increase in the level of savings during the post-1987 coup period can therefore be attributed to precautionary motives within the Indo-Fijian community. Likewise, the implementation of the new 1997 Constitution in 1998, which reduced the previous racial bias, possibly contributed to a reduction in these precautionary motives and thus overall private savings levels. In addition, the expiry of land leases and the loss of livelihoods for Indigenous Fijians and Indo-Fijians have potentially contributed to an erosion of private savings levels. The post-2000 coup period indicates an increase in the level of private savings due, once again, to uncertainty concerning the nation's economic and political future.

Figure 3.11 Total Public and Private Savings, Fiji, 1971-2004



Source: RBF (various).

The contribution of the public sector savings to overall national savings has been relatively low compared to that of the private sector (Figure 3.11). This can be attributable to high levels of government expenditure, which led to a growing budget deficit and thus restricted revenue growth. The ADB (2004) notes that in 2004 the level of public domestic debt continued to rise, though slower than before, to a level equal to 46.4 percent of GDP. The value of public savings increased only in 1999, due to the policies of the newly-elected government. The 2000 coup, however, saw public savings

once again revert back to their previously low levels. Overall, Fiji's savings pattern has been dominated by the private sector and those factors which impede household's abilities to save. The importance of precautionary savings to protect households against periods of high unemployment, uncertainty and loss of incomes (e.g. non-renewal of land tenure, cyclones, and floods) is notable in the case of Fiji. The poor performance of savings, investment and GDP has motivated macroeconomic, trade and financial sector reforms which are discussed below.

3.3 Economic Reforms in Fiji: Post Independence Period

The economic performance of a nation depends on the suitability of the various policies adopted to enhance growth. For the case of Fiji in the 1970s the government undertook a public-sector led growth strategy and combined this with import-substitution policies in order to achieve economic growth. The high levels of government expenditure that ensued, along with the protectionist approach taken, led to inefficiency in both the public and private sectors which dampened economic growth (Reddy, Prasad et al. 2004). The first steps towards structural adjustment programmes began in 1986, with the introduction of a wage freeze, adoption of economic policy measures designed to encourage fiscal discipline, and a move towards restructuring other sectors (Prasad and Reddy 2002). Following the contraction in economic growth in the late 1980s, the reform programme was further extended in accordance with the ideologies of both the World Bank and International Monetary Fund (IMF). Specifically, the reforms were based on new macro-economic policies such as an anti-inflationary monetary policy and sustainable fiscal strategy, realistic exchange rate, liberal trade and exchange regimes, active social policies and good governance so as to provide a market friendly environment to growth (Fiji Islands Human Rights Commission 2005).

The focus of the initial structural reforms was towards stabilising Fiji after the 1987 coups and developing the nation as an export-orientated economy. Of prominence was creating economic institutions and incentives supportive of market-led economic growth, and thus particular emphasis was placed on enhancing the role of the private sector (Prasad and Reddy 2002). Reforms were undertaken in the financial and trade sectors, as well as broader reforms focussed at the wider macro-economy including reforms in the labour market, civil service, goods markets, operation of public enterprises, and

investment policies. Prasad and Reddy (2002) note that while some of the reforms have resulted in economic growth and employment; these improvements have not always been sustainable. An examination of the macroeconomic, trade and financial sector reforms undertaken in Fiji is presented below.

3.3.1 Macroeconomic Reforms

The reform package adopted by Fiji ultimately sought to reduce the role of the state in the economy, promote the development of internationally competitive industries and encourage higher levels of private sector investment. Whilst initial changes were aimed at stabilisation, the economic crisis following the 1987 coups led the government to strengthen their fiscal stance. Early restructuring measures included changes to the taxation system so as to minimise market distortions and improve incentives for risk taking and effort (Reddy, Prasad et al. 2004). In 1990 cuts to income taxes by 20 percent occurred and the amount of exemptions and allowances were increased (Akram-Lodhi 2000). To compensate for loss of revenue the tax base was widened and indirect taxes were raised. Specifically, the introduction of the much debated Value Added Tax (VAT) by the interim government in 1992 marked a rise in the reliance of indirect taxes by the government which continues in Fiji today (Barr 2004; Chand 2004).

The initial reforms were also focussed on the labour market in order to maintain competitiveness with overseas countries, and thus encourage greater levels of exports (Gounder, 1999). Fiji attempted to promote itself as a low wage competitive economy by introducing tax free concessions for foreign investors and removing statutory wage guidelines in 1989. However, by restricting the level of wages a high incidence of poverty was encouraged. In 1991 the government attempted to reverse the adverse effects of low wages and so undertook a series of reforms to allow free negotiations between employees and employers over wages and conditions of employment (Reddy, Prasad et al. 2004).²⁶ Changes to the industrial associations act, trade unions regulations, and the trade dispute act ensued. Nevertheless, the labour market continues to be characterised by rigidity (Reddy, Prasad et al. 2004), and thus has contributed to the high incidence of poverty.

²⁶ Barr (2004) notes that the 1996 census results showed evidence that 47 percent of those workers in full time employment were still earning wages below the poverty line.

The scope and pace of Fiji's reform program expanded during the 1990s to include restructuring of the public sector. Prior to the 1990s Fiji had a burgeoning public sector which required a large proportion of total budgetary expenditure to cover operating expenses. Public sector reorganization came about in the late 1990s and comprised of three main reforms; first to the civil service, second to public enterprises, and finally to financial management (Kubuabola 2004). The reforms were aimed at improving productivity, efficiency, accountability and the quality of services. The failure of many government owned business to perform profitably led to the corporatization of postal, telegraphic, shipping, aviation and housing services, and the restructuring of national electricity and water supply services (Slatter 2002). However, privatisation of many state owned enterprises failed to take place, and in other cases when privatisation occurred high-cost monopolies emerged. Other changes included social sector cutbacks in the areas of housing and social welfare, user-pays schemes, and an increase in the prominence of the Ministry of Finance in allocating resources based on performance and productivity (Fiji Islands Human Rights Commission 2005). Even so Fiji continues to have a large public sector, which has resulted in rising government overheads and consumption expenditure, a burgeoning number of public sector employees, low efficiency levels, and has allowed room for bad governance (Reddy, Prasad et al. 2004). The culture of the public sector has not changed, and misuse and mismanagement of public funds continues to be a problem (ibid).

In recognition of the failure of previous attempts to reform Fiji's burgeoning public sector the ADB, Ministry of Public Enterprises and Public Sector Reforms, and Ministry of Finance and National Planning entered an arrangement in early 2006 for a wide-ranging programme of technical assistance aimed at improving the momentum of the government reform programme. The project aimed to investigate the options and strategies for the promotion of public-private partnerships, corporate governance of public enterprises, promotion of linkages to capital market development, and the design and management of the whole process of change so as to improve the potential outcomes of further reforms (Fiji Government 2006). These issues suggest that economic crises were looming given Fiji's poor growth performance, higher incidence of poverty, low wage structures, large debt problems, low reserves, corruption and mismanagement, and dismal trade performance. Some desperate actions were needed to get the nation out of

the crisis. The severity of economic crises has led to the recent political crisis on the 5th December 2006 which indicates that undertaking the required reforms to address the problems can not be left solely to the government. A discussion of the trade sector reforms undertaken in Fiji is presented next.

3.3.2 Trade Reforms

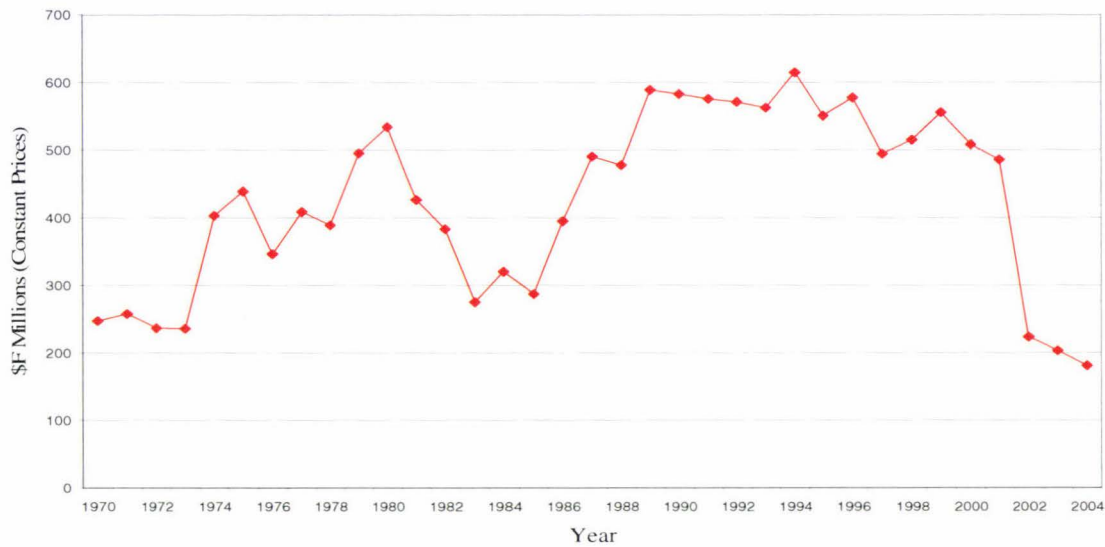
During the 1970s Fiji's trade policies were based on a number of import substituting industrial policies. However, the nation could not rely on these policies given its 'smallness' characteristics. Specifically, limited natural resources and isolation mean that Fiji is heavily reliant on trade to achieve economic growth. With the adoption of an export-orientated outward looking approach the reforms have sought to increase competitiveness and the level of exports by eliminating barriers to trade and thus raising productivity relative to wages (Reddy et al., 2004). Reforms aimed at eliminating quantitative import barriers, reducing the average levels of tariffs, providing tax concessions and easing FDI procedures have been implemented since the late 1980s.²⁷ The moves toward the removal of import licensing requirements and quantitative restrictions were rapid, and by 1996 only one of the forty six items previous under license control still remained subject to import licensing (Reddy, Prasad et al. 2004).

The adoption of an export-orientated approach in the late 1980s led to a short lived recovery of Fiji's economy, mainly due to high returns from sugar, clothing exports and tourism receipts (World Trade Organisation 1997). Tax free factories were an important feature of export and industrial policy. In particular, of the 119 firms engaged in tax free manufacturing in 1992, 70 percent were in garment production (Akram-Lodhi 2000). Furthermore, the value of manufactured goods exported has increased significantly since 1987 (Figure 3.12). Preferential access to markets in New Zealand, Australia and the EU also benefited the sugarcane and garment industries. To attract producers and FDI from offshore the government undertook measures such as simplifying approval procedures. These actions proved to be beneficial as FDI increased over the period 1989-1996 (Figure 3.8). The late 1990s saw a slow down of trade as a result of low levels of FDI

²⁷ Gounder (2006) notes that there was a large reduction in the revenue obtained from customs levies by 1993, indicating a level of success in reducing the level of barriers to trade in Fiji.

affecting the manufacturing sector (e.g. the garment industries) and the failure of land lease reforms which impacted negatively on agricultural production (Gounder, 2006).

Figure 3.12 Value of Manufactured Goods Exported, Fiji, 1970-2005



Source: World Bank (2005).

Export earnings have been particularly sluggish in Fiji since 1999 due to political uncertainty, the failure to solve land lease problems and complete economic reforms, and declining preferential advantages with New Zealand, Australia and the EU (Figure 3.13). The reduction in tariffs on imports has been a major feature of the reforms and has resulted as a consequence of changes to the WTO’s rules. Falling tariff levels and eradication of the licensing scheme has increased the levels of consumption, intermediate and capital goods imported into Fiji. These changes have been beneficial to the manufacturing sector by modernising local industries, however substantial increases in the value of imports has led to large trade deficits.

Export incentives, such as adjusting the exchange rate, have also played an important role in promoting higher levels of exports. Fiji currently pegs its currency with its major trading partners; i.e. New Zealand, Australia, Japan, the United States of America, and Britain. Consequently the monetary policy decisions are affected by not only domestic trading conditions but also by those of Fiji’s major trading partners. Two devaluations of the Fijian dollar occurred in the period immediately after the 1987 coups, in an attempt to rectify the domestic problems that restricted exports. Import markets initially reacted negatively to this action, however the Fijian dollar appreciated between 1987-1997

making the third devaluation of Fiji's currency in 1998, a timely policy in terms of encouraging exports (Asafu-Adjaye 1999). Variability of the real exchange rate has had a negative impact on the level of exports in Fiji, and so policy measures to achieve stabilisation and moves towards a floating exchange rate have been important (Asafu-Adjaye 1999).

Figure 3.13 Total Export and Import Earnings, Fiji, 1969-2004



Source: International Monetary Fund (various).

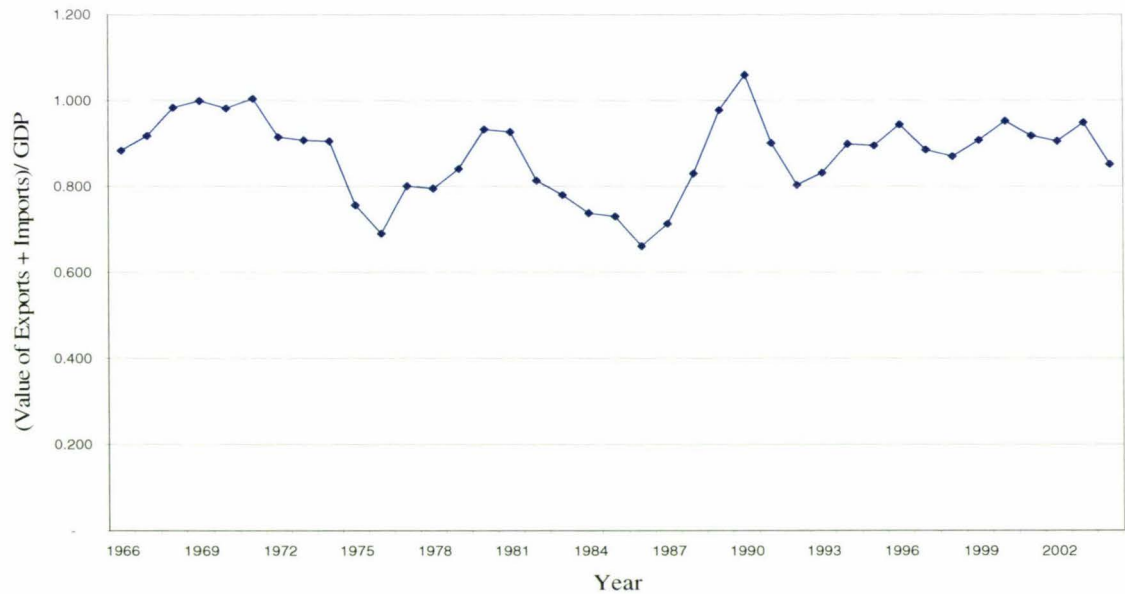
Note: Imports are measured as CIF (Cost, Insurance and Freight).

Akram-Lodhi (2000) notes that state intervention was not limited to external trade and that the most important intervention was in the factor and product markets via internal deregulation and goods market reforms. Goods market reforms have aimed to improve competition and the functioning of the market, as well as develop a new regulatory environment which protects consumers (Reddy, Prasad et al. 2004). Internal deregulation resulted in the removal of barriers to entry in domestic markets and the elimination of sectoral targeting and price controls. However, government continues to regulate much of Fiji's private sector activity, which can be clearly illustrated by the continued presence of price controls on approximately one-third of the goods and services that make up the consumer price index (IMF 2004), and the continued influence of government on prices through state-owned enterprises in the utilities and sugar sectors (Wall Street Journal 2006). These policies are likely to have severely restricted Fiji's ability to attract producers from offshore. The Minister of Finance Ratu Jone Kubuabola (2004) in his

budget address reinforced that encouraging competition in the goods market is still a key component of the reform agenda which requires further work.

Despite trade barriers Fiji's economy has always had a relatively high level of openness (Akram-Lodhi 2000). However, the remaining barriers to trade, inefficiency in the markets for land and labour restricting investment levels, and the failure of totality of corresponding reforms in the financial sector can account for Fiji's failure to gain complete openness (Reddy et al., 2004, Gounder, 2006). Figure 3.14 presents the estimated values of openness for Fiji. High levels of openness are desirable in terms of attracting FDI and promoting exports, therefore further removal of barriers to trade and reforms in the financial sector are likely to be beneficial. Domestic export industries have failed to diversify due to low FDI levels and thus there continues to be a heavy reliance on the few primary products of the garment and sugarcane industries. In light of reductions in overseas levels of tariffs eroding Fiji's preferential access this is an area of concern for export earnings and lack of competitiveness.

Figure 3.14 Openness Index, Fiji, 1966-2004



Source: World Bank (various editions) and authors own calculations.

Note: Openness index has been calculated as the value of exports plus the value of imports to GDP share.

The WTO (1997) highlights concern over the slowing pace of tariff reform and import liberalization in Fiji. The review of Fiji's trade sector also indicates concern over the escalation of tariffs through stages of processing, remaining tariff peaks on such products

as processed rice and motor vehicles, and the application of duties on beverages and tobacco that exceeded the bound levels. Reddy et al., (2004) note that since 1990 progress in trade liberalisation has been slow and incomplete. Reductions in nominal tariff levels have been sluggish and the government still exercises discretion in imposing import quotas and restrictions on imported goods which are likely to compete with domestically produced goods. The lack of reform imposes various restrictions affecting growth factors and its enhancement. The financial liberalisation efforts undertaken in Fiji are discussed next.

3.3.3 Financial Sector Reforms

To improve financial stability, the Central Monetary Authority (CMA) was established in 1973; however it did not operate with a high level of autonomy as it was largely influenced by the government. Prior to 1981, repressive practices such as reserve requirements and interest rate ceilings were common. Real interest rates were largely negative, particularly during the oil crisis of the mid 1970s, and thus have been a likely deterrent of savings. The first steps towards financial reforms were taken in 1981 by allowing the market to determine the level of interest rates on deposits \$250,000 and over (Waqabaca, 2000). In 1984 the CMA became the Reserve Bank of Fiji (RBF), and was restructured to improve the scope of its functions and level of power in the financial system.²⁸ A reduction in the influence of government in the financial market was further signalled by replacement of the Liquid Asset Ratio (LAR), which required banks to invest a minimum amount of their deposits in government securities, with the Unimpaired Liquid Assets Ratio (ULAR) in 1984, and in 1987 by the removal of mandatory lending requirements.²⁹ The ULAR was completely removed in 1999, signalling a greater dedication by the RBF to encouraging financial market development.

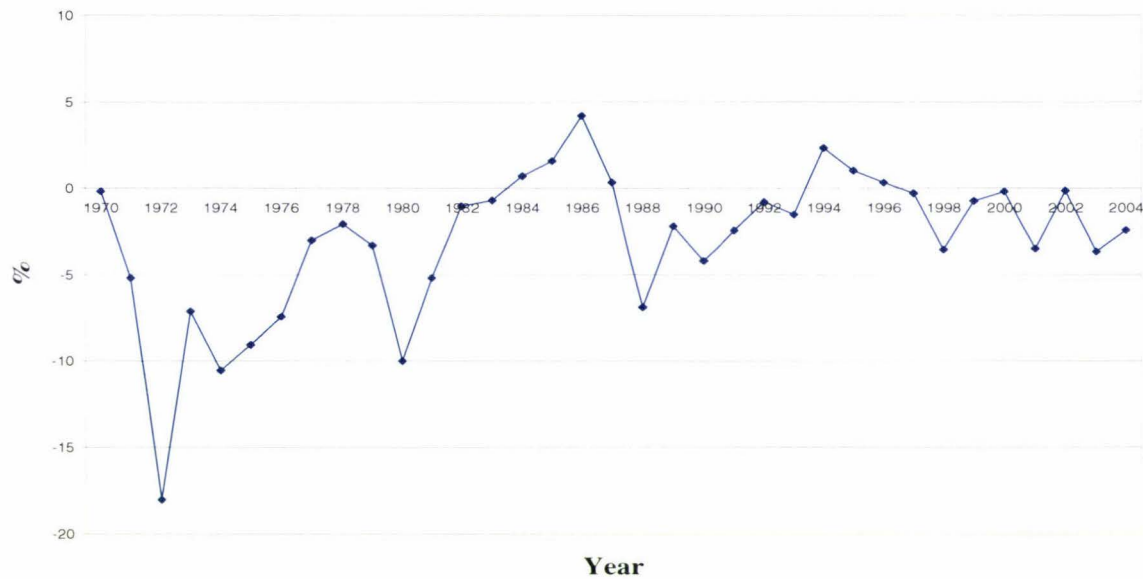
By the mid-1980s substantial changes had taken place in the financial system (Waqabaca 2004) (see Figure 3.15). Reforms undertaken since 1981 have been aimed at strengthening and deepening the financial system and have included the introduction of a

²⁸ The supervisory and regulatory powers of the Reserve Bank of Fiji were further strengthen as a result of the 1995 Banking Act.

²⁹ The ULAR limited credit to the wholesale and retail sectors, as well as imports, and greatly enhanced the effectiveness of monetary policy as changes in the statutory reserve deposits rates could now impact quickly on the lending operations of banks (Waqabaca, 2004).

tender system for the sale of treasury bills in 1982; encouragement of greater competition among the banks by changing interest rate regulations in 1986; and the adoption of a non-regulatory approach to interest rate management in 1987 (Waqabaca 2000). Steps towards financial liberalisation also included the removal of priority sector lending requirements, interest rate ceilings and allowing foreign competitors into the banking system (ibid.). Whilst visible steps were taken no formal plan was established and as a result transformation has been incremental and piecemeal in nature (Narube 2000). Consequently, the financial sector reforms have been inconsistent, with some changes indicating a move towards greater flexibility and less intervention, and others indicating greater intervention by the state (Reddy et al., 2004, p. 16).

Figure 3.15 Real Interest Rate on Deposits, Fiji, 1970-2004



Source: World Bank (2005b) and author's own calculations.

A study by Knapman and Zhukov (2001) suggests that financial sector development in the Fiji Islands, as well as other Pacific Island developing nations, depends fundamentally on the outcomes of economic growth and on the ability of governments to adopt and implement sound growth promoting and macro stabilization policies. Low rates of economic growth, political instability and poor implementation of reforms are thus likely to have impaired the development of Fiji's financial system. Other problems identified with Fiji's financial system include high interest rate spreads, low levels of investment, low levels of FDI, and a high level of monetarization of the economy (Asian Development Bank 2006). Despite these development restrictions those reform policies implemented so far have, on the whole, signalled greater liberalisation and thus have

potentially positively impacted some economic growth factors. Jayaraman and Ward (2004) found evidence that even though de-regulation of interest rates and promotion of competition in the financial sector has been negatively impacted by political instability reforms have overall contributed to the efficiency of investment in Fiji.

Over the period 1970-1980, bank credit was under direct government control via quantitative restrictions, priority sector lending and interest rate ceilings in an attempt to create jobs, enhance productivity and earnings, and influence liquidity, inflation and foreign exchange levels (Reddy, Prasad et al. 2004). Quantitative restrictions included the implementation of the statutory reserve deposit in 1973, which placed a legal limit on the ability of banks to lend deposits, and the LAR in 1974. The financial sector was highly regulatory in nature, with moral suasion playing a major role in influencing decisions and government funds often being allocated towards selected “priority” sectors such as manufacturing and agriculture.³⁰ Indicators of financial liberalisation, such as the level of bank credit and the levels of narrow and broad money to GDP share, have shown generally increasing trends which is suggestive of the success of financial reforms.

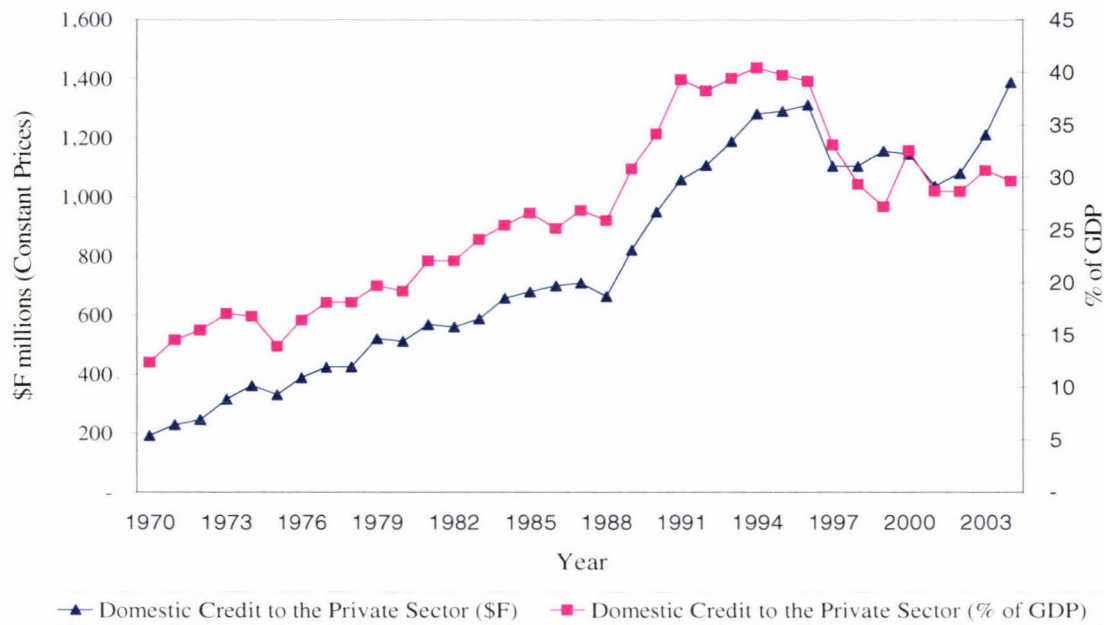
The level of private sector bank credit, in absolute dollar terms and as a percentage of GDP, showed an increasing trend during the 1970s and 1980s (see Figure 3.16). The dollar value of domestic credit received by the private sector increased significantly in the period initially after the reforms undertaken in 1989, however in terms of GDP status domestic credit to the private sector began to diminish in 1995 and has remained at levels around 30 percent of GDP since the 2000 coup. Since 1997 this trend has been reflective of failures to solve land-lease problems impacting on the ability of households to provide collateral. Skully (1997) identifies poorly prepared loan applications as an additional reason for this low level of lending.

The levels of both M3/GDP and M2/GDP have shown significant upward trends in the period since 1981. The M2 (money and quasi money) to GDP ratios indicate a significant ascending trend over the period 1981-1989 (see Figure 3.17). The impacts of political uncertainty over the period 1987 until 1999, however, caused a decline in business confidence which resulted in fluctuations and a fall in M2/GDP. An improvement occurred in 1999 which was however short-lived as the 2000 coup once

³⁰ Reddy et al., (2004) note that in 1979 mandatory lending was introduced which forced banks to lend at least 5 percent of their total deposits to the agricultural sector.

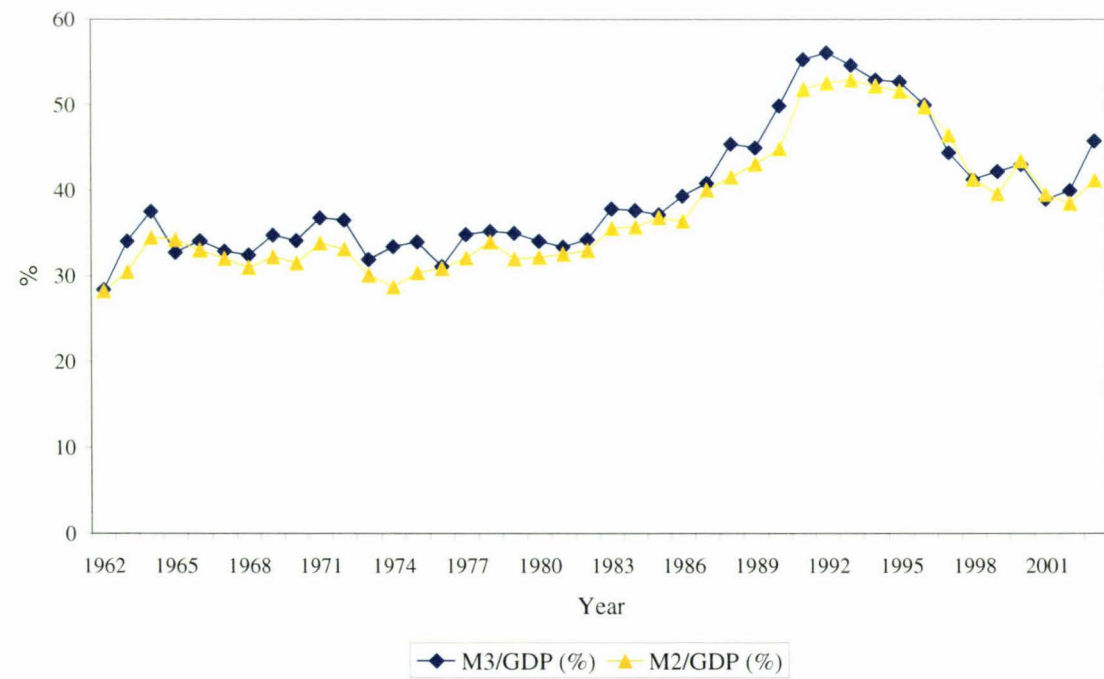
again affected business confidence. Since 2002 the level of M2 to GDP ratio has exhibited a pattern of gradual rise due to a greater level of political stability. The M3 (liquid liabilities) to GDP ratio has exhibited similar trends, thus suggesting that financial deepening has occurred since the reforms began in 1981.

Figure 3.16 Domestic Credit to the Private Sector (% of GDP and \$F), Fiji, 1970-2004



Source: World Bank (2005b)

Figure 3.17 Financial Deepening, M2 and M3 to GDP (%), Fiji, 1962-2004



Source: World Bank (2005b).

The Governor of the RBF, Savenaca Narube (2000), notes that financial reforms in Fiji have involved the following policy changes: the introduction of market-based instruments for monetary control; promotion of competition in the financial sector; moves towards more international prudential standards in the supervision of the financial system; and the relaxation of restrictions on capital flows. Changes to the RBF's implementation of monetary policy occurred in 1989 when LAR's were eradicated, statutory reserve requirements reduced, and open market operations became possible due to the RBF issuing its own notes. In fact by the mid-90s open market operations had completely replaced direct controls (Narube 2000). The RBF also adopted a more liberal approach toward allowing new entrants into the financial and banking system which ultimately encouraged higher levels of competition and saw the bank sector expand considerably in the early 1990s (ibid.)

The ADB (2006) notes that Fiji boasts one of the most developed and extensive financial markets in the Pacific region with five commercial banks, three credit institutions, ten insurance companies, the Fiji Development Bank and the Fiji National Provident Fund (FNPF), a number of smaller non-bank financial institutions, a stock market, and venture capital company (Kontiki fund). However, dominance of the Australia and New Zealand banking group limited (ANZ) and Westpac banks amongst the commercial banks in Fiji has affected the overall cost, quality, and efficiency of banking services. Similarly, the dominance of the FNPF in Fiji's financial sector is also likely to have had a negative effect, as the FNPF is the largest purchaser of government securities and thus influences the levels of interest rates (ADB, 2006).³¹

Since the National Bank of Fiji (NBF) crisis during the early 1990s the level of regulation and supervision of the banking system has improved dramatically (Ratuva 2004). Minimum guidelines for banks and other deposit-taking institutions on areas including capital adequacy, large exposure concentrations, loans classification and provision, and limits on foreign currency exposures were introduced in the mid 1990s (Narube, 2000). In 2000 the scope of these guidelines was extended to cover the supervision of insurance companies. Currently the RBF's power to regulate and

³¹ FNPF is a compulsory savings plan where members can withdraw their savings at age 55 or for death of member's relatives, emigration, medical, housing and education purposes.

supervise the financial sector is derived from the Banking Act 1995, Exchange Control Act 1985 rev³², Insurance Act 1998 and the Insurance Amendment Act 2003.

Efforts to further develop Fiji's financial sector have resulted in the continued development of the equity market. The first signs of development were initially signalled by the formation of the Suva Stock Exchange in 1979 as a fully owned subsidiary of the Fiji Development Bank. Initial operations were severely limited in scope due to the trading of only 2 listed companies and limited growth in transaction values (Narube and Whiteside 1985). The exchange originally differed from most overseas stock markets as it operated as a trading post and thus there was no need for stockbrokers. Further development of the capital market followed much later and resulted in the creation of the Capital Markets Development Authority (CMDA) and in more recent years the transformation of the stock market.

In 1993 the RBF was officially delegated the responsibility of equity market development, however these responsibilities were short-lived as the RBF and the ADB worked together to have the CMDA act passed in 1996, which ultimately commenced the operations of the CMDA in 1998 (Waqabaca, 2001 and CMDA, 2000). The CMDA's principle purpose is "...to facilitate the orderly development and fair and efficient operation of the capital markets so that businesses are aware of and have easy access to a range of competitive capital raising options and the investing public are aware of and have easy access to a range of competitive investment opportunities" (CMDA, 2000, p. 3). The CMDA has been successful in providing effective prudential regulation of the capital market, although to date it has been frustrated in its efforts to promote substantial market development (ADB, 2006). Part of this failure can be attributed to the limited success to date in promoting and developing the stock market in Fiji.

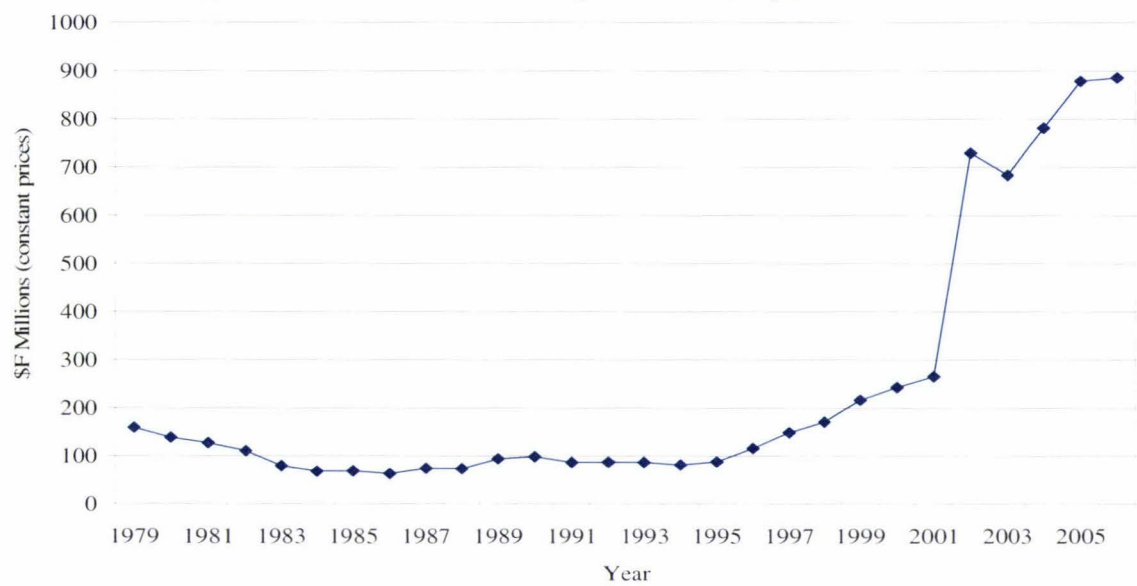
Although there was a transformation of the Suva Stock Exchange in 1993, to enable the participation of other financial institutions in the development of the equity market, and again in 1996, when active trading as a call market began, the stock market still remains severely restricted in size.³³ Figure 3.18 presents the market capitalisation for the period

³² The level of exchange rate controls have been relaxed since 1989, however they were temporarily increased during the 2000 political crisis to limit short term shocks.

³³ There are 17 listed companies to date (South Pacific Stock Exchange, 2006).

1979 to 2006. The pre-1996 period had very marginal market capitalisation and it was not until 2001 that dramatic improvements took place. These trends suggest that the public has not received information regarding stock market investments to the level necessary for capital market development.

Figure 3.18 Stock Market Capitalisation, Fiji, 1979-2006



Source: SPSE (2006), personal communication.

The stock market officially changed its name to the South Pacific Stock Exchange (SPSE) in November 2000, in accordance with the SPSE’s vision of becoming a regional exchange. However, the ADB (2006) notes that the stock market has not yet achieved its potential in Fiji, let alone become an effective stock market for the whole of the Pacific Region. Similarly, Skully (1997) notes the restrictions imposed by the small size of the exchange. The embryonic nature of Fiji’s stock market is alarming given the empirical evidences of the positive impact of stock markets on economic growth through providing capital for investment activities (see Chapter 6). Whilst efforts by the CMDA and SPSE to further develop Fiji’s equity market have been made, policymakers need to provide more avenues to encourage investment through equity markets. Further facilitation of the development of the SPSE is likely to be encouraged by reducing the restrictions on trading, increasing the level of aid funding distributed to the SPSE, improving the understanding of the public as to the functioning of the stock market, providing tax incentives, and encouraging other Pacific Island countries to join (SPSE, personal communication, 2006).

Despite the financial sector reforms in Fiji there still remains significant access restrictions to financial market products, hence the informal financial system is a common source of credit in Fiji as it is quick, convenient and affordable in many cases (Knapman and Zhukov, 2001). The government has supported microfinance institutions such as the Women's Social and Economic Development Programme (WOSED) and Social and Economic Equity for the Disadvantaged (SEED) foundation due to the persistent restrictions on availability of funds to the poor. Microfinance institutions in Fiji have tended to direct resources towards providing greater access to credit in rural areas, whilst targeting women in the rural and urban poor communities. Knapman and Zhukov (2001 p. 103) note that microfinance has helped customers develop good savings habits which has shattered the myth that the poor are unable to save, and that the cultural environment in the Pacific Island nations is not conducive to cash savings. However, problems such as dispersed population, inadequate financial resources, poor market linkages, limited cash income opportunities, and the high costs of delivery to rural and remote areas have limited the further expansion of microfinance institutions in Fiji (Knapman and Zhukov, 2001).

The success of financial liberalisation in Fiji is notable from the growth of total assets of the financial sector by over 500 percent in the last two decades (Narube, 2000). However, reforms have been partial and selective, and the government still plays a dominant role in the financial market. Current projects being undertaken to further develop the financial sector include modernising the payment and settlement system, and improving provision of banking services to rural areas. Skully (1997) suggests that private access to the financial sector can be improved by venture capital networks; start your own business schemes; removing credit controls; streamlining foreign investment approval; and further privatisation of state owned enterprises. Knapman and Zhukov (2001) suggest strategies for further financial sector development in Fiji should include greater emphasis on managing risk, upgrading skill bases, and developing and integrating microfinance institutions.

3.4 Significance of the Study

Given the political instabilities, low economic activities and fluctuating trends experienced in capital accumulation, this chapter sets the scene for empirical

investigation of financial sector development in Fiji. A number of macroeconomic problems including agricultural dependence, low levels of savings and investment, and limitations on the size and extent of the financial market suggest that such an analysis is vital for policy makers to enhance growth. The assessment of the trends of important macroeconomic indicators carried out in this chapter suggests that the impacts of the macroeconomic, trade and financial sector reforms require further empirical attention. This research aims to further identify the important factors that have affected savings (at both a national and private level), investment (amongst the private corporate and non-residential business sectors), and financial liberalisation in Fiji, and thus provide economic growth enhancing policy recommendations.

Further examination of Fiji's private sector savings and investment will present various policy implications for social development with regard to providing resources for education and health, poverty reduction, and increasing economic activities and growth. Very limited attention has been given to the analysis of savings and investment for the case of Fiji. Also there is no comprehensive assessment of the impact of the financial and stock market reforms in Fiji. Empirical studies by Gounder (1999; 2005), Narayan and Narayan (2006), Seruvatu and Jayaraman (2001), Reddy (2000), Waqabaca (2004) and Narayan (2004) have undertaken partial analysis of some areas of savings, investment and financial development. This study undertakes a comprehensive assessment of the factors impacting on both national and private savings, private corporate and non-residential investment and financial sector development and thus further contributes to the existing literature and makes policy recommendations. Ultimately, this study will bridge the empirical gap that currently exists with regard to the savings-investment-growth nexus and the finance-growth nexus in Fiji.

Fiji's current political and economic climate and the turmoils experienced over the last two decades suggest that the nation still faces substantial hardships in the immediate future. The United Nations Millennium Development goals will be hard to meet unless external assistance is provided. Kenny and Williams (2001) note that the situation of individual countries at different times will tend to vary and accordingly it is important to customize policies to individual circumstances. Consequently, this study is significant in contributing to the macroeconomic policies, financial liberalisation, economic growth

and development of Fiji, and the policy implications are likely to be applicable to other similar South Pacific Island economies.

3.5 Summary and Conclusion

The last four decades have seen little improvement in the overall state of Fiji's economy despite the implementation of reforms in the period post-1987 coup. The low levels of economic growth achieved by Fiji since 1987 are alarming, as they have limited productive capacity and potentially increased the incidence of poverty. Fiji's experiences confirm the problematic effects of low levels of savings and investment on growth highlighted by its economic development. The negative impact of political instability on both domestic and foreign investment decisions is also notable. Specifically, the uncertainty created by the coups resulted in inefficiency in the financial sector and has consequently retarded the country's ability to mobilise savings towards productive investment opportunities. Despite attempts to improve the operational environment and thus eliminate restricting factors, the various financial trends highlighted in this chapter indicate that economic reforms have not always been successful in improving savings, investment, and economic growth.

Changes in Fiji's economic policies in the period since independence have been reflective of its poor economic performance. Political instability and low levels of consumer and business confidence have resulted in reforms, particularly in the trade and financial sectors. However, the nation has not always performed to a standard capable of improving economic growth. Nevertheless shifts towards financial liberalisation, although informal and gradual, have resulted in some improvements in the availability of credit to households and business sectors for investment. This is likely to improve the level of capital accumulation and economic growth. Additionally other variables, whether targeted by reform or not, are likely to have important impacts on savings, investment and financial liberalisation, and thus will be further investigated in subsequent chapters to provide a basis for the policy recommendations made in Chapter 7.

Chapter 4

The Determinants of Savings

4.1 Introduction

National savings levels in Fiji since 1987 have been low by developing country standards and have mostly displayed a downward trend (as noted in Chapter 3). Given that the savings literature, discussed in Chapter 2, stresses the essential role of savings in financing productive investments and promoting capital accumulation this decline is alarming. In order to address the problems empirical investigations of the determinants of savings in Fiji have been undertaken (Reddy, Naidu et al. 2005; Gounder 2006; Narayan and Narayan 2006). However a comprehensive assessment that acts as a firm basis for policy advice has yet to be achieved. Several scenarios of the savings environment based on the lifecycle hypothesis of Modigliani (1966; 1986) are investigated in this chapter, as the above mentioned studies provide only partial coverage of the determinants of savings in Fiji. Additionally, the impact of the military coups, land lease issues, and agricultural dominance has created a unique savings environment, which reinforces the need for further country-specific investigation.

The literature regarding the savings-investment-growth nexus has recently been characterised by country specific empirical investigations of savings for developing countries (Landau 1971; Chai 1994; Deaton and Paxson 1999; Kendall 2000; Athukorala and Sen 2002; Ozcan, Gunay et al. 2003; Maimbo and Mavroatas 2004). These studies not only contribute to the theoretical and empirical savings-growth literature, but also provide evidence to inform this policy debate. Given Fiji's low rate of savings and the uniqueness of the savings environment this chapter empirically examines the determinants of savings over the period 1970-2004.

The empirical models presented in this chapter, for both private and national savings, are developed using a modified version of Modigliani's lifecycle model. The basic lifecycle model is modified to overcome restrictions imposed by the assumptions of perfect capital mobility and perfect knowledge of future income streams. Additional country specific variables are also included to capture aspects of Fiji's unique savings environment. Kenny and Williams (2001) note that importance of country-specific studies to capture

the uniqueness of the economy and at the same time there are various structural and institutional features that have direct implication on the impact of financial factors on economic growth in Fiji. Consequently this chapter not only assesses the impact of the trade, macro-economic and financial sector reforms on private and national savings, but also provides the basis for policy debate aimed at increasing savings and enhancing growth in Fiji.

The structure of this chapter is organised as follows: the lifecycle framework for modelling the determinants of private and national savings in Fiji is developed in section 4.2. This framework highlights various key factors and variables necessary to explain the savings behaviour in Fiji. Section 4.3 presents the models for estimation, and discusses the data and methodology used to develop the models. The test for the validity of the models and the estimated results are presented in section 4.4. Concluding remarks are made in section 4.5.

4.2 Theoretical Aspects of the Savings Models

The framework for the analysis of private and national savings undertaken in this chapter is derived from the lifecycle model. This approach has frequently been adopted by studies in the literature when seeking to explain changes in private savings, and has maintained popularity to this day (Deaton and Paxson 1999; Deaton and Paxson 2000; Loayza, Schmidt-Hebbel et al. 2000; Browning and Crossley 2001; Athukorala and Sen 2002). The reason that the lifecycle model has been standard in the savings literature is due to its simple formulation and flexibility to incorporate extra theoretical considerations into the framework without altering the basic structure. Moreover, additional country-specific determinants such as the availability of banking services, terms of trade, public savings, borrowing constraints, political uncertainty, and agricultural dominance can be included into the models of savings for Fiji. The basic lifecycle model developed by Modigliani (1986) is discussed in section 4.2.1. The theoretical reasoning behind the extensions and modifications of the basic model undertaken in this study is provided in section 4.2.2.

4.2.1 The Lifecycle Model

The basic premise of Modigliani's (1986) lifecycle model rests on the idea that accumulation of savings for retirement is the prime motive for savings. Income is

asserted to vary systematically over the course of one's life, therefore savings behaviour will be determined by the individual's stage in the lifecycle.³⁴ At the individual level, the main incentive for accumulating savings during periods of high income is to smooth lifetime consumption. At the national level, the rate of Gross Domestic Product (GDP) per capita growth and the age structure determine the savings rate. In particular, a higher level of GDP per capita growth will lead to an increase in the lifetime resources of the young relative to the old and thus will increase aggregate savings. Population growth is related to the country's age structure due to Modigliani's assumption of balanced growth; consequently an increase in population will increase the number of savers relative to dissavers and thus increase the country's overall savings.

The basic lifecycle model also suggests that both the real interest rate and wealth will have an effect on private savings. The impact of the interest rate is dependent on the relative sizes of the substitution and income effects.³⁵ The works of both McKinnon (1973) and Shaw (1973) argue that because the savings process is money intensive the substitution effect will outweigh the income effect and thus interest rates will have a positive impact on savings. The opposite outcome can theoretically arise if the income effect outweighs the substitution effect. This has been empirically supported by Fry (1995) and Schmidt-Hebbel et al., (1996). Finally, the lifecycle model asserts that wealth's effect on savings is likely to be negative as it will change the household's perceived lifetime income.

4.2.2 Extensions and Modifications of the Lifecycle Model

Due to queries over the basic assumptions of the lifecycle model, extensions and modifications have been made to avoid the restrictions placed on the analysis by the basic model's assumptions, and to incorporate additional macroeconomic variables important in explaining Fiji's private and national savings rates.

The first adaptation of the basic lifecycle model is the inclusion of the dependency ratio in place of the population growth variable. The assertion of the basic model, that

³⁴ Perfect capital markets and foresight are assumed by the model.

³⁵ Higher interest rates increase the cost of consumption in period one relative to period two, thus providing incentive to save in the current period (Substitution effects). If the household is a net lender the real interest rate will increase their lifetime income and thus increase current period consumption (Income effect).

population growth is related to age structure, ignores the issue of childhood dependency and implies that individuals once born immediately start accumulating wealth for retirement. In fact, whilst an increase in population may raise the number of workers relative to those retired it will also potentially increase the share of children in the population. Because both the young and old spend more than they earn the effect on savings is ambiguous (Browning and Crossley 2001). Likewise, the basic model ignores the fact that youths do not consume independently of the family and that there are economies of scale in family consumption. Accordingly, a given change in age dependence is likely to have a different effect on savings than that of childhood dependence. As a result of these considerations the dependency ratio is tested in the place of population growth.

As mentioned in Chapter 2, the important role of habit formation in determining consumption decisions has been highlighted recently in the literature (Carroll and Weil 1993; Carroll, Weil et al. 2000). The studies suggest that it is unlikely consumers will immediately adjust consumption in response to news about lifetime resources. To incorporate the inertia associated with savings rates appropriate lags of the dependent variables are included.

The assumption that individuals in developing countries are forward looking, and thus base their savings decisions on lifetime income, is also highly questionable given the basic hand-to-mouth existence of households in developing countries (Carroll, Weil et al. 2000). Households living on the poverty line in Fiji are more likely to base their savings decisions on current income as opposed to lifetime income. Keynes absolute income hypothesis directly links consumption with the level of GDP. In contrast, the relative income hypothesis states that an individual's attitude towards consumption and savings is guided mainly by his income in relation to others (Duesenberry 1949). In order to test whether the absolute or relative income hypothesis explains savings in Fiji both the level and growth rate of per capita GDP are included in the final models.

Individuals in developing countries are also unlikely to know their future income streams with certainty. Savings is likely to be predominantly precautionary due to volatile incomes, particularly in the rural sector; consequently, inflation is included to capture macroeconomic uncertainty as is common in the growth literature (Fischer 1993; Hussein and Thirlwall 1999; Athukorala and Sen 2002). Recent literature has also

highlighted the impact of political instability, military coups, high levels of corruption, lack of property rights, and limited political freedom in constraining economic growth (Gounder, 2005). The volatility and upheaval caused by the 1987 coups is likely to have affected savings at both a national and household level in Fiji. This is because the coups lead to an exodus of skilled labour and thus the removal of their savings deposits from the economy.³⁶ A dummy variable is included in the final models to account for the political uncertainty generated by the 1987 and 2000 coups.

Modigliani's assumption that capital markets are perfect is also highly questionable. If capital markets are perfect then households can borrow money against their future earnings to smooth consumption. However, the existence of borrowing constraints, due to financial repressionist practices, necessitates higher levels of private savings. Consequently, in the case of financial liberalisation it is possible that private savings will decrease (Bayoumi 1993; Warman and Thirlwall 1994; Bandiera, Caprio et al. 2000; Loayza, Schmidt-Hebbel et al. 2000; Ozcan, Gunay et al. 2003; Hermes and Lensink 2005). By dropping the assumption of perfect capital markets and including a measure of domestic credit provided to the private sector, the impact of shifts towards financial liberalisation on savings in Fiji can be assessed. Similarly, a low bank density level can impose borrowing constraints on households; thus the number of population per bank branch is also included in the final model used to examine national and private savings.³⁷

The literature has highlighted that changes in the terms of trade will have an additional effect to that of changes in GDP on savings (Ady 1976). This is because the price deflators typically used in national income accounting normally allow for changes in the general level of prices, but fail to capture price induced structural effects on the level and growth of real income, such as those changes connected with changes in the terms of trade. Empirical studies undertaken by Athukorala and Sen (2002) and Masson, Bayomi and Samiei (1998) found evidence that movements in the terms of trade have significant impacts of the savings rate. When forward looking consumption smoothing behaviour by

³⁶ Skilled Labour in developing countries is more likely to attract higher wages and thus have a higher marginal propensity to save.

³⁷ Mead Mead, D. (1963). "Savings, Investment and the Analysis of Growth." Economic Development and Cultural Change 12: pp. 84-86.

suggests that the expanded use of postal savings banks or similar institutions may be an important goal for developing countries to increase level of real savings in the country.

individuals is assumed, the sign of the coefficient for terms of trade can be either positive or negative depending on whether the changes are perceived to be permanent or temporary (Frankel and Razin 1992). If perceived to be a temporary deterioration in the terms of trade domestic residents may reduce their savings to maintain their current standard of living. Households may, however, increase their savings when faced with a lower future income stream as a result of a long run terms of trade deterioration (Athukorala and Sen 2002). Due to these considerations terms of trade is included to capture the associated income gains and losses. However, Fiji Islands does not have consistent time series for the terms of trade; consequently the level of openness, as measured by the value of export plus imports as a ratio of GDP, is included in the final models as a proxy.

The role of public policies, particularly public savings, in raising national savings levels in developing countries has been an area of particular theoretical and empirical debate (Corbo and Schmidt-Hebbel 1991; Schmidt-Hebbel, Serven et al. 1996; Hussein and Thirlwall 1999; Schmidt-Hebbel, Serven et al. 2000). The traditional neo-classical version of the lifecycle model asserts that a decline in government savings will tend to raise consumption and discourage savings by shifting the tax burden from current to future generations. At the other extreme of the argument is Ricardian equivalence that suggests an increase in public savings will result in an equal increase in private savings, and thus overall will have no impact on national savings.³⁸ However, the existence of borrowing constraints in developing countries means that Ricardian equivalence is unlikely. To test the extent to which public savings is a perfect substitute for private savings in Fiji, a measure of public savings is included in the final model for private savings.

The agriculture industry is an important source of income in Fiji and thus uncertainty over the future of sugarcane production is likely to adversely impact on the incomes of many households. Friedman's permanent income hypothesis implies that the marginal propensity to save will be higher for agricultural households than for non-agricultural households (Athukorala and Sen 2002).³⁹ Given the uncertainty associated with

³⁸ Ricardian equivalence theory is based on a set of stringent assumptions including perfect capital markets and the absence of uncertainty.

³⁹ Friedman's permanent income hypothesis suggests that there is a higher marginal propensity to save out of transitory income.

agricultural production, precautionary savings are likely to be high in agricultural households. Agriculture's share of GDP is included into the final models to determine how a high level of agricultural dependency impacts on savings decisions in Fiji.

Both aid and remittances have played important roles in sustaining investment in the Pacific region (World Bank 2000). Caceres (2004) suggests that the short-run macroeconomic effect of remittances will be felt through the uncertainty surrounding the inflow of remittances.⁴⁰ Because remittances tend to be transferred through banking channels, they tend to increase the size of household money holdings. Whether this actually will lead to a higher level of savings is however debatable (Athukorala and Sen 2002). In order to test whether higher inflows of remittances increase savings the level of remittances from expatriates is included in the final models.

4.3 Model Specifications, Data, and Methodological Approach

Whilst the theory relating to the lifecycle model and its extensions discussed in the previous section tends to be focussed on private savings this study also examines the determinants of national savings. The approach adopted to investigate both private and national savings expands further from a recent study of national savings undertaken by Narayan and Narayan (2006) for the case of Fiji. Specifically, they investigated the relationship between national savings and income, the interest rate, capital account deficits, and the age dependency ratio. This study provides a more comprehensive examination of the determinants of both national level and private level savings by incorporating a number of additional theoretical considerations that capture various aspects of Fiji's unique savings environment, as well as the traditional lifecycle considerations into the empirical models. The results allow for comparisons with the findings of Narayan and Narayan (2006), as well as other studies of savings undertaken for developing countries. The savings model specifications, data, and the methodologies used for estimation are discussed next.

4.3.1 Model Specifications and Data

The models presented here indicate the variables included in the basic lifecycle model in order to capture the unique aspects of Fiji's savings environment. The dependent

⁴⁰ Inflows of remittances can be viewed as increases in transitory income (permanent income hypothesis).

variable for the national savings model (eq. 4.1) is expressed as Gross Domestic Savings (*GDS*) as a percentage of GDP. Public savings is excluded from the national savings equation as a regressor so as to avoid the possibility of double counting. The dependent variable for the private savings equation (eq. 4.2) is calculated as total private savings (*PRISAV*) as a ratio of GDP. The private savings rate is calculated as the sum of non-government deposits plus Fiji National Provident Fund (FNPF) contributions.

The specification for the national savings model (eq. 4.1) is as follows:

$$GDS_t = \gamma_0 + \gamma_1 LGDPPC_t + \gamma_2 GDPPCG_t + \gamma_3 GPOP_t + \gamma_4 RID_t + \gamma_5 WEA_t + \gamma_6 DCPRI_t + \gamma_7 INF_t + \gamma_8 AGS_t + \gamma_9 OPEN_t + \gamma_{10} REMIT_t + \gamma_{11} PPBB_t + \gamma_{12} DV_t + \varepsilon_{1t} \quad (4.1)$$

The private savings model has the following specification (eq. 4.2):

$$PRISAV_t = \alpha_0 + \alpha_1 LGDPPC_t + \alpha_2 GDPPCG_t + \alpha_3 GPOP_t + \alpha_4 RID_t + \alpha_5 WEA_t + \alpha_6 DCPRI_t + \alpha_7 INF_t + \alpha_8 PUBSAV_t + \alpha_9 AGS_t + \alpha_{10} OPEN_t + \alpha_{11} REMIT_t + \alpha_{12} PPBB_t + \alpha_{13} DV_t + \varepsilon_{21t} \quad (4.2)$$

The subscript 't' denotes time, and *L* denotes the logarithm of the relevant variable. The regressors used in the two equations are as follows:

<i>GDPPC</i>	Real GDP per capita
<i>GDPPCG</i>	Rate of growth of GDP per capita (%)
<i>GPOP</i>	Rate of growth of the population
<i>DR</i>	Dependency Ratio
<i>RID</i>	Real Interest Rate on bank deposits, defined as the nominal interest rate of bank deposits minus inflation
<i>WEA</i>	Real Wealth, proxied by the ratio of money stock (M3) to GDP
<i>DCPRI</i>	Domestic Credit to Private Sector as a ratio to GDP
<i>INF</i>	Rate of Inflation (%)
<i>OPEN</i>	Openness, defined as the value of exports plus imports divided by GDP (X+M/GDP)
<i>PUBSAV</i>	Public Savings rate, defined as the ratio of government deposits to GDP
<i>REMIT</i>	Remittances by Fijian expatriates relative to GDP
<i>PPBB</i>	Population per Bank Branch (Bank Density)
<i>AGS</i>	Share of agriculture in total GDP
<i>DV</i>	Dummy Variable to capture the impact of the 1987 Coup i.e. Pre-1987=0, Post-1987=1.

The national and private savings functions are estimated over the sample period 1970-2004 using annual data. All variables have been expressed in terms of Fijian dollars in 2000 constant prices using consumer price indices. Lack of continuity of some variables over time, and issues associated with data precision have meant that various sources and editions of government reports have been used to compile the final data set. In addition, the Reserve Bank of Fiji and the Fiji Islands Bureau of Statistics were visited, and their reports and databases were used in compiling the complete data set.

The data for Fiji's Gross Domestic Savings, share of agriculture to GDP share (*AGS*), population growth rate (*GPOP*), total population, total labour force, total imports, total exports, liquid liabilities (M3) to GDP (*WEA*), domestic credit to the private sector (*DCPRI*), rate of inflation (*INF*), consumer price index and interest rate on deposits were all obtained from the World Bank (2005). The data for private savings, public savings, remittances by expatriates, and the number of bank branches were acquired from the Reserve Bank of Fiji *Quarterly Reviews* (various) and personal communication. Data concerning GDP, GDP per capita (*GDPPC*), and GDP per capita growth (*GDPPCG*) were obtained from the Fiji Islands Bureau of Statistics *Current Economic Statistics* {, various #363}.

National savings expressed in terms of GDP is defined as the difference between GDP and total consumption. Similarly, domestic credit to the private sector (*DCPRI*) is expressed in terms of GDP, and refers to the financial resources provided to the private sector through loans, purchases on non-equity security, trade credits, and other accounts receivable that establish a claim for repayment. Population per bank branch (*PPBB*) has been estimated using data on the number of bank branches and total population. Data on the dependency ratio (*DR*) has been calculated using the total population and total labour force data as follows: $DR = (\text{total population} - \text{total labour force}) / \text{total labour force}$.

Real wealth is measured by the ratio of liquid liabilities (M3) to GDP. Liquid liabilities are defined as the sum of currency and deposits in the central bank (M0), plus transferable deposits and electronic currency (M1), plus time and savings deposits, foreign currency, transferable deposits, certificates of deposit, and securities repurchase agreements (M2), plus traveller's checks, foreign currency time deposits, commercial paper, and shares of mutual funds or market funds held by residents. Real interest rate on

deposits (*RID*) was calculated using the interest rate on deposits minus inflation. The deposit interest rate is defined as the rate paid by commercial bank or similar banks for demand, time, and savings deposits minus inflation. The rate of inflation is measured in terms of the growth rate of the Consumer Price Index (CPI).

Private savings is calculated by the summation of both non-government deposits and contributions to the FNPF for each year, and is expressed in terms of GDP. Non government deposits account for the deposits made with the commercial banks by the private sector, local governments, and statutory bodies. The inclusion of pension fund contributions is based on the importance of FNPF as a source of savings in Fiji. Public savings is defined as the value of government deposits with commercial banks, and is also expressed in terms of GDP. Remittances by expatriates are defined as personal remittances from abroad and are expressed in terms of GDP. GDP per capita is expressed in constant 2000 prices.

Fiji's terms of trade data has not been compiled since 1990 and thus an openness index has been utilised to measure the effect of openness on savings. The index has been compiled using the accepted measure of the value of exports plus imports to the value of GDP share. Reservations over how well openness captures the effects of overseas price movements must be noted. In order to assess the impact of political uncertainty on national and private savings a dummy variable (*DV*) for the coup periods has been included in the models to measure the impact in the post-1987 period.

4.3.2 Methodological Approach

To determine the relationships described in equations (4.1) and (4.2) using time series data the recently developed econometric methodologies of cointegration have been utilised. Brought to the forefront of econometric debate by Granger (1981), the method concerns the derivation and estimation of the long-run equilibrium relationships between variables. This analysis uses the Autoregressive Distributed Lag (ARDL) approach to cointegration developed by Pesaran and Shin (1995) to assess both the short run and long run relationships between national and private savings and the proposed determinants.

The main advantage of using the ARDL method is that it avoids the need to pre-test the order of integration. That is, knowledge of whether the variables are integrated of order $I(0)$ or $I(1)$ is not required if the bounds test passes the first phase of the ARDL procedure (Pesaran and Pesaran 1997). The ARDL method also avoids the problems of serial correlation that can arise in other residual-based cointegration techniques by allowing for appropriate augmentation of the variables; consequently spurious results are avoided.

The ARDL procedure comprises of two distinct phases as follows: first, the bounds test is conducted, and second, the coefficients for the long run relationship are computed. The bounds test involves computing the F-statistic to test the significance of the lagged levels of the variables in the error correction form of the original ARDL model. The hypothesis used for testing the F statistic is the null of “non-existence” of the long run relationship, i.e., $H_0 = \delta_1 = \delta_2 = \delta_3 = 0$. However, because the distribution of the F-statistic is non-standard, irrespective of the order of integration, Pesaran and Pesaran (1997) have tabulated the appropriate critical values for comparison with. For every equation there is a band of all potential classifications of the variables into $I(0)$ or $I(1)$. If the computed F-statistic falls either above or below the critical values of the band then a conclusive decision can be made without knowledge of whether the underlying variables are $I(0)$ or $I(1)$. However, if the computed F-statistic is in the bounds of the critical values then information on the order of integration is required before making decisions regarding the long-run relationship of the variables. Unit root tests using the Augmented Dicky Fuller (ADF) methodology were also undertaken to determine the order of integration for the variables used in the two savings models (see Appendix A4.1).

The econometric package used to conduct the bounds test and determine the long run coefficients is Microfit Version 4 (Pesaran and Pesaran 1997). The computed F statistic values from the bounds test are compared to the critical values tabulated by Pesaran et al., (1997).⁴¹ The estimated results of the bounds tests are presented in Table 4.1. The F-statistic value for equation (4.1) falls below the lower bound, thus the hypothesis that there exists no long run relationship between the variables can be rejected. Similarly, the calculated F-statistic for equation (4.2) is higher than the upper bound, which confirms a

⁴¹ The critical values are tabulated for different numbers of regressors and whether the ARDL model contains an intercept and or trend.

long run relationship between the variables. Consequently, whether the variables are I(1) or I(0) in either of the equations is not a concern.

Table 4.1 Bounds F-Test for the Savings Models

Equation	k	Critical Value Band Intercept and No Trend*		Calculated F-Statistic	Pass/Fail
		I(0)	I(1)		
Equation 4.1	8	2.85	4.13	1.08	Pass
Equation 4.2	7	3.03	4.30	5.71	Pass

Note: k represents the number of variables in the regression.

The next step in the estimated procedure involves determining the long run coefficients of the relevant variables using the ARDL procedure and the Schwartz Bayesian criterion (SBC). This approach is adopted as the SBC tends to select a more parsimonious model than the Akaike Information Criterion (AIC) (Pesaran and Pesaran 1997). In addition, SBC selects the smallest possible lag length, which is particularly important when working with shorter time periods. The results are presented below.

4.4 Empirical Results

Given that the bounds test confirms a long run relationship between the variables, the next step estimates the short run and long run equations. The models of the determinants of national and private savings in Fiji are estimated over the period 1970-2004. Both equations perform well in terms of the conventional adjusted R^2 and F-statistics. Additionally, the model diagnostics for both national and private savings suggest that the problems such as serial correlation, normality of the residuals, functional form, and heteroscedasticity have been avoided. Comments on the two estimated equations and the statistical significance, or lack of, for each variable are explained below. In order to facilitate the interpretation of the results, a summary of the data used in the regressions is presented in Table 4.2.

Table 4.2 Summary Data for Variables used in the Savings Model

	1970-1974	1975-1979	1980-1984	1985-1989	1990-1994	1995-1999	2000-2004
<i>PRISAV (%)</i>	22.07	31.38	37.67	46.20	62.18	52.62	48.28
<i>GDS (%)</i>	14.61	20.23	19.90	18.04	10.23	10.91	11.72
<i>LGDP</i>	3.45	3.57	3.55	3.52	3.53	3.57	3.60
<i>GDPPCG (%)</i>	5.99	2.68	-1.35	-0.37	1.87	2.21	2.20
<i>WEA (%)</i>	34.57	34.04	35.44	41.55	53.78	46.12	44.90
<i>DCPRI (%)</i>	15.24	17.25	22.59	27.08	38.32	33.72	30.06
<i>INF (%)</i>	12.16	9.08	8.94	5.97	5.12	3.25	2.62
<i>GPOP (%)</i>	2.12	1.90	1.99	1.13	1.06	0.91	1.11
<i>AGS (%)</i>	25.81	23.64	19.97	20.79	20.37	17.72	16.18
<i>PPBB</i>	20.86	19.38	19.22	15.36	15.80	16.91	17.56
<i>REMIT (%)</i>	1.67	0.92	1.87	2.00	2.52	2.67	6.23
<i>OPEN</i>	0.94	0.78	0.84	0.78	0.90	0.90	0.91
<i>PUBSAV (%)</i>	1.84	0.88	1.23	1.28	0.94	2.10	1.77
<i>RID (%)</i>	-8.21	-4.98	-3.24	-0.59	-1.32	-0.64	-1.98
<i>DR</i>	0.70	0.69	0.67	0.66	0.64	0.62	0.59

Notes: *LGDP* is in millions of Fijian dollars in constant (2000) prices; *PPBB* is in thousands. Figures are annual averages for sub period reported. Data sources and data compilation methods are discussed in section 4.3.2.

Legend: *PRISAV* is private savings to GDP ratio, *GDS* is national savings to GDP share, *LGDP* is the log of real GDP per capita, *GDPPCG* is the growth rate of real GDP per capita, *WEA* is real wealth to GDP ratio; *DCPRI* is domestic credit to private sector; *INF* is the rate of inflation; *GPOP* is the population growth rate, *AGS* is agriculture to GDP ratio; *PPBB* is bank density; *REMIT* is remittances by expatriates to GDP share; *OPEN* is the level of openness; *PUBSAV* is public savings to GDP ratio; *RID* is the real interest rate and *DR* is the dependency ratio.

4.4.1 National Savings

The estimated national savings equation (4.1) performs well in terms of the model diagnostics and the adjusted R^2 of 0.69 indicates a reasonably good fit of the model. Variables which were consistently insignificant (*GDPPCG*, *OPEN*, *GPOP*, *DR*) were dropped from the final equation. Specific emphasis has been placed on interpreting the estimated long run coefficients and their impacts on national savings in Fiji in order to determine the applicability of the theories discussed in section 4.2. The findings are presented in Table 4.3.

As postulated by the absolute income hypothesis the level of income (*GDPPC*) is an important determinant of the private savings rate – the estimated coefficient is positive

and significant at the 5 percent level. An increase in the level of income by 1 percent will lead to a 0.005 percentage increase in national savings. The result is similar to that obtained by Athukorala and Sen (2002) for India, and Hussein and Thirlwall (1999) for Turkey, and highlights that as Fiji is still in the initial stages of development the level of income is an important determinant of the capacity to save.⁴² The coefficient for wealth has the correct negative sign and is statistically significant at the 10 percent level in the estimated model. This implies that as levels of wealth increase, current levels of consumption expenditure will be maintained by diminishing the stock of wealth.

The positive and significant coefficients for share of agriculture and remittances suggest a high marginal propensity to save out of transitory income, and consequently provide support for Friedman's permanent income hypothesis. In light of the confirmed importance of the agricultural sector to national savings, the Fiji government will need to continue to put in place policies aimed at increasing the sectors output and productivity. This is because sugarcane forms the basis for much of Fiji's agricultural production (see Chapter 3) and thus current reductions in the sugarcane industry's preferential prices and access to the European Union markets will constrain growth in the agriculture sector and hinder national savings. Consequently finding new profitable export markets for sugarcane is vital for growth. Likewise, the results highlight the importance of remittances from expatriates as a determinant of the national savings level and thus illustrate the importance of further developing seasonal work programmes with Australia and New Zealand.

The results regarding the real interest rate are statistically significant and suggest that a 1 percent increase in the real interest rate will increase national savings by 1.46 percentage points. This provides evidence that the substitution effect dominates the income effect in terms of national savings decisions. The result supports the findings of Athukorala and Sen (2002) and Bayomi ((1993), but differs from that of Narayan and Narayan (2006) who for the case of Fiji found that real interest rates were negative and insignificant in explaining national savings. Overall, the empirical results provide support for the McKinnon-Shaw hypothesis that high real interest rates promote national savings in Fiji. Consequently, the persistence of negative real interest rates over the period in question

⁴² The small value of the coefficient is reflective of very slow movements beyond the initial stages of development.

(as shown in the summary statistics Table 4.1) is likely to have been a major deterrent to national savings in Fiji.

Table 4.3 Determinants of the National Savings Rate: Regression Results

$\Delta GDS_t = 0.59 - 0.46\Delta GDS_{t-1} + 0.007\Delta GDPPC_t + 0.56AGS_t + 2.12\Delta RID_t$				
(0.09)	(-4.15)***	(2.51)***	(2.78)***	(1.70)*
$+ 4.25\Delta REMIT_t - 0.33\Delta WEA_{t-2} - 0.55\Delta DCPRI_t - 0.67PPBB_t$				
(4.25)***	(-1.81)*	(-0.55)**	(-2.51)**	
$+ 2.40\Delta INF_t - 1.92DV_t$				
(1.91)*	(-1.43)			
$\bar{R}^2 = 0.69 \quad F_{(9,23)} = 7.76 \quad S.E \text{ of regression} = 2.50 \quad \text{Durbin's } h\text{-statistic} = -0.72$				
$SC\chi^2(1) = 1.64 \quad FF\chi^2(1) = 1.90 \quad N\chi^2(2) = 0.17 \quad H\chi^2(1) = 0.25$				
Long-run (steady state) effect on national savings rate:				
GDP per capita income (GDPPC)		0.005**		
Wealth (WEA)		-0.23*		
Agricultures share of GDP (AGS)		0.40***		
Remittances (REMIT)		2.94***		
Real interest rate (RID)		1.46*		
Domestic Credit to the private sector (DCPRI)		-0.38**		
Population per bank branch (PPBB)		-0.46**		
Inflation (INF)		1.66*		
Dummy variable (impact of the 1987 coups)		-1.33		

Notes: ***, **, * represent significance at the 1, 5, and 10 percent levels respectively. Adjusted R^2 is the coefficient of determination adjusted for degrees of freedom. F is the F-Statistic, S.E is the standard error, SC is serial correlation, FF is functional form, N is the normality of residuals, and H is heteroskedasticity. Significance level of $\chi^2(1) = 6.63$, $\chi^2(2) = 9.21$ at the 1 percent level.

Legend: GDS is national savings to GDP share, GDPPC is real GDP per capita, RID is the real interest rate, WEA is real wealth to GDP ratio, DCPRI is domestic credit to private sector, INF is the rate of inflation, PUBSAV is public savings to GDP ratio, REMIT is remittances by expatriates to GDP share, PPBB is bank density, AGS is agriculture to GDP ratio, and DV is a dummy variables (pre-1987=0, post - 1987=1).

The coefficient of domestic credit to the private sector is negative and significant at the 5 percent level. Specifically, the long run coefficient suggests that increasing domestic credit by 1 percent will result in national savings decreasing by 0.37 percent. This is partially reflective of controls over bank credit in terms of priority sector lending and

interest rate ceilings during the period 1970-1980, and of high levels of government expenditure to fund the burgeoning public sector. This finding is contrary to the World Bank (1999) who suggest that in the long run financial liberalisation will have a positive effect on national savings. Financial reforms in Fiji have taken time to implement due to the persistence of various restrictions in the financial sector until 1999, and political uncertainty in the post-2000 period which has caused investors to be cautious over borrowing from banks. It is likely that these impediments have been the cause of this result and thus require attention from policymakers.

The long run coefficient for population per bank branch is negative and significant. A 1 percent increase in bank density will lead to 0.46 percentage increase in national savings. This result provides strong evidence that the spread of banking facilities in Fiji since the 1980s has contributed significantly to improving the savings propensity of the economy. The result is similar to that of Athukorala and Sen (2002) and provides no evidence to suggest that the expansion of bank branches has generated greater financial savings in the form of bank deposits at the expense of the accumulation of other assets. Consequently, the continued expansion of banking services to the outer islands and rural areas is likely to impact positively on national savings in Fiji.

Macroeconomic uncertainty, as capture by the inflation rate, has a positive effect on national savings in the long run and is statistically significant at the 10 percent level. This provides support for the precautionary motive for savings and suggests that uncertainty encourages risk to be avoided through higher savings. Similar results have been found by Athukorala and Sen (2002), Hussein and Thirlwall (1999), and Ozcan et al., (2003). The uncertainty caused by political instability has had an adverse negative impact on national savings in Fiji; however the estimated *DV* coefficient is not significant. There is evidence that there is inertia in the national savings rate, as the lagged value for national savings is negative and significant at the 1 percent level. This result suggests that consumers do not immediately adjust consumption to news about changes in lifetime resources and is similar to that obtained by Athukorala and Sen (2002). Next the results for private savings are discussed.

4.4.2 Private Savings

The estimated private savings equation (4.2) performs well in terms of the diagnostic tests and the adjusted R^2 of 0.48 indicates a relatively good fit of the model. Variables which were consistently insignificant (*DR*, *GPOP*, *GDPPCG*, *INF*, *PUBSAV*, *OPEN*) were dropped from the final parsimonious equation. The effect of the estimated long run coefficients on private savings determine whether the theories noted in section 4.2 are applicable to the case of Fiji and thus provide the basis for policy recommendations aimed at increasing private savings. The estimates results are reported in Table 4.4.

The real income hypothesis, which suggests that consumption decisions depend partly on a household's level of income relative to other families, is supported by the negative estimated coefficient for *GDPPC*. The result is however statistically insignificant. The sign of the coefficient differs from that obtained by Athukorala and Sen (2002) and Ozcan et al., (2003), who found support for the absolute income hypothesis. The coefficient for lagged private savings is positive but statistically insignificant. This suggests that savings patterns in Fiji are not necessarily reflective of past behavioural patterns and highlights the potential benefits of policy reforms.

Friedman's permanent income hypothesis is supported by the results of both remittances and agricultures share of GDP in the private savings model. In particular, remittances are positive and statistically significant at the 5 percent level. This highlights the importance of remittances in increasing household's transitory income and thus savings. Similarly, the coefficient for *AGS* suggests that by increasing agricultures share of GDP by 1 percent there will be an increase in private savings by 1.04 percentage points. This confirms the importance of agriculture as a source of income to households in Fiji.

Domestic credit is positive and statistically significant at the 1 percent level. By increasing domestic credit to the private sector by 1 percent private savings will increase by 0.92 percentage points. Improved availability of credit spurs greater levels of investment, increases economic growth and feeds back positively to savings, thus confirming the success of financial liberalisation in encouraging higher levels of private savings in Fiji. Other empirical studies of private savings have however found statistical evidence that reducing borrowing constraints actually decreases private savings

(Bayoumi 1993; Warman and Thirlwall 1994; Bandiera, Caprio et al. 2000; Loayza, Schmidt-Hebbel et al. 2000; Ozcan, Gunay et al. 2003; Hermes and Lensink 2005). The estimated coefficient for wealth is negative and statistically significant at the 5 percent level. An increase in wealth by 1 percent will lead to a reduction in private savings by 0.74 percent. This indicates that increases in wealth change households perceived lifetime incomes, and thus their savings habits change accordingly.

Table 4.4 Determinants of the Private Savings Rate: Regression Results

$$\begin{aligned} \Delta PRISAV_t = & 69.93 + 0.07\Delta PRISAV_{t-2} + 7.21LGDP_{t-1} - 16.86LGDP_{t-1} - 0.009\Delta RID_t \\ & (-2.77)^{***} \quad (0.65) \quad (0.64) \quad (-1.73)^* \quad (-0.60) \\ & - 6.41LREMIT_t - 0.74\Delta WEA_{t-2} + 0.92\Delta DCPRI_t - 0.77PPBB_t - 0.84AGS_t \\ & (3.11)^{**} \quad (-3.12)^{**} \quad (4.50)^{***} \quad (-2.34)^{**} \quad (-2.13)^{**} \\ & + 1.88AGS_{t-1} - 4.74DV \\ & (3.84)^{***} \quad (-2.77)^{***} \end{aligned}$$

$$\bar{R}^2 = 0.48 \quad F_{(11,20)} = 3.61 \quad S.E \text{ of regression} = 2.39 \quad DW\text{-statistic} = 1.81$$

$$SC\chi^2(1) = 0.43 \quad FF\chi^2(1) = 0.59 \quad N\chi^2(2) = 1.72 \quad H\chi^2(1) = 1.00$$

Long-run (steady state) effect on private savings:

GDP per capita income (<i>GDPPC</i>)	-9.65
Private Savings from previous period (<i>PRISAV</i>)	0.07
Remittances (<i>REMIT</i>)	6.41**
Agricultures share of GDP (<i>AGS</i>)	1.05***
Domestic Credit to the private sector (<i>DCPRI</i>)	0.92***
Wealth (<i>WEA</i>)	-0.74**
Real interest rate (<i>RID</i>)	-0.09
Population per bank branch (<i>PPBB</i>)	-0.77**
Dummy Variable (impact of 1987 coups)	-4.74***

Notes: ***, **, * represent significance at the 1, 5, and 10 percent levels respectively. Adjusted R^2 is the coefficient of determination adjusted for degrees of freedom. F is the F-Statistic, S.E is the standard error, SC is serial correlation, FF is functional form, N is the normality of residuals, and H is heteroskedasticity. Significance level of $\chi^2(1) = 6.63$, $\chi^2(2) = 9.21$ at the 1 percent level.

Legend: *PRISAV* is private savings to GDP ratio, *GDPPC* is real GDP per capita, *RID* is the real interest rate, *WEA* is real wealth to GDP ratio, *DCPRI* is domestic credit to private sector, *REMIT* is remittances by expatriates to GDP share, *PPBB* is bank density, *AGS* is agriculture to GDP ratio, and *DV* is a dummy variable (pre-1987=0, post-1987=1).

The coefficient for the impact of the real interest rate on private savings is negative and statistically insignificant. Given that predominance of negative real interest rates over the period 1970-2004 it is plausible that the real interest rate has not contributed to private savings decisions in Fiji. This result is similar to that obtained by Ozcan, Gunay, and Ertac (2003) and Schmidt-Hebbel et al., (1996). In light of the finding that the real interest rate has had a positive and significant impact on national savings, this result implies that predominantly negative interest rates have impacted on private but not public savings decisions. Population per bank branch has the expected negative sign and is statistically significant at the 5 percent level. An increase in bank density by 1 percent will decrease private savings by 0.22 percentage points. This confirms that the spread of banking services has significantly contributed to improving Fiji's private savings propensity. However, limited bank services in many of the outer islands and rural areas have potentially impeded private savings in Fiji and thus require attention from policy makers.

4.5 Conclusion

The determinants of private and national savings in Fiji have been examined using an analytical framework derived from the lifecycle hypothesis. The empirical results provide important implications for encouraging higher levels of savings in Fiji and thus boosting economic performance, and clearly highlight that remittances, bank density and the agricultural sector have a statistically significant positive influence on domestic savings. Political instability has been determined to have a negative impact on the savings rate. The results for the real interest rate and domestic credit to the private sector are inconclusive.

Bank density (population per bank branch) is a highly significant determinant of Fiji's savings decisions. The results obtained by both the national and private savings models provide strong support for the view that the expansion of banking services has contributed significantly to improving the economy's savings propensity. In particular, unrestricted entry and exit into the banking industry in Fiji is likely to have been highly beneficial. Further actions by policymakers are however needed to encourage the spread of both formal and informal banking services into the outer islands and rural areas.

Remittances have been a highly significant explicator in encouraging a culture of savings in Fiji, at both the private and national level. However remittances should not be relied on as a source of income in the future as there is uncertainty over their continued flows if the generations become less closely tied to Fiji. Likewise the results clearly illustrate the continued importance of the agricultural sector; however once again this reliance poses potential problems due to reductions in the sugarcane industry's preferential access to the European Union. In light of the significance of both remittances and agriculture, and the uncertainty surrounding the continuation of both these sources of income, there is an urgent need for policy decisions to counteract the potential reductions in the savings rates. There is also evidence that political uncertainty has had a perverse impact on domestic savings. In light of this result, the December 5th 2006 military coup poses a serious threat to domestic savings and economic growth.

Persistently negative real interest rates on deposits are likely to have been a major contributing factor in lowering the levels of private savings. The removal of interest rate ceilings and floors in 1987 has failed to generate the positive real interest rates the RBF sought to encourage. However, at a national level the empirical findings provide support for the McKinnon-Shaw proposition. The results for domestic credit to the private sector are equally contradictory. At the national level controls over bank credit, in terms of priority sector lending and interest ceilings, during the period 1970-80 are likely to have deterred savings. However, in terms of private sector savings decisions increased availability of credit for domestic investment activities has resulted in economic growth and higher levels of private savings in Fiji. The inconclusiveness of the empirical findings relating to the effect of the financial reforms on domestic savings warrants the further empirical assessments undertaken in Chapter 6.

Appendix 4.1

Unit Root Tests for the Data Used to Estimate the Two Savings Models

Introduction

This appendix presents the Augmented Dickey Fuller (ADF) unit root tests, with and without a trend, which were performed to determine the order of integration in the data for each variable used in the private and national savings models presented in Chapter 4. The ADF tests in the levels, logs and first differenced are presented in Table A4.1. Given that Bounds tests (reported in the chapter) indicates the existence of a long run relationship between the variables, the Autoregressive Distributed Lag (ARDL) method of cointegration has been utilised as it does not require knowledge of whether the underlying variables are $I(0)$ or $I(1)$ (Pesaran and Pesaran, 1997, p. 304).

Table A.4.1 Unit Root Tests for Variables in the Savings Models

	LEVELS			LOGS			DIFFERENCED	
Variable (with trend unless specified)	ADF test: H0:I(1),H1:I(0) at 1% level	I(1) or I(0)		ADF test: H0:I(1),H1:I(0) at 1% level	I(1)or I(0)		ADF test: H0:I(1), H1:I(0) at 1% level	I(1)or I(0)
<i>PRISAV</i>	-1.5488	I(1)					-10.1522	I(0)
<i>GDS</i>	-3.319	I(1)					-8.149	I(0)
<i>GDPPC</i>	-2.1206	I(1)		-2.214	I(1)		-5.009	I(0)
<i>GPOP(without)</i>	-2.659	I(1)					-7.084	I(0)
<i>INF (without)</i>	-1.091	I(1)					-5.977	I(0)
<i>OPEN (without)</i>	-3.941	I(0)						
<i>AGS</i>	-3.477	I(1)					-8.196	I(0)
<i>REMIT</i>	-0.782	I(1)					-5.527	I(0)
<i>PPBB</i>	-1.9806	I(1)					-5.2088	I(0)
<i>DCPRI</i>	-1.4608	I(1)					-4.919	I(0)
<i>GDPPCG (without)</i>	-5.317	I(0)						
<i>PUBSAV</i>	-3.43	I(1)					-5.35	I(0)
<i>WEA</i>	-4.465	I(0)					-3.1948	I(0)*
<i>RID(without)</i>	-3.228	I(0)						
<i>DR</i>	1.384	I(1)					-2.007	I(1)

Note: * significant at the 5% level.

Chapter 5

The Determinants of Investment

5.1 Introduction

The economic growth literature, since its inception, has noted the vital importance of investment and its related economic activities. Since the military coups in 1987, Fiji has experienced a distinctive downward trend in private sector investment, as noted in Chapter 3. The political turmoil generated high levels of uncertainty that negatively impacted on the expectations of returns from private investment, and consequently resulted in a reduction in private sector investment. Falling levels of private investment are alarming given that the economic growth literature, discussed in Chapter 2, highlights the vital role of investment in achieving sustainable economic growth. Rao (2004) suggests that if investment levels remain below 25 percent Fiji will struggle to achieve an economic growth rate of 5 percent. Other studies of Fiji highlight the importance of investment and similarly stress the problems associated with the currently low investment trends (Seruvatu and Jayaraman 2001; Narayan 2004; Rao 2004; Gounder 2005).

The above noted studies of investment in Fiji, and those undertaken for other developing countries (Ghura 1997; Demir 2005), provide an important basis for policy recommendations. However, Athukorala and Sen (2002) note that many of the studies of private investment undertaken in the literature suffer from methodological flaws associated with failing to use a formal model of investment behaviour and ignoring the existing level of the capital stock. Given the low levels of private sector investment in Fiji and the importance of a comprehensive assessment to avoid the noted procedural flaws in the estimation of the models, this chapter examines the determinants of private investment in Fiji over the period 1970-2004, utilising an extended data set, key investment factors and the conditioning factors that affect investment.

In examining the determinants of private investment a formal model of business investment derived from the neo-classical and new growth theory, as noted by Scott (1989), has been used that avoids the methodological flaws identified by Athukorala and

Sen (2002). The models also include appropriate modifications to account for country-specific phenomena. The final models estimate empirically the impact of the investment-orientated reforms identified in Chapter 3, and will form the basis of the policy recommendations provided in Chapter 7.

The structure of this chapter is organised as follows: the framework for modelling the determinants of private investment is developed in section 5.2. Section 5.3 presents the models for estimation, and discusses the data and methodology used to develop the models. Section 5.4 presents the estimation results and validity tests for the models. A conclusion is presented in section 5.5.

5.2 Theoretical Aspects of Investment

The approach taken to analyse the determinants of private investment is a modified version of the neo-classical investment model. This approach follows the works of Scott (1989) and Athukorala and Sen (2002). In particular, Athukorala and Sen (2002) note that one of the key limitations of private investment studies undertaken in the literature has been the use of *ad hoc* investment functions rather than those derived using a formal model of investment behaviour. Consequently, the impact of the effect of the user cost of capital on decisions relating to capital formation has been largely ignored in the empirical literature. Likewise, they highlight that the impact of the existing level of capital stock has also been tended to be ignored in the empirical literature.

Another key limitation identified in the existing studies of private investment is the use of total private investment when examining the investment behaviour of the firm. Total private investment provides a poor proxy for business fixed investment as it includes both business fixed and residential investment, which both have different underlying determinants.⁴³ It is because of these considerations that both private corporate and non-residential investment are investigated. Due to their prominence in the literature, and in order to account for country-specific phenomena, additional variables such as

⁴³ A firm will base its investment decisions on factors such as expected future sales, interest rates and the relative price of new capital goods. On the other hand residential (household) investment will depend on the relative attractiveness of housing as an asset compared to bonds, stocks, gold etc. It will be affected by factors such as average level of rents, interest rates, and expected capital gains from real estate.

macroeconomic uncertainty, availability of credit and public investment are included in the models. The basic neo-classical investment model first developed by Jorgensen (1963) is discussed next. The theoretical reasoning behind the extensions and modifications of the basic neo-classical investment model is provided in section 5.2.2.

5.2.1 The Neo-Classical Investment Model

The neo-classical theory of investment asserts that firms maximise the utility of their consumption stream subject to a production function which relates the flow of output to that of labour and capital services (Jorgenson 1963; Jorgenson 1967). Capital services are considered to be internally supplied by the firm through investment in capital goods. Neo-classical investment theory also highlights the important role of the accelerator mechanism. Rapid rises in income are deemed to put pressures on the existing capacity of the economy and therefore encourage businesses to invest. The central feature of neo-classical theory is that demand for capital responds to changes in relative factor prices. This concept was however ignored in the empirical literature prior to the work of Jorgenson (1963). Jorgenson (1963) developed a comprehensive model which highlighted the cost of capital (C) as an important determinant of investment decisions, and where investment was a function of expected interest rates, prices, and taxes. The wealth maximising demand for capital was asserted to be a derived demand which depends negatively on the expected rental cost of capital and positively on expected output, via the accelerator mechanism.⁴⁴ Assuming there is a constant elasticity of substitution (σ) between capital and variable inputs, the relationship described above is represented by the following equations:

$$K_t^* = \alpha Y_t C_t^{-\sigma} \quad (5.1)$$

where C_t is

$$C_t = PK_t[r_t - \pi_t^e + \delta]/P_t \quad (5.2)$$

PK is the price of capital goods, P is the output price level, r is the banking lending rate, π^e is the expected inflation rate of capital goods, δ is the rate of capital depreciation, and α is the distribution parameter.⁴⁵

⁴⁴ Jorgenson (1963) notes that demand for capital is not demand for investment.

⁴⁵ Investment tax credit, depreciation allowances, and corporate income tax are all ignored in this study due to restrictions in the availability of data.

Equation (5.1) highlights that the desired capital stock (K^*) is not dependent on past or present output values, but rather is reliant on both a set of price variables (PK and r) and on an expected quantity variable (Y). This is an important adjustment of Jorgenson's original model (1963), which suffered from problems associated with mixing optimality conditions from comparative static's with what is optimal in a dynamic setting (Gould and Waud 1973). Jorgenson's original specification meant that firms target levels of capital and labour, as suggested by the model, would differ from those a rationally managed firm would opt for. By making the model (5.1) independent of past and/or present values of output, and dependent only on exogenous quantities that are unaffected by the firms decisions of adjustment process, this problem is avoided.

The neo-classical investment function consists of two components: net investment and replacement investment. Net investment (I_t^n) is determined by a distributed lag on new orders, which in a given period is equivalent to the change in the desired capital stock. This is indicated as follows:

$$I_t^n = \sum_{T=0}^J \beta_J \Delta K_{T-j}^* \quad (5.3)$$

where β is the delivery lag distribution extending from $J+1$ periods. Replacement investment (I_t^r) is assumed to be proportional to the capital stock available at the beginning of the period and adjusts immediately

$$I_t^r = \delta K_{t-1} \quad (5.4)$$

Combining the two relationships (equations 5.4 and 5.3) and appending a stochastic error term (u_t), the neo-classical model for investment is derived as follows:

$$I_t = \delta K_{t-1} + \sum_{t=0}^J \alpha \beta_j \Delta(Y_{t-j} C_{t-j}^{-\sigma}) + u_t \quad (5.5)$$

The desired level of capital stock is estimated by approximating K^* linearly based on the assumption that expectations of the output and rental costs terms are an extrapolation of past values. Accordingly the following modified model emerges:

$$I_t = \delta K_{t-1} + \sum_{j=0}^{J_1} \theta_{1j} \Delta Y_{t-j} - \sum_{j=0}^{J_2} \theta_{2j} \Delta C_{t-j} + u_t \quad (5.6)$$

where the distributed lag coefficients are an combination of the delivery lag, expectation and production parameters.

For the purpose of this study on Fiji the basic neo-classical investment model is augmented to include the following explanatory variables: credit availability; uncertainty in the macroeconomic system (proxied by standard deviations of output and cost of capital); public investment; a post-coup dummy; indices for democracy and economic freedom, the relationship between democracy and economic freedom, and an interactive dummy to capture the impact of the military coups on democracy. The rationale behind these additions is discussed in the next section.

5.2.2 Extensions and Modifications - Neo-Classical Investment Model

The basic neo-classical investment model has been modified to incorporate a number of determinants highlighted in the literature. The modifications also result from queries over the applicability of some of the assumptions made by the standard neo-classical investment model to the case of Fiji. The additions aim to provide a comprehensive assessment of the determinants of both private corporate and non-residential fixed investment in Fiji over the period 1970-2004.

The restrictive nature of limited economic freedom, and political and civil liberty, has been highlighted in the literature. In particular, the World Bank (1997) noted that if investors don't believe the state to be credible then growth and investment will suffer. Likewise, Pastor and Ho Sung (1995) found a positive relationship between democracy and investment, which they suggest may exist because more open political systems allow policymakers to better read and respond to distributive pressures and thus reduce social conflict. Other studies have found evidence of a negative relationship between democracy and development (Sirowy and Inkeles 1991). For the case of Fiji, military coups have led to political instability, non-democratically designed political structures, an outflow of capital and skilled labour, and reductions in investor confidence had a negative impact on the trade balance (Gounder 2002). Following the study by Gounder (2002), to test the link between democracy and investment for the case of Fiji a democracy variable (*DEMO*) is included in the basic model and takes the following specific form:

$$I_t = \delta K_{t-1} + \sum_{j=0}^{J_1} \theta_{1j} \Delta Y_{t-j} - \sum_{j=0}^{J_2} \theta_{2j} \Delta C_{t-j} + \theta_7 DEMO + u_t \quad (5.7)$$

However, Gounder (2002) suggests that it is also economic freedom, and not just political freedom or democracy alone, which is relevant for growth in developing

countries. In order to test this hypothesis the economic freedom variable is incorporated as follows:

$$\theta_7 = \lambda_0 + \lambda_1 EFI \quad (5.8)$$

where EFI is the economic freedom index.

Assuming that the effect of democracy on investment depends on the level of economic freedom the following equation can be derived by substituting equation (5.8) into (5.7).

$$I_t = \delta K_{t-1} + \sum_{j=0}^{J_1} \theta_{1j} \Delta Y_{t-j} - \sum_{j=0}^{J_2} \theta_{2j} \Delta C_{t-j} + \lambda_0 DEMO + \lambda_1 EFI * DEMO + u_t \quad (5.9)$$

To determine whether the military coups exerted a negative impact on investment an interactive dummy, which represents the relationship between the post-1987 coup period and democracy ($MC * DEMO$), is taken into account via the following specific form:

$$\theta_7 = \beta_0 MC * DEMO + \beta_1 EFI \quad (5.10)$$

where MC is a dummy variable which takes a value of 1 in the period post-1987 coup or 0 otherwise.

Substituting (5.10) into (5.7) we get the following specification:

$$I_t = \delta K_{t-1} + \sum_{j=0}^{J_1} \theta_{1j} \Delta Y_{t-j} - \sum_{j=0}^{J_2} \theta_{2j} \Delta C_{t-j} + \beta_0 MC * DEMO + \beta_1 EFI + u_t \quad (5.11)$$

The importance of credit availability in determining investment decisions has also been highlighted in the literature (Oshikoya 1994; Fry 1995; Hubbard 1998). Whilst the basic neo-classical investment model assumes perfect capital markets the works of McKinnon (1973) and Shaw (1973) cast doubt as to whether firms can borrow freely to fund their investment projects. They argue that the availability of loanable funds may influence investment behaviour independently of the cost of capital. The recent theoretical literature also highlights that external finance is likely to be more costly than internal finance due to asymmetric information and contract enforcement issues. Because of “insider-outsider” problems the availability of finance is likely to constrain the investment decisions of firms.⁴⁶ Athukorala and Sen (2002) argue that these problems are likely to be more severe in developing countries. For the case of Fiji the financial

⁴⁶ Insiders (the firm’s owners/managers) have full information about the firm’s investment prospects; however outsiders are unlikely to be able to correctly determine the quality of individual firm’s investment prospects due to informational constraints.

sector has lagged behind in its role to facilitate credit for investment and growth (Reddy 2000). Priority sector lending requirements, pursued between 1970 and 1980, led to a rationing of credit to non-target sectors and thus impacted on investment (Reserve Bank Of Fiji 2004). With these considerations in mind a credit constraint, proxied by real bank credit to the private sector (BC), is included in the final investment models.

The basic neo-classical investment model developed by Jorgenson (1963) assumes that investment decisions are reversible and that each decision is a once and for all opportunity. The emerging literature has however highlighted that most investment expenditure is irreversible in nature and that because the real world is shrouded in macroeconomic uncertainty the possibility of delay when making investment decisions can be an important consideration (Pindyck 1986; Serven and Solimano 1992; Bertola 1998). In particular, Serven and Solimano (1992) note that capital, once installed, cannot be put to productive use in a different activity without incurring a substantial cost.⁴⁷ The decision to undertake irreversible investment can be viewed as exercising an option to wait for new information that may influence the desirability or timing of a project. The level of uncertainty surrounding future macroeconomic conditions will be a major determinant of decisions to invest. Consequently, there may be great value attached to waiting when investment is irreversible.

In order to assess the impact of uncertainty on investment decisions in Fiji the standard deviations of a change in GDP (SDY) and the change in the cost of capital ($SDCCP$) are included in the final models. Uncertainty about constitutional and political rights, property rights and economic policies are also likely to be major constraints on investment in Fiji (Fallon and King 1995; Gounder 1999; Gounder 2002).⁴⁸ In order to create an environment where the opportunity for new and productive investments is maximized the Fiji government undertook a number of measures such as exchange rate policy and fiscal incentives in the post-1987 coup period; however these have failed to be sustainable in the long term. In particular, the exodus of skilled labour since 1987 has acted as an impediment to investment. A dummy variable (MC), which takes on the

⁴⁷ Consequently most capital expenditure can be viewed as a sunk cost.

⁴⁸ Failures to solve land lease issues are likely to have deterred investment in Fiji. This is because there are high risks to investment when land is not freehold. Consequently, a method of compensating for improvements on leased land is important so as to encourage investment (Fallon and King, 1995).

value 1 in the period post-1987 coup, is included in the final models to assess the impact of reductions in investor confidence due to political uncertainty.⁴⁹

It has been highlighted in the literature that public investment can effect private investment decisions on either the demand or supply side. On the supply side, it is argued that public investment in infrastructure and private investment will be complementary (Bleyer and Khan 1984; Oshikoya 1994). Creation of infrastructure facilities is likely to decrease costs of production and thus increase profitability for private investors. On the demand side there is a theoretically ambiguous relationship. When the economy is not operating at full capacity an increase in public investment will result in an increase in private investment. However if capacity has been reached then it is likely that some “crowding out” of private investment will occur.⁵⁰ Narayan’s (2004) study of the effect of public investment on private investment in Fiji found evidence of “crowding in” over the period 1950-75 and of a much weaker relationship over the period 1975-2001. In order to reassess the complementary nature of public investment in Fiji a more up to date time series, public investment (*PUBINV*) data and other relevant variables are also included in the final model.

5.3 Model Specifications, Data, and Methodological Approach

An extended version of the neo-classical theory of fixed investment is used to assess the determinants of private corporate and non-residential real fixed investment. The results are compared with existing studies of private investment undertaken for the case of Fiji and other developing countries. By assessing both the private corporate and non residential sectors’ determinants of investment a comprehensive examination of the private investment is undertaken based on the theoretical considerations discussed above. The sections below present the model specifications, discuss the data sources, and introduce the methodology used in the estimation of the models.

⁴⁹ Note: *MC* can only be tested in the model which does not include the variable *MC*DEMO* due to potential problems with multicollinearity.

⁵⁰ Nazmi and Ramirez Nazmi, N. and M. Ramirez (1997). "Public and Private Investment and Economic Growth in Mexico." *Contemporary Economic Policy* **15**(1): pp. 65-75.

and Balassa Balassa, B. (1988). "Public Finance and Economic Development." *World Bank Working Paper* **31**.

both find evidence of crowding out of private investment.

5.3.1 Model Specifications and Data

Due to the absence of direct estimates of fixed investment in the household sector by firms, and an inability to decompose private investment specifically into residential investment and business fixed investment, indirect estimates of private corporate and non residential investment are utilised. The dependent variable for real private corporate sector fixed investment is proxied by private investment (*PRINV*) and for real non residential fixed investment (*NRINV*) is proxied by foreign direct investment.⁵¹

Private corporate fixed investment model including economic freedom takes the following form:

$$PRINV_t = \delta KSPRI_{t-1} + \sum_{j=0}^{J_1} \theta_{1j} \Delta Y_{t-j} - \sum_{j=0}^{J_2} \theta_{2j} \Delta CCP_{t-j} + \theta_3 BC_t + \theta_4 PUBINV_t - \theta_5 SDY_t - \theta_6 SDCCCP_t + MC + \lambda_0 DEMO + \lambda_1 EFI * DEMO + u_t \quad (5.12a)$$

To measure the effect of military coups on private corporate investment the model is:

$$PRINV_t = \delta KSPRI_{t-1} + \sum_{j=0}^{J_1} \theta_{1j} \Delta Y_{t-j} - \sum_{j=0}^{J_2} \theta_{2j} \Delta CCP_{t-j} + \theta_3 BC_t + \theta_4 PUBINV_t - \theta_5 SDY_t - \theta_6 SDCCCP_t + \beta_0 MC * DEMO + \beta_1 EFI + u_t \quad (5.12b)$$

The subscript 't' denotes time in the specifications. The regressors used in the equations are as follows:

<i>PRINV</i>	Private corporate investment
<i>KSPRI</i>	Real capital stock, private corporate sector
<i>DY</i>	Change in real GDP
<i>DCCP</i>	Change in the cost of capital
<i>PUBINV</i>	Real public sector fixed investment
<i>BC</i>	Real bank credit to the private sector
<i>SDY</i>	3 year moving average of the standard deviation of income (<i>DY</i>)
<i>SDCCP</i>	3 year moving average of the standard deviation of cost of capital (<i>DCCP</i>)
<i>MC</i>	Post-1987 coup dummy variable (pre-1987=0, post-1987=1)
<i>DEMO</i>	Civil liberties and political rights index, where 0 represents no democracy and 10 represents complete democracy
<i>EFI</i>	Economic freedom index, where 0 represents no freedom and 10 represents complete freedom.

⁵¹ The variables used in estimating non-residential sector investment are all expressed in terms of GDP in order to avoid spurious results due to high standard errors.

The non-residential fixed investment function, inclusive of the effects of economic freedom and all other relevant variables, has the following posited specification (5.13a):

$$NRINVY_t = \delta KSNRS_{t-1} + \sum_{j=0}^{J_1} \theta_{1j} DY_{t-j} - \sum_{j=0}^{J_2} \theta_{2j} DCCP_{t-j} + \theta_3 BCY_t + \theta_4 PUBINVY_t - \theta_5 SDY_t - \theta_6 SDCCP_t + MC + \lambda_0 DEMO + \lambda_1 EFI * DEMO + u_t \quad (5.13a)$$

Similarly, when the effects of the military coup are included in the model for non-residential investment the following specification applies (5.13b):

$$NRINVY_t = \delta KSNRS_{t-1} + \sum_{j=0}^{J_1} \theta_{1j} DY_{t-j} - \sum_{j=0}^{J_2} \theta_{2j} DCCP_{t-j} + \theta_3 BCY_t + \theta_4 PUBINVY_t - \theta_5 SDY_t - \theta_6 SDCCP_t + \beta_0 MC * DEMO + \beta_1 EFI + u_t \quad (5.13b)$$

The variables used in the equations are as follows:

<i>NRINVY</i>	Non-residential sector investment (<i>NRINV</i>) to GDP ratio
<i>KSNRS</i>	Real capital stock, non-residential sector
<i>DY</i>	Change in real GDP
<i>DCCP</i>	Change in the cost of capital
<i>PUBINVY</i>	Real public sector fixed investment (<i>PUBINV</i>) to GDP ratio
<i>BCY</i>	Real bank credit to the private sector (<i>BC</i>) to GDP ratio
<i>SDY</i>	3 year moving average of the standard deviation of income (<i>DY</i>)
<i>SDCCP</i>	3 year moving average of the standard deviation of cost of capital (<i>DCCP</i>)
<i>MC</i>	Post-1987 coup dummy variable (pre-1987=0, post-1987=1)
<i>DEMO</i>	Civil liberties and political rights index, where 0 represents no democracy and 10 represents complete democracy
<i>EFI</i>	Economic freedom index, where 0 represents no freedom and 10 represents complete freedom.

The private corporate and non-residential fixed investment models are estimated over the sample period 1970-2004 using annual data. All variables are expressed in 2000 constant prices using consumer price indices obtained from the World Bank (2005). The disaggregated data for investment has been compiled by visiting the Reserve Bank of Fiji (RBF), the Fiji Islands Bureau of Statistics and using their reports and databases.

Data for Fiji's private corporate investment, public investment, building material price index (BMPI), capital stock of the private sector, capital stock of the non-residential sector, and GDP were obtained from the Fiji Islands Bureau of Statistics (various)

Current Economic Statistics and Census of Industries. The data for non-residential investment, the exchange rate (US\$ per \$F) and the general price level were obtained from the World Bank (2005). Data concerning the level of domestic credit claims on the private sector, and the bank lending rate were obtained from the IMF's *International Financial Statistics Yearbook* (various). The economic freedom index (*EFI*) was obtained from the Economic Freedom Network (Gwartney and Lawson 2006). The democracy index (*DEMO*) was obtained from Freedom House (2006).

Due to data constraints private corporate investment (*PRINV*) is proxied by total private sector investment, which is defined as investment in private fixed capital. Public investment (*PUBINV*) is defined as the summation of public and government investment in fixed capital. Due to limitations of private and public investment data for the period 2002 to 2004 these values have been supplied by the RBF (personal communication). They are estimated using actual values of the growth rate of nominal GDP and taking into account year specific circumstances such as growth of investment goods. Public investment is expressed as a ratio of GDP (*PUBINVY*) in the final non-residential sector investment model. Non-residential fixed investment (*NRINVY*) in Fiji is proxied by the level of Foreign Direct Investment (FDI) to GDP ratio due to no direct measures of non residential investment being available for Fiji. Data on the level of FDI net inflows was obtained from the World Bank Tables (2005b) and has been converted from \$US into \$F using the exchange rate. The FDI net inflows represent the sum of inflows of equity capital, reinvestment of income, other long-term capital, and short-term capital in Fiji as shown in the balance of payments.

Bank Credit (*BC*) to the private sector is calculated by adjusting nominal bank credit by the Building Materials Price Index (BMPI) for each consecutive year. The level of nominal bank credit was generated by subtracting claims on the private sector from domestic credit. The bank credit is expressed as a ratio of GDP in the non-residential sector investment model (*BCY*). Data for the private corporate sector (*KSPRI*) is proxied by the capital stock of the private sector, which denotes the local capital stock plus the capital stock for the electricity and gas industries. In keeping with the decision to proxy non-residential investment with foreign investment, the values for the non-residential sectors capital stock (*KSNRS*) are proxied by the capital stock of the foreign sector. Total

foreign capital stock denotes the capital stock for the mining industry and the foreign sector.

The data representing the cost of capital (CCP) is calculated using equation (5.2). Data on the price of capital goods (PK) is measured by the BMPI (2000=100) (FIBS, various editions). The bank lending rate (r) is the maximum commercial bank lending rate for each year. The measure of the general price level (P) is the GDP deflator (2000=100) and is defined as the ratio between GDP at current and constant prices. Based on Rao and Rao (2005), the rate of depreciation (δ) is assumed to remain constant at 4 percent. The expected rate of change of the capital goods price (π^e) is measured as the three year moving average of the rate of change of capital goods price (measured in terms of the BMPI) with a one year lag. The formula used to calculate the 3 year moving average for the cost of capital ($MACCP$) is: $MACCP(t) = \sum_{j=1,2,3} CCP(t-j)/3$ where $j=1,2,3$. The data for the standard deviation of the cost of capital ($SDCCP$) is calculated using the following

formula: $SDCCP(t) = \sqrt{\frac{\sum_{j=1,2,3} [CCP(t-j) - MACCP(t)]^2}{3}}$ Data on the level of GDP is expressed in terms of millions of Fijian dollars in 2000 constant prices. The standard deviation of GDP (SDY) is computed using the same methodology as for calculating the $SDCCP$.

The economic freedom index (EFI) measures economic freedom using a scale from 0 to 10, where 10 represents complete freedom and 0 represents no freedom. The democracy index ($DEMO$), estimated by Freedom House (2006), measures democracy using a scale from 1 to 7, where 1 represents democracy and 7 represents no democracy. The original $DEMO$ indices have been rescaled, so that 0 represents no democracy and 10 represents complete democracy; see Gounder (2005) for details. In order to account for the impact of the uncertainty created by the military coups in 1987 on investment a dummy variable (MC) has been included in the models.

5.3.2 Methodological Approach

The ARDL approach to analysing time series data is used to derive the relationships between private corporate and non-residential investment and the proposed determinants. The ARDL method of cointegration not only estimates both the short run and long run

relationships, but also allows assessing the impact of temporary disruptions, caused by the military coups in 1987 and 2000, on private investment decisions. He (2005) notes that despite Jorgenson`s original theory containing no adjustment process for the capital stock to reach its optimal level, this can implicitly be introduced by using the ARDL modelling procedure and focussing on the long run behaviour of the variables. It is due to these considerations, and also the small sample properties, that the ARDL approach is adopted. The methodology undertaken relates to the bounds test and estimating the long run coefficients using Microfit Version 4 (Pesaran and Pesaran 1997).

The computed F statistic values from the bounds test are compared to the critical values tabulated by Pesaran et al., (1997).⁵² The results from the bounds tests are presented in Table 5.1.⁵³ As the estimated F-statistic value for equation 5.12 is 2.19, which is below the lower bound, the hypothesis that there exists no long run relationship between the variables can be rejected. The calculated F-statistic for equation 5.13 is 0.60 and is also significantly below the lower bound, thus a long run relationship between the variables can be confirmed. Whether the variables are I(1) or I(0) in either of the equations is not a concern as the estimated bounds test results have been positive in each case. The unit root test for each variable is reported in appendix A5.1 The next step in the estimation procedure involves determining the long run coefficients of the relevant variables in equations 5.12 and 5.13 using the ARDL Schwartz Bayesian criterion. The results for the private corporate and non-residential sectors, along with the commonly used diagnostic statistics, are presented next.

Table 5.1 Bounds F-Test for the Investment Models

Equation	k	Critical Value Band Intercept and No Trend*		Calculated F-Statistic	Pass/Fail
		I(0)	I(1)		
Equation 5.12	7	3.03	4.03	2.19	Pass
Equation 5.13	7	3.03	4.03	0.60	Pass

Note: k represents the number of variables in the regression.
 * represents the 99 percent level of significance.

⁵² The critical values are tabulated for different numbers of regressors and whether the ARDL model contains an intercept and or trend.

⁵³ A unit root test was also undertaken to determine whether the variables used in the models were stationary (see Appendix Table A5.1).

5.4 Empirical Results

The results of the bounds test (Table 5.1) confirm the existence of a long relationship between the variables; consequently the next step estimates the long run coefficients. This section presents the empirical results for private corporate and non-residential sector investment in Fiji over the period 1970-2004. The investment models perform acceptably in terms of the conventional tests; i.e. the adjusted R^2 and F-statistics. The model diagnostics indicate no concern with respect to serial correlation, normality of the residuals, functional form, and heteroskedasticity. Comments on the two estimated equations and the statistical significance, or lack of, for each variable are explained below. In order to ease the interpretation of the results, a summary of the data used in the regression is presented in Table 5.2.

Table 5.2 Summary Data on Variables used in the analysis of Investment

	1970-1974	1975-1979	1980-1984	1985-1989	1990-1994	1995-1999	2000-2004
<i>PRINV</i>	206.91	272.36	288.27	239.51	135.89	135.45	139.82
<i>NRINVY</i> (%)	3.25	1.72	3.05	1.64	5.39	2.01	1.40
<i>KSPRI</i>	277.13	382.24	807.08	887.04	823.14	604.38	663.24
<i>KSNRS</i>	169.79	121.99	98.90	176.80	158.25	119.82	76.94
<i>PUBINV</i>	124.01	224.32	293.68	143.99	241.22	282.58	292.01
<i>PUBINVY</i> (%)	8.00	10.14	12.63	6.06	9.52	9.61	8.83
<i>BC</i>	-3.50	291.44	362.56	321.86	234.55	179.47	243.75
<i>BCY</i> (%)	-0.14	13.17	15.60	13.54	9.26	6.11	7.37
<i>SDCCP</i> (%)	6.77	10.51	12.64	13.62	14.59	11.99	8.90
<i>CCP</i> (%)	10.26	11.06	13.75	14.26	12.58	10.71	7.79
<i>SDY</i> (%)	102.66	113.80	84.40	81.34	54.83	65.98	123.06
<i>Y</i>	1550.12	2212.49	2324.40	2377.67	2534.08	2939.11	3307.15

Notes: Values are in millions of Fijian dollars constant (2000) prices. Figures are annual averages for 5 year sub-period reported. Data sources and data compilation methods are discussed in section 5.3.2.

Legend: *PRINV* is real private corporate sector fixed investment; *NRINVY* is non-residential fixed investment to GDP ratio; *KSPRI* is the private corporate sectors real capital stock; *KSNRS* is the non-residential sectors real capital stock; *PUBINV* is real public sector fixed investment; *PUBINVY* is real public sector fixed investment to GDP ratio; *BC* is real bank credit to the private sector; *BCY* is real bank credit to the private sector to GDP ratio; *SDCCP* is the 3 year moving average of the standard deviation of *CCP*; *CCP* is the cost of capital; *SDY* is the 3 year moving average of the standard deviation of *Y*; and *Y* is real GDP.

5.4.1 Empirical Results – Private Corporate Investment

The estimated private corporate equation (5.12) performs well in terms of the diagnostic tests, and the adjusted R^2 of 0.59 indicates a relatively good fit of the model. Variables that were consistently statistically insignificant (*DEMO*, *EFI*, *MC*, *MCDEMO*, *CCP*) were dropped from the final model. The effects of the estimated long run coefficients on private corporate investment are examined below in order to determine the applicability of the theories discussed in section 5.2. The results are presented in Table 5.3.

The results support the hypothesis that business investment is negatively affected by the size of the initial capital stock – the coefficient for the *KSPRI* is statistically significant at the 1 percent level and suggests a small long run investment elasticity of -0.003 percent. The result is similar to that obtained by Athukorala and Sen (2002). The coefficient for the change in real GDP (*DY*) is statistically significant and positive. Specifically, a 1 percent increase in *DY* will result in an approximately 0.001 percent increase in private corporate investment in the long-run. This implies that the standard accelerator mechanism is important in explaining private corporate investment behaviour in Fiji. Similar results were found by Athukorala and Sen (2002) for India, and Ramirez (1994) for Mexico.

The results pertaining to public investment (*PUBINV*) provides support for the proposal that there is a complementary relationship between investment in infrastructure and private corporate investment. Specifically, an increase in public investment by 1 percent will led to a 0.006 percent increase in private corporate investment. Other studies which have found evidence in favour of “crowding in” for the case of Fiji have included Gounder (2005), Skully (1997), and Narayan (2004). Similar findings for other developing countries include Athukorala and Sen (2002), Nazmi and Ramirez (1997), Ramirez (1994), and Pastor and Ho Sung (1995).

There is evidence of a significant positive long run effect of bank credit (*BC*) on private corporate investment. An increase in private corporate investment by 0.006 percent will result from an increase in bank credit by 1 percent. This finding has received support in the empirical literature by Bleyer and Khan (1984), Fry (1980), Gupta (1984), Ramirez(1994), and Tun Wai and Patrick (1973). Skully (1997) suggests that the availability of finance at a competitive real interest rate is not a constraint on private

investment in Fiji. Furthermore, Jayaraman and Chee-Keong (2006) note the significance of credit availability in generating economic growth in Fiji.

Table 5.3 Determinants of Private Corporate Investment: Regression Results

$$\Delta LPRINV_t = -0.23 - 0.54\Delta LPRINV_{t-1} - 0.004\Delta KSPRI_t + 0.006DY_t + 0.001DY_{t-1} \\ (-1.40) \quad (-3.17)*** \quad (-2.53)*** \quad (3.65)*** \quad (3.90)*** \\ + 0.009\Delta PUBINV_t - 0.001BC_t + 0.001BC_{t-1} - 0.02DCCP_t - 0.02SDCCP_t \\ (2.12)** \quad (-0.40) \quad (3.22)** \quad (-1.49) \quad (-2.31)** \\ - 0.002\Delta SDY + 0.004EFI * DEMO_t \\ (-3.45)*** \quad (1.71)*$$

$$\bar{R}^2 = 0.59 \quad F_{(11,21)} = 5.20 \quad S.E \text{ of regression} = 0.11 \quad DW\text{-statistic} = 2.05$$

$$SC\chi^2(1) = 0.04 \quad FF\chi^2(1) = 0.03 \quad N\chi^2(2) = 0.93 \quad H\chi^2(1) = 0.002$$

Long-run (steady state) effect on private corporate investment:

Capital stock of the private corporate sector (<i>KSPRI</i>)	-0.003***
Income (<i>DY</i>)	0.001***
Public investment (<i>PUBINV</i>)	0.006*
Bank credit (<i>BC</i>)	0.006***
Cost of capital (<i>DCCP</i>)	-0.01
Standard deviation of the cost of capital (<i>SDCCP</i>)	-0.15***
Standard deviation of real GDP (<i>SDY</i>)	-0.001***
Economic Freedom and Democracy (<i>EFI*DEMO</i>)	0.002*

Notes: ***, **, * represent significance at the 1, 5, and 10 percent levels respectively. Adjusted R^2 is the coefficient of determination adjusted for degrees of freedom. F is the F-Statistic, S.E is the standard error, SC is serial correlation, FF is functional form, N is the normality of residuals, and H is heteroskedasticity. Significance level of $\chi^2(1) = 6.63$, $\chi^2(2) = 9.21$ at the 1 percent level.

Legend: see Table 5.2.

The variables representing uncertainty, *SDCCP* and *SDY*, are negative and statistically significant at the 1 percent level and imply that uncertainty in the macroeconomic environment causes the private corporate sector to exercise caution before making decisions to invest. This is a likely reflection of the impact of the military coups of 1987 and 2000, which lead not only to reduced economic activities but also resulted in key losses to the country's economic potential and productivity through an exodus of skilled labour. Others studies in the literature to find similar evidence include Bleyer and Khan (1984), Athukorala and Sen (2002), and Behrman (1972).

The result for the impact of economic freedom and democracy on private corporate investment is positive and statistically significant at the 10 percent level. An increase in economic freedom and democracy by 1 percent will result in an increase in the private corporate sectors investment by 0.002 percent. This finding supports that of Gounder (2002) and suggests that free markets and political and civil liberty have important effects on the private corporate sectors decisions to invest. The short run result for lagged *PRINV* suggests that there is inertia associated with decisions by the private corporate sector to invest in Fiji, and thus highlights the continual impacts of events such as the military coups on perceptions of the investment environment

5.4.2 Empirical Results – Non-Residential Business Investment

The estimated non-residential fixed investment equation performs well in terms of all the diagnostic tests and the adjusted R^2 value of 0.73 indicates that the model fits the data quite well. Variables that were consistently insignificant (*MC*, *MCDEMO*, *SDY*) were dropped from the final equation. The estimated results for the estimated non-residential fixed investment model are presented in Table 5.4. Specific emphasis is on interpreting the estimated long run coefficients and their impacts on non-residential sector investment decisions over the period 1970-2004. The results form the basis for targeting the determinants of non-residential business investment in Fiji through economic policy, and also assess the applicability of economic theory.

The positive and significant coefficient of the capital stock of the non-residential sector (*KSNRS*) suggests that a 1 percent increase in the capital stock of the non-residential sector will increase the level of non-residential investments share of GDP by 0.01 percent. This provides strong evidence that the level of the non-residential sectors investment depends positively on the size of the initial capital stock. Similar results were obtained by Athukorala and Sen (2002) for the case of India, which they suggest was a consequence of data issues arising from not having direct measures of the non-residential sectors capital stock. In order to overcome possible restrictions imposed by measurement errors associated with using the foreign capital stock, and to account for any interaction between the private corporate capital stock and investment decisions of the non-residential sector, the capital stock of the private corporate sector has also been included in the model. The significant and positive coefficient of private sector capital

stock suggests a very marginal impact on non-residential investments share of GDP. Specifically, an increase in the private corporate sectors capital stock by 1 percent will increase non-residential investments share of GDP by 0.0006 percent. The sign of the coefficient differs from that obtained by Athukorala and Sen (2002). It is therefore likely that the estimated result for the *KSNRS* is a consequence of public investment complementing private investment and thus improving the productivity of the existing capital stock. This improvement creates a positive operating environment in Fiji, and thus encourages greater levels of non-residential investment.

The result concerning the impact of public investment on decisions by the non-residential sector to invest confirms the previous proposition of a positive relationship. An increase in the public investment to GDP ratio by 1 percent will lead to an increase in the non-residential investment to GDP ratio by 0.4 percent. This provides strong evidence that over the period 1970-2004 public investment complemented non-residential business investment by creating infrastructure and raising the productivity of the non-residential sectors capital stock. This is similar to the result obtained for the private corporate sector and by other studies of investment in Fiji (Narayan 2004; Gounder 2005).

As in the case with private corporate investment, there is evidence of a significant long-run negative effect of the cost of capital (*DCCP*) on decisions by the non-residential sector to invest. An increase in the cost of capital by 1 percent will decrease non-residential investments share of GDP by approximately 0.004 percent. This finding is similar to He (2005) and provides strong support for the neo-classical proposition that the cost of capital will negatively impact on investment decisions.

There is statistical evidence at the 5 percent level that a change in real GDP will have a small but negative impact on the non-residential sectors investment decisions - an increase in *DY* by 1 percent will result in a decrease in the level of non-residential sector investment to GDP by 0.0006 percent. This finding fails to support the neo-classical investment theory's proposition that a rapid rise in income will result in an increase in investment. One explanation for this result is that GDP has performed poorly over most of the period under consideration, and changes have often tended to be downwards rather than upwards. This fact is likely so as GDP has not contributed positively to

investment decisions, as is reflected in the results. Another explanation is that rapid rises in income, whilst putting pressure on existing capacity, will not result in increases in non-residential sector investment due to Fiji's relatively uncertain investment environment. Given this is the case then the results, when compared to those obtained for the private corporate sector, imply that investors in the non-residential sector are more risk averse than those from the private corporate sector.

Table 5.4 Determinants of the Non-Residential Business Investment: Regression Results

$\Delta NRINVY_t = -0.05 - 0.91\Delta NRINVY_{t-1} + 0.02LKSNS_t - 0.0003DY_t - 0.001DY_{t-1}$				
(-0.42)	(-7.60)***	(2.19)**	(-0.70)	(-3.60)**
$+ 0.76\Delta PUBINVY_t - 0.02LBCY_t + 0.02LBCY_{t-1} - 0.002DCCP_t - 0.005DCCP_{t-1}$				
(4.05)*	(1.08)	(1.75)*	(-0.83)	(-2.78)***
$+ 0.0003\Delta KSPRI_t + 0.0008\Delta KSPRI_{t-1} - 0.003SDCCP_t - 0.006DEMO_t$				
(1.00)	(2.65)***	(-1.39)	(-0.28)	
$+ 0.001EFI * DEMO_t$				
(0.006)				
$\bar{R}^2 = 0.73$	$F_{(14,18)} = 7.16$	$S.E \text{ of regression} = 0.02$	$DW\text{-statistic} = 2.22$	
$SC\chi^2(1) = 1.07$	$FF\chi^2(1) = 0.40$	$N\chi^2(2) = 0.97$	$H\chi^2(1) = 2.84$	
<i>Long-run (steady state) effect on private corporate investment:</i>				
Capital stock of the non-residential sector (<i>KSNRS</i>)	0.01**			
Capital stock of the private corporate sector (<i>KSPRI</i>)	0.0006**			
Public investment to GDP ratio (<i>PUBINVY</i>)	0.40***			
Cost of capital (<i>DCCP</i>)	-0.004*			
Income (<i>DY</i>)	-0.0006**			
Economic Freedom and Democracy (<i>EFI*DEMO</i>)	0.0005			
Standard deviation of the cost of capital (<i>SDCCP</i>)	-0.002			
Bank credit to GDP (<i>BCY</i>)	0.004			
Democracy (<i>DEMO</i>)	-0.003			

Notes: ***, **, * represent significance at the 1, 5, and 10 percent levels respectively. Adjusted R^2 is the coefficient of determination adjusted for degrees of freedom. F is the F-Statistic, S.E is the standard error, SC is serial correlation, FF is functional form, N is the normality of residuals, and H is heteroskedasticity. Significance level of $\chi^2(1) = 6.63$, $\chi^2(2) = 9.21$ at the 1 percent level.

Legend: see Table 5.2.

The results for economic freedom and democracy ($EFI*DEM$) and the standard deviation of the cost of capital ($SDCCP$) confirm the adverse negative impact of the military coups on non-residential sector investment decisions. The coefficients are both statistically insignificant and thus there is only limited support that uncertainty and limited economic freedom reduce incentives to invest. Similar results have been found by Bleyer and Khan (1984) and Solimano (1989).

The coefficient for bank credit (BCY) has the correct sign but is statistically insignificant, thus providing no statistical support for the McKinnon-Shaw proposition that financial liberalisation is vital for non-residential sector investment in Fiji. Similarly, the estimated coefficient for democracy's impact on non-residential investment ($DEMO$) is statistically insignificant and negative. This result is similar to that obtained by Pastor and Ho Sung (1995) who suggest that the results arise because authoritarian regimes increase consumption and thus reduce the level of investment funds available through banking institutions, and because policymakers often end up isolated and thus fail to address investor's needs when prescribing policy. Whilst this may be true for the case of Fiji, it is also likely that low levels of democracy over the period under consideration have had a negative impact of investment decisions as reflected in the estimated coefficient.

5.5 Conclusion

The determinants of private investment were examined in this chapter using an analytical framework derived from the neo-classical theory of business fixed investment. The results suggest that the factors most pertinent to private corporate investment and non-residential investment decisions include bank credit, public investment, the cost of capital, macroeconomic uncertainty and economic freedom

The empirical results confirm a positive impact of financial liberalisation on private corporate and non-residential business investment decisions in Fiji between 1970 and 2004. Financial reforms undertaken since 1980 have achieved success in improving the availability of bank credit, which has consequently resulted in a small increase in private investment. The empirical results for public investment highlight that since 1970 public investment has "crowded in" private investment. The undertaking of large public

investment projects during the period 1970-80 is thus likely to have contributed positively to attracting private investment, however lower levels of public investment in more recent years are likely to have been detrimental to private investment. This stresses the importance of current projects, such as the Rewa Bridge in Nausori, which will have potentially positive ramifications in terms of attracting greater levels of private and foreign investment.

The traditional neo-classical view of the impact of the cost of capital on investment decisions is confirmed for the case of Fiji. Trade sector reforms aimed at reducing the barriers to importing capital equipment have significantly reduced the cost of capital and thus positively impacted on private sector investment decisions. The results pertaining to the accelerator mechanism are however at best ambiguous due to the impacts of political and macroeconomic uncertainty on investment decisions. In particular, the military coups, and the consequent disruptions to economic activity, exerted a negative impact on both private corporate and non-residential business investment decisions which consequently has retarded economic growth. Similarly, the results for economic freedom confirm the importance of free markets and highlight that the problems associated with political instability, such as low levels of democracy and restricted individual rights, are detrimental to investment and growth. The estimated investment functions have shed considerable light on the low levels of investment in Fiji. It is evident from the trends and patterns discussed in Chapter 3 that further timely reforms will be required to overcome the obstacles to private investment identified in this chapter.

Appendix 5.1

Unit Root Tests for the Data Used to Estimate the Two Investment Models

Introduction

The two investment models estimated are private corporate and non-residential sector investment in Fiji. This appendix presents the Augmented Dickey Fuller (ADF) unit root tests, with and without a trend, which were performed to determine the order of integration in the data for each variable used in the investment models presented in Chapter 5. The ADF tests in the levels, logs and first differenced are presented in Table A5.1. Given that Bounds F tests (reported in the chapter) indicate the existence of a long run relationship between the variables the Autoregressive Distributed Lag (ARDL) method of cointegration has been utilised that does not require to know whether the underlying variables are I(0) or I(1) or fractionally integrated (Pesaran and Pesaran, 1997, p. 304).

Table A.5.1 Unit Root Tests for Variables in the Investment Models

	LEVELS		LOGS		DIFFERENCED	
Variable (with trend unless specified)	ADF test: H0:I(1),H1:I(0) at 1% level	I(1) or I(0)	ADF test: H0:I(1),H1:I(0) at 1% level	I(1)or I(0)	ADF test: H0:I(1), H1:I(0) at 1% level	I(1)or I(0)
<i>BCY</i>	-2.31	I(1)			-5.56	I(0)
<i>BC</i>	-2.74	I(1)			-5.29	I(0)
<i>CCP(without)</i>	-2.52	I(1)			-9.35	I(0)
<i>Y(without)</i>	-2.2	I(1)			-6.04	I(0)
<i>SDY(without)</i>	-5.76	I(0)				
<i>SDCCP(without)</i>	-2.54	I(1)			-2.24	I(1)
<i>NRINVY</i>	-3.19	I(0)				
<i>KSNRS</i>	-1.83	I(1)			-7.44	I(0)
<i>KSPRI</i>	-1.76	I(1)			-6.52	I(0)
<i>PRINV</i>	-2.23	I(1)	-2.31	I(1)	-6.26	I(0)
<i>PUBINV</i>	-2.4	I(1)			-5.88	I(0)
<i>PUBINVY</i>	-2.37	I(1)			-3.77	I(0)

Chapter 6

The Finance-Growth Nexus

6.1 Introduction

In order to satisfactorily understand Fiji's fundamental factors of economic growth a greater understanding of the development and structure of the financial system is required. Financial systems are a basic requirement in the growth process as they facilitate risk management, allocate resources, monitor managers, mobilise savings and facilitate the exchange of goods and services (Levine 1997). Since the 1980s shifts towards financial liberalisation have been undertaken in Fiji. In particular, interest rate deregulation, equity market development, removal of priority sector lending requirements, reduced controls over foreign entrants, and increased availability of bank credit have indicated a distinct trend towards financial system development. The success of financial sector reforms in Fiji, has, however received limited empirical attention (Waqabaca 2000; Waqabaca 2004). In addition, empirical investigations of the finance-growth nexus in developing countries have tended to produce mixed results (Tolentino 1989; Khan and Hasan 1998; Brooks and Quieser 2000; Guha-Khasnobis and Bhaduri 2000; Amess and Demetriades 2001; Arestis, Demetriades et al. 2002; Ozer 2003; Demir 2005; Fung, Ho et al. 2005).

Fiji's equity market has also undertaken considerable changes since its transformation into the South Pacific Stock Exchange (SPSE) in 1996. However the SPSE is still embryonic in nature (ADB, 2006) and the true extent of its effect on growth remains largely unknown. Empirical examination is therefore crucial in order to determine the applicability of further funding for the SPSE to develop and attract equity to enhance investment and growth.. Given the lack of understanding over the effects of reforms in the financial sector and stock markets on economic growth in Fiji and the controversy surrounding the results in the literature, this chapter examines the impacts of financial and equity sector reforms over the period 1969-2005 and provides a basis for further policy recommendations.

In order to effectively examine Fiji's financial sector this chapter tests three empirical hypotheses. First, the relationship between financial development and economic growth is assessed for Granger causality using the modified WALD test (MWALD). The findings provide the basis for further in-depth examination of the financial system. Accordingly, the second hypothesis examines the impact of stock market development on economic growth using the Autoregressive Distributed Lag (ARDL) modelling procedure to obtain the long run relationship between the stock market and economic growth. Third, the extent to which McKinnon's (1973) complementarity hypothesis holds true for the case of Fiji is investigated using the ARDL modelling procedure to obtain the error correction model (ECM).⁵⁴ Evaluating these three specific hypotheses means that efficacy of finance is assessed along with the direct impacts of financial liberalisation in Fiji.

The structure of the chapter is organised as follows: the frameworks for assessing the finance-growth nexus are presented in section 6.2. Specifically, the framework developed to test Granger causality between finance and growth is presented in section 6.2.1. The theoretical basis used to examine the impact of stock market development is discussed in section 6.2.2. The structure used to empirically test the complementarity hypothesis is developed in section 6.2.3. Section 6.3 presents the models for estimation, and discusses the data sources and methodology utilised to develop the models. The empirical results and a discussion of their meaning are provided in section 6.4. Finally, section 6.5 provides the concluding remarks and some policy implications based on the results.

6.2 Theoretical Aspect of Financial Liberalisation

The McKinnon-Shaw argument for financial liberalisation rests on the basis that repressive practices discourage savings, hinder the efficient allocation of resources, increase segmentation of financial markets, and produce financial disintermediation of the banking system (Khan and Hasan 1998). This notion, discussed in chapter 2, had a direct influence on the thinking of the International Monetary Fund (IMF) and World Bank during the 1970s and 1980s. Consequently Fiji began its financial sector reforms in

⁵⁴ The complementarity hypothesis states that money and physical capital are complementary.

the late 1980s with further changes implemented in the 1990s (as discussed in Chapter 3). The conjectural relationship between financial sector liberalisation and economic growth is discussed in section 6.2.1. The theoretical impact of stock market development on economic growth is discussed in section 6.2.2. Section 6.2.3 discusses McKinnon's complementarity hypothesis.

6.2.1 The Finance-Growth Nexus

The relationship between financial sector development and economic growth has received considerable debate in the theoretical and empirical literature. From a policy perspective the debate has significant implications as the direction of Granger causality determines whether the financial sector should be targeted by reforms. However, the debate over the direction of Granger causality is far from being settled. McKinnon (1973), Shaw (1973), King and Levine (1993), and Levine and Zervos (1998) have argued that more developed financial systems promote economic growth since they aid the mobilisation of savings and facilitation of investment (see Chapter 2). This "supply following" premise has been supported by the empirical studies of Murinde and Eng (1994), Fritz (1984), King and Levine (1993), Choe and Moosa (1999), Calderon and Liu (2002) and Beck, Levine and Loayza (2000). However, others such as Stiglitz (1994) and Robinson (1952) have questioned the significance of the financial system in generating economic growth. They suggest that the causality runs from the real sector to the financial sector, as economic development creates additional demand for financial services. This "demand following" hypothesis has been supported by the empirical studies of Odhiambo (2004) and Demirguc-Kunt and Levine (1996).

Whilst a substantial body of evidence in the empirical literature indicates a supply-leading response between finance and growth, it was Levine (1997) who identified two potential "channels" through which this effect takes place; capital accumulation (investment) and productivity. The "channels" have received substantial empirical consideration, however the results have been diverse (De Gregorio and Guidotti 1995; Bossone 1999; Benhabib and Spiegel 2000; Xu 2000; Schich and Pelgrin 2002; Shan and Morris 2002; Ghirmay 2005). In particular, Ghirmay (2005) and Benhabib and Spiegel (2000) found that financial development improves capital accumulation and growth. Others suggest that it is distinctly through improvements in the level of

investment (Schich and Pelgrin 2002) or through the efficiency of investment (Greenwood and Jovanovic 1990; De Gregorio and Guidotti 1995; Bossone 1999) that finance affects growth (see Chapter 2). It is unlikely that financial development will be the sole factor impacting on either investment or productivity. This has clearly been the case in Fiji, particularly in the post-1987 coup period; i.e. consider the impact of the changes in taxation policy during the 1990s on investment, and the impact that the exodus of skilled labour had on productivity. While other factors undoubtedly contribute to growth in Fiji, an assessment of the transmission mechanism through which finance affects growth provides a basis for targeted and consistent policy reform.

Existing studies of the finance-growth nexus have tended to adopt either a cross sectional or time series approach. Several studies derived from a cross-sectional approach are inclined to support the supply leading hypothesis (Gelb 1989; King and Levine 1993; Fry 1995; Levine and Zervos 1998; Bekaert, Harvey et al. 2001). However, Arestis and Demetriades (1997) note that cross sectional analysis makes the unlikely implicit assumption that countries share similar economic structures, populations and technologies. Additionally, Shan and Morris (2002) suggest that by using cross-sectional analysis causality in the Granger sense can not be examined. The use of time series data makes it possible to examine the lagged relationships between variables which are unable to be identified using cross-sectional data, and at the same time avoids the other serious criticisms of cross-sectional investigations. The results of time series studies are however less clear cut, with evidence of bi-directional, and demand-following relationships often being exposed (Gupta 1984; Arestis and Demetriades 1997; Shan, Morris et al. 2001; Shan and Morris 2002; Odhiambo 2004).

There has been debate in the literature over what constitutes an appropriate measure of financial liberalisation due to inter-country differences in institutional and financial structures; consequently different variables have been integrated into empirical studies. King and Levine (1993) note that the traditional practice has been to include measures of financial depth, as it is hypothesised that the size of financial intermediaries is positively related to the provision of financial services. To measure financial depth empirical studies have favoured the ratio of liquid liabilities to Gross Domestic Product (GDP) (King and Levine 1993; Odhiambo 2004; Hermes and Lensink 2005). Other studies have used measures of stock market development (Levine and Zervos 1998;

Waqabaca 2004; Hermes and Lensink 2005). However, the size of the financial system is not necessarily related to the level of financial services due to risk management and information constraints.

Accordingly, measures of the relative importance of the financial sector in financing the economy and of specific financial institutions have been adopted (King and Levine 1993; De Gregorio and Guidotti 1995; Levine and Zervos 1998; Beck, Levine et al. 2000; Shan, Morris et al. 2001; Shan and Morris 2002; Odhiambo 2004; Waqabaca 2004; Kumbhakar and Mavrotas 2005). Problems emerge when measuring the importance of specific financial institutions due to the significance of the informal financial sector and insurance providers in developing countries. Therefore measures of bank credit which look broadly at the importance of financial institutions are preferred. Finally, the efficiency of the financial sector is an important consideration represented by variables such as the interest rate spread, banks overhead costs, and the market value of banks (Hughes, Moon et al. 1997; Shan and Morris 2002; Waqabaca 2004).

Based on the considerations regarding the measurement of financial liberalisation, discussed above, the finance-growth nexus in Fiji is investigated using three proxies. The first proxy included is the ratio of broad money to GDP ($M2Y$) to show the depth of the financial sector. The second measure of financial development is the interest rate spread as a measure of efficiency. Finally, the share of domestic credit to the private sector to GDP is included to account for the role of the financial sector in financing the economy. By using these three proxies both the quantitative and qualitative development of the financial sector in Fiji are captured.

6.2.2 The Effect of the Stock Market on Economic Growth

There exists considerable theoretical evidence that suggests a positive relationship between financial development and economic growth. However, there is some uncertainty regarding the exact factors that affect this relationship. One potential factor highlighted in the empirical literature has been the impact of stock market development. A number of studies highlight that because stock markets differ from banks in terms of the services provided by them, efficient and well-functioning stock markets are the backbone to most developed countries growth (Tun-Wai and Patrick 1973; 1996;

Levine and Zervos 1998; Choe and Moosa 1999; Allen and Gale 2000; Wachtel 2003; Beck and Levine 2004; Rousseau and Wachtel 2005; Shen and Lee 2006). Shen and Lee (2006) found evidence that stock market development has positive effects on growth and that banking development has an unfavourable effect. Similarly, Allen and Gale (2000) note that because the stock market is more competitive than the overly conservative banking system, growth enhancing activities are encouraged. Other studies have however suggested that it is the banks which are more effective in allocating resources towards development than the stock market (Stiglitz 1985; Boyd and Prescott 1986). Based on these contentions an empirical investigation of the impact of the stock market on economic growth in Fiji is undertaken based on the theoretical considerations of Hermes and Lensink (2005) and Shen and Lee (2006).

Disagreement regarding the measurement of the stock markets development is evident in the literature. Common indicators include measures of market size, liquidity, market volatility, market concentration, asset pricing efficiency, and regulatory and institutional development (Demirguc-Kunt and Levine 1996). In line with the empirical investigation of Hermes and Lensink (2005) and Shen and Lee (2006), this research uses the total value of stocks traded to GDP ratio to account for the level of liquidity of the equity market. Additionally, both the number of listed companies and market capitalisation are alternatively used to measure the stock markets size. Financial liberalisation is proxied by domestic credit to the private sector to GDP share and the ratio of M2 to GDP.

In estimating the models additional control variables are included, based on Hermes and Lensink (2005), King and Levine (1993), Levine et al., (2000), and Shen and Lee (2006), so as to indicate the type of effect of the stock market on economic growth. In particular, inflation is included to account for the impact of macroeconomic uncertainty on economic growth. Investment is disaggregated into private and public investment in order to assess the individual effects of each of these factors. The secondary school enrolment rate is included to account for the impact of higher levels of educational attainment. Finally, a dummy variable is included to account for the impact of the political uncertainty caused by the military coups in 1987. These factors indicate the type of effect of the stock market on economic growth. Given various financial considerations and the policy environment in developing countries, it is relevant to discuss McKinnon's complementarity hypothesis next.

6.2.3 McKinnon's (1973) Complementarity Hypothesis

The basis of the McKinnon-Shaw argument against repression is that low or negative real interest rates discourage savings, thus reducing the level of investment and growth. McKinnon (1973) suggests that the relationship between the real interest rate, savings, investment and economic growth exists because money and physical capital are complementary. This premise is based on two assumptions; first, all economic agents are confined to self finance, and second, there are important indivisibilities in investment activities which do not exist in the consumption expenditure. The complementarity hypothesis states that since economic agents have to accumulate money balances before investment can take place money and physical capital are complementary. McKinnon (1973) notes that the demand for money changes as households and firm shift from consumption to investment, as investment requires longer periods of accumulation from a given stream before disbursement. Therefore, a rise in the real interest rate increases the amount of financial savings through intermediaries and thus raises investment funds. McKinnon refers to this phenomenon as the “conduit effect”. The demand for money will also increase as the ratio of investment as total expenditure increases, due to the indivisibility of investment.

The complementarity hypothesis has been the basis for a number of empirical studies (Fry 1978; Gupta 1984; Mwega, Ngola et al. 1990; Thornton 1990; Khan and Hasan 1998; Kar and Pentecost 2001; Odhiambo 2005; Pentecost and Moore 2006). To empirically assess the hypothesis for Fiji the functions for real money balances and savings are developed based on the theoretical considerations of Thornton (1990), Khan and Husan (1998), and Odhiambo (2005). The variables included to estimate the money demand function for Fiji are the level of real income, the ratio of domestic savings to GDP, expected inflation, the real interest rate, and the growth rate of GDP. The reason for these inclusions is as follows: based on McKinnon's “conduit effect” the real interest rate is included to test the effects applicability in Fiji. Likewise, the inclusion of real GDP is derived from monetary theory which proposes that the demand for desired real money balances increases as income rises (Odhiambo 2005). The savings rate is included to directly test the complementarity hypothesis. Fry (1978) notes the complementarity hypothesis rests on the assumption that investment opportunities are plentiful and thus savings is the binding constraint. Consequently, the ratio of domestic savings to GDP is

included instead of investment. A higher savings rate is proposed to increase the demand for real money balances, and vice versa. Inflation is included as uncertainty makes the holding of financial securities in the short term preferential to the long term (Cagan and Lipsey 1978), and thus affects decisions to accumulate money balances. Additionally, the growth rate of GDP is included to take into account the impact of increases in income on the demand for real money balances.

The variables included to estimate the savings function for Fiji include real income, the growth rate of real income, real money demand, the dependency ratio, the real deposit rate, and foreign savings. The justification for the inclusion of these variables is based on the following theoretical considerations: the inclusion of real income is based on the permanent income, relative income, and lifecycle savings hypotheses (see Chapter 4). The dependency ratio is included to test the influence of demographic variables on savings. The lifecycle model asserts that the greater the number of children in a household the lower the level of savings. Therefore, higher population dependency ratios will result in lower levels of savings. The lifecycle model also asserts that the growth rate of real income will have a positive effect on the level of savings, assuming that savings rates by age groups remain unchanged, as it raises the number of savers relative to dissavers. Tobin (1967) notes that individual saving rates will remain unchanged only if expectations about future incomes are myopic. If workers correctly expect their income to increase then they will want to consume more today. The inclusion of the growth rate of real income further investigates this relationship for the case of Fiji.

Whether foreign savings acts as a complement or a substitute for domestic savings has been controversial in the literature. Evidence has been found in favour of substitutability between foreign and domestic savings (Fry 1978; Fry 1980; Thornton 1990). Other studies such as those by Khan and Husan (1998) and Khan, Husan, and Malik (1994), suggest that foreign savings relaxes the resource constraint in developing countries and may augment national savings with a time lag. In order to test the relationship for Fiji foreign savings is included in the domestic savings function. Finally, the inclusion of the real deposit rate aims to test the applicability of the McKinnon-Shaw argument against financial repression (as discussed in detail in Chapter 2). The model specifications, data and methodological issues for the three models are presented next.

6.3 Model Specifications, Data, and Methodological Approach

The theory relating to the finance-growth nexus, the stock markets affect on economic development and McKinnon's (1973) complementarity hypothesis were noted above and are the basis for the empirical examinations undertaken. Based on these key financial growth hypotheses this section first presents the models developed to investigate the finance-growth nexus using the MWALD test for non-Granger causality. The results allow for comparisons to be made with similar studies by Odhiambo (2004), Shan et al., (2001) and Waqabaca (2000). Second, the models used to assess the effects of equity market development on economic growth using the ARDL modelling approach are presented. The results allow for comparison with similar studies undertaken by Shen and Lee (2006) and Hermes and Lensink (2005). Third, the models used to examine the complementarity hypothesis using the ARDL modelling procedure to generate the ECM are presented. The results for Fiji are compared with other similar studies undertaken by Fry (1978), Khan and Hasan (1998), Odhiambo (2005), and Thornton (1990). By assessing the financial sector in this three pronged manner presents a comprehensive assessment of the impact of the financial and stock market reforms undertaken in Fiji. The sections below present the detailed model specifications, data, and methodology.

6.3.1 Model Specifications

This section presents the three empirical models utilised to comprehensively examine Fiji's financial sector. First, the models which investigate the direction of causality between finance and growth are presented. Second, the models to measure the impact of stock market development on economic growth are provided. Third, the money demand and savings models which examine McKinnon's complementarity hypothesis are presented.

First, the finance growth nexus is estimated using the specifications presented in equation (6.1) and (6.2) below. The proxies chosen for financial development include the ratio of domestic credit to the private sector to GDP (*DCPRI*), the interest rate spread (*INT*), and the ratio of broad money to GDP (*M2Y*). Economic growth is proxied by real per-capita income (*GDPPC*). To assess Levine's (1997) "channels" through

which finance affects growth the finance-investment and finance-productivity nexus are also tested. Investment (i.e. capital accumulation) is proxied by the total investment to GDP (*INVY*), and productivity is represented by labour productivity (*PROD*). The finance-growth causality models are as follows:

$$V_t = \mu + \sum_{i=1}^k \alpha_{1k} V_{t-i} + \sum_{j=1}^k \beta_{1k} FD_{t-j} + \varepsilon_1 \quad (6.1)$$

$$FD_t = \mu + \sum_{i=1}^k \alpha_{2k} V_{t-i} + \sum_{j=1}^k \beta_{2k} FD_{t-j} + \varepsilon_2 \quad (6.2)$$

Where V_t is a vector of the variables representing economic growth, investment, and productivity, FD_t is a vector of variables representing the proxies adopted for financial development, k is number of lags as determined by the order of the Vector Autoregressive model (VAR) and the maximum order of integration suspected in the system, and $\varepsilon_1, \varepsilon_2$ is the error white noises. The subscript 't' denotes time.

The MWALD test for non-Granger causality involves testing three null hypothesis that financial development does not Granger cause economic growth; financial development does not Granger cause investment; and financial development does not Granger cause productivity and vice versa. Granger causality from the financial sector to growth/investment/productivity is established by rejecting the null as follows:

$$H_0 : \beta_{11} = \beta_{12} = \dots = \beta_{1k} = 0$$

where: β_{1k} are the coefficients of FD_{t-1} to FD_{t-k} in equation 6.1. Granger causality from growth/investment/productivity to the financial sector is established by rejecting the null as follows:

$$H_0 : \alpha_{21} = \alpha_{22} = \dots = \alpha_{2k} = 0$$

where α_{2k} are the coefficients of V_{t-1} to V_{t-k} in equation 6.2.

Second, the two models utilised to examine the effects of stock market development are presented below. The final model specification for GDP per capita growth, including market capitalisation (equation 6.3), is posited.

$$GDPPCG_t = \alpha_0 + \alpha_1 M2Y_t + \alpha_2 DCPRI_t + \alpha_3 LIQUID_t + \alpha_4 CAPY + \alpha_5 SEC_t + \alpha_6 INF_t + \alpha_7 PRIVINV_t + \alpha_8 PUBINV + DV_t \quad (6.3)$$

Similarly, when size of the equity market is proxied by the number of listed companies (equation 6.4) the final model specification is posited.

$$GDPPCG_t = \alpha_0 + \alpha_1 M2Y_t + \alpha_2 DCPRI_t + \alpha_3 LIQUID_t + \alpha_4 NUMB + \alpha_5 SEC_t + \alpha_6 INF_t + \alpha_7 PRIVINV_t + \alpha_8 PUBINV + DV_t \quad (6.4)$$

where:

<i>GDPPCG</i>	GDP per capita growth
<i>M2Y</i>	Ratio of liquid liabilities to GDP
<i>DCPRI</i>	Domestic credit to the private sector to GDP ratio
<i>LIQUID</i>	Total value traded of the stock market to GDP ratio
<i>NUMB</i>	Number of listed companies
<i>CAPY</i>	Market capitalisation of the stock market to GDP ratio
<i>SEC</i>	Secondary school enrolment rate
<i>INF</i>	Inflation rate
<i>PRIVINV</i>	Private Investment to GDP ratio
<i>PUBINV</i>	Public Investment to GDP ratio
<i>DV</i>	Dummy variable (pre-1987=0, post-1987=1).

Third, the set of models presented in equations (6.5) and (6.6) have been developed to test McKinnon's complementarity hypothesis. The empirical model specifications for real money demand and domestic savings functions, respectively, are as follows:

$$\log\left(\frac{M}{P}\right)_t = \alpha_0 + \alpha_1 \log y_t + \alpha_2 \dot{y}_t + \alpha_3 \log\left(\frac{M}{P}\right)_{t-1} + \alpha_4 \log\left(\frac{S_d}{Y}\right)_t - \alpha_5 (d - p^e) + \alpha_6 \pi_t + U_t \quad (6.5)$$

$$\log\left(\frac{S_d}{Y}\right)_t = \delta_0 + \delta_1 \log y_t + \delta_2 \dot{y}_t + \delta_3 \log\left(\frac{M}{P}\right)_{t-1} + \delta_4 \log DR_t + \delta_5 \log\left(\frac{S_f}{Y}\right)_t + \delta_6 (d - p^e) + DV_t + V_t \quad (6.6)$$

where: M/P is real money demand, y is real income, $\dot{y}$ is the growth rate of real income, $d - p^e$ is the real deposit rate, π is the expected inflation rate, s_d/Y is the ratio of domestic savings to GDP, s_f/Y is the ratio of foreign savings to GDP, DR is the dependency ratio, DV is a dummy variable (pre-1987=0, post-1987=1), and U_t, V_t are the error terms

The demand for money is a function of the savings ratio and, simultaneously, savings is a function of the demand for money balances to incorporate the reversibility of the complementarity hypothesis. The complementarity hypothesis holds true if the following partial derivatives are positive:

$$\frac{\partial(M/P)}{\partial(S/Y)} > 0; \quad \frac{\partial(S/Y)}{\partial(M/P)} > 0 \quad (6.7)$$

The sections below present the data and methodologies used to estimate the three hypotheses of financial section and growth relationships.

6.3.2 Data Sources

The data used to investigate the three financial sector models is discussed here. Not all data are available over the full time period between 1960 and 2005, particularly for the early 1960s, and thus the models are estimated from the year in which all data become available.

The finance-growth nexus is estimated over the sample period 1969-2005 using annual time series data. Price indices obtained from the World Bank (2005) were used to express the variables in 2000 constant prices. The variables are also expressed in their natural logarithms to reduce the effect of outliers. The data collected from the Reserve Bank of Fiji (RBF) and Fiji Island Bureau of Statistics (FIBS) visits, reports and databases were used to compile a consistent data set. Data concerning $M2Y$, $DCPRI$, INT , and the size of the labour force was obtained from the World Bank (2005). Data for total investment, private investment, and public investment was obtained from the

RBF (various). The data for Fiji's level of GDP per capita (*GDPPC*), and the level of GDP, was obtained from the FIBS *current economic statistics* (various).

Total investment to GDP is defined as the level of investment in fixed capital to GDP. This data was not available for the period 2002-2005, thus the values for these years have been extrapolated using the estimates supplied by the RBF for private and public investment and the level of GDP (see Chapter 5). Private investment is defined as investment in private fixed capital. Public investment is defined as the summation of public and government investment in fixed capital. Productivity is proxied by labour force productivity and is a ratio of the level of GDP to the labour force.⁵⁵ Domestic credit to the private sector is expressed as a ratio to GDP, and refers to the financial resources provided to the private sector through purchases on non-equity security, trade credits, loans, and other accounts receivable that establish a claim for repayment. Money and quasi money is expressed in terms of GDP share and comprises of the sum of currency outside banks, demand deposits other than those of the central government, and the time, savings, and foreign currency deposits of resident sectors other than the central government. The interest rate spread is the interest rate charged by banks on loans to prime customers minus the interest rate paid by commercial or similar banks for demand, time, or savings deposits.

The stock market in Fiji first began trading in 1979 and thus its impact on economic growth is investigated over the sample period 1979-2004 using annual time series data. All variables are expressed in 2000 constant prices using prices indices from the World Bank Tables (2005). The data has been sourced from the SPSE (personal communication), World Bank (2005b), Easterly and Sewadeh (2001) and FIBS(various). Specifically, data regarding *GDPPCG*, *INF*, *DCPRI*, and *M2Y* were obtained from the World Bank (2005b). Data for private investment and public investment was obtained from the FIBS. Information on the number of companies (*NUMB*), market capitalisation (*CAPY*) and value of shares traded (*LIQUID*) was obtained from personal communication with the SPSE. Data on the secondary school enrolment rate was obtained from Easterly and Sewadeh (2001).

⁵⁵ Using labor force productivity makes the assumption that capital productivity is irrelevant in Fiji.

The value of shares traded (*LIQUID*) is defined as the average annual value of the trade in stocks at the SPSE as a percentage of GDP. Market capitalisation (*CAPY*) is defined as the average stock price multiplied by the number of issued shares to GDP ratio. *PRIVINV* and *PUBINV* are the ratios of private and public and government investment, respectively, in fixed capital to GDP. The data for *DCPRI* and *M2Y* is the same as that used to estimate the finance-growth nexus. *INF* is measured in terms of the growth of the consumer price index. *SEC* is the average gross secondary school enrolment ratio. Finally, the impact of the military coups of 1987 and 2000 on economic growth is accounted for by the inclusion of a dummy variable (*DV*).

The money demand and savings models are estimated over the sample period 1961-2004 using annual time series data. All variables are expressed in 2000 constant prices. The data has been sourced from both the World Bank and IMF. Specifically, the broad definition of money (*M3*), the consumer price index (*CPI*), deposit rate (*d*), percentage of CPI expected inflation (p^e), total population (*TP*), labour force (*LF*), growth rate of real income ($\dot{y}$), real income (*y*), domestic savings to incomes share (S_d/Y), and the inflation rate as measured by the GDP deflator (π) were obtained from the World Bank (2005b). Data on the level of foreign liabilities (S_f/Y) was obtained from the *International Financial Statistics Yearbook* (IMF, 2005).

Real money balances (M/P) is defined as the ratio of the broad stock of money (*M3*) in constant prices. The stock of broad money comprises of the sum of currency and deposits in the central bank (*M0*), plus transferable deposits and electronic currency (*M1*), plus time and savings deposits, foreign currency, transferable deposits, certificates of deposit, and securities repurchase agreements (*M2*), plus traveller's checks, foreign currency time deposits, commercial paper, and shares of mutual funds or market funds held by residents. The dependency ratio calculated in chapter 4 has been reutilised for the models. The real deposit rate ($d - p^e$) was calculated as $d - p^e = (1 + d)/(1 + p^e) - 1$.

Domestic savings is represented by the rate of national savings to GDP. National savings is defined as the difference between GDP and total consumption. Similarly, foreign savings (S_f/Y) is represented by the level of foreign liabilities to GDP share.

The rate of inflation is measured in terms of the growth rate of the GDP deflator. GDP and GDP per capita are expressed in constant 2000 prices. To account for the impact of the military coups on savings a dummy variable (*DV*) has been generated and included in the savings function.

6.3.3 Methodological Approach

A three pronged approach is adopted to empirically investigate the finance-growth relationship and the impact of financial and equity sector reforms in Fiji. First, the MWALD test is used to determine the direction (if any) of Granger causality between the financial sector and economic growth and vice versa. Methodological aspects of the MWALD test are discussed in section 6.3.3.1. The results obtained for the finance-growth nexus provide the basis for further investigation into the effect of equity market development and the applicability of the complementarity hypothesis. Consequently, the impact of the equity market on economic growth is assessed using the ARDL modelling procedure (see section 6.3.3.2). Third, the ARDL approach is used to obtain the Error Correction Model for the demand for money and savings functions, presented in section 6.3.3.3.

6.3.3.1 MWALD test for Granger Non-Causality

To determine the relationship between finance and growth, as specified in equations 6.1 and 6.2, the modelling estimations developed by Toda and Yamamoto (1995) and Rambaldi and Doran (1996) are used. Toda and Phillips (1993) note that when variables are integrated the traditional F-test procedure, to determine whether the parameters are jointly zero in a stable VAR model, is not valid as the estimated test statistic does not have a standard distribution. To avoid this problem, the MWALD test of restrictions on the parameters of a VAR (k) model can be used. The MWALD test statistic has an asymptotic χ^2 distribution in a VAR ($k + d_{\max}$), where $d_{\max}$ is the maximum suspected order of integration in the system. Toda and Yamamoto (1995) note that the MWALD test does not require knowledge of the cointegration properties of the system and can be applied when there is no cointegration. Additionally, it can be used when stability and rank conditions are not satisfied provided the order of integration does not surpass the true lag length of the model.

The first step in the estimation procedure involves conducting the Augmented Dicky Fuller (ADF) test to determine whether each data series is integrated and has a unit root. The order of the VAR model and presence of co-integrating factors amongst the variables are tested next to determine whether a stable long run relationship between the variables exists. It is based on these preliminary conditions that the MWALD test is then conducted. The MWALD test for Granger non-causality consists of two distinct phases. First, an Ordinary Least Squares (OLS) on the financial development and growth variables is undertaken based on the pre-testing results for k and the suspected order of integration in the system. Second, the null hypothesis of Granger non-causality is tested to determine whether the current and lagged values of one variable Granger cause another. The econometric packages used to determine cointegration and conduct the MWALD test is Microfit Version 4, developed by Pesaran and Pesaran (1997), and SHAZAM Version 9, developed by White (2000). The methodology used to examine the effect of the stock market on economic growth is discussed next.

6.3.3.2 The ARDL Modelling Procedure

The ARDL approach to cointegration is used to derive the relationship between the stock market and economic growth. This procedure has been previously used in Chapters 4 and 5 to obtain the long run coefficients for the savings and investment models. Discussions of the technical aspects of the ARDL procedures are provided in detail in Chapter 4. The approach is adopted to account for the short run and long run relationships between the variables. The first step of the process involves undertaking the bounds test to determine whether a long run stable relationship between the variables exists. Second, the long run coefficients are obtained using the ARDL estimation method. All steps are conducted using the econometric package Microfit Version 4 (Pesaran and Pesaran 1997) In the final step towards assessing the financial reforms undertaken in Fiji the applicability of the complementarity hypothesis is derived using the ARDL modelling procedure to obtain the ECM. The ECM is discussed below.

6.3.3.3 The Error Correction Model

To derive the relationships between money demand, savings and the additional determinants discussed above, the ARDL approach to time series analysis is adopted to

obtain the relevant ECM. The ECM provides an alternative formulation of the ARDL model. It emphasizes that a change in the dependent variable is due to the current change in the independent variables plus an error correction term. If the lag of the dependent variable is above the equilibrium value that corresponds to the lag of the independent variables, that is the value of the equilibrium error term is positive, then an additional negative adjustment in the dependent variable is generated. The speed of adjustment is represented by the coefficient of the error correction term.

The first step towards obtaining the ECM model involves determining whether a long run stable relationship between the dependent and independent variables in each of models exists. The approach taken is to conduct the bounds test. If the results from the bounds test suggest a long run relationship the next step is to obtain the ECM estimates using Microfit Version 4 (Pesaran and Pesaran 1997). The empirical results for the three investigations are presented below.

6.4 Empirical Results

This section presents the empirical results for the three hypotheses of the financial sector in Fiji investigated during this assessment. To ease the interpretation of the results summary data for the models addressing the finance-growth nexus, the impact of equity market reforms and the complementarity hypothesis are presented, consecutively, in Appendix Tables A6.1, A6.2 and A6.3. The estimated results for the finance-growth nexus (section 6.4.1) are reported and discussed first. Second, the estimated models for the impact of stock market development on economic growth are presented and a discussion ensues (section 6.4.2). Third, the results for the investigation of the applicability of McKinnon's complementarity hypothesis are reported (section 6.4.3) and reviewed in light of the theoretical and empirical literature.

6.4.1 Empirical Results - Finance-Growth Nexus

There has been considerable debate in the literature over the direction of causality between financial sector development and economic growth. From a policy perspective the direction of causality is an important determinant of whether to directly target the financial sector when making growth enhancing policy recommendations. This section

presents the empirical results regarding the direction of Granger causality between the financial and real sectors in Fiji for the period 1969-2005. First, the results from the Johansen-Juselius maximum likelihood cointegration test are presented. Second, the empirical results obtained from the MWALD test for Granger non-causality are discussed.

6.4.1.1 Cointegration Results – Finance-Growth Nexus

The cointegration test results for the finance-growth nexus are presented below to determine if a cointegrating vector exists amongst the variables. First, a unit root test was undertaken to confirm whether all the variables used in the models are stationary (this is presented in Appendix Table A6.4). Second, the Johansen-Juselius maximum likelihood cointegration test was conducted between the variables used to estimate the causality relationships. The results, concerning whether the three proxies of financial development and economic growth/investment/productivity are cointegrated, are reported in Table 6.1.

The computed eigenvalue and trace test statistics are compared to the 95 percent critical values. If cointegration is detected between the variables then the existence of Granger causality can not be ruled out. It is however important to note that the MWALD test is valid even if there is uncertainty over whether there exists a cointegrating vector. When using the MWALD test the existence of cointegration is not a necessary requirement to determine Granger causality. As such, “the advantage of this procedure is that it is valid even under uncertainty about integration and cointegration” (Konya 2004). In estimating the VAR cointegrating relationship between *LGDPPC* and the financial indicators, the results indicate no evidence of cointegration between *LGDPPC* and *LDCPRI*, *LINT* and *LM2Y*. In regard to the cointegrating relationship between *LINVY* and the financial indicators, the results show cointegration between *LINVY* and *LINT*, but no evidence of cointegration between *LINVY* and *LDCPRI*, and *LM2Y*. In the third set of estimation between *LPROD* and the financial indicators the results indicate similarly no evidence of cointegration between *LPROD* and *LDCPRI*, *LINT* and *LM2Y*. The next step is to undertake the MWALD test for Granger non-causality between these sets of variables.

Table 6.1 Maximum Likelihood Cointegration Test: Finance-Growth Nexus

Maximum Eigenvalue Test				Trace Test			
Null	Alternative	Estimated Eigenvalue	95% Critical value	Null	Alternative	Estimated Eigenvalue	95% Critical value
Cointegration between <i>LGDP</i> and <i>LDCPRI</i>							
$r=0$	$r=1$	4.67	14.88	$r=0$	$r=1$	6.86	17.86
$r \leq 1$	$r=2$	2.18	8.07	$r \leq 1$	$r=2$	2.18	8.07
Cointegration between <i>LGDP</i> and <i>LINT</i>							
$r=0$	$r=1$	8.18	14.88	$r=0$	$r=1$	11.21	17.86
$r \leq 1$	$r=2$	3.02	8.07	$r \leq 1$	$r=2$	3.02	8.07
Cointegration between <i>LGDP</i> and <i>LM2Y</i>							
$r=0$	$r=1$	4.93	14.88	$r=0$	$r=1$	5.43	17.86
$r \leq 1$	$r=2$	0.49	8.07	$r \leq 1$	$r=2$	0.49	8.07
Cointegration between <i>LINVY</i> and <i>LDCPRI</i>							
$r=0$	$r=1$	12.10	14.88	$r=0$	$r=1$	14.69	17.86
$r \leq 1$	$r=2$	2.59	8.07	$r \leq 1$	$r=2$	2.58	8.07
Cointegration between <i>LINVY</i> and <i>LINT</i>							
$r=0$	$r=1$	20.55	14.88	$r=0$	$r=1$	23.03	17.86
$r \leq 1$	$r=2$	2.48	8.07	$r \leq 1$	$r=2$	2.48	8.07
Cointegration between <i>LINVY</i> and <i>LM2Y</i>							
$r=0$	$r=1$	10.11	14.88	$r=0$	$r=1$	10.48	17.86
$r \leq 1$	$r=2$	0.37	8.07	$r \leq 1$	$r=2$	0.37	8.07
Cointegration between <i>LPROD</i> and <i>LDCPRI</i>							
$r=0$	$r=1$	14.45	14.88	$r=0$	$r=1$	16.32	17.86
$r \leq 1$	$r=2$	1.87	8.07	$r \leq 1$	$r=2$	1.87	8.07
Cointegration between <i>LPROD</i> and <i>LINT</i>							
$r=0$	$r=1$	12.32	14.88	$r=0$	$r=1$	17.31	17.86
$r \leq 1$	$r=2$	4.99	8.07	$r \leq 1$	$r=2$	4.99	8.07
Cointegration between <i>LPROD</i> and <i>LM2Y</i>							
$r=0$	$r=1$	7.04	14.88	$r=0$	$r=1$	7.67	17.86
$r \leq 1$	$r=2$	0.64	8.07	$r \leq 1$	$r=2$	0.64	8.07

Legend: *LM2Y* is the log ratio of broad money to GDP, *LINT* is the log interest rate spread, *LDCPRI* is log domestic credit to the private sector to GDP, *LGDP* log GDP per capita, *LINVY* is log total investment as a ratio of GDP, and *LPROD* is log productivity.

6.4.1.2 Empirical Results for Finance-Growth Nexus - MWALD test

The existence of Granger causality, and its direction, has been the cause of much empirical and theoretical controversy. In order to shed light on this relationship in Fiji, and provide the basis for policy recommendation, this section presents the empirical

results obtained using the MWALD test for Granger non-causality between finance and growth/investment/productivity over the period 1969-2005.

The results regarding the finance-growth nexus are presented in Table 6.2. Strong evidence in favour of a supply leading relationship is provided by the results for *LDCPRI* and *LINT*. In particular, the results relating to the interest rate spread suggest that financial sector efficiency has had a positive impact on economic growth (*LGDPPC*). Given the increase in the interest rate spread since the 1987 coup this is likely to have impeded growth in Fiji. The results concerning bank credit to the private sector suggest that higher levels of credit availability promote investment which then feeds through to economic growth. This result differs from that of Waqabaca (2004) who found a demand following relationship for bank credit in Fiji. The results regarding the relationship between *LM2Y* and growth show a demand following response. This result is similar to that obtained by Odhiambo (2004) for South Africa, and Waqabaca (2004) for Fiji. In short, whilst the results are mixed there is general support for the hypothesis that financial development leads economic growth in Fiji. Other notable empirical studies have found evidence supportive of a supply leading relationship including Murinde and Eng (1994), King and Levine (1993) and Beck et al., (2000). This finding warrants further investigation to determine the transmission process.

Table 6.2 Directions of Causality: Finance-Growth, MWALD Tests

Variable	Financial Development Granger Causes Growth (p values)	Growth Granger Causes Financial Development (p values)	Two Way or One Way Causality
<i>LM2Y</i>	0.46	0.002***	One-way
<i>LDCPRI</i>	0.005***	0.92	One-way
<i>LINT</i>	0.006***	0.27	One-way

Notes: ***, **, * represent significance at the 1, 5, and 10 percent levels respectively.

Legend: *M2Y* is the log ratio of broad money to GDP, *LINT* is the log interest rate spread, and *LDCPRI* is the log domestic credit to the private sector to GDP.

In light of the supply following relationship between finance and growth, identified above, the results for the tests of Levine’s (1997) two ‘channels’ through which financial development may lead growth are now presented. First, the relationship between investment and finance is examined. The results from the MWALD non-Granger causality tests are presented in Table 6.3. The results for all of the proxies of financial development provide strong statistical evidence in favour of the hypothesis

that financial development Granger causes *LINVY*. This result is similar to those obtained by Bossone (1999), Xu (2000), and De Gregorio and Guidotti (1995), and suggests that through improving the efficiency and level of capital accumulation in Fiji economic growth is stimulated. Overall, the results suggest that development of the financial system have been beneficial to investment and thus economic growth in Fiji.

Table 6.3 Directions of Causality: Finance-Investment, MWALD Tests

Variable	Financial Development Granger Causes Investment (p values)	Investment Granger Causes Financial Development (p values)	Two Way or One Way
<i>LM2Y</i>	0.05**	0.64	One-way
<i>LDCPRI</i>	0.05**	0.68	One-way
<i>LINT</i>	0.069*	0.44	One-way

Notes: ***, **, * represent significance at the 1, 5, and 10 percent levels respectively.

Legend: *LM2Y* is the log ratio of broad money to GDP, *LINT* is the log interest rate spread, and *LDCPRI* log of domestic credit to the private sector to GDP

Second, the relationship between finance and productivity (*LPROD*) is examined. The results from the MWALD test are presented in Table 6.4. There is statistical evidence that improvements in *LM2Y* Granger cause productivity increases. However, the results overall fail to provide any clear evidence that financial development Granger causes improvements in productivity, or vice versa. This result differs considerably to the results of cross country/panel studies undertaken by Ghirmay (2005) and Benhabib and Spiegel (2000). However, Shan and Morris (2002) found no clear evidence regarding the channels through which finance effects growth. In summary, the empirical results presented regarding Levine’s (1997) “channels” provide strong evidence that it is through investment (capital accumulation) and not improvements in productivity that financial developments affects growth in Fiji.

Table 6.4 Directions of Causality: Finance-Productivity, MWALD Tests

Variable	Financial Development Granger Causes Productivity (p values)	Productivity Granger Causes Financial Development (p values)	Two Way or One Way
<i>M2Y</i>	0.001***	0.36	One-way
<i>DCPRI</i>	0.62	0.68	None
<i>INT</i>	0.36	0.29	None

Notes: ***, **, * represent significance at the 1, 5, and 10 percent levels respectively.

Legend: *M2Y* is the ratio of broad money to GDP, *INT* is the interest rate spread, *DCPRI* is domestic credit to the private sector to GDP.

On the whole the results provide no evidence of a two way causal relationship between finance and economic growth (Patrick 1966), but rather provide evidence of a supply following response to finance in Fiji. There is also considerable evidence that it is through capital accumulation that this effect occurs. These findings provide support for the efforts towards financial sector development in Fiji undertaken since the late 1980s and highlight the need for further targeted reforms.

6.4.2 Empirical Results - Stock Market-Growth Nexus

Whilst still embryonic in nature, the South Pacific Stock Exchange (SPSE) has enjoyed considerable growth since restructuring in 1996. The impact of this transformation on economic growth has been empirically assessed for the period 1979-2004 in order to provide further policy advice relating to the continued development of Fiji’s stock exchange. The final stock market models are presented below. First, the results obtained from the bounds test are presented and confirm a long run stable relationship between the variables used in the final model exists. Second, the empirical results generated using the ARDL procedure are presented in order to determine the success of the equity market reforms undertaken in Fiji since the late 1980s.

6.4.2.1 Bounds Test Results - Stock Market-Growth Nexus

Whether a long run stable relationship between the variables used in the final models exists was determined by conducting bounds tests. The computed F statistic values for both equations 6.3 and 6.4, presented in Table 6.5, fall below the lower bound of the critical value band and thus confirm the existence of a long run stable relationship between the variables. This conclusion holds irrespective of whether the underlying variables are I(1) or I(0). The unit root results are presented in Appendix Table A6.5. The next step is to estimate the ARDL models to establish the long run coefficients for the growth models; the results are presented in Tables 6.6 and 6.7.

Table 6.5 Bounds F-Test for Stock Market- Growth Nexus Models

Equation	k	Critical Value Band Intercept and No Trend*		Calculated F-Statistic	Pass/Fail
		I(0)	I(1)		
Equation 6.3	6	3.27	4.54	0.60	Pass
Equation 6.4	6	3.27	4.54	0.44	Pass

Note: k represents the number of variables in the regression.

6.4.2.1 Empirical Results for Stock Market-Growth Nexus

The bounds test results, presented above, identified a long run relationship exists between the variables in the two growth models; consequently both equations 6.3 and 6.4 were estimated using the ARDL modelling procedure. The estimated models have an adjusted R^2 of 0.43 and 0.64, consecutively, indicating a relatively good fit to the data. The standard error of the regressions, the F-statistics, and the conventional diagnostics also perform well. The results for the stock market-growth nexus are estimated using the size of the equity market and the market capitalisation values, respectively. The coefficients for *DCPRI*, *SEC*, and *DV* were consistently insignificant and thus dropped from both of the final equations. The final model, inclusive of size is presented in Table 6.6. The final model, inclusive of market capitalisation, is presented in Table 6.7. As the latter is the preferred model the error correction model has also been generated and is presented in Table 6.8. A comment on the estimated equations and statistical significance, or lack of, for each variable in the long run is presented below.

First the model for stock market development, as measured by the size of the stock market and value of shares traded are discussed. The coefficient for the ratio of liquid liabilities to GDP (*M2Y*) is positive and significant at the 1 percent level. This is reflective of the positive impact of financial liberalisation on economic growth identified above. Likewise, the coefficient for private investment is positive and statistically significant at the 10 percent level. This is similar to the finding of Hermes and Lensink (2005) and reinforces the significance of the results presented in Chapter 5 for the relative importance of private investment and its contribution to growth. The coefficients for public investment and inflation are both statistically insignificant.

With regard to the impact of the size of the stock market (*NUMB*) on economic growth the results suggest a favourable effect. In particular, the coefficient for *NUMB* is positive and statistically significant at the 10 percent level. The small size of the coefficient is reflective of the limited number of companies that make up the SPSE. Likewise, the coefficient for the value of stocks traded to GDP ratio (*LIQUID*) is positive and statistically significant at the 5 percent level. The results are similar to those obtained by Hermes and Lensink (2005) and Shen and Lee (2006) and suggest

that the development of the stock market has been a positive determinant of economic growth.

Table 6.6 Results for Stock Market –Growth Nexus with Size of Equity Market

$$GDPPCG_t = -0.43 - 0.58GDPPCG_{t-1} + 0.33M2Y_t + 0.50M2Y_{t-1} - 0.003LINF_t$$

$$\begin{matrix} (-2.32)** & (-2.65)** & (0.91) & (1.41) & (-0.18) \end{matrix}$$

$$+ 0.03LINF_{t-1} + 1.27\Delta PRIVINV_{t-1} - 0.52\Delta PUBINV + 0.008NUMB_t$$

$$\begin{matrix} (1.84)* & (1.91)* & (-1.07) & (2.13)** \end{matrix}$$

$$+ 8.32LIQUID_t + 22.89LIQUID_{t-1}$$

$$\begin{matrix} (1.04) & (2.82)** \end{matrix}$$

$$\bar{R}^2 = 0.42 \quad F_{(10,13)} = 2.67 \quad S.E \text{ of regression} = 0.036 \quad DW\text{-statistic} = 2.47$$

$$SC\chi^2(1) = 4.42 \quad FF\chi^2(1) = 0.45 \quad N\chi^2(2) = 1.41 \quad H\chi^2(1) = 2.73$$

Long-run (steady state) effect on economic growth:

Liquid liabilities (<i>M2Y</i>)	0.53***
Inflation (<i>INF</i>)	0.014
Public investment (<i>PUBINV</i>)	-0.33
Private investment (<i>PRIVINV</i>)	0.81*
Size of the stock market (<i>NUMB</i>)	0.005*
Value of the trade in stocks (<i>LIQUID</i>)	19.61**

Notes: ***, **, * represents significance at the 1, 5, and 10 percent levels respectively. Adjusted R^2 is the coefficient of determination adjusted for degrees of freedom. F is the F-Statistic, S.E is the standard error, SC is serial correlation, FF is functional form, N is the normality of residuals, and H is heteroskedasticity. Significance level of $\chi^2(1) = 6.63$, $\chi^2(2) = 9.21$ at the 1 percent level.

Second, the model for stock market development's effect on economic growth, as proxied by market capitalisation (*CAPY*) and the value of shares traded (*LIQUID*) (equation 6.4), is discussed. As expected the signs and statistical significance of the long run coefficients differ little from those presented in Table 6.6. In particular, the proxy for liquidity (value of shares traded) is once again positive and statistically significant at the 1 percent level. The only notable difference is that the size of the stock market, when proxied by market capitalisation, is positive but shows a weak statistically significant relationship at the 12 percent level. This contrasts to the result obtained when using the number of listed companies and is a likely reflection of the low levels of market capitalisation achieved in the period prior to 2001 (see Figure 3.18 in Chapter 3). As this is the preferred final model the error correction model has been generated

and presented in Table 6.8 in order to determine the speed of adjustment back to equilibrium. There is strong evidence of a feedback effect of deviations in economic growth back to its long run growth path. In particular, 1.40 percent of the discrepancies between the actual and equilibrium values of economic growth are corrected each period. Given this fast reaction to deviations from the country’s long run equilibrium and in light of the limited size of the stock market in Fiji, these results provide considerable support for the implementation of further reforms in the equity market.

Table 6.7 Results for Stock Market- Growth Nexus with Market Capitalisation

$GDPPCG_t = -0.10 - 0.41GDPPCG_{t-1} + 0.24M2Y_t - 0.30\Delta INF_t + 0.53\Delta INF_{t-1}$				
(-2.26)**	(-2.38)**	(2.37)**	(-1.19)	(2.20)**
$+ 0.56\Delta PRIVINV_t + 1.24\Delta PRIVINV_{t-1} - 0.08\Delta PUBINV + 2.63LIQUID_t$				
(1.09)	(2.36)**	(-0.25)	(0.51)	
$+ 16.48LIQUID_{t-1} + 0.01\Delta CAPY_t$				
(2.97)***	(1.62)			
$\bar{R}^2 = 0.64$	$F_{(10,13)} = 5.02$	$S.E\ of\ regression=0.28$	$DW-statistic=2.05$	
$SC\chi^2(1) = 0.05$	$FF\chi^2(1) = 0.33$	$N\chi^2(2) = 0.47$	$H\chi^2(1) = 3.35$	
<i>Long-run (steady state) effect on economic growth:</i>				
Liquid liabilities (M2Y)			0.17**	
Inflation (INF)			0.17	
Public investment (PUBINV)			-0.057	
Private investment (PRIVINV)			1.27*	
Market Capitalisation (CAPY)			0.009	
Value of the trade in stocks (LIQUID)			13.54***	

Notes: ***, **, * represent significance at the 1, 5, and 10 percent levels respectively. Adjusted R^2 is the coefficient of determination adjusted for degrees of freedom. F is the F-Statistic, S.E is the standard error, SC is serial correlation, FF is functional form, N is the normality of residuals, and H is heteroskedasticity. Significance level of $\chi^2(1) = 6.63$, $\chi^2(2) = 9.21$ at the 1 percent level.

Table 6.8 Error Correction Model with Market Capitalisation

Variable	Coefficient	Standard Error	T-Value	T-probability
<i>Constant</i>	-0.10	0.05	-2.25	0.04**
<i>M2Y</i>	0.24	0.10	2.37	0.01**
<i>DINF</i>	-0.30	0.25	-1.12	0.25
<i>DPRIVINV</i>	0.56	0.52	1.09	0.29
<i>DPUBINV</i>	-0.08	0.32	-0.25	0.81
<i>LIQUID</i>	2.63	5.20	0.51	0.62
<i>DCAPY</i>	0.01	0.008	1.62	0.125
<i>ECM_{t-1}</i>	-1.40	0.17	-8.16	0.000***
$\bar{R}^2 = 0.86$, $F_{(7,16)} = 21.89[0.000]$, $S.E \text{ of the regression} = 0.03$, $DW\text{-Statistic} = 2.05$				

Notes: ***, **, * represent significance at the 1, 5, and 10 percent levels respectively.

Legend: *M2Y* is the ratio of liquid liabilities to GDP, *LIQUID* is the total value traded to GDP ratio, *INF* is the inflation rate, *PRIVINV* is the private investment to GDP ratio, *PUBINV* is the public investment to GDP ratio, and *CAPY* is market capitalisation of the stock market to GDP ratio.

6.4.3 Empirical Results - McKinnon's Complementarity Hypothesis

McKinnon's (1973) view regarding financial repression was based on his hypothesis that a complementary relationship between money and physical capital exists. This section presents the empirical results concerning the relationship between real money balances and savings over the period 1961-2004, and thus assesses the applicability of McKinnon's hypothesis in Fiji. First, the results obtained from the bounds test are presented, which confirm a long run relationship between the variables exists. Second, the error correction models obtained using the ARDL procedure to cointegration are discussed.

6.4.3.1 Bounds Test Results - McKinnon's Complementarity Hypothesis

The existence of a long run stable relationship between the variables used in the final models was estimated by conducting the bounds tests. The computed F statistic values are presented in Table 6.9. The estimated F-statistics for the equations fall outside the bounds critical values and thus confirm a long run stable relationship exists between the variables. In light of this finding the ARDL modelling procedure has been used to determine the ECM. The results are presented below and a discussion of their meaning ensues.

Table 6.9 Bounds F-Test - Complementarity Hypothesis Models

Equation	k	Critical Value Band Intercept and No Trend*		Calculated F-Statistic	Pass/Fail
		I(0)	I(1)		
Equation 6.5	5	3.52	4.78	1.23	Pass
Equation 6.6	6	3.27	4.54	2.16	Pass

Note: k represents the number of variables in the regression.

* represents the 99 percent level of significance.

6.4.3.2 Complementarity Hypothesis Results – Error Correction Models

This section presents the empirical results for McKinnon's complementarity hypothesis obtained using the ARDL method to cointegration to acquire the ECM models for real money balances and savings. First, the results for the real money balances are presented (see Table 6.10). Second, the results for the savings function are presented in Table 6.11 and a discussion ensues.

The estimated ECM for real money balances has an adjusted R^2 of 0.97, indicating a good fit of the model. It also performs well in terms of the other standard tests such as the standard error of the regression and the F-statistic and the model diagnostics tests. The estimated coefficients and their effect on real money balances are discussed to determine the applicability of the theory presented above.

The estimated domestic savings coefficient value is positive but statistically insignificant in the short run, however the lagged value of the coefficient is negative and statistically significant at the 5 percent level. This is inconsistent with McKinnon's complementarity hypothesis and suggests that higher money balances are held for consumption than for domestically financing investment in Fiji. Consequently, investment can not be characterised as self-financed. This result supports the findings of Fry (1978), Gupta (1984) and Mwega, Ngola, and Mwangi (1990).

The estimated coefficient for real income is negative and statistically significant at the 10 percent level. This result fails to support the lifecycle hypothesis and is a likely consequence of macroeconomic uncertainty eroding investment opportunities and thus restricting growth (Masson, Bayoumi et al. 1998). This finding supports Rao and Singh

(2005) for the case of Fiji. However, it differs from those obtained by Pentecost and Moore (2006) and Khan and Hasan (1998). Support for the lifecycle model is provided by the results concerning the growth rate of real GDP. The estimated coefficient in the real money balances equation is 0.009, and is significant at the 1 percent level. This finding implies that improvements in the growth rate of real GDP result in higher levels of real money balances as consumption expenditure increases.

An increase in the level of inflation leads to a rise in real money balances. The respective coefficient is 0.008, and is significant at the 10 percent level. The result differs from Odhiambo (2004) and Thornton (1990) and suggests that uncertainty increases the demand for financial assets in the short term. Presumably the results are reflective of the macroeconomic uncertainty arising from political upheaval and failures to solve various economic policy problems. The results for the real deposit rate imply that increases in the real deposit rate will increase real money balances. The relevant coefficient is 0.054, and is significant at the 10 percent level. The finding is similar to Fry (1978) and provides support for the conduit effect. The result is also similar to that obtained by Rao and Singh (2005), using a Johansen cointegrating VAR for Fiji. A stable real deposit rate is important to increase the amount of financial savings through intermediaries to increase investment funds. Fiji has experienced and reflects the negative real deposit rate over several years in the period under consideration (see Chapter 3, Figure 3.15).

Table 6.10 Results for Real Money Balances

Variable	Coefficient	Standard Error	T-Value	T-probability
<i>Constant</i>	-1.36	0.77	-1.77	0.09*
<i>DLy</i>	-0.004	0.002	-1.81	0.08*
<i>D$\dot{y}$</i>	0.009	0.003	3.28	0.00***
<i>DLS_d / Y_t</i>	0.022	0.045	0.50	0.62
<i>DLS_d / Y_{t-1}</i>	-0.10	0.046	-2.11	0.04**
<i>Dd - p^e</i>	0.054	0.028	1.92	0.06*
<i>Dπ_t</i>	0.008	0.0026	2.62	0.01***
<i>ECM_{t-1}</i>	-0.07	0.04	1.74	0.09*
$\bar{R}^2 = 0.97$, $F_{(8,33)} = 189.57[0.000]$, $S.E \text{ of regression} = 0.07$ $Durbins h\text{-statistic} = 1.05$				

Notes: ***, **, * represent significance at the 1, 5, and 10 percent levels respectively.

Legend: y is real income, $\dot{y}$ is the growth rate of real income, $d - p^e$ is the real deposit rate, S_d / Y is the ratio of domestic savings to GDP, and π is the expected inflation rate.

The error correction term has a negative sign and is statistically significant at the 10 percent level. The presence of a significant coefficient implies that the money demand function will revert back to its growth path in the long run. Specifically, 7 percent of the discrepancies between the actual and equilibrium values of the money demand function are corrected each period. The results concerning the savings function are presented next.

The estimated ECM for the savings function has an adjusted R^2 of 0.59, indicating a relatively good fit of the model. The standard error of the regression and the F-statistic also perform well. The estimated coefficients and their effect on savings are discussed below. Inflation was statistically insignificant during consecutive modelling phases and thus dropped from the final model specification.. The results pertaining to real income provide support for the permanent income and lifecycle hypotheses. The coefficient for real income is positive and statistically significant at the 10 percent level when lagged. The result suggests that as real income increases households are induced to save a higher fraction of their income. The growth rate of real income is negative and statistically insignificant. This result implies that the mobilisation of savings is not affected by the growth rate of real income in Fiji. Khan and Hasan (1998) noted that economic growth will have little or no effect on the savings rate if the population dependency ratio is high, thus given the high levels of dependency in Fiji this is an unsurprising result.

The coefficient for the real deposit rate is positive and statistically significant at the 10 percent level. This supports the McKinnon-Shaw argument against financial repression. In light of this finding, and that obtained in Chapter 4, predominantly negative rates since the early 1970s have been a likely impediment to national savings in Fiji. The coefficient for the dependency ratio is positive and statistically significant at the 1 percent level. This differs from the findings of Odhiambo (2004) and Khan and Hasan (1998), and implies that increases in the dependency ratio increase the level of savings. This finding supports the hypothesis of Adams (1971) that an increase in family size will increase the motive to save.⁵⁶

⁵⁶ .Adams (1971) notes that the hypothesis that increased dependency rates will decrease savings assumes that the factors that determine output are independent to the number of dependents for which provision has to be made.

The coefficient for foreign savings is positive and statistically significant at the 1 percent level. This provides evidence in favour of a complementary effect between foreign and domestic savings in Fiji. This finding is consistent with Khan and Hasan (1998), Khan et al., (1994) and Odhiambo (2004), and suggests that foreign savings relax the resource constraint in Fiji. In light of the finding that investment is not self financed this is a potential avenue for the acquisition of investment funds. The dummy variable has a negative coefficient and is statistically significant at the 10 percent level. This reinforces the previous finding that political uncertainty in the post-1987 coup period.

Real money balances is positive and statistically significant at the 10 percent level. This result is similar to that obtained by Thornton (1990) and Khan and Hasan (1998). The results suggest that increases in real money balances will positively impact on savings in Fiji. However, in light of the results obtained for domestic savings in the function for real money balances (Table 6.10) there is no substantial evidence of a two-way relationship for the McKinnon's (1973) complementarity hypothesis.

Table 6.11 Results for Savings Function

Variable	Coefficient	Standard Error	T-Value	T-probability
<i>Constant</i>	1.36	3.86	0.35	0.73
DLy_t	0.16	0.02	1.66	0.30
DLy_{t-1}	0.24	0.015	1.65	0.10*
$D\dot{y}$	-0.008	0.007	-1.08	0.29
DLS_f/Y	1.97	0.74	2.66	0.01***
$D\dot{LDR}$	13.78	5.01	2.75	0.01***
$Dd - p^e$	0.11	0.07	1.69	0.10*
DLM/P	0.89	0.48	1.86	0.07*
DDV	-0.29	0.14	-1.98	0.06*
ECM_{t-1}	-0.53	0.15	-3.64	0.00***
$\bar{R}^2 = 0.59 \quad F_{(9,32)} = 7.1[0.000] \quad S.E \text{ of regression} = 0.21 \quad DW\text{-statistic} = 2.18$				

Notes: ***, **, * represent significance at the 1, 5, and 10 percent levels respectively.

Legend: M/P is real money demand, y is real income, $\dot{y}$ is the growth rate of real income, $d - p^e$ is the real deposit rate, S_f/Y is the ratio of foreign savings to GDP, DR is the dependency ratio, and DV is a dummy variable (pre-1987=0, post-1987=1).

The error correction term is negative and statistically significant at the 1 percent level. This provides evidence of a strong feedback effect of deviations of the savings function

back to the country's long run growth path. In particular, 53 percent of the discrepancy between the actual and equilibrium values of domestic savings is corrected each period. The result is similar to Kar and Pentecost (2001), for the case of Turkey, and suggests that savings is faster to return to its long run equilibrium than money demand in Fiji.

6.5 Conclusion

The impact of financial liberalisation on economic growth in Fiji was examined using a three pronged approach. First, the finance-growth nexus was investigated. Second, the impact of stock market development on economic growth was assessed. Third, McKinnon's (1973) complementarity hypothesis was examined. The empirical results highlight the positive impact of the financial and equity sector reforms undertaken to date and stress the need for their continued implementation. Specifically, the results highlight the positive effects of the stock market and financial sector development and foreign saving. The real interest rate seems to have a positive impact on savings decisions, and thus confirms the results obtained for the nations savings model discussed in Chapter 4.

There is strong evidence that financial sector development has positively impacted on economic growth through the channel of capital accumulation. There is no evidence that financial development has impacted on economic growth through improving productivity. Consequently, policy reforms need to be aimed at improving the availability of bank credit and attaining positive real interest rates which would encourage higher levels of savings for self finance.

The development of the stock market has had a positive impact on economic growth in Fiji since its establishment in 1979. There is statistical evidence that higher levels of market capitalisation and liquidity exert a positive impact on growth through providing the capital required for investment. Whilst the equity market is still nascent in nature these findings provide strong support for the continued development of Fiji's equity market and reinforce the importance of both the Capital Markets Development Authority and South Pacific Stock Exchange.

The empirical results suggest that McKinnon's complementarity hypothesis does not hold for the case of Fiji. There is however evidence that foreign savings impacts positively on domestic savings, and that due to the persistence of negative real interest rates investment has been funded through loans from microfinance institutions and the curb market. The importance of obtaining positive real interest rates and the continued spread of banking services to rural areas is vital. Ultimately the results suggest that financial liberalisation alone will not improve economic growth. A concerted effort is required to line financial sector policy initiatives with the stylised facts. Policy needs to be targeted at reducing the level of consumption expenditure by improving the savings environment, and at the same time further encouragement of foreign savings is clearly warranted.

Appendix 6.1

Unit Root Tests and Summary Statistics for the Data Used to Estimate Three Financial Liberalisation Models

Introduction

This appendix presents the summary data for the three models in this chapter. The summary data for the finance-growth nexus is presented in Table A6.1. Likewise, the summary data for the stock market and complementarity hypothesis models are presented, consecutively, in Tables A6.2 and A6.3. This appendix also presents the Augmented Dickey Fuller (ADF) unit root tests, with and without a trend, which were performed to determine the order of integration in the data for each variable used in Chapter 6. To determine the direction of Granger causality using the Modified WALD test the order of the Vector Autoregressive (VAR) model must first be assessed which shows that the variables are non-stationary in their level form. Consequently, the ADF test results for the finance-growth nexus are presented in Table A6.4. The ADF tests for the stock market and complementarity hypothesis models are presented in Tables A6.5 and A6.6. The Bounds F tests are reported in the chapter. The tables presented here have the tests conducted using Microfit Version 4.0 (Pesaran and Pesaran, 1997, p. 304).

Table A6.1 Summary Data on Variables Used in the Finance-Growth Nexus Models

	1969-1974	1975-1979	1980-1984	1985-1989	1990-1994	1995-1999	2000-2005
<i>M2Y</i>	0.31	0.32	0.34	0.39	0.51	0.45	0.43
<i>DCPRI</i>	0.15	0.17	0.23	0.27	0.38	0.34	0.33
<i>INT</i>	6.03	6.39	7.50	9.22	8.10	7.68	7.28
<i>Y</i>	2766.15	3705.12	3530.19	3317.57	3392.35	3733.42	4084.89
<i>INVY</i>	0.21	0.22	0.25	0.16	0.13	0.12	0.12
<i>PROD</i>	9206.43	11822.20	10835.14	9790.08	9428.47	9794.54	9878.47

Notes: Figures are annual averages for sub period reported. Data sources and data compilation methods are discussed in section 6.3.2.

Legend: *M2Y* is the ratio of broad money to GDP, *DCPRI* is domestic credit to the private sector to GDP, *INT* is the interest rate spread, *Y* is real per capita income, *INVY* is total investment as a ratio of GDP, and *PROD* is productivity.

Table A6.2 Summary Data on Variables used in the Stock Market Models

	1979-1984	1985-1989	1990-1994	1995-1999	2000-2004
<i>GDPPCG</i>	0.01	-0.01	0.02	0.02	0.02
<i>SEC</i>	0.55	0.52	0.64	0.76	0.83
<i>INF</i>	0.09	0.06	0.05	0.03	0.03
<i>TOTINV</i>	0.25	0.16	0.15	0.14	0.13
<i>PRIVINV</i>	0.13	0.10	0.05	0.05	0.04
<i>PUBINV</i>	0.13	0.06	0.10	0.10	0.09
<i>LIQUID</i>	0.00	0.00	0.00	0.00	0.00
<i>DCPRI</i>	0.22	0.27	0.38	0.34	0.30
<i>M2Y</i>	0.33	0.39	0.51	0.45	0.42
<i>NUMB</i>	4	4	4	7	14
<i>CAPY</i>	0.01	0.03	0.03	0.05	0.16

Notes: Figures are annual averages for sub period reported. Data sources and data compilation methods are discussed in section 6.3.2.

Legend: *GDPPCG* is GDP per capita growth, *SEC* is the secondary school enrolment rate, *INF* is the inflation rate, *TOTINV* is total investment to GDP ratio, *PRIVINV* is the private investment to GDP ratio, *PUBINV* is the public investment to GDP ratio, *LIQUID* is the total value traded to GDP ratio, *DCPRI* is domestic credit to the private sector to GDP ratio, *M2Y* is the ratio of liquid liabilities to GDP, *NUMB* is the number of listed companies, and *CAPY* is market capitalisation of the stock market to GDP ratio.

Table A6.3 Summary Data on Variables used in the Complementarity Hypothesis Models

	1961-65	1966-70	1971-75	1976-80	1981-85	1986-90	1991-95	1996-2000	2001-04
<i>M/P</i>	6.11	4.83	6.56	8.43	9.14	11.85	16.30	15.26	17
$\dot{y}$	3.13	7.31	5.82	4.22	0.03	2.42	2.72	2.09	3.95
$(d - p^e)$	0.88	0.06	-0.64	-0.46	-0.05	0.05	0.18	-0.17	-0.41
<i>DR</i>	0.72	0.71	0.70	0.68	0.67	0.66	0.64	0.61	0.59
π	2.81	4.54	17.61	7.57	6.15	5.81	3.88	4.01	2.45
<i>y</i>	681.51	852.34	1228.03	1505.94	1637.49	1703.89	1914.96	2190.02	2475
S_f / Y	0.00	0.00	0.01	0.01	0.02	0.05	0.05	0.10	0.08
S_d / Y	13.47	17.46	14.61	20.23	19.90	18.04	10.23	10.91	12.89

Notes: Figures are annual averages for sub period reported. Data sources and data compilation methods are discussed in section 6.3.2. The level of GDP (*y*) and the value of real money balances (*M/P*) are in millions of Fijian dollars (2000 constant prices).

Legend: *M/P* is real money demand, $\dot{y}$ is the growth rate of real income, $d - p^e$ is the real deposit rate, *DR* is the dependency ratio, π is the expected inflation rate *y* is real income, S_d / Y is the ratio of domestic savings to GDP, and S_f / Y is the ratio of foreign savings to GDP,

Table A6.4 Unit Root Tests for Variables used in the Finance-Growth Models

	LEVELS		DIFFERENCED	
Variable (with trend unless specified)	ADF test: H0:I(1),H1:I(0) at 5% level	I(1) or I(0)	ADF test: H0:I(1),H1:I(0) at 5% level	I(1) or I(0)
<i>LINT</i>	-2.35	I(1)	-6.88	I(0)
<i>LGPPC</i>	-2.21	I(1)	-3.90	I(0)
<i>LM2GDP</i>	-2.02	I(1)	-3.59	I(0)
<i>LDCPRI</i>	-2.02	I(1)	-3.34	I(0)
<i>LPROD</i>	-2.40	I(1)	-4.06	I(0)
<i>LINVY</i>	-2.15	I(1)	-4.64	I(0)

Table A6.5 Unit Root Test for Variables in the Stock Market Models

	LEVELS		LOGS		DIFFERENCED	
Variable (with trend unless specified)	ADF test: H0:I(1),H1:I(0) at 5% level	I(1) or I(0)	ADF test: H0:I(1),H1:I(0) at 5% level	I(1) or I(0)	ADF test: H0:I(1), H1:I(0) at 5% level	I(1) or I(0)
<i>GDPPC</i>	-2.65	I(1)	-2.74	I(1)	-4.8	I(0)
<i>LIQUID</i>	-4.42	I(0)				
<i>NUMB</i>	-0.60	I(1)	-1.1	I(1)	-4.84	I(0)
<i>CAPY</i>	-3.53	I(1)	-2.54	I(1)	-5.49	I(0)
<i>GDPPCG</i>	-4.70	I(0)				
<i>SEC</i>	-2.08	I(1)	-2.01	I(1)	-2.61	I(1)
<i>INF</i>	-3.23	I(1)	-3.07	I(1)	-4.83	I(0)
<i>TOTINV</i>	-1.68	I(1)	-1.87	I(1)	-4.65	I(0)
<i>PRIVINV</i>	-1.17	I(1)	-0.76	I(1)	-3.47	I(0)*
<i>PUBINV</i>	-2.13	I(1)	-2.09	I(1)	-3.63	I(0)
<i>DCPRI</i>	-1.29	I(1)	-1.35	I(1)	-2.76	I(1)
<i>M2Y</i>	-1.56	I(1)	-1.52	I(1)	-2.57	I(1)

Note: *Significant at the 10 % level

Table A6.6 Unit Root Test for Variables in the Complementarity Hypothesis Models

	LEVELS		DIFFERENCED	
Variable (with trend unless specified)	ADF test: H0:I(1), H1:I(0) at 5% level	I(1) or I(0)	ADF test: H0:I(1), H1:I(0) at 5% level	I(1) or I(0)
<i>LM/P</i>	-2.38	I(1)	-4.24	I(0)
<i>Ly</i>	-1.23	I(1)	-4.77	I(0)
<i>y</i>	-4.69	I(0)		
<i>LSd/Y</i>	-3.53	I(0)		
<i>d - p^e</i>	-3.31	I(1)	-5.69	I(0)
<i>LSf/Y</i>	-4.19	I(0)		
<i>LDR</i>	-0.95	I(1)	-5.67	I(0)
<i>Lπ_i</i>	-4.54	I(0)		

Chapter 7

Conclusion and Policy Implications

7.1 Introduction

This study empirically investigates savings, investment and financial liberalisation in Fiji, over the period 1961-2005, using the Auto-regressive Distributed lag (ARDL) modelling process, Vector Autoregressive (VAR) and modified WALD test for Granger non-causality. The savings models are estimated using a modified lifecycle model (Modigliani 1966; Modigliani 1970), with a view to identifying the determinants of national and private sector savings in Fiji. Similarly, the determinants of investment are investigated using a modified neo-classical investment model. The nature of the finance-growth nexus, impact of stock market development on economic growth and the applicability of McKinnon's (1973) complementarity hypothesis are examined with the intent of providing a comprehensive assessment of the determinants and effects of financial liberalisation in Fiji.

The main objectives were to assess the impacts of financial liberalisation on economic growth; provide a summary of the differing stances regarding savings, investment and financial liberalisation in the literature; and to resolve whether the determinants of savings and investment identified in the literature are relevant in the case of Fiji. The models reported here have a reasonably high explanatory power and the different econometric tests suggest that the models do not suffer problems such as heteroskedasticity, multicollinearity, functional form and serial correlation. The empirical results for the savings, investment and financial-growth models highlight a number of important considerations for policy recommendation that Fiji needs to address. This chapter presents the overall findings, draws policy lessons and highlights areas for future research. The chapter is organised as follows: section 7.2 presents a review of the research. In particular the literature and empirical results are evaluated. The major findings of this study are presented in section 7.3, with particular attention being placed on providing policy recommendations. Section 7.4 suggests further areas for research into financial sector development in Fiji.

7.2 Chapter Findings and Conclusion

Considering that the focus of the study is on the savings-investment-growth nexus and the finance-growth nexus in Fiji, Chapter 1 presents the background to the study and the issues investigated and the aims and objectives of the analysis, thus setting the scene for the study. Fiji's abysmal growth performance due to several factors, and the political and economic instability experienced by the nation warrants an investigation that will be of interest to policymakers and academics.

Chapter 2 reviews the literature explaining the impact of savings and investment on economic growth, and provides an overview of the debate with respect to financial liberalisation. It suggests that whilst the basis of the arguments concerning the savings-investment-growth nexus may vary, the results clearly propose the existence of a positive relationship. In turn, the literature review reveals the need to clearly distinguish the determinants of savings and investment in developing countries based on their individual economic growth and development factors. It also highlights the areas of consensus and disagreement in the theoretical and empirical literature regarding the finance-growth nexus. This clearly warrants the need for further country-specific studies to examine the impacts of financial liberalisation, the effect of the behaviour of various key factors and the countries operating environment on economic growth. The related literature for the case of Fiji shows that economic growth in the period since independence has been severely hindered by the upheaval caused to the economy by the military coups. The experiences of the four military coups since 1987 indicate a limited productive capacity and an alarming increase in the incidence of poverty. Fiji's experiences confirm that the adverse affect of low savings, low investment and poor financial structures may negatively impact on growth. These issues pave the path for further investigation undertaken in Chapters 4, 5, and 6.

A descriptive analysis of Fiji's macro-economy since independence is provided in Chapter 3, in order to facilitate the identification of the determinants of economic growth and provide an assessment of the development experiences with regard to the general indicators of economic growth. Fiji's economic growth has been negatively impacted by political instability in the past twenty years, and has consequently been the cause of concern. Particular attention is paid to the macroeconomic, trade and financial reforms implemented in the post-1987 coup period. From a survey of the literature the

reforms were implemented slowly and appear to have had some positive effects on enhancing economic growth. However, these improvements were once again undermined by political instabilities, racial discrimination, and the emergence of land lease problems and by the political instability during the 1990s and 2000s. The changes noted in Fiji's various economic policies overtime suggest that due to political instability, lack of economic capacity, and low levels of skilled labour the economy has not performed to a standard necessary to enhance growth.

The determinants of national and private savings were examined in Chapter 4 using an analytical framework derived from Modigliani's lifecycle model. The econometric evidence suggests that the agricultural sector, remittances, positive real rates of interest and further spread of banking services are significant and positive determinants of the savings rate. The results highlight that two features of the financial intermediation process are likely to be important in Fiji. First, the result relating to the impact of the real interest rate on domestic savings provides support for the McKinnon-Shaw argument against financial repression. Low and negative real interest rates over the period in question has been a serious detriment to domestic savings in Fiji. Second, bank density is also a highly significant explicator of Fiji's savings performance, thus providing support for the view that the spread of banking services to rural and isolated areas will be advantageous to domestic savings.

The determinants of private investment were examined using an analytical framework derived from the neo-classical theory of fixed investment and the empirical results are presented in Chapter 5. The results highlight that increased public investment and availability of bank credit, reductions in macroeconomic and political uncertainty, and low costs associated with capital accumulation are all positive determinants of private corporate and non-residential investment in Fiji. The results regarding the availability of bank credit provide support for the positive impact of financial liberalisation on private investment decisions. Likewise, the results concerning the role of public investment in crowding in private investment signifies an important responsibility of government in creating an environment conducive to private investment. Political and economic uncertainty over the period examined has had a clearly negative effect on private sector investment decisions. In light of the recent political upheaval on the 5th December 2006, it is likely that private investment may be further affected.

A three pronged examination of Fiji's financial system was undertaken in Chapter 6. First, the finance-growth nexus was investigated using the recently developed MWALD test for Granger non-causality. Second, the impact of stock market development on economic growth was investigated. Third, the applicability of McKinnon's (1973) complementarity hypothesis was examined. There is strong evidence that financial and stock market development has positively impacted on economic growth in Fiji. The results pertaining to financial sector development indicate that this effect has occurred through the channel of capital accumulation. However the results regarding McKinnon's hypothesis suggest that money balances and investment are not complementary; an increase in money balances will decrease savings and thus restrict investment. Predominantly negative real interest rates over the period in question have possibly resulted in investment being funded through loans from microfinance institutions and the curb market as individual savings (self finance) has been deterred. The importance of improving the availability of credit through increasing the spread of banking services and accomplishing positive rates of return on savings is clearly highlighted. The empirical findings also stress the important role of foreign savings in promoting greater levels of domestic savings and financing domestic investment.

7.3 Policy Recommendations

The empirical results obtained in this study have highlighted a number of focal areas that are vital and will be of interest to policy makers. The main recommendations are necessary to enhance growth and pave the path for long term growth and development. Particular reference is made to savings, investment and financial development and the corresponding macroeconomic, trade and financial sector policy reforms required to achieve long term sustainable growth. Section 7.3.1 presents the macroeconomic policy implications of this study. The inferences for trade sector policy are presented in section 7.3.2. Finally, the policy conclusions for further financial sector development are presented in section 7.3.3.

7.3.1 Macroeconomic Policy

The study's findings confirm that the political and macroeconomic uncertainty, which plagued the period under study, was a key factor behind Fiji's poor growth

performance. This negative effect has been particularly dominant through the channels of savings and investment. The importance of free markets and political and civil liberty are clearly highlighted by the empirical evidences. Policy initiatives that favour one group over another not only divide the country but also contribute to the incidence of poverty. Maintaining political stability and reducing the level of corruption will enhance Fiji's economic growth prospects; however these are not easy tasks and will require political, economic and social improvements and external assistance in order for policy reforms to progress growth.

There is clear evidence that public investment plays an important role in promoting private investment in Fiji. There is however no evidence to suggest that public savings is a determinant of private savings decisions. Therefore, if fiscal policy has an important role in promoting domestic investment and not savings, budgetary reforms in the economic reform process should be judged by their ability to achieve fiscal prudence whilst maintaining public investment levels in infrastructure which underpin the expansion of private investment. There is also evidence that remittances positively impact on savings decisions in Fiji. The positive contribution of remittances to social and economic development suggests that seasonal work programmes with Australia and New Zealand will contribute not only to improving savings levels but also in the long-term job prospects of many families, particularly those affected by eviction from the land, and as the reductions in the European markets may affect those in the sugarcane sector.

The agricultural sector was empirically identified in the savings model as an important determinant of both national and private savings. The size and extent of Fiji's reliance on this sector as a source of income is the cause of much alarm in light of reductions in preferential access for sugarcane in the European Union. Policies aimed at further expanding areas such as tourism, manufacturing along with agricultural diversification will help smooth this process. Whilst some macroeconomic reforms have been undertaken addressing this hurdle to economic growth, they have only been partially successful due to the continuation of land lease problems. Thus, the current land lease problems require urgent attention in order to improve agricultural output and productivity and thus spur higher levels of economic growth.

7.3.2 Trade Policy

Trade policy reforms implemented in Fiji since the late 1980s have contributed positively towards enhancing economic growth factors. Greater levels of competitiveness and the elimination of barriers to trade have resulted in improvements in the efficiency of investment, through both improved access to imported investment goods and an improvement in the general investment environment. The privatisation of public enterprises has also made possible reductions in the relative price of capital goods and thus further encouraged investment. Improved access to imported investment goods has been important in encouraging investment in machinery and equipment. In light of the significance of the agricultural sector in determining savings in Fiji it is likely that further encouragement of investment in machinery through trade reforms will improve productivity and contribute positively to economic growth.

7.3.3 Financial Sector Policy

The financial sector reforms undertaken in Fiji have been only partially successful to date, and thus further targeted reforms are likely to be beneficial. The study identifies the significant role of the stock exchange in encouraging economic growth and thus provides empirical support that the further development of the stock market by the Capital Markets Development Authority and South Pacific Stock Exchange will increase growth and provide a greater number of investment opportunities in Fiji. Therefore policies aimed at reducing trading restrictions, increasing aid funding and improving public education of the equity markets and the functioning of the stock market are vital.

The results of this study suggest that financial liberalisation has caused economic growth through the channel of investment, and consequently financial reforms will be beneficial in terms of further encouraging investment. Additionally, the significance of credit availability to both savings and investment decisions means that continued reforms in this area are vital. In particular, the popularity of alternative credit institutions, such as the Women's Social and Economic Development Programme and other financial intermediaries, as sources of credit highlight that the current presence of restrictions in access to small scale borrowers within the formal banking system must be

address by the policy makers. Encouraging competition in the banking sector and thus improving the cost, quality and efficiency of banking services can achieve improvements in credit availability. Further support of alternative credit institutions by the government and donor agencies is also warranted.

An attempt to promote the process of financial intermediation through the geographical spread of the banking system has had a positive and significant impact on savings decisions. The further spread of banking services to rural and isolated areas will not only improve savings but also complement shifts towards greater availability of credit. This can be achieved through the implementation of more bank branches and/or postal banking services. The continued dominance of negative real interest rates, despite the actions of the Reserve Bank of Fiji in combating high and turbulent rates of inflation, acts as a deterrent to savings and thus constrains investment. Active encouragement of positive rates is also vital in order to encourage savings.

Overall, this study provides strong support for the continued implementation of reforms, particularly in the areas of macroeconomic stabilisation, financial liberalisation and trade policy. A concerted effort by the policy makers is required in order to encourage higher levels of economic growth through the mediums of savings, investment and financial liberalisation. The findings of this study provide a strong basis for policy makers to improve policies to enhance growth.

7.4 Future Research

Given the data limitations on some of the variables that Fiji has not collected to the present period it will be vital to obtain measures for the terms of trade, and private and public investment (to more recent years) to estimate the models. Likewise, longer time series data would allow us to observe the relationships for longer periods to effectively measure the impact of various factors on long-term growth.

Further research may use alternative measures of financial liberalisation, or an index, such as that developed by Hermes and Lensink (2005), to assess the finance-growth nexus. Savings and investment models that incorporate the impact of improvements in human capital and technology are also likely to be beneficial from a policy perspective.

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