

Financial Development and Market Structure

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Abstract

There is a well-established empirical link between financial development and economic growth. However, the microeconomic features that generate this relationship remain a largely under-researched area. This paper provides an investigation of the relationship between financial development and market structure challenges faced by the region. By reviewing the literature in the area and examining the data on these issues the paper puts forward some policies to address some of these market structure challenges faced by the region.

JEL Codes: E44; O16; D4

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1 Introduction

One of the most important components of growth and more importantly overall economic development is the sophistication and depth of financial markets (Levine, Loayza, & Beck, 2000; Beck, 2002; King & Levine, 1993; Levine & Zervos, 1998; Rousseau & Wachtel, 2000). Financial markets comprise commercial banks, financial markets and other financial intermediaries such as insurance and mutual companies as well as regulatory institutions such as the central bank. It is the financial market that finances investment and other productive activities.

Because island-states are often isolated and disconnected from larger territories, they tend to lack the resources to be competitive. Local businesspersons therefore tend to focus on low-risk business activities such as wholesale and retail trade or services, which tend not to suffer from issues related to economies of scale (Baldacchino, 1998). However, these areas of activity can act as a drain on the country's foreign exchange reserves, provides limited employment opportunities for labour and can leave the island highly vulnerable to external shocks.

Added to this characteristic of isolation, small states also have six common features:

1. *Small domestic size.* As a result of the small size of domestic demand, the unit cost of production in most small states will be relatively high, as demand restricts the use of a minimum efficient scale or plant. The country's size will also likely limit the amount of domestic competition since only a small number of firms might find it feasible to engage in a particular area of production.

2. *Limited resource base.* Besides a limited population, most small states are not normally endowed with abundant natural resources and even if they do have natural resource endowments, the country may not have the capital necessary to exploit the resource.
3. *Narrowness of output and exports.* Given the limited resource base most small states tend to specialise in the production and export of a narrow range of goods and services.
4. *Openness to trade.* The small states narrow resource base also implies that it has to depend on trade with other countries to satisfy local consumption and for a large proportion of inputs used in domestic production. Thus although the country might have high tariffs, conventional indicators of openness such as exports and imports as a proportion of GDP will usually exceed world averages.
5. *Vulnerability.* The characteristics of small states often make them relatively more subject to changes in external conditions. These states are usually quite susceptible to natural disasters and other meteorological conditions. The recent case of the effects that Hurricane Ivan had on Grenada is a prime example. The International Monetary Fund, in their 2005 Article IV Consultation Report on Grenada (available at www.imf.org), notes that while the average cost of natural disasters is around 2% of GDP, Hurricane Ivan in Grenada is estimated to have led to damages valued at over 200% of GDP. Table 1 shows that the variance in GDP growth in small states is more than six times greater than for the world economy.
6. *Social Homogeneity.* One of key advantages of a small state, however, is that they usually possess a greater degree of social homogeneity and cohesion that

encourages the formation of social capital that indirectly contributes to economic growth.

Briguglio(1995) attempts to capture the disadvantages faced by small states through an index of economic vulnerability. The index explicitly accounts for three of the broad disadvantages encountered by these states: (1) exposure to foreign economic conditions (proxied by trade to GDP); (2) insularity and remoteness (ratio of transport and freight costs to exports), and; (3) proneness to natural disasters (economics costs of such events between 1970 and 1989). The index is calculated for 114 countries and the results suggested that while many small states may appear relatively prosperous, in terms of GDP per capita, these countries are relatively more vulnerable to exogenous shocks and therefore “fragile in the face of forces outside their control”.

Taking a systems-based or evolutionary view of the firm, many of the macro constraints faced by small states can be traced to market structure issues – the organizational and other characteristics of a market. Key market structure issues include: barriers to entry; market concentration; economies of scale; and, product differentiation. The firm is conceptualised as bundles of resources with interaction generating knowledge and releasing resources (Penrose, 1969). Differences in the rates of growth and innovation between firms therefore lead to the accumulation of market share and hence increase market concentration. The accumulation of knowledge through innovation can spill over to other firms and benefit these firms in similar and complementary areas of business. For example, the acquisition of training and experience of workers in hotel management and organisation leads to an expansion in the pool of workers with these skills. In addition, through trade

associations and other meetings, this knowledge can also be shared among firms in different industries.

One of the most popular manifestation of this evolutionary or systems approach is the literature on clusters of firms and the Porter's model of national competitiveness. The Porter (1990) model of national competitiveness notes that four factors determine national competitiveness: (1) factor conditions (e.g. the amount of resources the firm and the country has access to in the form of labour, natural resources, capital and infrastructure); (2) demand conditions or the sophistication of the domestic market; (3) related and supporting industries, and; (4) firm strategy, structure and rivalry. The role of government in this model is to act as a catalyst or challenger. Through the use of industrial policy the policymaker should seek to encourage or push companies to aspire for higher levels of performances. This can be done through:

- subsidies to firms;
- the tax code;
- education policies;
- the creation of specialised factor creation, and;
- the enforcement of technical and product standards.

Porter (1998) also notes that these knowledge spillovers between firms and active government policy intervention can lead to the development of clusters. These clusters are made-up of related companies in a particular industry, for example, consumer electronics in Japan and entertainment in Hollywood. Porter notes that clusters allow companies to benefit from productivity gains in four main areas: better access to employees and suppliers; access to market, technical and competitive

information; complementarities in meeting customer needs, and; measuring and stimulating improvements. Clusters can also enhance innovation as companies have a better handle of the needs of other companies, while competitive pressures act as a spur for companies to grab new customers and expand their market share. Given the importance of clusters to regional and overall economic development, policymakers can provide the conditions necessary for their development by investing in education, physical infrastructure, technological capacity, enhancing access to capital markets, and improving institutions. Governments should actively seek to develop clusters given the benefits in terms of the spillover effects on productivity and innovation.

The characteristics of many Caribbean economies have evolved against the background of former colonies producing primarily agricultural commodities for sale in the economies of more advanced markets. This characteristic has had a significant influence on the institutions and types of firms that have evolved over their history. In the early post-independence period, industrial policy therefore tended to focus on developing new industries to aid the process of diversification, setting-up government structures to support these new emerging industries and in many instances using trade policy to ensure their survival. This paper argues that active policy intervention to enhance financial development has been one of the missing pillars in relation to enhancing economic and social development in the region.

The main goal of this paper is therefore to review the process of financial development in the region and identify the impact that this process has had on market structure in the region. It is expected that such a review would not only be useful in terms of evaluating the efficacy of past strategies, but could also inform how

policies could be used to address the issues of the coming decade. The remainder of the paper is structured as follows. Section 2 identifies the evolution of financial development in the region. Section 3 discusses the market structure challenges arising from the relative slow pace of financial development within the region, while Section 4 identifies some policies to address these market structure challenges.

2 The Evolution of the Financial Industry in the Caribbean

In the pre-independence period the main role of financial institutions were to provide finance for the production of export commodities produced by the region (e.g. sugar, bananas, among others). Many of the banks operating in the region were simply branches of international banks: Barclays, Citicorp, among others.

In an attempt to meet the aspirations of the citizens, many of the newly independent states in the Caribbean in the late 1950s and early 1960s, nationalised their major industries (e.g. hotels, sugar estates, commercial banks). In 1977 the Jamaican Government nationalised Barclays Bank and was subsequently renamed the National Commercial Bank of Jamaica. Similarly, in Guyana many of the major international banks operating in this state were nationalised. During this era therefore, finance for 'productive industries' was usually provided either via direct transfers and subsidies from the government or indirectly through loans from many of the development and state-owned banks that sprang up in the region during this. The first development bank in the region was the Development Finance Corporation in Jamaica (1951). By 1980, however, every country in the region had a development bank or some similar type of entity. These development banks were also established to:

1. ensure the safety and soundness of the banking system;
2. mitigate market failures arising from asymmetric information;
3. financial socially important projects; and,
4. promote financial development by providing access to individuals and firms that would not normally qualify for finance from traditional financial institutions.

The benefits arising from state-ownership of banks, however, did not necessarily live up to these lofty goals. Itam et al (2000) notes that while these institutions have been fairly successful in terms of supplying long-term financing to industries of national importance, which were not normally serviced by traditional financial institutions, these institutions reduced the efficiency and increased the risks associated with financial intermediation. In several of these institutions within the region non-commercial criteria were employed in relation to provision of loans. As a result, many of these institutions had very concentrated portfolios (e.g. sugar, bananas, oil) and comparatively high ratios of non-performing loans. Similarly, social security institutions often invested heavily in government securities due to restrictions on foreign investments.

In the 1980s, another form of banking emerged in the region: international business and financial services (also known as offshore finance). Through a myriad of double-taxation agreements and an attractive regulatory framework, many Caribbean countries actively sought to encourage high-net worth individuals to use the region as the hub for their financial transactions. In this early period, most of these entities

were simply booking centres serving as registries for transactions arranged and managed in other jurisdictions (Itam, Cueva, Lundback, Stotsky, & Tokarick, 2000).

Several Caribbean countries also established stock exchanges to provide firms in the region an alternative source to raise finance during the 1980s as well. Jamaica's stock exchange was established in 1969, Trinidad and Tobago in 1981 and Barbados in 1987. During this early period, however, most of these stock exchanges suffered from thin trading and the limited take-up of this source of finance by entrepreneurs in the region.

The 1980s was also associated with balance of payments crises in several Caribbean states. At the same time the mounting levels of non-performing loans at development banks and state-owned financial institutions were also beginning to become a significant burden on government resources (ECLAC, 2001). It was therefore not surprising that the privatisation of these institutions was actively pursued during this period. The divestment and closure of these financial institutions were expected to reduce transfers and therefore free up resources for other economic development objectives. Clarke (1997) notes that by 1995 approximately 36 state-owned banks in the region were privatised, amounting to more than US\$8 billion or almost 75 percent of total commercial banks' assets (Table 1). Given the significant incursion of the state into finance in Guyana and Jamaica, these two countries had the highest levels of privatisation in the banking industry.

Table 1: Caribbean Commercial Banks Privatised since the Mid-1980s

Country	Bank	Year of Privatisation	Mode of Privatisation
The Bahamas	Bank of Bahamas	1994 and 1995	<ul style="list-style-type: none"> • private placement • 49% shares • government retained 51 per cent
Guyana	Guyana Bank for Trade and Industry	1991	<ul style="list-style-type: none"> • public subscription • 70% shares • government retained 30%
	Guyana Bank for Trade and Industry	1994	<ul style="list-style-type: none"> • public tender offer 29% procured by one shareholder • government shares divested
	National Bank for Industry and Commerce	1985	<ul style="list-style-type: none"> • public and private share offer 35% of bank's share plus new share offering • government retained 30% plus 17.5% NIS
	National Bank for Industry and Commerce	1996	<ul style="list-style-type: none"> • public tender offer
Jamaica	National Commercial Bank of Jamaica	1993	<ul style="list-style-type: none"> • private placements 49% divested by bank • 10% employees at discount
	National Commercial Bank of Jamaica	1986	<ul style="list-style-type: none"> • public placement through the Jamaican Stock Exchange • 51% divested by government
	Workers Savings and Loan Bank (WSLB)	1991	<ul style="list-style-type: none"> • Privatised through JSE
OECS	National Commercial Bank of Grenada	1992	<ul style="list-style-type: none"> • 90% sale of shares
	Grenada Bank of Commerce	1997	<ul style="list-style-type: none"> • private and public placement of shares
	National Commercial Bank of St. Lucia	1999	<ul style="list-style-type: none"> • public subscription of shares

Source: (Clarke, 1997)

One of the defining characteristics of the 1990s onwards has been mergers and acquisitions (Russell & Khan, 1996). In Trinidad and Tobago, Guardian Life of the Caribbean (an insurance firm) purchased Crown Life in 1990. This new entity then formed an alliance with the Royal bank of Trinidad and Tobago Limited (RBTT), whereby RBTT purchased 50 per cent of the assets of Crown Life. In 1994, RBTT made another foray into the mergers and acquisitions game by acquiring the Bank of

Commerce of Trinidad and Tobago, making it the single largest banking in the twin-island republic with a market share at the time of almost 45 per cent. In 1996, the former state-owned National Commercial bank merged with Mutual Security Bank via a share swap, while in Guyana the Guyana National Commercial Bank merged with the Guyana Cooperative Agricultural and Industrial Development Bank in 1995, largely due to a larger portfolio of non-performing loans at the development bank.

3 Financial Development and Market Structure Challenges

The financial landscape within the Caribbean has made significant strides in the post independence era: Internet banking has penetrated most markets and the ATM network throughout the region is growing (Moore & Robinson, 2009), there are numerous financial products available to finance both consumer and business investments and mutual funds has added significant impetus to equity investment within the region (Moore, 2009). Despite the many advances made by the financial industry, there still remain some fundamental market structure challenges.

3.1 Interest Rate Spreads

The difference between the interest rate banks charge on loans and deposits not only affects the profitability of the commercial bank, but also impacts on the net returns to saving and investment. Demircuc-Kunt and Huizinga (1999) note that interest rate

spreads (either ex ante or ex post¹) can be considered an indicator of the inefficiency of the banking system due to: a lack of competition in the region's banking industry, perceived market risk, diseconomies of scale related to the small size of most Caribbean markets, large overhead expenses and regulatory constraints

Relative to other middle- to high-income states, Caribbean countries usually have relatively high interest rate spreads. Randall (1998) shows that in the Eastern Caribbean interest rate margins often exceed those in the US and the UK by an average of 4.6 and 5.3 percentage points, respectively. Moore and Craigwell (2002) also report similar wide spreads for a panel of Caribbean countries.

These wide interest rates have spurred many regional economists to tackle the issue. Randall (1998), for example, develops a mark-up pricing model of commercial banking and applies the model to quarterly data from 1991 to 1996 for the Eastern Caribbean Currency Union (ECCU). The results suggested that the relatively sizable interest rate spreads in the grouping were due to diseconomies of scale in production, largely due to regulatory policies that encouraged disintermediation (interest rate floors for savings), the existence of large state-owned banks and capital account restrictions that limited the bank to the domestic market.

Robinson (2002) also notes the important role played by macroeconomic factors in relation to explaining interest rate spreads in the Caribbean. Of particular importance,

¹Ex post spreads are the differences between interest revenues and interest expenses, while ex ante spreads are calculated using the contractual rates charged on loans and rates paid to depositors.

the author reports that one key element for minimising spreads is the maintenance of low and stable rates of inflation. Robinson (2002) shows that in the case of Jamaica there was a close relationship between inflation and interest rate spreads. During the early 1990s, when inflation rose to as high as 77 per cent, interest rate spreads in the island peaked at almost 22 percentage points. Once inflation was brought down to single digits in the early 2000s, however, the interest rate spread had fallen to 11 percentage points. The author also provides anecdotal evidence of some degree of diseconomies of scale, with the ratio of non-personnel operating costs (i.e. rental, maintenance, security, professional fees, data process, among other things) rising significantly over the review period. Similar to Randall (1998), Robinson (2002) calculates that a large proportion of the wide interest rate spreads in the island can be attributed to diseconomies of scale.

Using a panel database on interest rate spreads in the Caribbean, Moore and Craigwell(2002) formulated and tested a theoretical model of interest rate spreads. Among other factors, the authors report that the market power of commercial banks and diseconomies of scale were two of the main influences on interest rate spreads within the region. Similar results are reported by Tennant (2006) using data from a survey of key stakeholders in the Jamaican financial industry. Worrell (1997) also highlights the role played by market concentration and high operating costs on interest rate spreads within the region. Samuel and Valderrama(2006), on the other hand, using commercial bank balance sheet and income state data estimated a panel model of variability of interest rate spreads in Barbados over the period 1989 to 2004. The authors report that almost 79 per cent of the variability in interest rate spreads in the island can be explained by the monetary policy variables, particularly reserve

requirements and capital control restrictions. However, in contrast to Moore and Craigwell(2002), bank concentration was not a significant factor in explaining the variability of interest rate spreads.

3.2 Access to Credit

The role of an efficient banking system in economic development lies in savings mobilisation and intermediation. Banks, as financial intermediaries, channel funds from surplus economic units to deficit units to facilitate trade and capital formation (Soyibo & Adekanye, 1992). As Ncube and Senbet(1994) argued, an efficient financial system is critical not only for domestic capital mobilisation, but also as a vehicle for gaining competitive advantages in the global markets for capital. For the financial system to be efficient, it must pay depositors favourable rates of interest and should charge borrowers favourable rates of interest on loans. The financial intermediation activity in banking involves screening borrowers and monitoring their activities, and these enhance efficiency of resource use (Ncube & Senbet, 1994). The authors also contend that depositors who face costly contracting and asymmetric information appoint large financial institutions as delegated monitors in the intermediation process. These financial institutions receive large amounts of information from borrowers on which they base the decision to extend a line of credit to industry.

The work of Stiglitz and Weiss (1981), however, suggests that interest rates alone are not a sufficient pricing mechanism to clear markets. The moral hazard and adverse selection problems inherent in financial contracting imply that lenders

look for commitments to protect themselves against borrowers' agency risk (e.g., Boot, Thakor, and Udell(1991), Smith and Warner (1979), Stulz and Johnson (1985)).According to Aryeetey et al. (1997) unsatisfied demand for investible funds forces financial intermediaries to ration credit by means other than the interest rate while the informal market develops at uncontrolled rates.

Levine (2002) highlighted the possible effects of a lack of access to credit and the reasons why this might occur. First, banks may be involved with intermediaries with significant influence over firms, and this effect may manifest itself in negative ways. For example, in terms of new investments or debt renegotiations, banks with power can extract more of their expected future profits from those firms. Secondly, banks also have an inherent bias toward prudence, so their banking development may impede corporate innovation and growth. Finally, Levine (2002) concluded that the capacity of banks is highly related to corporate governance. Bankers may become arrested by their related firms, or collude with firms against other creditors. One possible consequence of this is that influential banks may prevent outsiders from removing inefficient managers if these managers are particularly generous to the bankers (Black & Moersch, 1998).

3.3 Information Asymmetries

The instability of financial markets is deeply rooted in the functioning of financial markets and the market failures that characterize them. They are associated, first of all, to basic asymmetries in information between lenders and borrowers, which are inherent to financial markets (Stiglitz and Weiss 1981; Persaud 2000).

According to modern economic theory, information asymmetries and financial market failures are central in explaining macroeconomic fluctuations and financial crises (Greenwald, Stiglitz, and Weiss 1984). Because lenders know less than borrowers about the use of their funds and cannot compel borrowers to act in the lenders' best interests, lenders can panic and withdraw their funds when they perceive increased risks, in the absence of adequate public regulation and safeguards. Copeland and Galai (1983), Glosten and Milgrom (1985) and Kyle (1985) confirm that information asymmetry between potential buyers and sellers introduces adverse selection into secondary markets and reduces market liquidity.

There is a large variation across countries in the efficiency with which financial institutions and markets reduce transaction costs and information asymmetries, with important repercussions for economic growth and development. Levine (1997), after sampling 95 countries, later shows the impact of stock markets on growth. Results indicate that stock markets encourage specialization as well as the acquisition and dissemination of information about firms, which may mobilize savings, thereby facilitating growth. Well-developed stock markets might therefore enhance corporate control by mitigating the principal-agent problem. Later Khan and Senhadji (2000) propose three reasons for the reduced performance of the banking development indicators in explaining growth. Firstly, the relationship between banking development and growth may be nonlinear. Second, the development of the banking sector in a particular country may only vary slowly, while economic growth is much more volatile. Third, the financial indicators used may not be accurate enough to capture the changing structure of financial markets in certain countries.

Caribbean country faces additional challenges with regard to information asymmetries. Holden and Howell (2009) posited that while there are ways of reducing the risk inherent in information asymmetries, most Caribbean countries do not have any means of effectively dealing with the problem. Suggesting a major component of the problem can be attributed to the underdeveloped nature of the financial institutions, in the Caribbean. It was also stated the bank privacy laws prevent the sharing of credit information; an area which may require a complete review by policy makers.

3.4 Concentration in the Banking Industry

The structure of the banking sector has long been of interest, focused largely around bank concentration and the effects on economic efficiency, and macroeconomic stability. In 1993, King and Levine, with others² later following, stated that due to mobilization, allocation, and investment of most of a society's funds, banks performance have substantive repercussions on capital allocation, firm growth, industrial expansion, and economic development. Consequently, research on the effects of bank concentration on economic performance has had important policy implications. The consolidation of banks around the globe in recent years has intensified the public policy debates on the influences of concentration in the banking industry (Berger, Demsetz, and Strahan 1999; International Monetary Fund 2001).

²See Jayaratne and Strahan (1996), Demirgüç-Kunt and Maksimovic (1998), Levine and Zervos (1998), Rajan and Zingales (1998), Beck, Levine, and Loayza (2000), and Levine, Loayza, and Beck (2000).

Work done by Allen and Gale (2000) indicate that the structure and inter-relationships within the financial sector, involving both institutions and markets, are potentially important for financial stability. Allen and Gale (2000, 2007) develop models for understanding the characteristics of financial market structure that may give rise to contagion. They consider the ways in which banks are interconnected and demonstrate that in an “incomplete” network structure, liquidity shocks at one bank leading to runs on that bank can trigger failures at other banks. Liquidity shocks in one region lead affected banks to liquidate assets in a particular order, with incomplete networks inhibiting the countervailing adjustments involving other banks that might otherwise occur. These models do not provide conclusions on whether contagion or financial instability is related to banking sector concentration, but highlight the fact that careful analysis of inter-linkages within the financial sector are crucial for understanding the transmission and ultimate effects of shocks to the system.

Theoretical literature on concentration in banking has emphasized the fact that the economic functions of banking needs to be considered when assessing the optimal industrial structure. While competition is generally desirable, given perfect information etc., the information imperfections which give rise to financial institutions imply that a market involving institutions with some market power may be optimal. Linked to that is the fact that banking technology may involve economies of scale leading to the emergence of large institutions as the most cost effective operators (Davis 2007).

Typical empirical studies of bank concentration as of the early 1990s found that U.S. banks in more concentrated local markets charge higher rates on small and medium-

size enterprise loans and pay lower rates on retail deposits (Berger and Hannan 1989; Hannan 1991), and that their deposit rates are slow to respond to changes in open-market interest rates (Neumark and Sharpe 1992).

Boyd and De Nicolo (2005) argue that increased banking sector concentration may lead to lower deposit interest rates and higher loan interest rates, but that the latter effect would induce borrowers to adopt more risky projects. This potential response is taken into account by banks in their loan rate setting. Boyd and De Nicolo demonstrate that, under certain assumptions about, *inter alia*, bank strategic interaction, an increased number of banks lead to a lower overall level of asset portfolio risk.

Recent research regarding concentration of the financial industries takes into account the differences in the objectives that state-owned banks may have from the privately owned institutions. State-owned institutions often hold substantial market shares in developing nations and the generally have objectives other than profit or value maximization. Their goals often include developing specific industries, sectors, or regions, assistance to new entrepreneurs, expansion of exports, and so forth, which may result in more competition in these areas and less competition in other banking services. It was however noted that these institutions usually operate with government subsidies, and as a result may reduce market discipline and the incentives for them to compete. Most of the research in this area suggests that large concentrations of state bank ownership are associated with less competition and generally unfavorable economic consequences (Barth, Caprio, and Levine 2001a, 2001b, 2004, La Porta, Lopez-de-Silanes, and Shleifer 2002, Berger, Hasan, and Klapper 2004).

3.5 Slow Pace of Stock Market Development

Stock market efficiency has been at the forefront of financial theory for over four decades since the publication of Fama's(1970) seminal work. Although there are three, ever more restrictive, types of market efficiency, the concept of weak form efficiency has figured most prominently in the literature. At its simplest, a market is weak form efficient if past information on asset prices is contained in the current price of the asset. Market efficiency matters for several reasons. It matters to investors because fair pricing encourages confidence to buy stocks that will also be fairly priced at the time of sale. This does not imply that markets neither over nor under-react to news at different times. It simply implies that stock markets are unbiased and few investors would participate in stock market opportunities if they felt their investments would be subject to perverse and biased pricing at the time of sale. Market efficiency also matters to company managers because equity prices in efficient markets will incorporate the effect of decisions aimed at enhancing shareholder wealth. This feedback on managerial decisions provides encouragement to pursue shareholder wealth enhancing strategies. There are also wider implications for the economy as a whole, as informational efficiency provides a crucial link between stock markets and economic growth in emerging economies that makes it of considerable importance to policy makers in such countries (Bekaert & Harvey, 1998).

Studies of the validity of the Efficiency Market Hypothesis(EMH) to individual markets in the CARICOM region include Craigwell and Grandbois (1999), Alleyne and Craigwell(2007), and Robinson (2001),who studied the Barbados Stock Exchange; Koot et al. (1989), Agbeyegbe (1994) and Robinson (2005), who

examined the Jamaica Stock Exchange (JSE) and Sergeant (1995), Singh (1995) and Bourne (1998) who studied the Trinidad and Tobago Stock Exchange (TTSE). With the exception of Robinson (2001), they all concluded that the markets are inefficient.

Robinson (2004) also tested the efficiency of the Bahamas Stock Exchange and cannot reject the hypothesis of weak-form market efficiency. Focusing on seasonal patterns in stock returns, Robinson (2001) fails to find any seasonal patterns on the Barbados Stock Exchange. This also agrees with the findings for Bahamas reported in Robinson (2004).

Watson (2009) examined the Stock Exchanges of Barbados, Jamaica, Trinidad & Tobago and the virtual CARICOM Regional Stock Exchange, as well as the Banking, Conglomerate, Financial and Manufacturing Sectors of these exchanges, to determine if they are weak-form efficient. Three sets of tests were used: two parametric and one non-parametric. The results indicated that all exchanges and their sectors are inefficient although the Box-Jenkins and Lo-MacKinlay parametric variance ratio tests suggest that the Barbados Stock Exchange and some of the sectors in this and the Jamaica Stock Exchange function efficiently.

3.6 Market Structure Issues outside of the Financial Sector

Market development is in many ways a creative process. As noted by Chami, Fullenkamp and Sharma (2010) the transition to a reasonably robust market system requires the building and nurturing of market institutions, and a recalibration of rules

and regulations as the system evolves. Effective policies not only need to be well crafted, but they also have to evolve as markets change with technology and innovation. Hence, the goal is to increase competition, openness and innovation while maintaining adequate oversight, appropriate incentives and needed constraints. They assert that as the financial sector evolves, it is necessary to have oversight mechanisms in place that continuously monitor the evolution of markets, examine the incentives faced by the players, and analyze the implications for financial stability.

Experience has shown that financial liberalization and the emergence of new markets and institutions in the absence of adequate oversight and regulation can lead to the malfunctioning of financial systems. Also, in this context, the regulation versus competition dichotomy can be misleading, if not inaccurate. Often, fostering competition may require more regulation rather than less. This is especially the case in the initial stages of development, when the government has to create the basic infrastructure to support markets. Nascent markets may require the strengthening of rules that foster competition and the removal of rules and practices that impede it.

Belenzon and Berkovitz(2010)use a comprehensive firm-level database on group affiliation in 15 European countries to study the effect of financial development on group affiliation. The results indicate that less developed financial markets incentivize the formation of business groups. Using exogenous industry measures to investigate the channel through which financial development affects group affiliation they found that countries with less developed financial markets have a disproportionately higher percentage of group affiliations in industries with high levels of external dependence

and asymmetric information. This implies that firms in less developed equity and debt markets join business groups to benefit from their significant internal capital markets. Yartey(2006) examines the role of financial development and financial structure in explaining cross-country diffusion of information communication technology (ICT). Using panel data for 76 emerging and advanced countries for the period 1990–2003, the paper finds that credit and stock market development tends to foster ICT development. Financial structure, however, does not appear to have any significant relationship with ICT development. The results highlight the role of financial development in the market for knowledge-based products, and are consistent with theoretical predictions. The finding that financial development is an important determinant of ICT development implies that countries with underdeveloped financial markets may continue to lag behind in the use of ICT.

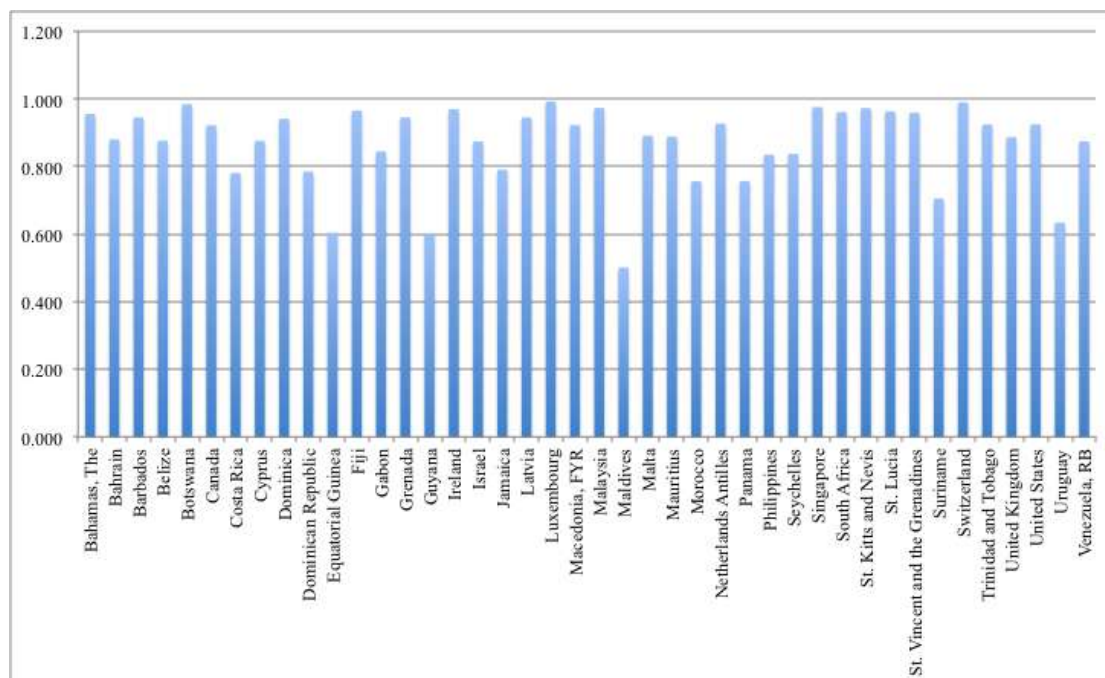
Becsi, Wang and Wynne(1998) constructed a dynamic general equilibrium model allowing for endogenous market structures in which financial deepening spurs real activity through intermediate product broadening. The results indicate the possibility of multiple steady-state equilibria and characterize how these equilibria respond to various shocks. In particular, they examined the determinants of financial deepening, product broadening, the saving rate, the loan-deposit interest rate spread, and the degree of competitiveness of financial and product markets. Additionally, their results suggest that, for a more developed economy, technological advances result in production specialization and financial deepening and discourage banking competition. Whereas banking development that reduces the effective costs of financial intermediation narrows the interest rate spread, leading to production specialization and financial deepening, encouraging banking competition and

reducing the size of loans. For a less developed economy, the results will vary, therefore explaining why the correlation between financial and real activity varies across different stages of economic development, i.e., the “stage-dependent financial development” observation. Moreover, they found that, despite the positive correlation between the financial intermediation ratio and the saving rate in the less developed economy cases, real and financial activity might be negatively related. In fact, one of the notable insights to come from this analysis is that economic development, financial deepening, and bank sector competitiveness are all non-monotonically related to one another, which generates testable empirical implications, in particular for understanding the role endogenous market structures played in financial and economic development and for providing plausible explanation of the “heterogeneous market structure” observation. Finally, the results highlighted the positive relationship between the financial intermediation ratio and the saving rate in the benchmark case need not hold in short-run transition to the steady state. Specifically, their comparative statics are derived around the steady-state equilibrium with financial intermediation in which the traditional sector vanishes. In the short run, an industrial transformation from the traditional to the modern sector accompanied by financial deepening would create a negative wealth effect on the rate of aggregate savings due to the presence of startup costs for intermediated production, which may offset the positive induced saving effect.

4 Policies to Address Market Structure Issues in the Caribbean

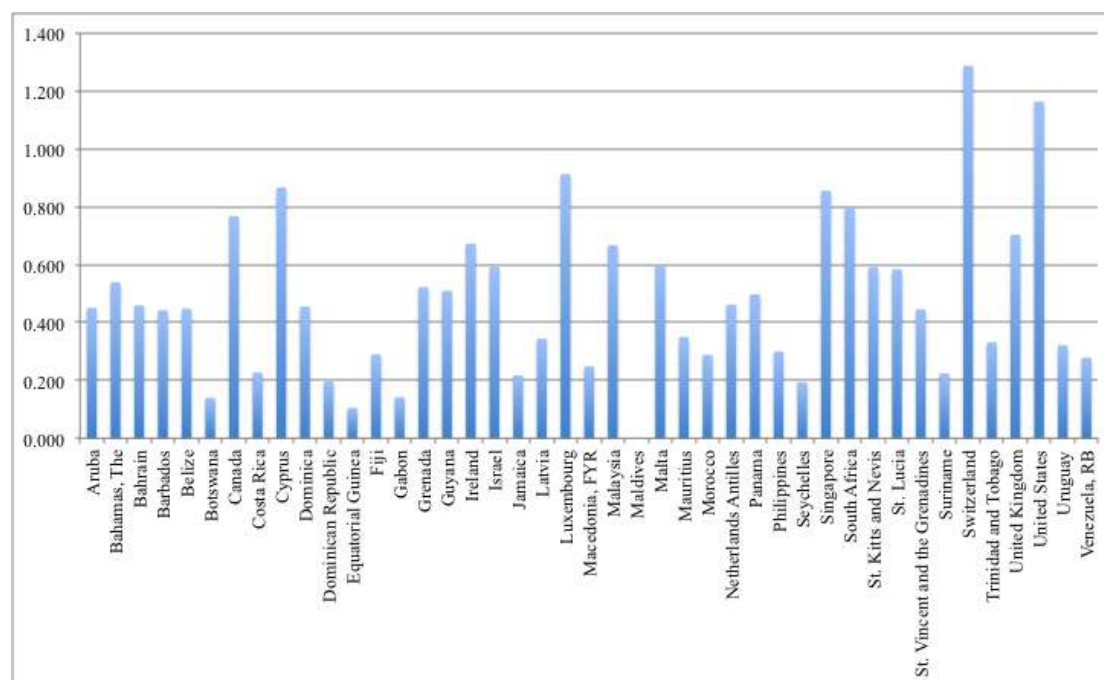
Financial development is usually assessed using financial ratios. One popular indicator is the share of deposit money bank assets as a ratio of deposit money and central assets. Figure 1 suggests that if this ratio is employed, most Caribbean countries stack up quite favourable; many Caribbean countries have ratios that are higher than Canada, Switzerland, the United Kingdom and the United States of America.

Figure 1: Deposit Money Bank Assets (Share of Deposit Money and Central Bank Assets)



However, an assessment of the credit figures would suggest that most Caribbean countries lag behind other small island states as well as high- and middle-income countries in relation to access to credit. Private credit (as a ratio to GDP) is usually half that of more developed financial markets and behind other island states such as Ireland, Malta and Cyprus (Figure 2).

Figure 2: Private Credit (% of GDP)



One potential explanation could be the risk aversion of commercial banks in the region. To assess the risk aversion of commercial banks, one can use the z-score for the banking system, calculated as the return on assets plus the capita-asset ratio divided by the standard deviation of asset returns. The z-score measures the distance from insolvency, i.e. where losses surmount equity and is the number of standard deviations that a bank has to drop below its expected value before equity is depleted. To ensure that the statistic is normally distributed the figure shows the natural logarithm of the z-score. Figure 3 does indeed suggest that the z-scores for commercial banks in the region are relatively high, but this might just imply that banks in the region are well managed. Indeed Figure 4 suggests that markets in the Caribbean with higher z-scores tend to provide more credit.

Figure 3: Z-Score for Banks

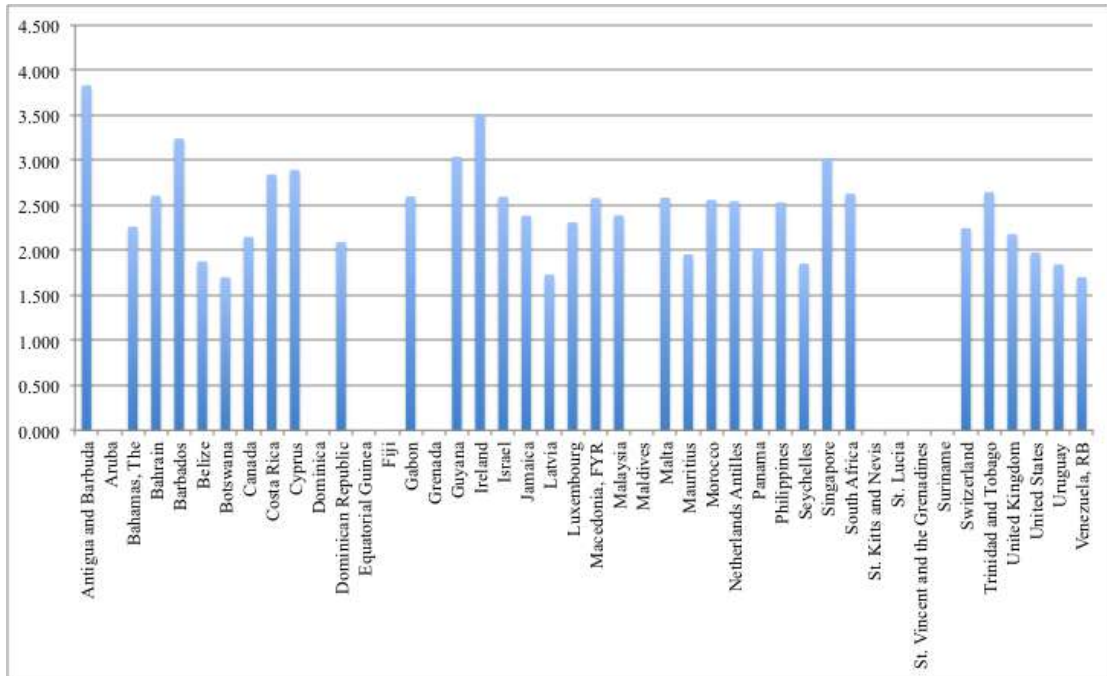
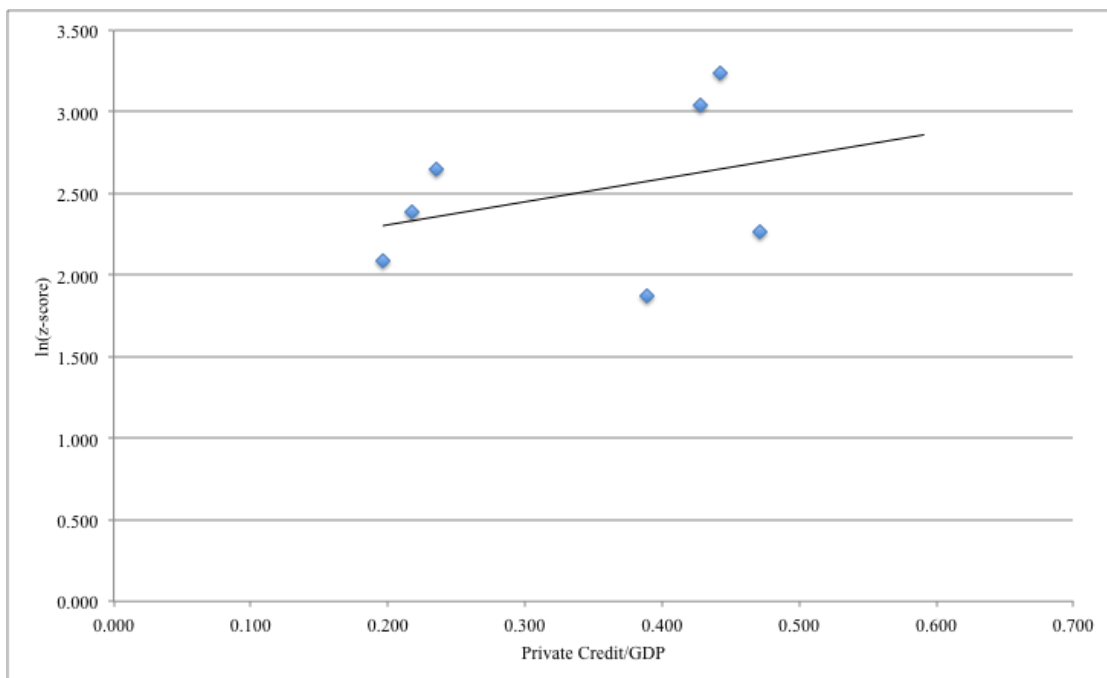


Figure 4: Risk Profile of Banks and the Provision of Credit in the Caribbean



Another explanation could be that the relatively high cost of credit may be rationing potential creditors. Figure 5 suggests that markets with higher interest rate margins tend to have lower ratios of private credit to GDP. At a basic level, this might suggest that policies that reduce net interest margins might enhance access to credit in the Caribbean. However, these high interest margins are normally used to finance bank overheads.

Figure 5: Net Interest Margin and Private Credit in the Caribbean

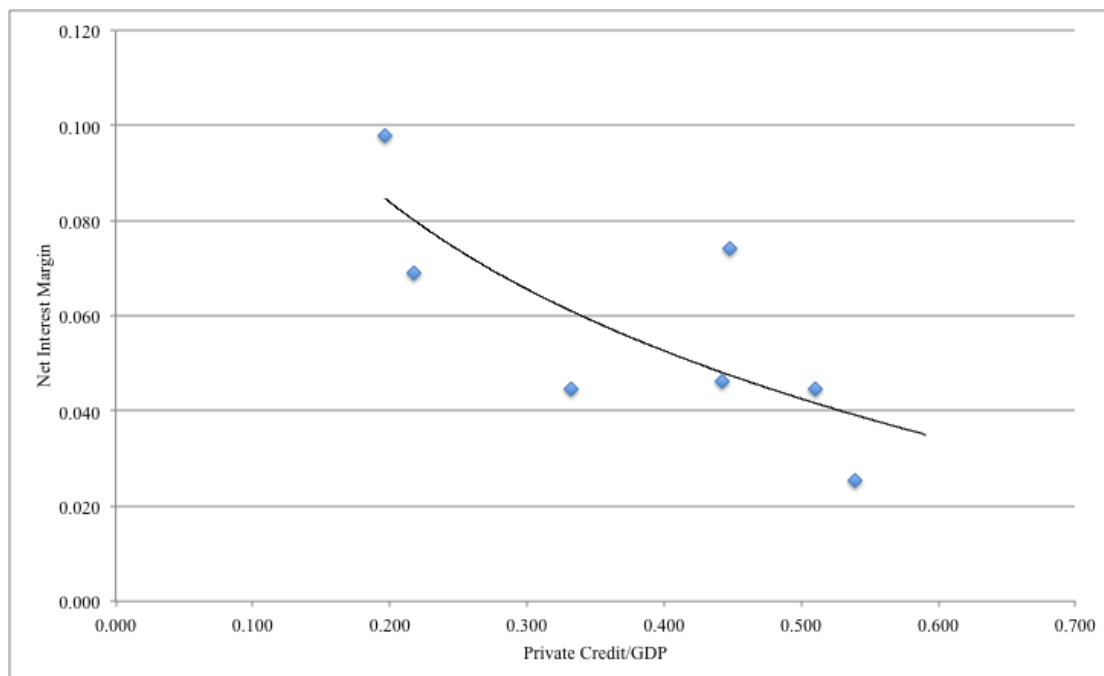
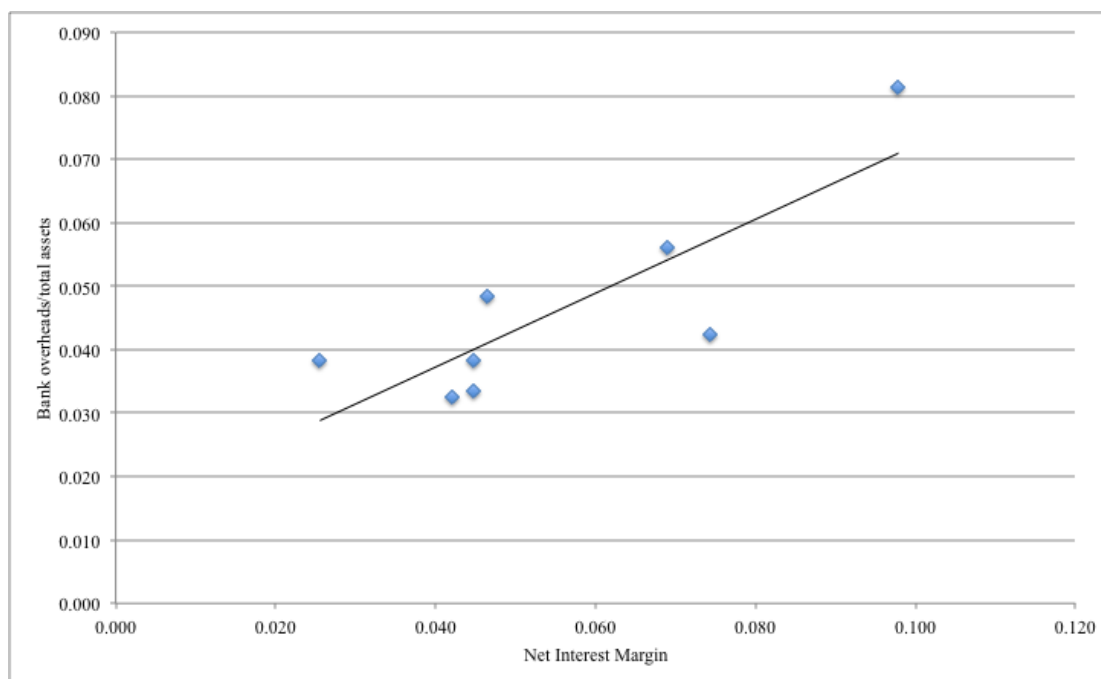
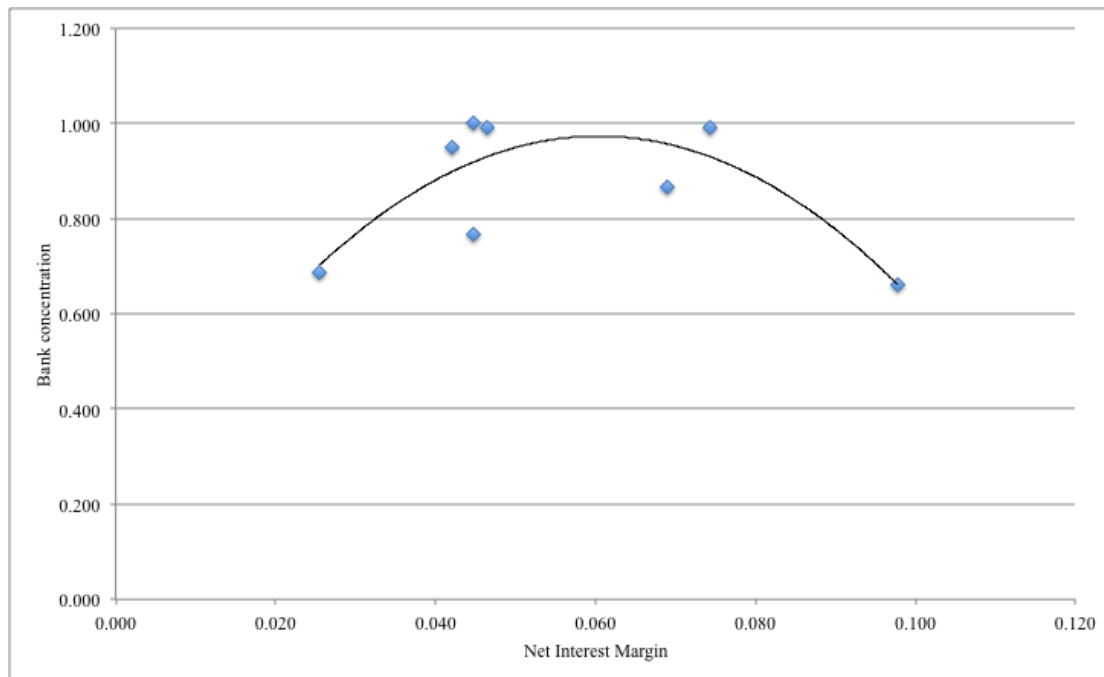


Figure 6: Net Interest Margins and Bank Overheads



The relatively high levels of bank concentration in the region does not provide of a good explanation of interest rate margins either. There is not a simple linear relationship between net interest margins and bank concentration. Concentrated banking systems can actually have very low net interest rate margins. Maudos and Guevara (2004) argues that the relaxation of competitive conditions is compatible with lower interest margins if there is a reduction in interest rate and credit risks as well as a moderation in inflation.

Figure 7: Net Interest Margins and Bank Concentration



Within some countries, the state still plays an important role in relation to the ownership of financial institutions. Bonin, Hasan and Wachtel(2005) argue that while privatisation has been proposed as one solution to enhance efficiency, government-owned banks are not significantly less efficient than domestic private banks. Greater efficiency gains are likely if there is entry by a strategic foreign owner; these institutions tend to be more cost efficient and also provide better service. Bank efficiency is also related to regulation as deregulation can result in greater competition due to a greater diversity of bank types (Sturm & Williams, 2004).

Providing a legal system that protects creditors and encourages information sharing can enhance access to credit. In order to reduce credit risk, the legal system must offer creditors some protection against defaulting debtors (Djandov, McLiesh, & Shleifer, 2007). This implies that the legal system should offer clear guidance in relation to creditor consent when a debtor files for reorganisation, whether creditors

are able to seize their collateral after the petition for reorganisation is approved, whether secured creditors are paid first out of the proceeds of the liquidating firm and whether an administrator, rather than management, is responsible for running the business during the reorganisation. While most Caribbean countries perform well in relation to the strength of legal rights index of the World Bank, the time it takes to complete legal proceedings can be a significant hurdle. For example, while the time to resolve insolvency is about 1-2 years in most developed financial markets, in some Caribbean countries the wait can be up to 5 years.

Figure 8: Indicators of the Legal System and Depth of Credit Information (2010)

	Time to Resolve Insolvency (years)	Strength of Legal Rights Index (0=weak to 10=strong)	Private Credit Bureau Coverage (% of adults)	Credit Depth of Information Index (0=low to 6=high)
Antigua and Barbuda	3	7	0	0
The Bahamas	5	9	0	0
Belize	1	8	0	0
Dominica	n.a.	9	0	0
Guyana	3	4	0	0
Jamaica	1	8	0	0
St. Kitts-Nevis	n.a.	7	0	0
St. Lucia	2	8	0	0
St. Vincent and the Grenadines	n.a.	7	0	0
Trinidad and Tobago	n.a.	8	45	4
UK	1	9	100	6
US	2	8	100	6
Canada	1	6	100	6

Source: World Bank Development Indicators Database

Given that the costs of legal proceedings can be expensive, it is possible to reduce credit risk also via information sharing on potential debtors. Credit registries, which

collect information on the financial standing of borrowers in the financial system, can reduce credit risk. These registries need not be private, but can also be publicly managed. Unlike other high- and middle-income states, countries in the Caribbean tend to do poorly in relation to credit depth of information and coverage of credit bureaus. This implies that financial institutions in the region either have to foster relationships with their debtors or conduct internal assessments of the probability of default of new borrowers. Without information on the credit history of borrowers it is likely that banks may ration credit or focus lending to particular industries.

The relatively underdeveloped state of regional stock markets is reflective of underlying economic and social conditions in the region. Poverty and the income inequality are still significant problems in the Caribbean. In many Caribbean countries unemployment rates are usually above 20 percent (Archibald, Lewis-Bynoe, & Moore, 2011) while rates of poverty are around the same level. With such high levels of poverty stock market development is likely to be severely hampered. In most islands, the pattern of ownership also tends to be concentrated within the hands of a few shareholders with these individuals also dominating the director positions on most companies.

Mutual funds are also a useful approach to encourage stock market development. Tax incentives to encourage investments in mutual funds can be a useful tool to encourage citizens, particularly the middle-class, to shift funds away from commercial bank accounts towards mutual fund accounts (Alleyne & Moore, 2006). It is, however, important that such an initiative is also supplemented with an adequate regulatory framework for mutual fund companies.

5 Conclusions

The relationship between financial development and economic growth has been the subject of extensive research. However, the microeconomic features that generate this relationship remain a largely under-researched area. This paper reviewed the process of financial development and identified the impact that this process has had on market structure in the region. The key assertion of this paper is that active policy intervention to address the market structure aspects of financial development is one of the missing pillars in relation to enhancing economic development in the region.

The results provided in the study suggest that, based on key indicators of financial development, most Caribbean countries stack up quite favorably. However, an assessment of the credit figures indicated that the majority of Caribbean countries lag behind other small island states as well as high- and middle-income countries in relation to access to credit. Additionally, the results suggested that z-scores (assesses the risk aversion) for commercial banks in the region are relatively high which might be indication that banks in the region are well managed. Moreover, the evidence showed that markets in the Caribbean with higher z-scores tend to provide more credit.

Further evidence indicates that markets with higher interest rate margins tend to have lower ratios of private credit to GDP. While this may suggest policies that reduce net interest margins might enhance access to credit in the Caribbean, these high interest margins are, however, normally used to finance bank overheads. Additionally, the results showed that the relatively high levels of bank concentration in the region does not provide of a good explanation of interest rate margins. No simple linear

relationship can be derived between net interest margins and bank concentration. Concentrated banking systems can actually have very low net interest rate margins.

Providing a legal system that protects creditors and encourages information sharing can enhance access to credit. While most Caribbean countries perform well in relation to the strength of legal rights index of the World Bank, the evidence showed that the time it takes to complete legal proceedings was a significant hurdle. This research also suggest that financial institutions in the region either have to foster relationships with their debtors or conduct internal assessments of the probability of credit default as a means of reducing credit risk. As such, given that the costs of legal proceedings can be expensive, it is possible to reduce credit risk via information sharing on potential debtors. Without information on the credit history of borrowers it is likely that banks may ration credit or focus lending to particular industries. Credit registries, which collect information on the financial standing of borrowers in the financial system, can reduce credit risk.

Finally, given the levels of poverty and unemployment rates in the region, stock market development is likely to be severely hampered. It was suggested that mutual funds are a useful approach to encourage stock market development. It is, however, important that such an initiative is also supplemented with an adequate regulatory framework for mutual fund companies.

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