



BENCHMARKING YOUTH-OWNED SMALL BUSINESSES IN BARBADOS

by

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I. INTRODUCTION

The growth in most Caribbean economies has traditionally been spurred by the combined forces of large conglomerates and small firms. While the importance of the former has been at the forefront of policy decisions for decades, it is only very recently that the role of the small firm has started to attract the attention of policy makers and other interested parties in the region. With this increased attention, a number of organisations have sprung up which provide support, whether financial or otherwise, to this vibrant sector of the economy and many of the leading banks in the region now boast a department specifically to deal with small businesses. The common complaint, however, is the lack of information on the small business sector. Due to the nature of this sector, obtaining and maintaining reliable information has been a source of concern, especially in an increasingly more competitive market.

The few studies that have been undertaken to analyse the contribution of this sector to the Barbadian economy are extremely dated and, therefore, can only serve as a general guide. Nevertheless, the Barbados Institute of Management and Productivity (BIMAP) undertook a study at the request of the Central Bank of Barbados and one of their stated objectives was to review and analyse the role of small firms in Barbados. For the purpose of their study, a small-scale enterprise is defined as “a single profit centre which is owned and managed by the same person in a formal or informal manner, and employing not more than twenty-five persons” (page 6). Their estimates indicate that, by this definition, nearly all businesses in Barbados are small. Additionally, they found that small businesses predominate all sectors of the economy except manufacturing and the agricultural, wholesale/retail, transportation and personal services sectors are the preferred sectors of operation (page 10). Despite accounting for nearly all of the businesses in Barbados, however, according to this study, in 1982 the small business sector only accounted for approximately 8% of the labour force (page 11).

One of the aims of an earlier study by Barrow and Greene (1979) was to look at the operational characteristics of small businesses in Barbados. They found that 72% of small businesses were owned by men while 25% were owned by women and the remaining 3% by a male/female

partnership. They also found that most of their respondents believed that the lack of finance was the main reason behind the failure of small businesses in Barbados.

In a more recent study, Small and McClean (2002) focused on the youth and looked at the factors that impacted on their decision of whether to start a business. They sampled youth enrolled in secondary and tertiary institutions between the ages of fourteen and thirty-five and limited their sample to the student population. They found that 26% of the respondents ranked business ownership as their main career preference and hypothesised that this may be due to the activities of the Youth Entrepreneurship Scheme and the Micro Enterprise Growth Fund (page 40). Additionally, they found that roughly the same proportion of males are interested in being entrepreneurs as in the 1979 Barrow and Greene study. The proportion of females, on the other hand, has increased with 53.6% of female respondents indicating an interest in starting their own business (page 41). This is in line with expectations as today with increased female participation in the labour force, the proportion of female-owned businesses should be on the rise.

The Youth Entrepreneurship Scheme (YES) is one organisation that has sought to specifically address the needs of young entrepreneurs and has devised a programme that offers advice and training in strategic business areas. One of the key services offered is their accounting service through which young entrepreneurs are paired with accounting consultants who compile financial statements based on the information submitted by the entrepreneurs and offer advice on areas in need of improvement. The company's performance is then further monitored by YES to ensure that the entrepreneur has a helping hand in the early stages of their company's evolution.

The genesis for this study arises from the experiences gleaned from the operations of YES as they recognised that while they now had a better idea of how their clients were performing, they were still not in a position to compare them to their other clients in similar sectors, the rest of their database or the industry as a whole. This study hopes to give more insight into the performance of their clients through the development of a model that can be used to analyse company performance, industry performance and the performance of YES's entire database. Through this model, YES will be able to pinpoint those aspects of the company in need of more careful supervision and tailor their advice and training programs more effectively.

The remainder of this paper is organized as follows. Section II summarises the information available to date on the small business sector in the region, gives a few generalized facts about the nature of small business development and outlines the studies done to date on benchmarking. Section III explains the methodology underpinning this study, with particular emphasis on the development of the model and the limitations of the data. The results of the study will be presented in Section IV while Section V will conclude and offer some suggestions to YES.

II. LITERATURE REVIEW

In recent years, benchmarking performance has become more widely recognized in the business community as an important and necessary part of operations. In fact, there are numerous studies that look at benchmarking specific areas of business operations, especially in areas such as production, budgeting and operating efficiency. Most of these studies, however, analyse medium-large companies that operate in production-intensive sectors in developed countries. In general, a benchmark can be considered to be a standard by which something can be judged or measured. For example, the price level in the base year of the retail price index is nothing more than a type of benchmark. Although this broad definition can be adapted and fine-tuned to suit the study in question, it usually holds firm throughout all benchmarking studies.

Regionally, Jansson and Taborga (2000) compared the performance of the Latin American Microfinance industry to that of local commercial banks; thus using the commercial banks as their benchmark. In the case of small businesses, the ideal benchmark would be a larger, successful company operating in the same industry. Unlike the Jansson and Toborga study, however, there is no suitable reference to use as a benchmark for small businesses. Small companies have unique characteristics that make it difficult to obtain any meaningful comparisons with larger companies. For example, many entrepreneurs are not in business simply for financial gain. Some seek to avoid the hassle of working for someone else; some provide a community service that would otherwise not be provided; some prefer to set their own hours, work from home or allow more opportunities to spend time with their family; while others would like to pass on a legacy to their children. As such, it is difficult to judge small companies by the same criteria as larger companies that are seeking to maximise profit. Additionally, quite a number of the areas in which small companies operate do not have many, if any, larger

companies that could be used as a benchmark. For example, a large percentage of small businesses in Barbados operate in the cosmetology sector, which has no large companies at present.

Dunne, Moore and Portes (2002) suggested an alternative view of the term “benchmark”. In their analysis of benchmarking euro-area bonds, they defined benchmark status for the purpose of their study as “the instrument to which the prices of other bonds react” thus determining their benchmark bond from estimation rather than just data analysis. Adapting this definition for a study of small business, a benchmark would be the company to which other companies react; the leading company – whether small or large - in a particular sector. Again, this definition is inadequate for our study for two reasons. First of all, entrepreneurs tend to make business decisions based on more than just purely competitive reasons. For example, the location of the business may be determined by its convenience rather than by its potential profitability, as often the case with small grocers, rum shops, hairdressing salons, auto repair shops etc., and explains why in relatively sparsely populated areas you will often find rum shops and small boutiques. Secondly, due to the insufficient data for the sector on a whole, it was difficult to obtain financial information for companies outside of YES’s database.

As a result of the unavailability of suitable reference companies to serve as benchmarks, it was determined that a benchmark would need to be developed from within the set of companies submitted by YES. This too would prove difficult as these companies span numerous industries (sometimes with one company operating in different industries). Since the sample size is small – only 34 companies – with insufficient data to compile benchmarks for every sector, only two overall benchmark indicators were developed. One is the best performing company over the review period while the other is the average of the top five best performing companies. Additionally, for every ratio the value of the best ratio as well as the average of the five best values are provided and serve as additional benchmarks. It is hoped that as additional information is added in coming years that benchmarks for individual sectors will be developed.

In order to decide which companies are the best performers of the sample set, the companies would have to be ranked by some criteria. Standard & Poor’s (S&P) Earnings and Dividend

Ranking System in conjunction with their STock Appreciation Ranking System (STARS) provided a more reasonable approach to developing benchmarks. S&P research methodology comprises of two main stages, broken down into the ten steps summarised below:

Stage 1.

1. Review public information
2. Conversations with company management for detailed information
3. Prepare 3-year preliminary earnings model
4. Review financial assumptions
5. Assess management team, competitive environment, suppliers, buyers, substitutes, barriers to entry and regulatory environment
6. Finalise earnings model

Stage 2.

7. Value company using intrinsic value analysis, relative valuation, sum of the parts and risk assessment
8. Establish intrinsic value
9. Decide STARS recommendation
10. Ongoing analytical review

After valuing the company, rankings are then generated by a computerised ranking system based on per-share earnings and dividend records for the most recent 10 years. Basic scores are computed for earnings and dividends, and then adjusted for changes in the growth rate, stability within long-term trend and cyclicalities. These adjusted scores are then combined to yield a final ranking. Table 1 summarises S&P’s nine quality rankings.

Table 1: Quality Rankings Classification¹

Letter	Description
A+	Highest
A	High
A-	Above Average
B+	Average
B	Below Average
B-	Lower
C	Lowest
D	In Reorganization
LIQ	Liquidation

As can be expected, this level of detail is not only unnecessary for the purpose of this study, but also difficult to implement due to the unavailability of data. Additionally, it must be noted that S&P ranks rather large companies with most of the companies quoting on a major international stock exchange where eligibility criteria is very stringent. None of the companies used in our sample quote on the Barbados Stock Exchange, whose entry criteria is considerably lower. Nonetheless, a key element of the S&P's system – i.e. company analysis followed by assigning a rank – forms the basis of the model developed for this study and is explained in the following section.

III. METHODOLOGY

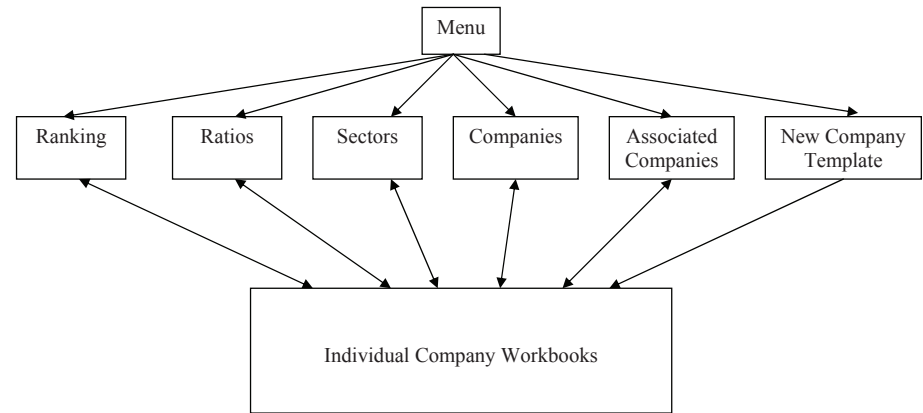
The Model

YES submitted financial statements for 35 companies, 34 of which formed the starting point of the model². A database, containing the annual income statements and balance sheets submitted by YES, basic demographic information on the company and the entrepreneur and calculations of relevant financial ratios, is built for each company in Microsoft Excel. A workbook is then designed that aggregates the financial information input into the individual company databases. This workbook sorts the company information, calculates industry and database ratios and ranks these ratios. Finally, a Menu spreadsheet is created and forms the first “page” of the model. This workbook functions as an interactive Table of Contents. Figure 1 below shows a diagram outlining the conceptual design of the model.

¹ Taken from S&P 2003 publication “Standard & Poor’s Earnings and Dividend Ranking System”

² One company was omitted from the model because monthly statements were submitted for a period shorter than a year.

Figure 1: Schematic Representation of the Model



The next step was to analyse the company information and devise a ranking system that would allow the identification of leading companies and leading sectors. As YES hoped to use this model as the foundation for software development, the model is designed to easily lend itself to further programming and, as it stands, already allows easy navigation through the workbooks and spreadsheets.

Devising the ranking system to be used proved to be fairly challenging considering that many of the companies had inadequate financial statements to start with, they covered a diverse range of industries and they were at different stages of development and sophistication. Nevertheless, companies were ranked for each ratio and these rankings formed the foundation of the final overall rank that would be used.

The first step was to identify those ratios within each category of ratios that were deemed to be the best indicators of the specific area of company performance in question. The following table shows the ratios, indicated by an asterisk, deemed to be either the most representative of the factor under consideration and/or the ratio that could be calculated for given the data limitations. Thus

the model can calculate more than 20 useful ratios, but only eight are used for the purpose of ranking. These ratios will be explained in detail in the following section.

Table 2: The Ratios Calculated by the Model

Internal Liquidity	Operating Performance	Financial Risk Analysis	Analysis of Growth Potential
Current Ratio*	Total Asset Turnover*	Debt/Equity Ratio*	Growth Rate
Quick Ratio*	Fixed Asset Turnover	Interest Coverage*	
Cash Ratio	Equity Turnover		
Receivables Turnover	Gross Profit Margin*		
Inventory Turnover	Operating Profitability Margin		
Payables Turnover	Net Profit Margin*		
Cash Conversion Cycle	Return on Total Capital		
	Return on Total Equity*		
	Dupont Return on Equity		
	Interest Expense Rate		

Omitted from the above table are those ratios that allow the analysis of business risk because 1) there was insufficient data submitted and 2) the current nature of YES's accounting service does not lend itself to the analysis of business risk. This concept, however, is further explored in Appendix IV as it is an important factor to be considered when assessing overall current and probable future company performance.

To obtain the overall rank, several options were considered. The first option was to add the ranks established for the individual ratios, with the leading company being that with the lowest total. The main difficulty faced with this method was that every ratio could not be calculated for every company and it could have unfairly advantaged those companies who did not have all of the ratios. For example, using this method, a company with no current liabilities would not have a value for the Current Ratio, therefore, having no rank for this ratio. This obviously meant that when adding all of the ranks, the value for this company would be recorded as "n/a", which would be ignored by the system and omitted from the set.

To get around this problem, the average of the ratios was considered instead. The company with the lowest value at the end of this process was considered to be the leading company in the

sample. It was felt it could be fairer than the previous method because it used only those ratios that could be calculated as the basis for establishing an average ranking. This method also has its limitations because it unfairly disadvantages those companies for which values could have been determined for each ratio.

The first method was eventually chosen to determine the benchmark companies because upon analysis of those ratios that could not be calculated, it was concluded that this reflected a favourable situation and, therefore, should be an advantage to the company in question. For example, whenever no current ratio could be calculated for a firm, this meant that the firm had no current liabilities and, therefore, was able to finance its operations with start-up capital and retained earnings. This indicated a high level of solvency and thus, should be a plus when valuing the firm.

Limitations of the Data

As expected with small businesses, the limitations faced were numerous and varied. In general, the information submitted by the consultant accountants was not consistent, i.e. the same reporting format was not used throughout, varying levels of detail were given and many of the statements were not accompanied by financial notes. In some cases, only one or two years of data were given and, occasionally, there was a time gap in the data (for example, information given for 2001 and 2003 but none for 2002). On top of this, there was no year when there was data for every company thus eliminating the possibility of a cross-sectional analysis.

Table 3: Number of Years for which Data was Submitted

	Number of Years of Information Submitted			
	4	3	2	1
Total Number of Companies in Database	34	34	34	34
Number of companies which had statements	1	12	14	7
Number of Companies as a percentage of total	2.9%	35.3%	41.2%	20.6%

Table 4: Company Financial Statements per year

	Year of Analysis			
	2000	2001	2002	2003
Total Number of Companies in Database	34	34	34	34
Number of Companies represented	8	19	29	19
Number of Companies as a percentage of total	23.5%	55.9%	85.3%	55.9%

In an effort to minimise this problem, a meeting was held with representatives from various agencies that dealt directly with small businesses whether financially (lending to entrepreneurs) or in an advisory role. Despite the high level of interest expressed by the participants, up to the time of preparing this paper no additional data has been provided.³

As mentioned in the preceding section, many useful ratios could not be used during this study due to inadequate information. For example, in order to get an idea of the level of business risk that a company faces, the authors would need more information about the sector in general as well as historical financial data for the company itself. Due to the nature of the YES service, this proved to be very challenging as their accounting service is more of a mentoring programme where assistance is provided for 3 years to help the entrepreneur to get comfortable with the idea of preparing regular financial statements. At the end of this 3-year period, the entrepreneur no longer provides YES with financial information and drops out of their database. With regard to sectoral information, this has proven difficult to obtain as currently, to the authors' knowledge, 1) no agency in Barbados compiles sectoral information and 2) the sectors in which many of the companies in the database operate do not produce regular, audited financial statements upon which to base sectoral analysis.

The growth potential of companies is another factor that could not be determined based on the information provided. To analyse the growth potential of a company, the retention rate is multiplied by the return on equity. This gives an indication of the expected growth of the company if it was to reinvest all of the retained earnings in the company. Small businesses, however, do not reinvest all of their retained earnings in the company and sometimes a portion is used by the entrepreneur for personal use⁴. This will obviously limit the growth potential of the company. As this amount is not disclosed within the financial statements, any figure derived using the above calculation will be overvalued.

³ A list of those companies contacted during the course of this study is given in Appendix I.

⁴ For example, one firm within the database had drawings equivalent to 96% of its total retained earnings for that year.

IV. THE RESULTS

Financial ratios are useful tools when analysing businesses and often form the core of any company analysis. For the purpose of this study, and bearing in mind the nature of the companies to be analysed, the following ratios were chosen to provide a better understanding of company performance and form the benchmarks used for the study:

Table 5: Categories of Ratios

Category of Ratio	Financial Ratio	Number of Companies for which a Ratio Could be Calculated
Internal Liquidity	Current Ratio	18
	Quick Ratio	18
Operating Performance	Gross Profit Margin	34
	Net Profit Margin	34
	Return on Total Equity	34
	Total Asset Turnover	34
Financial Risk Analysis	Debt/Equity Ratio	31
	Interest Coverage	28
Total number of companies in sample:		34

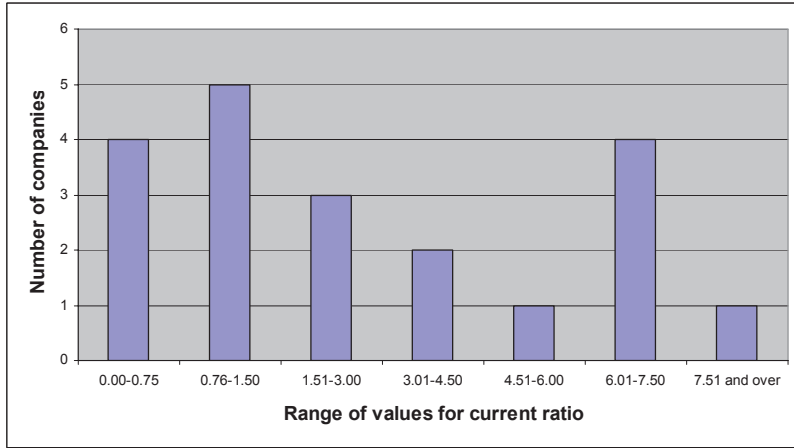
It should be noted that for the purpose of this study, a benchmark is not necessarily a representation of “best practice” but either the average of the top five best performing companies for any particular ratio, the average of the top five performing companies overall or the value for the overall best performing company. The benchmarks must also be viewed in context since the companies vary in terms of sector and size and so cannot be fairly compared. This study, therefore, does not aim to suggest that all companies within the database attempt to match the benchmark; rather, it gives the officials at YES an idea of how their clients are performing in general and allows comparison of individual companies and sectors with each other as well as the overall database. What is also useful about the model is its ability to be further expanded as additional company information is added in the coming years.

Internal Liquidity

Internal liquidity (or solvency) ratios indicate the ability of the firm to meet future short-term financial obligations. The most popular solvency ratio is the current ratio. This ratio examines the relationship between current assets and current liabilities. The higher the number calculated, the better the chances that the firm can meet its short-term obligations. The distribution of the results for this ratio and the descriptive statistics are given in Chart 1 and Table 6 respectively.

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

Chart 1: Distribution of Current Ratio for Entire Database



Note: Only those companies with a value for the current ratio were included.

Table 6: Current Ratio Descriptive Statistics

	Current Ratio
Best Value*	14.54
Worse Value	0.00
Average Value	3.36
Average of the Top 5 Performing Companies for this ratio	8.26
Value for the Benchmark Company – 8C	4.44
Average of the Top 5 Benchmark Companies	5.65
Number of companies for which a current ratio could be calculated:	20
Number of companies for which a current ratio could not be calculated:	14

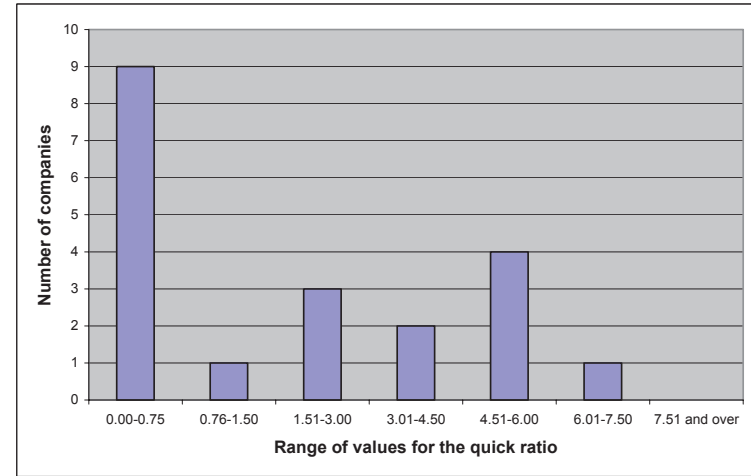
* Only those companies with a value for the current ratio were considered

Many analysts, however, believe that the current ratio is not a true measure of liquidity because total current assets may include some assets that are not very liquid, such as certain types of inventory. As a result, an alternative measure – the quick ratio – was devised which would only take into account relatively liquid current assets. As with the current ratio, the higher the figure calculated, the better the chances that the firm can meet its short-term obligations. The

distribution of the results for this ratio and the descriptive statistics are given in Chart 2 and Table 7 respectively.

$$\text{Quick Ratio} = \frac{\text{Cash} + \text{Marketable Securities} + \text{Receivables}}{\text{Current Liabilities}}$$

Chart 2: Distribution of Quick Ratio for Entire Database



Note: Only those companies with a value for the quick ratio were included.

Table 7: Quick Ratio Descriptive Statistics

	Quick Ratio
Best Value*	7.44
Worse Value	0.00
Average Value	2.34
Average of the Top 5 Performing Companies for this ratio	5.73
Value for the Top Benchmark Company – 8C	4.12
Average of the Top 5 Benchmark Companies	0.84
Number of companies for which a quick ratio could be calculated:	20
Number of companies for which a quick ratio could not be calculated:	14

* Only those companies with a value for the quick ratio were included.

A simple explanation of the basic goal of the above ratios is that they give an idea of whether the company has assets that either could be quickly converted into cash or are already cash, which

could be used to pay off the company's debt in the short-run. A high ratio, therefore, shows that a company has a large proportion of assets which could be used to pay off short-term debt should the need arise. This ratio is particularly useful to lending agencies like some of those contacted during the course of this study. All of the 14 companies for which neither a current ratio nor a quick ratio could be calculated had no current liabilities (i.e. no short-term obligations to be concerned with), thus indicating that these companies were the most solvent in the short-term. This does not mean, however, that they had no liabilities at all, but rather that the repayment of these liabilities was not of immediate concern or that there were concerns regarding the accuracy of the accounting statements.

In general, an acceptable current ratio would be above 1 since it would mean that there are more liquid assets than current liabilities and consequently, that all of the short-term obligations could be met. The higher the ratio, therefore, the more solvent the company is and the more likely it is to avoid financial distress. For the purpose of this study, companies with a value above 2 for both the current ratio and the quick ratio would be considered to be very solvent, between 1.5 and 2 would be considered to be acceptable, between 1 and 1.5 would be rated as poor, while those below 1 for both values would be rated as insolvent. There are 8 companies that were very solvent, 2 that were acceptable, 3 that were poor and 6 that were considered insolvent. The remaining company (11C) was of special interest because it had a current ratio of 2.52 but a quick ratio of 0.50. In this case, the company was considered to be poor as a result of the fact that the quick ratio is considered to be a truer reflection of liquidity. The following table summarises the results for internal liquidity by company.

Table 8: Companies Sorted According to Level of Internal Liquidity⁵

Potentially Perfectly Liquid	Very Solvent	Acceptable	Poor	Insolvent
3C	20C	8C	13C	2C
5C	21C	9C	28C	4C
10C	27C	12C		7C
14C	30C	16C		11C
15C	31C	22C		
17C	34C	25C		
18C		29C		
19C		33C		

⁵ Due to possible accounting errors, the authors hesitate to state that these companies are in fact perfectly liquid.

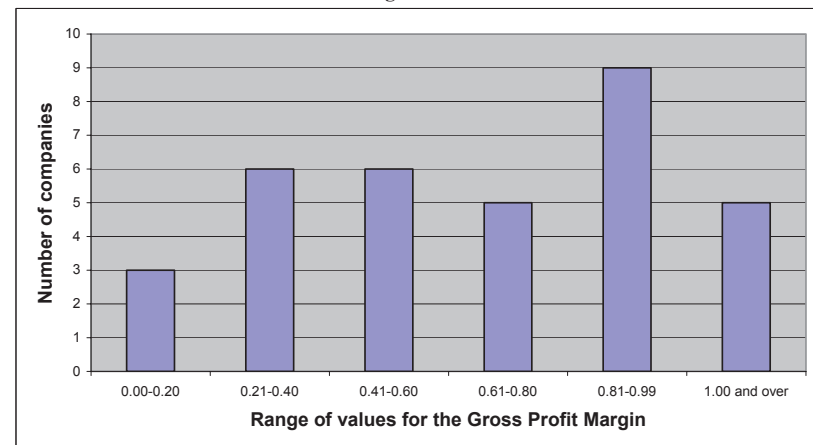
Operating Performance

Operating Profitability

Operating profitability ratios analyse the profits as a percentage of sales and as a percentage of assets and capital employed. They, therefore, indicate two facets of profitability: 1) the profit margin and 2) the percentage return on capital employed. The Gross Profit Margin indicates the basic cost structure of the firm and an analysis of this ratio over time relative to a comparable industry figures gives an indication of the firm's relative cost-price position.

$$\text{Gross Profit Margin} = \frac{\text{Gross Profit}}{\text{Net Sales}}$$

Chart 3: Distribution of Gross Profit Margin for Entire Database



Note: Only those companies with a value for the gross profit margin were included.

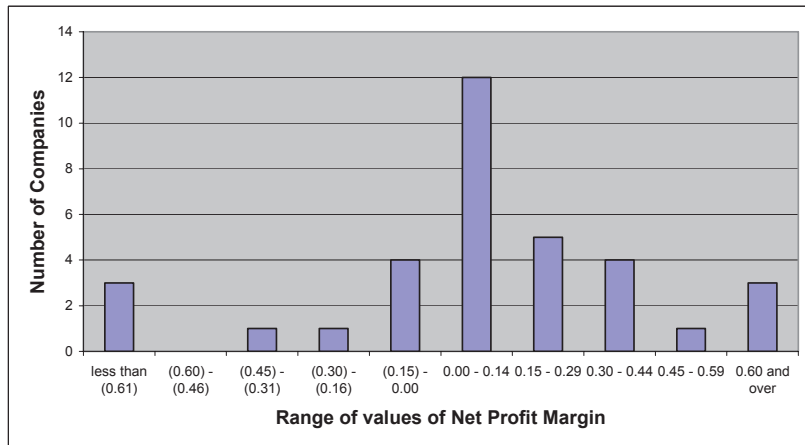
Table 9: Gross Profit Margin Descriptive Statistics

	Gross Profit Margin
Best Value	1.00
Worse Value	0.00
Average Value	0.64
Average of the Top 5 Performing Companies for this ratio	1.00
Value for the Top Benchmark Company – 8C	0.92
Average of the Top 5 Benchmark Companies	0.88
Number of companies for which a gross profit margin could be calculated:	34
Number of companies for which a gross profit margin could not be calculated:	0

The Net Profit Margin, on the other hand, relates net income to earnings from continuing operations and seeks to derive insights about future expectations. Earnings from continuing operations takes into account the effects of general operating expenses and depreciation on income.

$$Net\ Profit\ Margin = \frac{NetIncome}{NetSales}$$

Chart 4: Distribution of Net Profit Margin for Entire Database



Note: Only those companies with a value for the net profit margin were included.

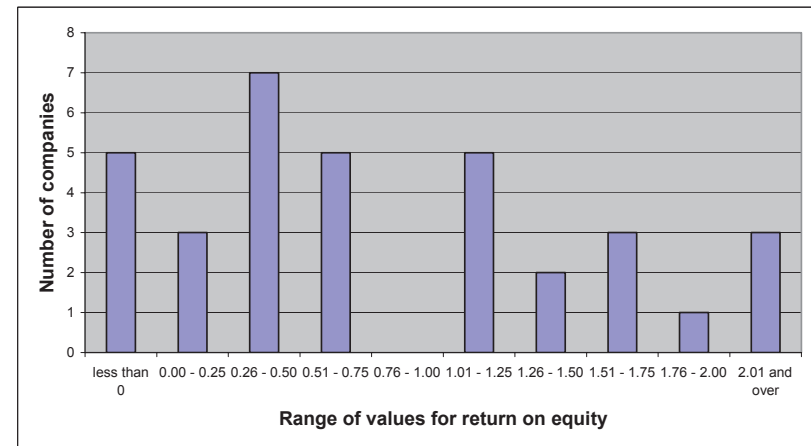
Table 10: Net Profit Margin Descriptive Statistics

	Net Profit Margin
Best Value	0.75
Worse Value	-3.57
Average Value	-0.08
Average of the Top 5 Performing Companies for this ratio	0.56
Value for the Top Benchmark Company – 8C	0.60
Average of the Top 5 Benchmark Companies	0.52
Number of companies for which a net profit margin could be calculated:	34
Number of companies for which a net profit margin could not be calculated:	0

The Return on Total Equity (ROE) indicates the firm’s rate of return on the equity capital employed. It should be matched against the company’s business and financial risk, the industry return and general economic conditions. It shows how effectively shareholders’ money is being employed and reflects the effects of financial leverage. For example, if the return received is too low when compared to the risk the business is exposed to, it may indicate that the capital employed in the company may be more productive if used elsewhere.

$$ROE = \frac{NetIncome}{AverageTotalEquity}$$

Chart 5: Distribution of Return on Total Equity for Entire Database



Note: Only those companies with a value for the return on total equity were included.

Table 11: Return on Total Equity Descriptive Statistics

	Return on Total Equity
Best Value	4.51
Worse Value	-0.55
Average Value	0.85
Average of the Top 5 Performing Companies for this ratio	2.62
Value for the Top Benchmark Company – 8C	2.76
Average of the Top 5 Benchmark Companies	1.47
Number of companies for which a return on equity could be calculated:	34
Number of companies for which a return on equity could not be calculated:	0

For the three operating profitability ratios used in this study, the higher the value calculated, the more profitable the company. In a perfect situation, a company would make sales without having any expenses, thus implying gross profit and net profit margins of 1. There were 5 companies with a gross profit margin of 1 but no companies recorded a net profit margin of 1, thereby signifying that all of the companies in our sample had expenses of some form even though 5 had no expenses that would have contributed to the cost of goods sold. It must be noted here that it is almost impossible to have no cost of goods sold and this signals either an accounting error or insufficient data being given to the accountants.

At the other extreme, an unprofitable company would be making a loss, which leads to a negative value for either the net profit margin alone or both the net profit margin and the gross profit margin. There were no companies with a negative gross profit margin thus indicating that all of the companies in the sample were at least able to cover the cost of the goods sold. The net profit margin, on the other hand, was negative for 9 companies.

With regard to the return on equity, there were 5 companies with negative returns. This means that the owner was not making any return on his/her investment and was, in fact, losing his/her investment. This could indicate that the capital would be better employed elsewhere. There were 3 companies with a return on equity above 2, 11 that fell between 1 and 2, and 15 that were between 0 and 1. Considering that the average savings rate for the period 2000-2003 was

3.25%⁶, this implies that the 3 companies with a return on equity below 0.0325 would have been better off putting their money in the bank.

Table 12 summarizes the results for operating profitability. Very profitable companies would be those with a return on equity above 1 as well as a net profit margin above 0.50; above average companies would be those with a return on equity between 0.1 and 1 and a net profit margin between 0.25 and 0.50; return on equity for average companies would lie between 0 and 0.1 while the net profit margin would fall between 0 and 0.25; unprofitable companies would have a negative return on equity and/or a negative net profit margin. If the classification of a company differs depending upon which ratio is being considered, the company automatically falls into the lower category. If, however, the classifications do not follow each other in ranking, then the company would go into the middle category. For example, if a company was classified as very profitable according to the return on equity but was only average according to the net profit margin, it would be classified as above average.

Table 12: Companies Sorted According to Level of Operating Profitability

Very Profitable Companies	Companies with an Above Average Level of Profitability	Companies with an Average Level of Profitability	Unprofitable companies
8C	3C	2C	1C
22C	5C	6C	4C
23C	7C	9C	17C
	10C	11C	18C
	15C	12C	19C
	25C	13C	21C
	28C	14C	24C
	29C	16C	27C
	30C	20C	34C
	31C	26C	
	33C	34C	

Operating Efficiency

Operating efficiency ratios examine how management uses its assets and capital. One of the most useful ratios in this category is the total asset turnover, which indicates the effectiveness of the

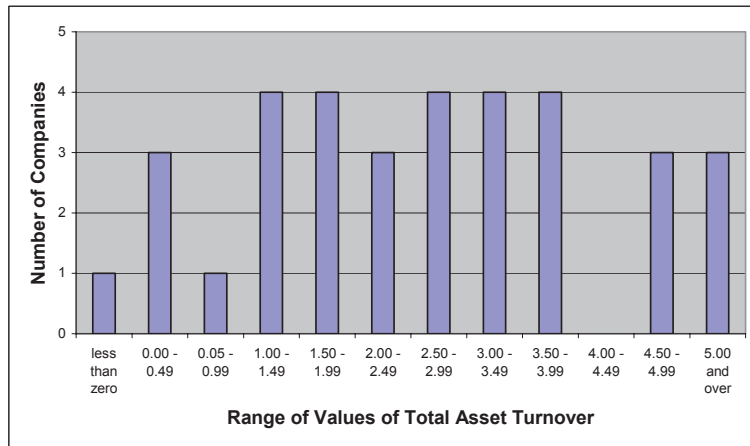
⁶ Data taken from the May 2005 Economic and Financial Statistics of the Central Bank of Barbados

firm's use of its total asset base. The higher this ratio, the more efficient the company is at managing its assets.

$$\text{Total Asset Turnover} = \frac{\text{Sales}}{\text{Average Total Net Assets}}$$

where $\text{Net Assets} = \text{Gross Assets} - \text{Depreciation on Fixed Assets}$.

Chart 6: Distribution of Total Asset Turnover for Entire Database



Note: Only those companies with a value for the total asset turnover were included.

Table 13: Return on Total Asset Turnover Descriptive Statistics

	Total Asset Turnover
Best Value	31.22
Worse Value	-3.22
Average Value	3.31
Average of the Top 5 Performing Companies for this ratio	10.43
Value for the Top Benchmark Company – 8C	5.02
Average of the Top 5 Benchmark Companies	2.89
Number of companies for which a total asset turnover could be calculated:	34
Number of companies for which a total asset turnover could not be calculated:	0

The total asset turnover was fairly evenly distributed amongst the companies included in the study, with 85% of the sample recording a value above 1. For this study, those companies with a total asset turnover of above 10 were considered exceptional; between 4 and 10 was considered very efficient; between 3 and 4 are classified as above average; an average level of efficiency was conferred upon those companies with a ratio between 2 and 3; between 1 and 2 was considered to be below average; and below 1 were classified as inefficient. Table 14 summarises the results of operating efficiency.

Table 14: Companies Sorted According to Level of Operating Efficiency

Exceptional Levels of Efficiency	Very Efficient Companies	Above Average Levels of Efficiency	Average Levels of Efficiency	Inefficient Companies
3C	5C	2C	12C	1C
8C	7C	4C	16C	18C
11C	9C	6C	22C	20C
15C	10C	13C	23C	24C
21C	17C	14C	26C	27C
28C	25C	19C	31C	
	29C	30C	32C	
	34C		33C	

Financial Risk Analysis

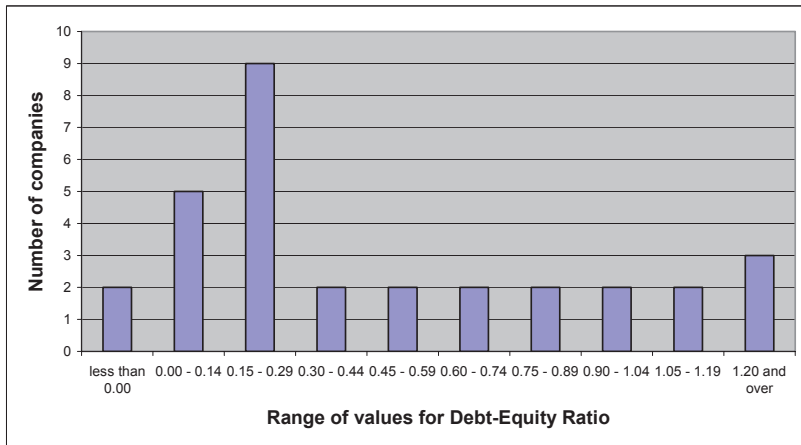
Financial risk refers to the uncertainty of returns to equity holders, in this case the entrepreneur, and looks at the firm's use of debt to finance its activities. In a period of expansion, it is expected that the net earnings available for the entrepreneur after paying off its debt obligations, i.e. interest payments, will experience a larger percentage increase than the operating earnings. During a decline of business activity, the opposite will occur and net earnings will fall by a larger percentage than operating earnings as a result of these fixed financial costs. Financial risk is, therefore, directly related to the amount of debt financing used by a company as fixed contractual obligations increase the possibility of default and bankruptcy. It must be noted, however, that the optimal or acceptable level of financial risk depends on the business risk⁷ and is different for every company and every sector within an economy.

⁷ Business risk refers to the uncertainty of income caused by the firm's industry and is due to the firm's variability of sales. It is usually measured by the variability of the firm's operating income over time. The concept of business risk is further developed in Appendix V.

One of the most common measures of financial risk is the Debt/Equity ratio, which reflects the proportion of debt compared to equity capital. A higher proportion of debt compared to equity makes earnings more volatile because of the larger fixed financial costs and, therefore, increases the financial risk. Those companies with a negative debt/equity ratio had a negative value for either the

$$\text{Debt - Equity Ratio} = \frac{\text{TotalDebt}}{\text{TotalEquity}}$$

Chart 7: Distribution of Debt/Equity Ratio for Entire Database



Note: Only those companies with a value for the debt/equity ratio were included.

Table 15: Debt/Equity Ratio Descriptive Statistics

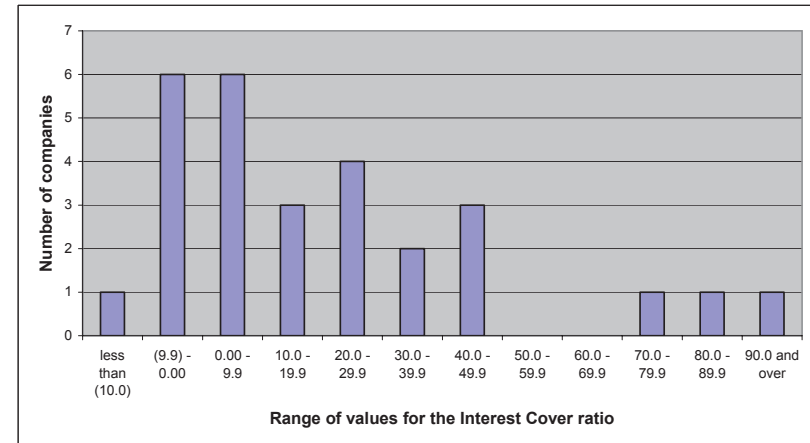
	Debt/Equity Ratio
Best Value	0.02
Worse Value	2.14
Average Value	0.48
Average of the Top 5 Performing Companies for this ratio	0.10
Value for the Top Benchmark Company – 8C	0.14
Average of the Top 5 Benchmark Companies	0.18
Number of companies for which a debt/equity ratio could be calculated:	31
Number of companies for which a debt/equity ratio could not be calculated:	3

The Interest Coverage ratio is one of the earnings flow ratios used to give an indication of financial risk. The interest coverage ratio relates the flow of earnings that is available to meet the required interest payments and indicates how many times the fixed interest charges have been earned based on the earnings available to pay these expenses. A higher ratio of available earnings to interest payments indicates lower financial risk. A more useful way of interpreting the interest coverage ratio is by using 1 minus its reciprocal (i.e. $1 - \frac{1}{\text{InterestCoverageRatio}}$), as it indicates

how much earnings could decline before it would be impossible to pay the interest expenses from current earnings. The results for both ratios are summarised below.

$$\text{Interest Coverage} = \frac{\text{InterestBeforeInterest and Taxes (EBIT)}}{\text{DebtInterestCharges}}$$

Chart 8: Distribution of Interest Coverage Ratio for Entire Database

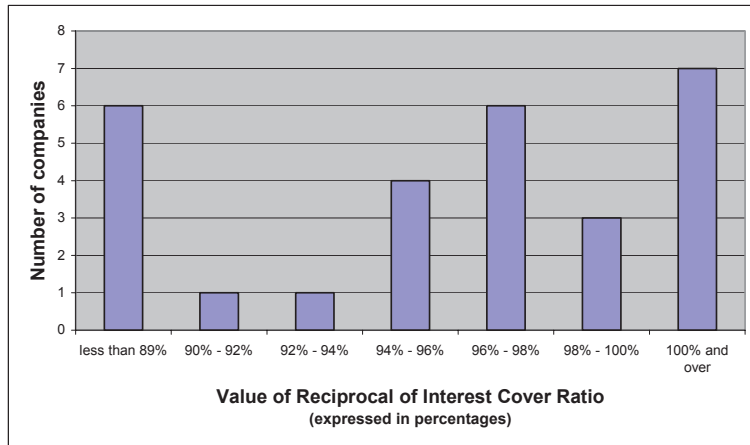


Note: Only those companies with a value for the interest coverage ratio were included.

Table 16: Interest Coverage Ratio Descriptive Statistics

	Interest Coverage Ratio
Best Value	750.34
Worse Value	-60.10
Average Value	42.93
Average of the Top 5 Performing Companies for this ratio	201.09
Value for the Top Benchmark Company – 8C	42.59
Average of the Top 5 Benchmark Companies	171.82
Number of companies for which an interest coverage ratio could be calculated:	28
Number of companies for which an interest coverage ratio could not be calculated:	6

Chart 10: Distribution of Reciprocal of Interest Coverage Ratio for Entire Database



Note: Only those companies with a value for the interest coverage ratio were included.

Table 17: Reciprocal of Interest Coverage Ratio Descriptive Statistics

	Reciprocal of Interest Coverage Ratio
Best Value	99.87%
Worse Value	-295.52%
Average Value	104.13%
Average of the Top 5 Performing Companies	98.60%
Value for the Top Benchmark Company – 8C	97.65%
Average of the Top 5 Benchmark Companies	96.52%
Number of companies for which a return on equity could be calculated:	28
Number of companies for which a return on equity could not be calculated:	6

Analysing the debt/equity ratio is difficult without information for the sector or, at the very least, a few companies in the same industry as the company being analysed, as there is no universally accepted “ideal” value. Usually, a good debt/equity ratio is one that minimises the weighted average cost of capital, which is estimated by multiplying the weight of each component of the capital structure by the cost of that component. Considering that the latter was not supplied, it was not possible to ascertain the ideal debt/equity ratio for each company and then comparing it to the reality. In its absence, if the debt/equity ratio of a company lies within a 60 percent range of the average of the Top 5 Benchmark Companies (0.18), it was considered to be a relatively safe investment; if the value was either between 0.29 and 1 or between 0 and 0.07, the company was determined to be facing an average risk; while if the company’s ratio was above 1 or negative it was deemed to be a risky investment. Of the two companies with negative debt/equity ratios, one (17C) had negative average equity while the other (16C) had a negative figure for either total debt. The latter could be an accounting error and warrants further investigation on the part of YES and the accountant.

The results of the interest coverage ratio are easier to analyse if we look at the reciprocal of this ratio instead as it gives a clearer picture of the financial risk that a company is facing. A low percentage for this ratio indicates a high level of financial risk. For example, if a company records a percentage of 10% it means that Earnings Before Interest and Taxes (EBIT) only has to fall by 10% for the company to be unable to pay interest. Therefore, if EBIT was initially \$100, this ratio means that should EBIT fall to \$90, the company would be unable to make its interest payments. 78.6% of the companies recorded a value above 90% with only one company (13C)

cutting it close with a value of 3.45%. Since the companies being analysed are small companies that are already tend to record volatile earnings, it would be preferable if the ratio was as high as possible, especially when considering the fact that often it only takes one client to look elsewhere and a company's earnings is severely diminished. Those companies with a value above 100% were making an average loss over the period for which statements were submitted and so were already in financial distress.

To determine an overall classification of financial risk, those companies recording greater than or equal to 90% for the reciprocal of the interest coverage ratio as well as a debt/equity ratio deemed to indicate a relatively safe investment, were classified as having below average level of overall financial risk. If the reciprocal of the interest coverage ratio was between 50% and 89% and the debt/equity ratio was deemed represent an average level of risk, the company was classified as having an average level of overall financial risk. If the reciprocal of the interest coverage ratio was between 10% and 49% and the debt/equity ratio implied an average level of risk, the company was deemed as having an above average level of risk. Companies with both a reciprocal of the interest coverage ratio between 0% and 9% and a debt/equity ratio deemed as risky would be classified as having a high level of risk. Finally, any company with a negative interest cover ratio as well as a risky debt/equity ratio would be categorized as a poor investment distress. One company (18C) had no value for either the interest cover or the debt/equity ratio as it had no liabilities and, therefore, no interest payments.

Table 18: Companies Sorted According to Level of Financial Risk

Below Average Level of Financial Risk	Average Level of Financial Risk	Above Average Level of Financial Risk	High Level of Financial Risk	Poor Investment
3C	11C		5C	1C
8C	12C		6C	2C
10C			7C	4C
23C			9C	15C
25C			13C	16C
29C			14C	17C
30C			22C	19C
31C			26C	20C
34C			28C	21C
			33C	24C
				27C
				32C

The results of the above ratios facilitated the generation of the rankings summarised in Table 19 below. Although not used as the final ranking, the ranking generated using the average of the ranks for the individual ratios was included for comparison purposes to highlight the fact that despite the method used, seven of the top ten companies remained the same, with the top two positions remaining unchanged.

Table 19: Ranking of Companies

Company Code	Final Rank	Overall Ranking - Average	Current Ratio	Quick Ratio	Gross Profit Margin	Net Profit Margin	Total Asset Turnover	Return on Total Equity	Debt/Equity Ratio	Interest Coverage
8C	1	1	7	6	7	3	3	2	7	6
3C	2	2	n.a.	n.a.	16	6	6	6	n.a.	1
30C	3	5	n.a.	n.a.	1	5	20	13	4	14
15C	4	13	n.a.	n.a.	18	16	1	1	30	11
25C	5	3	6	3	9	8	11	10	14	2
34C	6	14	n.a.	n.a.	1	19	9	24	13	n.a.
10C	7	9	n.a.	n.a.	21	7	12	8	8	3
9C	8	7	2	1	10	15	8	17	17	15
22C	9	8	3	4	6	1	29	12	18	10
31C	10	12	n.a.	n.a.	12	4	26	15	5	9
29C	11	4	4	2	24	9	7	9	11	4
5C	12	17	n.a.	n.a.	27	12	10	7	20	13
23C	13	6	16	12	1	2	25	5	9	7
28C	13	10	10	9	23	11	4	4	19	12
16C	15	11	5	5	15	10	22	22	2	n.a.
14C	16	27	n.a.	n.a.	28	20	15	20	22	16
7C	17	16	14	18	8	14	14	11	23	n.a.
33C	18	15	1	7	14	25	27	3	26	5
21C	19	25	n.a.	n.a.	30	28	2	32	3	25
6C	20	18	17	16	1	17	18	19	21	17
17C	21	23	n.a.	n.a.	34	31	13	14	1	28
27C	21	30	n.a.	n.a.	11	27	32	30	n.a.	22
20C	23	28	n.a.	n.a.	20	21	30	29	12	24
12C	24	20	8	8	19	13	28	25	16	18
19C	25	32	n.a.	n.a.	33	30	16	23	24	26
11C	26	19	9	14	29	22	5	27	10	19
4C	27	21	13	11	13	29	17	31	6	23
18C	27	34	n.a.	n.a.	17	32	33	33	n.a.	n.a.
26C	29	22	20	20	1	24	23	21	25	n.a.
2C	30	26	12	15	26	18	19	26	27	n.a.
13C	31	24	11	10	25	26	21	28	15	21
1C	32	29	15	13	22	33	34	18	29	8
32C	33	31	18	17	32	23	24	34	28	20
24C	34	33	19	19	31	34	31	16	31	27

V. CONCLUSION

The leading company was the only company to rank in the top ten for all of the ratios that could be calculated while the worst performing company never ranked in the top half for any of the ratios. The fact that values could not be calculated in each category for some of the companies did not appear to unfairly bias the results because these companies are evenly spread throughout the ranking and could be found within the bottom ten as well as the top ten.

Consequently, the model appears to be fairly consistent and can be used as the basis for the development of a software programme specifically designed to meet the demands of the day-to-day operations of YES. Additionally, the benchmarks determined by the model are credible, provided that the information input into the model is credible and free from material accounting errors. As it stands, the benchmark companies generally perform well in most criteria (i.e. the ratios) even if they do not top the ranking of each ratio.

As the data set becomes more extensive and accurate, the ratios should be weighted to reflect the importance of the various factors under consideration in determining the overall success of a firm. These factors would include not only internal liquidity, operational performance and financial risk, but also business risk and cash management. For example, Net Profit Margin would have a greater weight than the Gross Profit Margin, as it is a more useful indicator of profitability. Additional ratios could also be incorporated into the determination of a ranking and weighted within each category of ratios. The addition of more ratios would make the model more robust and reduce the impact of accounting errors on the overall ranking. For example, if a company claims to have no Cost of Goods Sold thus leading to a Gross Profit Margin of 100%, the reduced weight of this ratio would limit the impact of this error on the final determination of profitability. With the enhancement caused by weighting the ratios, the model would also serve as a useful starting point for the development of industry ratios both for small businesses as well as on a larger scale.

Finally, a follow up study should be conducted within the next one to two years to assess if the model was a good fit within the day to day operations of YES as well as to ascertain whether the econometric analysis also requested by YES could be conducted. It should be noted here that this type of analysis was unable to be carried out due to the lack of sufficient data.

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APPENDIX I

Companies Contacted During the Course of this Study

- The Youth Entrepreneurship Scheme (YES)
- The Small Business Association
- The Urban Development Commission
- The Rural Development Commission
- The Barbados Youth Business Trust
- The Ministry of Commerce
- Fund Access
- The Enterprise Growth Fund

APPENDIX II

Table 1: Average Value for Selected Ratios for Each Company

Company Code	Current Ratio	Quick Ratio	Gross Profit Margin	Net Profit Margin	Total Asset Turnover	Return on Total Equity	Debt/Equity Ratio	Interest Cover
1C	0.93	0.50	0.52	(2.24)	(3.22)	0.55	1.34	32.11
2C	1.36	0.42	0.39	0.07	2.50	0.27	1.08	n.a.
3C	n.a.	n.a.	0.69	0.38	4.53	1.69	n.a.	750.34
4C	1.30	1.30	0.81	(0.07)	2.69	(0.07)	0.14	(1.16)
5C	n.a.	n.a.	0.38	0.17	3.65	1.51	0.59	18.55
6C	0.41	0.41	1.00	0.08	2.51	0.55	0.63	3.65
7C	1.22	0.36	0.91	0.11	3.07	1.13	0.75	n.a.
8C	4.44	4.12	0.92	0.60	5.02	2.76	0.14	42.59
9C	7.44	7.44	0.91	0.10	3.86	0.57	0.34	11.76
10C	n.a.	n.a.	0.59	0.37	3.11	1.31	0.17	77.14
11C	2.52	0.50	0.34	0.04	4.86	0.07	0.17	2.10
12C	3.37	2.38	0.60	0.15	1.18	0.28	0.26	3.51
13C	1.63	1.63	0.43	(0.00)	2.01	0.07	0.25	1.04
14C	n.a.	n.a.	0.35	0.06	2.91	0.45	0.67	8.06
15C	n.a.	n.a.	0.65	0.09	31.22	4.51	1.38	21.85
16C	6.14	4.94	0.70	0.24	1.95	0.38	(0.21)	n.a.
17C	n.a.	n.a.	0.00	(0.45)	3.10	1.02	(0.95)	(60.10)
18C	n.a.	n.a.	0.66	(1.71)	0.18	(0.33)	n.a.	n.a.
19C	n.a.	n.a.	0.16	(0.19)	2.75	0.37	0.86	(5.18)
20C	n.a.	n.a.	0.59	0.04	0.66	0.03	0.23	(1.21)
21C	n.a.	n.a.	0.31	(0.03)	6.14	(0.14)	0.02	(2.87)
22C	6.86	5.12	0.93	0.75	1.12	1.09	0.37	22.62
23C	0.82	0.66	1.00	0.60	1.55	1.71	0.17	39.58
24C	0.33	0.02	0.23	(3.57)	0.21	0.61	2.14	(6.35)
25C	5.50	5.48	0.91	0.32	3.27	1.22	0.23	88.28
26C	0.00	0.00	1.00	0.01	1.94	0.41	0.93	n.a.
27C	n.a.	n.a.	0.88	(0.02)	0.20	(0.00)	n.a.	(0.51)
28C	1.71	1.71	0.51	0.19	4.91	1.83	0.49	21.03
29C	6.32	5.65	0.50	0.25	3.92	1.26	0.20	45.87
30C	n.a.	n.a.	1.00	0.41	2.39	1.07	0.09	14.04
31C	n.a.	n.a.	0.84	0.46	1.40	0.74	0.13	29.50
32C	0.38	0.38	0.17	0.03	1.68	(0.55)	1.12	1.83
33C	14.54	3.80	0.81	0.01	1.32	2.31	0.96	43.83
34C	n.a.	n.a.	1.00	0.06	3.81	0.30	0.23	n.a.

APPENDIX III

A. Balance Sheet

ASSETS	LIABILITIES AND SHAREHOLDERS' EQUITY
Current Assets	Current Liabilities
Cash	Accounts Payable
Short-Term Investment	Bank Overdraft
Accounts Receivables	Current Portion of Long-term Debt
Inventory	Credit Cards
Prepaid Expenses	Accrued Taxes
Other Current Assets	Accrued Payroll
Total Current Assets	Accrued Interest
Long-term Assets	Other Current Liabilities
Land	Total Current Liabilities
Buildings	Long-term Liabilities
Office Equipment	Mortgage
Furniture and Fittings	Loan
Machinery	Other Long-term Liabilities
Vehicles	Total Long-term Liabilities
Intangible Assets	Total Liabilities
Other Fixed Assets	Shareholders' Equity
Less: Accumulated Depreciation	Capital
Total Long-term Assets	Dividends Declared
Total Assets	Retained Earnings
	Withdrawals of Owner
	Total Shareholders' Equity
	Total Liabilities and Shareholders' Equity

B. Income Statement

Sales
Less: Cost of Goods Sold (COGS)
Gross Profit
Less: General Operating Expenses
Less: Depreciation
Operating Income
Add: Other Income
Earnings Before Interest and Tax (EBIT)
Less: Interest Expense
Net Profit Before Taxes (NPBT)
Less: Taxes
Net Profit After Taxes (NPAT)
Less: Dividends Paid to Shareholders
Retained Earnings

APPENDIX IV

Business Risk

Business risk refers to the uncertainty of income caused by the firm's industry. This uncertainty is also a reflection of the firm's variability of sales caused by its products, clients and production methods. Over time, a firm's operating earnings may vary because its sales and production costs vary, therefore, the earnings variability is measured over time.

The three main ratios used to analyse business risk are overall business risk, sales variability and operating leverage. Overall business risk is a function of the coefficient of variation of operating earnings. This allows comparisons between standardised measures of business risk for firms of different sizes. To compute the coefficient of variation you need a minimum of five years (less than five years is not very meaningful) and no more than about 10 years (data older than ten years is typically too out of date to be relevant).

$$\text{Coefficient of Variation of Operating Earnings} = \frac{\sqrt{\frac{\sum_{i=1}^n (OE_i - \overline{OE})^2}{n-1}}}{\frac{\sum_{i=1}^n OE_i}{n}}$$

where OE = Operating Earnings, \overline{OE} = Average Operating earnings, n = number of years

The two factors that influence the variability of operating earnings are sales variability and operating leverage. Sales variability is the prime determinant of earnings variability and is mainly caused by the firm's industry and is largely outside of the control of management. Like the operating earnings, sales variability is measured by the coefficient of variation of sales during the most recent five to ten years.

$$\text{Coefficient of Variation of Sales} = \frac{\sqrt{\frac{\sum_{i=1}^n (S_i - \overline{S})^2}{n-1}}}{\frac{\sum_{i=1}^n S_i}{n}}$$

Operating leverage analyses fixed production costs as the variability of a firm's operating earnings also depends on its mixture of production costs. Fixed production costs cause operating profits to vary more than sales or the business cycle because fixed costs cannot be adjusted in response to the business cycle. Thus, while in a slow period you can reduce variable costs by reducing production output, the cost of the machinery and plant, for example, cannot be adjusted in the short-term. As a result, the gross profit margin falls and puts pressure on net income. Operating leverage, therefore, looks at fixed production costs as a percentage of total production costs. There are a number of ways to determine the operating leverage, but only one has been given below because it uses information available on the Income Statement and, thus, does not require information other than what is already being submitted.

$$\text{Operating Leverage} = \frac{\sum_{i=1}^n \left| \frac{\% \Delta OE}{\% \Delta S} \right|}{n}$$

where % Δ OE = percentage change in operating earnings and % Δ S = percentage change in sales.

We take the absolute value of the percentage changes because they can move in opposite direction and the direction of change is not important since the relative size is more relevant. By definition, therefore, the more volatile the operating earnings as compared to the volatility of sales, the greater the operating leverage.