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The determinants of the capital structure of listed companies on the securities exchange of Barbados

I. INTRODUCTION

The purpose of this paper is to analyze the capital structure of firms in Barbados. Specifically, it seeks to determine the factors which influence the choices firms make between debt and equity financing. The debt/equity choice of the firm will be examined in the context of financing investment through debt in the form of bank loans and through equity from the stock market.

The early theoretical studies perceived debt as undoubtedly evil. Myers (1977) demonstrated that too much debt as a percentage of total financing had a negative effect on the value of the firm as managers would forego investment opportunities with positive Net Present Values (NPV) – the so-called “under investment” problem of debt financing. However, following Jensen and

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Meckling's (1976) work, the perspective on debt has evolved to embrace the use of debt as a feasible financial instrument. Jensen and Meckling's argument was that debt payments can reduce firms' investment in negative NPV projects. This has been referred to as the "over investment" problem.

Empirically, there have been numerous studies on debt/equity ratios (leverage), particularly on developed countries. For example, Titman and Wessels (1988), Rajan and Zingales (1995) and Zeckhauser and Pound (1990) found that firms in the industrialized economies tend to operate with high leverage levels and that high leverage is beneficial to these firms. Studies on developing countries seem to violate these initial findings. First, they indicate that firms in developing economies have comparably lower leverage levels, and these levels have a negative effect on the performance of firms (see Hussain (1996), Cornelli et al. (1996) and Hussain and Nivorozhki (1997)).

In light of the above discussion, this paper uses Barbadian data to determine the factors that influence a firm's decision on capital structure. The format of the paper is as follows: an analysis of the financial sector of Barbados is done in section II, then the determinants of the capital structure are outlined in section III, the data and the methodology used are discussed in section IV, the results are given in section V, and finally the conclusions are made in section VI.

II. DESCRIPTION OF THE BARBADIAN FINANCIAL SECTOR

It is well known that for a country to experience sustainable economic development, investment must expand relative to consumption as a proportion of the national income. From Figure I, it is seen that the Gross Domestic Product (GDP) of Barbados went up steadily from the formation of the Securities Exchange in 1987. However, over the same period, investment as a proportion of GDP remained relatively constant. Capital formation has to be increased in real terms in order to sustain this current growth in GDP. One way to achieve this is through the development of the financial sector, following the suggestion of Goldsmith (1969), who showed "that periods of more rapid economic growth have been accompanied, though without exception, by an above average rate of financial development" (pp. 48). This positive link between the financial sector and growth has more recently, been supported by Levine (1991) and Levine and Zervos (1996a, 1996b) who constructed an
endogenous growth model that found that a stock market could emerge to allocate risk and alter investment incentives thus changing the steady state growth rate of an economy.

**Figure 1. Gross Domestic Product, Consumption and Investment of Barbados, 1970-94**

![Graph showing GNP, Consumption (C), and Investment (I) over time from 1970 to 1994](image)

**Source:** IMF, *International Financial Statistics.*

Financial intermediation is very important in an economy as it efficiently allocates the pool of savings to facilitate investment opportunities for the prudent entrepreneur. If the financial sector is developed and functioning efficiently, it will afford these opportunities to the most productive recipients. Financial markets, however, face the dilemma of being more susceptible to market failures. One such market failure is imperfect information between agents which violates the fundamental base of efficient markets in welfare economics. Thus, in an economy with imperfect information, pareto optimal equilibria may only be attainable through market intervention in the form of monitoring, corporation and regulatory laws to ensure the integrity and accessibility of the information.

The most developed financial intermediary in Barbados is without question, the commercial banks. A securities exchange has recently been formed to augment the banking system. However, this stock market, like other major stock markets in the region, namely Trinidad and Jamaica, is still in its developmental

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1 Stiglitz (1998) refers to this information as a public good, thus because of free riders, the market will not be able to efficiently provide this information.
stage. All three display the characteristics of stock exchanges in emerging markets, that is, their market capitalization is relatively small, a very small number of stocks dominate trading, stock ownership is highly concentrated and the corporate accounting standards are not yet in line with international standards. Thus, Stiglitz (1998) observations that the stock market’s liquidity and depth are only crude measures of the effectiveness and development of a country’s financial system are relevant here. Moreover, empirical research by Singh (1993) showed that stock markets in developing countries tended to be more volatile than those in developed economies. This volatility coupled with the relatively underdeveloped equity market will tend to undermine the effectiveness of the stock market and the financial system as a whole. Instead of increasing investment, these market failures may reduce investment from risk averse individuals and raise the cost of capital. Given these observations, commercial banks and the stock market are examined in more detail below.

1. Banking

Barbados has established itself as a major international financial sector, providing local and offshore banking services in a stable economic and political climate.

Like many of its regional counterparts, the Central Bank of Barbados was established (1972) after the country achieved political independence (1966). According to the Central Bank Act, Cap. 323 C., its main mandate is “to foster the development of money and capital markets in Barbados”. In doing this the Central Bank has managed to create a stable financial environment by carefully monitoring all financial institutions. Commercial banks are guided to comply with the strict operating rules of the Basle Accord. All banks are also required to publish their accounts and follow business operational procedures that accord with the Financial Intermediaries Regulatory Act 1992-13. It has been notable that many of these banks surpass these guidelines in the prudent operating procedures.

Unlike many developing nations the Barbadian financial system is monopolized by privately owned institutions. Historically, commercial banks have dominated the financial system and are the main avenues through which financial intermediation has taken place in Barbados. They account for approximately 50 percent of the total assets of the financial institutions in Barbados. As seen in Table 1, deposits at commercial banks have accounted for
TABLE 1. DEPOSITS/GDP RATIO OF FINANCIAL INSTITUTIONS IN BARBADOS, 1970-95

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial Banks</td>
<td>49.7</td>
<td>44.3</td>
<td>42.6</td>
<td>45.2</td>
<td>50.5</td>
<td>58.4</td>
</tr>
<tr>
<td>Savings Banks</td>
<td>4.9</td>
<td>3.2</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Trust Companies</td>
<td>0.6</td>
<td>2.4</td>
<td>4.0</td>
<td>6.1</td>
<td>9.3</td>
<td>9.2</td>
</tr>
<tr>
<td>Other Financial Institutions</td>
<td>0.2</td>
<td>0.2</td>
<td>1.9</td>
<td>3.2</td>
<td>8.3</td>
<td>9.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>55.3</td>
<td>50.1</td>
<td>48.5</td>
<td>54.6</td>
<td>68.2</td>
<td>77.0</td>
</tr>
</tbody>
</table>

Source: Central Bank of Barbados, Annual Statistical Digest.

about 50 percent of GDP while the total deposits at financial institutions are approximately 60 percent.

2. Stock Market

The Securities Exchange of Barbados (SEB) was officially formed on April 1, 1987 with the Securities Exchange Act. It is currently a self regulatory institution governed by its own rules and standards. The securities industry in Barbados is also regulated through the Companies Act Cap. 308, the Securities Act 1982 and to a lesser extent, The Exchange Control Act. The institution is growing; market capitalisation between 1990 and 1997 has increased almost four fold.

A stock market is of utmost importance to the development of an economy as commercial banks cannot provide all the necessary financial services for the business sector. It plays a very important role in lowering the risk investors face from a firm’s volatile productivity cycle. The effect of the lower productivity risk is an increase in the welfare of investors which promotes higher levels of investment. Other important roles played by the stock market include: i) increasing the pool of resource available to investors by complementing the resources in the banking system with those in the financial markets; ii) allowing individuals to diversify risk through investing in numerous companies, thereby increasing firm efficiency by eliminating the premature withdrawal of capital and; iii) stabilizing the existing pool of savings.

III. DETERMINANTS OF CAPITAL STRUCTURE

It is assumed that firms choose a mixture of financial instruments to finance their projects; that is, they have a choice between debt
which they can get from commercial banks or equity which they can obtain through the stock market. Their decisions lead to an optimal debt/equity ratio.

**FIGURE II. AVERAGE LEVERAGE LEVELS ON THE SECURITIES EXCHANGE OF BARBADOS, 1982-95**

![Leverage Levels Graph]

*Source: Ernst and Young, Performance: A Summary of the Published Statements of Barbadian Companies.*

From Figure II it is evident that the formation of the exchange had a significant impact on the leverage levels of firms. The year 1986 saw the average debt/equity ratio falling drastically as the market anticipated the arrival of a viable alternative financial instrument. Since the formation, however, the leverage level has risen steadily. The average level is about 55 percent, which is lower than the levels found in other studies on developing countries. The leverage level in Poland was approximately 70 percent, and in Indonesia, about 120 percent. The average level found by Rajan and Zingales (1995) in their study of the G-7 countries was approximately 66 percent. Corneli et al. (1996) stated that transition economies are expected to have higher leverage ratios than industrial economies because of the presence of tax shields and the lower costs of bankruptcy. Transitional economies where governments try to privatize public institutions using the stock market tend to offer greater incentives for investment on the stock market. There are, however, no significant incentives to encourage stock market investments in Barbados.

There are many factors that affect firms' choice of capital structure. Some of these are profitability, growth rate, age, ownership, asset structure and size of the firm. From Myers' (1984) "pecking order" theory of investment financing, a firm prefers to finance projects from internal resources (retained earnings) and utilises debt rather than equity as an external financing instrument. In such cases, the profitability of the firm is relevant and
should have a negative relationship with the leverage level of the firm.

Titman and Wessels (1988) spoke of a "size effect" where small firms pay more to issue equity than larger firms. Thus the firm's size is expected to be negatively related with the firm leverage level as larger firms would choose the cheaper equity finance whilst smaller firms would tend to utilize relatively higher levels of debt as the financing instrument.

Equity controlled firms have a tendency to invest sub-optimally to expropriate wealth from firms' bond holders [Myers (1984) and Jensen and Meckling (1976)]. This cost will tend to be higher for faster growing firms since they possess more flexibility in their choice of future investments. A firm with a record of high growth may also find equity financing cheaper as the market places higher values on its stocks. One would therefore expect a negative relationship between the growth rate of the firm and its ability to finance using debt.\footnote{Titman and Wessels (1988) alluded to the ambiguity of this relationship if debt is specified as short- term and long-term.}

The impact the firm's ownership has on the leverage level is ambiguous. Multinational institutions are in a different financial environment than domestic firms. Depending on the investment policies in the foreign countries the use of debt or equity may bring costs or benefits. If benefits accrued, the leverage level may be lowered, and in the case of costs, the opposite effect occurs.

The age of the firm is also an important determinant of leverage levels. A firm's investment opportunities is affected by its reputation. In Hussain and Nivorozkhin (1997) study on Poland, older firms had accrued bad debts and was therefore less able to access funds from commercial banks. Thus equity financing was the more viable option. Reputation also affects the cost of financing on the stock market as firms with better reputations will find it cheaper to finance with equity than an institution that has not established itself.

The asset structure of the firm is also a significant factor influencing the leverage of firms. It is a well-known accounting fact that for a business to successfully continue its operations, it must have enough cash to meet its commitments as they arise. Most investors or creditors to an institution usually consider the firm's liquidity ratio as a good indication of the firm's ability to fulfill these commitments. Titman and Wessels (1988) also argues that the collateral value of the firm's assets has a positive influence on
its ability to access financing through debt. Thus, as the firm becomes less liquid, its ability to access loans decreases. The coefficient of the asset structure variable should therefore be negative.

Given the above discussion, the following simple linear function is estimated:

\[ LV = \beta_1 + \beta_2 NP + \beta_3 SAL + \beta_4 GRW + \beta_5 COMPDUM + \beta_6 AGE + \beta_7 ATRAT + \varepsilon \]

where \( NP \) is the net profit after tax, used to reflect the profitability of the firm, \( SAL \) is the firm’s yearly sales or turnover, indicating the size of the firm, \( GRW \) is the growth rate of the firm calculated as the rate of increase of the net total assets, \( COMPDUM \) is a dummy variable, representing company ownership (domestic = 1, and foreign = 0), \( AGE \) is the age of the firm measured as from the date it was established until 1995, \( ATRAT \) is the acid test ratio of the firm given by the following expression:

\[
\text{Current Assets - Inventories - Goods in Transit} - \text{Current liabilities}
\]

and reflects the asset of the firm. \( LV \) is the gearing ratio, determined by the following formula:

\[ LV = \frac{\text{Overdraft + Short and Long-term Debt}}{\text{Ordinary Share Capital + Preference Share Capital + Minority Interests + Reserves}} \]

and \( \varepsilon \) is a white noise error term.

**IV. THE ESTIMATION METHODOLOGY**

Because the SEB is a relatively young organisation and comprises a small number of firms, the obvious estimation problems of having too small a sample arises. Small samples pose estimation difficulties because of the limited degrees of freedom and the collinearity that may exist between the variables that determine the firm’s capital structure. To overcome these difficulties, panel data is used for estimation. Perhaps the most attractive feature of panel data is that it gives more informative data, more variability, less collinearity between the variables and more degrees of freedom, which in turn, leads to more reliable parameter estimates. Panel data also
allows for the construction and test of more complicated behavioral models than pure cross section or time series data. The problems associated with panel data are mainly due to data collection and the bias in parameter estimates which may result from these errors. It may also be plagued with missing points since information on all the explanatory variables may not be available on all the individuals used in the sample.  

The data set used to estimate the model in equation (1) comprises all the listed firms of the SEB during the period 1983-95. The sample period was started in 1983 because the idea of the exchange, came about in 1982, with the enactment of the Securities Exchange Act. The set was however reduced to only fifteen firms as those firms with incomplete data sets for the period were eliminated to facilitate estimation.

The panel model is estimated as follows:

\[(2a) \quad y_{it} = \alpha + X_{it}'\beta + u_{it} \]

\[i = 1, 2, \ldots, N; t = 1, 2, \ldots, T\]

where \(i\) denotes the firm, \(t\) is the time subscript, \(\alpha\) is the scalar constant, \(\beta\) is a \(K \times 1\) matrix of parameters and \(X_{it}\) is the \(ith\) observation on the \(K\)th explanatory variable. The error component is assumed to take the form:

\[(2b) \quad u_{it} = \mu_i + \lambda_t + v_{it}\]

where \(\mu_i\) is time invariant and denotes the unobserved firm specific effect, \(\lambda_t\) depicts the unobservable effect and time \(v_{it}\) captures the remaining disturbance. This is a two-way error component model.

The traditional approach to estimating equation (2) is to use Ordinary Least Squares (OLS). However, this method of estimation has serious problems which could result in biased estimates: the proxies used in the regression are usually correlated and may actually be determined concurrently with the leverage of the firm, and moreover, because of the small sample size used here, the variables may violate the underlying assumptions that make OLS the Best Linear Unbiased Estimator (BLUE). As an alternative, this paper adapts an Iterative Three-Stage Least Squares (3SLS) estimation procedure, a method similar to the linear structural modeling used by Titman and Wessels (1988) in their

\(^3\) For a more detailed analysis of the advantages and disadvantages of panel data see Baltagi (1995).
study of the capital structure of firms in Poland. It is a simultaneous equation estimation technique, which effectively mitigates: i) the problem of simultaneity bias, ii) inefficiency arising from the correlation of the residuals and the variables, and iii) yields Full Information Maximum Likelihood (FIML) estimates of the regression parameters.

It should be noted that several tests should be undertaken before pooled methods are adapted. In light of this the following tests were performed: i) Poolability; ii) Heteroscedasticity, and iii) Collinearity.

**Poolability**

The model was tested for poolability using a Chow test. The Chow test is not applicable if the variance is heteroscedastic, so the errors were transformed to homoscedastic using the covariance matrix of the regression. The test is to determine whether the parameters of the individual firms (i) are statistically equal to the parameters of the pooled regression. That is, check the hypothesis:

\[ H_0: \delta_i = \delta \]

\[ H_a: \delta_i \neq \delta \]

from the following restricted regression:

\[ y = \delta Z + u \]

and the unrestricted model:

\[ y = \delta_i Z + u_i \]

using the test statistic:

\[ F = \frac{(SSR_p - SSR_u) / (N - 1)K'}{(SSR_u) / N(T - K')} \]

where \( K' = K + 1 \), \( SSR_p \) is the sum of squared residual of the pooled regression and \( SSR_u \) is the sum of squared residual of the unrestricted regression. \( F \) is an \( F \) distribution with \((N - 1)K'\) and \( N(T - K')\) degrees of freedom.

**Heteroscedasticity**

The error structure of the individual and time effects was
tested using a Breusch-Pagan test. The test is based on the following Lagrange Multiplier statistic:

\[ LM = \sum_i \left[ \frac{T}{2s^2} \left( \frac{s_i^2}{s^2} - 1 \right) \right]^2 \left[ 2 \frac{s_i^4}{T} \right] \]

\[ = \frac{T}{2} \sum_i \left[ \frac{s_i^2}{s^2} - 1 \right]^2 \]

where \( s_i^2 \) is the variance of the individual firms from the pooled regression and \( s^2 \) is the overall variance of the pooled regression. The null hypothesis is \( H_0: \sigma^2_r = \sigma^2_i = 0 \). The \( LM \) test \( \sim \chi^2 \) with two degrees of freedom.\(^4\)

**Collinearity**

To test the a priori assumption that the explanatory variables would be highly correlated in such a small economy, a cross-correlation matrix of the average yearly values of the panel data set was calculated.

**V. RESULTS**

The calculated \( F \)-statistic of the Chow Test was equal to 0.96 which is greater than the critical \( F \)-value. Thus, the null that the parameters are equal could not be rejected and the conclusion that the data is poolable and will yield unbiased efficient estimates was arrived at. The calculated Lagrange Multiplier is 54.14. Hence, the null hypothesis that the variances are equal is rejected and it can be concluded that the errors are heteroscedastic and vary with the time and the individual firm. Table 2 shows the cross-correlation coefficient between the variables. Some of the explanatory variables are highly correlated, for example, the cross-correlation between \( TA \) and \( SAL \) is 0.985 and that for \( SAL \), \( TA \) and \( AGE \) is 0.898 and 0.917, respectively. All the other explanatory variables have moderate cross-correlations (that is cross-correlations of approximately 0.5). This would pose serious

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\(^4\) See Baltagi (1995, pp. 60-73) for further details of this test procedure.
problems of biased and inefficient estimates if OLS is applied as is evidenced when the OLS and I3SLS results are compared. The former results are available on request.

The parameter estimates obtained from employing the I3SLS technique are all highly significant as the magnitude of the calculated t-statistic vis-a-vis the critical t-statistic indicate (see Table 3). Also notable is the fact that the standard errors of all the estimates are very small, suggesting that the I3SLS technique has produced efficient statistical estimates.

The coefficient of the first variable in the regression, $NP$, the net profit after tax, is very close to zero which suggests that the profitability of the firm is not an important determinant of the leverage of a firm. The sign on the coefficient is negative, indicating that more profitable firms rely on more equity to finance their investments than they do on debt. This is in keeping with Myers’ (1984) pecking order assumption that firms prefer internal financing to external financing. The past profitability of the firm also would be reflected in the price of the company’s shares thus equity financing will become cheaper as the firm becomes more profitable.

The variable $SAL$ is utilized as the proxy for the size of the firm. Total assets were also used in an unreported regression but as in the study by Titman and Wessels (1988), it was found that sales and total assets were highly correlated and using either as a proxy for size gave almost the same results. Sales however had a lower correlation with the other explanatory variables than total assets. Thus, employing it as a proxy produced a better regression result. As with $NP$, the coefficient on $SAL$ was very close to zero. The interesting result, however, is that the sign on the coefficient is positive. This result implies that if such a size effect exists in Barbados, the smaller firms are utilizing more equity financing than the larger firms. This probably is a result of the relative efficiency of the banking system to the stock exchange. Thus larger firms will utilize more debt as they can access bank loans easier than a smaller and perhaps less profitable institution.

The coefficient on the growth variable, $CRW$, is large in comparison with the other parameter estimates and implies that it has a strong influence in determining the leverage levels of the firm. The coefficient is however positive and differs from the findings of Titman and Wessels (1988) who stated that there should be a negative relationship between future growth and long-term debt levels. However, in an economy where debt is the preferred method of finance, firms with a higher growth record may be
deemed by the banking system as a sound investment. This is despite the fact that future growth cannot be collateralized.\textsuperscript{5}

Judging by the large coefficient on the dummy variable \textit{COMPDUM}, the ownership of the firm appears to have a significant impact in the determination of the leverage level of the firm. Its negative sign indicates that locally owned firms utilize lower debt equity ratios than foreign firms.

\textbf{TABLE 2. CROSS CORRELATION MATRIX FOR VARIABLES IN EQUATION (1)}

<table>
<thead>
<tr>
<th></th>
<th>( ATRAT )</th>
<th>( GRW )</th>
<th>( LV )</th>
<th>( NP )</th>
<th>( SAL )</th>
<th>( TA )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( ATRAT )</td>
<td>0.552698</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( GRW )</td>
<td>0.183667</td>
<td>-0.244088</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( LV )</td>
<td>-0.30349</td>
<td>-0.115608</td>
<td>-0.54126</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( NP )</td>
<td>0.339449</td>
<td>-0.44464</td>
<td>0.613248</td>
<td>-0.525085</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>( SAL )</td>
<td>0.898348</td>
<td>0.169019</td>
<td>0.352292</td>
<td>-0.317187</td>
<td>0.664824</td>
<td>1</td>
</tr>
<tr>
<td>( TA )</td>
<td>0.916761</td>
<td>0.259141</td>
<td>0.329029</td>
<td>-0.222599</td>
<td>0.554757</td>
<td>0.9854</td>
</tr>
</tbody>
</table>

The parameter on the \textit{AGE} variable is very close to zero but the sign of the coefficient is negative. Thus, older firms utilize more debt in their financing than younger firms in contrast to Hussain and Nivorozhkin (1997) study on Polish firms. The reason however could be the same if the assertion that the banking system in Barbados is a more attractive method of finance relative to debt is true. Older firms in Hussain’s and Nivorozhkin’s study had accrued significant amounts of bad debt and were not considered to be as sound an investment choice as the younger more innovative firms. This however is not the case in Barbados where

\textbf{TABLE 3. ITERATIVE THREE-STAGE LEAST SQUARES ESTIMATE OF EQUATION (1)}

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>( t )-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONSTANT</td>
<td>1.697085</td>
<td>0.037958</td>
<td>44.70907</td>
<td>0.0000</td>
</tr>
<tr>
<td>( NP )</td>
<td>-2.17E-05</td>
<td>3.37E-06</td>
<td>-6.425664</td>
<td>0.0000</td>
</tr>
<tr>
<td>( SAL )</td>
<td>3.61E-07</td>
<td>1.07E-07</td>
<td>3.379110</td>
<td>0.0009</td>
</tr>
<tr>
<td>( GRW )</td>
<td>0.728471</td>
<td>0.029664</td>
<td>24.55784</td>
<td>0.0000</td>
</tr>
<tr>
<td>( COMPDUM )</td>
<td>-0.657406</td>
<td>0.031359</td>
<td>-20.96392</td>
<td>0.0000</td>
</tr>
<tr>
<td>( AGE )</td>
<td>-0.001566</td>
<td>0.000190</td>
<td>-8.237238</td>
<td>0.0000</td>
</tr>
<tr>
<td>( ATRAT )</td>
<td>-0.850084</td>
<td>0.029826</td>
<td>-28.50117</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Determinant residual covariance:9.61E-25

\textsuperscript{5} This was also alluded to by Titman and Wessels (1988).
older firms have strong reputations and would therefore find it easier to access credit from the banking system.

The most influential of all the variables is $ATRAT$. This result shows that there exists a negative relationship between the leverage level of the firm and its liquidity. Hence, as the acid test ratio of the firm gets higher the firm will find it more difficult to acquire bank loans in order to finance its investments. Thus the acid test ratio has a positive relationship with the marginal cost of acquiring debt financing and thus lower the relative cost of financing through debt. The firm’s alternative is therefore to issue equity in order to finance any expansions in production.

VI. CONCLUSIONS

This study utilizes an I3SLS estimation technique on panel data to examine the determinants of the capital structure of firms listed on the stock exchange of Barbados. While the findings of the analysis supports most of the existing theory on the determination of debt equity ratios, it also reveals some interesting differences between the decisions of firms in a developed and a developing financial environment. These results could have serious implications on the policies employed in developing economies with regards to sustainable development through development of the financial sector.

The role of profitability as a determinant of leverage is minimal. However, the results indicate that firms prefer to finance their projects from internally generated funds rather than relying on outside sources of funds. Firms in Barbados seem to prefer debt to equity in financing their projects externally in keeping with the pecking order theory of Myers (1984). Hussain and Nivorozhkin (1997) study of Polish firms support this theory but older and more rapidly expanding firms exhibit contrasting behaviors with those in Barbados.

The results would imply that the more established firms, whether through age or growth records, prefer debt financing to equity. This could mean that the stock market has not yet established itself as a viable method of finance. Indeed, given the introduction of the SEB, investment as a proportion of GDP has also not risen to the level that one would expect. This has policy implications for the government to try to correct the factors that have been hindering the development and establishment of the equity market. The Central Bank has produced several informa-
tive publications to explain and promote SEB to the nation but perhaps the structure of the exchange has to be modified in order to promote the confidence needed for the exchange to grow. This result also has implications on the efficiency of the stock market. The findings seem to confirm James' (1996) view that inefficient stock markets can undermine the entire financial system and may actually raise the cost of capital to firms. It therefore means that greater steps will have to be taken to improve the efficiency of the market in order to reap the benefits that the market can give to an economy. Perhaps, as suggested by Blackman (1989), regional governments may have to consider forming a regional stock market in order to attain efficiency as each of the individual markets may be too small to achieve this.

The study also shows that firm ownership, whether domestic or foreign has a significant impact on the leverage level of the firm. It would therefore be interesting to determine the reasons which would explain the use of relatively more debt my foreign owned firms.

REFERENCES