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Evaluation of Factors Affecting Corporate Performance of Malaysian Listed Companies

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ABSTRACT

This study investigates factors that affect corporate performance in Malaysia. The study utilized three measures of company performance - Return on Assets (ROA), Return on Sales (ROS), and Economic Value Added (EVA), to act as dependent variables in order to examine their relationships with the independent variables. The results suggest that significant variables that determine Malaysian corporate success are ISO 9000, capital structure, company size and category of industry. In establishing the relationship between ISO 9000 registration and performance, all the three measures appear to have significant positive associations with ISO 9000 registration. As for the relationship between capital structure and the performance measures, ROA and ROS have significant negative associations with capital structure. Other factors that determine Malaysian corporate success are company size and category of industry.

Keywords: Corporate Performance, Size, Age, Growth, Capital Structure

INTRODUCTION

As global competition intensifies, an increasingly important issue for companies is performance. The two major forces that Malaysian businesses face are the rapid rate of technological change and increasing industrialization. The rate of change is likely to accelerate as further development occurs especially in

relation to the Multimedia Super Corridor (MSC). It has been suggested that the MSC will in time become Malaysia's "Silicon Valley" with the traditional agricultural commodities giving way to new, technology-based industries.

Malaysia's acceptance of the Asian Free Trade Area (AFTA) Agreement in January 2004 is another contributing factor. AFTA has laid out a comprehensive program ofregional tariff reduction, to be carried out in phases through to the year 2008. This deadline was subsequently moved forward to 2004 for Malaysia. Several years later, the program of tariff reductions was broadened and accelerated, and a host of "AFTA Plus" activities was initiated. This includes efforts to eliminate non-tariff barriers and quantitative restrictions, harmonize customs nomenclature, valuation and procedures, and develop common product certification standards, which could be certified by the International Organization for Standardization (ISO).

The objective of this study is to determine and analyse empirically the factors that affect the performance of Malaysian companies. Inparticular, the study analyses company attributes such as size, capital structure, age, growth, industrial category and ISO registration and correlates them with corporate performance measures. Therefore, this study identifies the effects of factors such as size, capital structure, age, growth, industry category and ISO 9000 registration on corporate performance.

The paper is organized as follows. The factors influencing financial performance is discussed in the following section. The formulation ofresearch hypotheses is presented in section 3. Data collection and development of models are discussed in section 4, followed by the findings, the conclusions, and the implications.

FACTORS INFLUENCING FINANCIAL PERFORMANCE

In attempting to answer the main research question as to why some firms perform better than their counterparts, six internal and external factors were selected. The six company attributes are size, growth, capital structure, age, the industrial category in which the company operates, and ISO 9000 registration.

Company Size

The hypothesis that corporate performance increases with the size of the firm was developed by Baumol (1956), who concluded that the rate of return of a firm increases with the firm's size. Hall and Weiss' (1967) studied the relationship between firm size and profitability on the Fortune 500 Largest Industrial Corporations for the years 1956 to 1962. They concluded that size did contribute to high profit rates. Marcus' (l969) study on profitability (ratio of net profits before tax plus interest payment to total assets) and the size of firms found that the size of firm influences profitability in some, though not in all manufacturing industries. Gupta (1969) carried out a study on the effect of size, growth and industry on the financial structure of a hundred and seventy- three American manufacturing companies for the year 1961 - 1962. Among the findings, activity ratios and leverage ratios were found to decrease with an increase in the size of the firm, but tend to increase with the growth of the firm. Liquidity ratio rose with an increase in the size of the firm but fell with the growth rates. In addition the bigger firms generated higher profit margin on sales compared to the smaller-sized firms.

Company's Growth

The most commonly used alternative measure of profitability is the growth rate. The growth rate used in this study is based on growth in sales. Dess and Davies (l986) studied the determinants of strategic group membership and organizational performance of U. S. firms. Based on sales growth, the overall F-ratio indicated that the groups were significantly different from one another. Furthermore, Johnson and Soenen (2003) carried out a study on the indicators of successful companies using Compustat data for 478 companies covering the period 1982-1998. Factors that discriminate between financially successful and less successful companies were investigated. Financial success was measured using three different indicators - the Sharpe ratio, Jensen's alpha, and EVA. Itwas found that large, profitable firms with efficient working capital management (i.e., relative short cash conversion cycles) and a certain degree ofuniqueness (measured by advertising spending relative to sales) outperformed the sample average on the three performance measures.

Company's Capital Structure

Another variable used in the present study is capital structure. Capital structure ratio is interpreted as the debt-equity ratio. Bajaj et al. (1998) who analyzed the relationship between ownership, financing decisions and firm performance used performance measures such as Tobin's Q ratio, and elements of financial structure such as debt-structure, that is the debt-equity ratio. Bajaj et al. (1998) found that ownership, which is a signal of firm's 'quality', is positively correlated with Tobin's Q and also positively correlated with various measures of debt- equity ratio.

Company's Age

Another important variable used in this study is the firm's age since incorporation. Brush and Chaganti (1999) used age, size (based on number of employees), and industry as factors influencing the performance of 195 service and retail firms operating in central New Jersey, using a structured questionnaire. The dependent variable performance was measured in two ways: net cash flow and log of growth in employees over 3 years. Their analyses showed that growth was more rapid among the youngest firms.

Industry Category

Industry category or classification is another variable used in this study. The industry category used includes industrial product, consumer product, construction, trading and services, plantation and other industries. Porter (1979) suggested that links exist between a firm's profits and industry structure, and thus firms in some strategic groups would be more profitable than others. However, Shepherd (1972) argued that market power is firm-specific and is dependent on the firm's own market share, implying that profit rates increase systematically with size within an industry. Yet Marcus (1969) found that the relationship between firm size and profitability within an industry is erratic, with some industries exhibiting positive relations, some indicate negative relations and others apparently showed no statistically significant relations. However, Mancke (1974) argues that firms that are 'lucky' in their drawings from probability distributions surrounding competitive moves such as new

product introductions will be more profitable. These lucky firms will be able to fund faster growth, and thus will outdistance their competitors and concentrate the industry. Thus the leading firms in concentrated industries would be more profitable because they are 'lucky' and not because they possess real market power.

Table 1 Different Factors That Influence Corporate Performance

Construct Variable - Firm's Size	Representative Study
Firm size and Rate of Return	Baumol, 1956
Firm size and Profitability	Hall and Wess, 1967
Firm size and rate ofretum	Hensen and Wemerfelt, 1989
Firm size and strategy	Grinyer et al., 1980
Firm size and Stock price performance	Coughlan and Schmidt, 1985
Firm size and strategic groups	Lewis and Thomas, 1990
Firm size and diversification strategy	Christensen & Montgomery, 1981
Firm size and profitability	Marcus, 1969
Firm size and financial structure	Gupta, 1969
Construct Variable - Sales Growth	
Growth and conglomerate firms	Weston and Mansinghka, 1971
Growth and managerial pay	Murphy, 1985
Growth and profitability	Lee et al., 1990
Growth and strategic groups	Dess and Davies, 1986
Construct Variable - Firm's Capital Structure	
Debt Equity and Control type	Kania and McKean, 1978
Market value measurement of debt	Mulford, 1985
Debt Equity and profitability	Lee et al., 1990
Debt Equity and ownership	Bajaj et al., 1998
Debt Equity and inflation impact	Oguie et al., 2001
Construct Variable - Firm's Age	
Age and Informativeness ofF/S	Black et al., 1997
Age and CEO compensation	Rupp and Smith, 2002
Age and entrepreneurship	Murphy et al., 1996
Construct Variable - ISO 9000 Accreditation	
ISO and Productivity improvements	Corbett et al., 2002
ISO and Export sales	Cebeci and Beskese, 2002
ISO and company performance	Jeng, 1998
ISO and financial performance	Lima et al., 2000
Construct Variable - Industry Category	
Industry and profitability	Bain, 1956
Industry and Firm profits	Porter, 1979
Industry and firm performance	Hensen and Wemerfelt, 1989

Industry and business unit performance	Schmalensee, 1985
Industry and firm level performance	Scherer, 1980

Note: This table has been developed from Ketchen et al. (1993)

DEVELOPMENT OF THE STUDY HYPOTHESES

Based on the theoretical approach and the literature review on the performance evaluation studies, this research developed hypotheses based on three financial corporate performance variables which act as dependent variables:

1. Return on Assets (ROA)
2. Return on Sales (ROS)
3. Economic Value Added (EVA)

The independent variables were divided into twelve groups in order to capture the dimensions of all theoretical perspectives of company attributes, which include:

1. Company size
2. Company age
3. Capital Structure
4. Company growth
5. ISO 9000 registration
6. Seven industry categories which include industrial product, consumer product, construction, trading and services, plantation and other industries.

Company Size

The size of a company has persistently been found to have a positive association with the ROA or profitability of a company (Baumol, 1956; Hall and Weiss 1967; Marcus, 1969; Hensen and Wernerfelt, 1989; Laitinen, 2002). Baurnol (1956) found that the rate of return of a firm increases with the firm's size. Hall and Weiss' (1967), in their study of the Fortune 500 Largest Industrial Corporations, found that size did tend to result in high profit rates. Marcus (1969), in a study on ROA and the size of firms, found that there is sorne evidence of positive association between size and the profitability of firill· However, Gupta (1969) found that large-sized firms tend to have higher profit margin on sales than the small-sized firms. Hensen and Wernerfelt (1989) also used firm size and return on total assets as their measure of performance and

found that size is negatively related to ROA. Inaddition, Laitinen (2002) used company size as one of the measures of success in investigating the possibilities of a uniform financial rating of technology companies in Europe from the perspective of a potential investor. Johnson and Soenen (2003) used EVA and company size based on total assets, and found that large firms outperformed the sample average firms on EVA.

Based on the foregoing discussion, this study hypothesizes that the size of a firm is positively associated with the ROA, ROS and EVA of a company. This study measures size by the ttal assets of a company, a measure used in a large number of studies (e.g. Baumol, 1959; Gupta, 1969; Grinyer et al., 1980; Hensen and Wemerfelt, 1989; Laitenen, 2002; and Johnson and Soenen, 2003).

Company Age

The age of a company has also been hypothesized to be positively associated with the performance variables (ROA, ROS and EVA) of a company. Carroll (1983) concluded that the most common finding of the major empirical studies of mortality is that the death rate of business organizations declines with increasing age, with organizations more likely to fail in their first few years of operation. However, Meyer and Zucker (1989) did not expect an organization's age to necessarily be related to its success. Furthermore, Kalleberg and Leicht (1991), in their study on determinants of small business survival and success, found that older companies were less likely to go out of business compared to younger companies. Brush and Chaganti's (1999) study on factors influencing the performance of service and retail firms in New Jersey found that growth of firm was more rapid amongst the youngest firms. Based on these studies, it is hypothesized that the age of a company is positively associated with ROA, ROS and EVA.

Capital Structure of a Company

This study hypothesizes that there is a positive association between the capital structure of a company and its ROA, ROS and EVA. Capital structure is measured in terms of ratio of debt to total assets, because some companies in Malaysia were insolvent and had a negative amount of equity due to the 1997 financial crisis. As such measuring capital structure as debt to equity ratio

might be misleading (Ku Nor Izah, 2003). The hypotheses was created based on Bajaj et al. (1998), who found that ownership, which is a signal of firm's 'quality', is positively correlated with various measures of the debt-equity ratio. Additionally, Johnson and Soenen (2003) found a statistically significant positive relationship between capital structure and economic value added. Based on these arguments, this study hypothesised that capital structure is positively associated with ROA, ROS and EVA.

Growth of a Company

This study hypothesises that there is a positive association between the growth of a company and its performance measures (ROA, ROS and EVA). Growth is generally associated with performance and is based on sales growth. Dess and Davies (1984) found that based on sales growth; there is a significant difference among the strategic group in their study. However, Grinyer et al. (1988) found a positive association between profit margins and growth based on their study on the economic performance of the U.K. Electrical Engineering Industry. In addition, Johnson and Soenen (2003) found that large, profitable firms with efficient working capital management outperformed the sample average firms on the three performance measures (the Sharpe ratio, Jensen's alpha, and EVA). Based on the foregoing discussion, this study hypothesises that the growth of a company is positively associated with corporate performance measure (ROA, ROS and EVA).

ISO 9000 REGISTRATION

In numerous performance studies, ISO has been persistently found to have a positive association with ROA (Spinard and Sutter, 1996; Haversjo, 2000; Kearney, 2001; Heras et al., 2002; Corbett et al., 2002 and Mokhtar et al., 2005). Heras et al. (2002) examined whether the ISO 9000 had led to improvements in the audited financial performance of 400 certified and 400 non-certified Basque firms over a period of five years. They concluded that the ISO 9000 registered companies were more profitable than the non-registered companies. Corbett et al. (2002) also found that after ISO 9000 registration, companies tended to report abnormal improvements in ROA, and more

importantly, these improvements were found to be lasting. In a similar manner, Raversjo (2000) also used ROA to study the financial performance of 644 Danish registered companies compared to a similar group of non-registered companies. In addition, he examined whether ISO 9000 registered companies Were more profitable than non-registered companies. The overall findings were that registered companies had better earnings than similar non- registered companies. Besides that, Eriksson and Hansson (2003) used ROS as an indicator for measuring the impact of TQM on financial performance of Swedish companies. They found that the award recipients (Swedish Quality Award) outperformed their competitors for most of the years studied. Mokhtar et al. (2005), in their study of the impact oflSO 9000, found that ROS did determine the performance of Malaysian companies. Based on the foregoing discussion, this study hypothesises that ISO 9000 registration is positively associated with ROA, ROS and EVA.

INDUSTRIAL CATEGORY

The industrial category of a company has also been hypothesized to have an association with the ROA, ROS and EVA of the company. Marcus (1969) found that the relationship between firm size and profitability within an industry iserratic, with some industries exhibiting positive relations, some negative relations and others no apparent statistically significant relation at all. However, Porter (1979) suggested that links exist between a firm's profit and industry structure, and firms in some strategic groups would be more profitable than others. Besides that, Schmalensee (1985) found that differences between industries, as measured by average industry return on assets, account for almost all the explained variance in business unit performance. Hensen and Wemerfelt (1989) used accounting rates ofretum and industry variables as their measures of performance in their study on determinants of firm performance. However, Liber's (1996) study on the 200 largest US corporations, ranked by economic value added and market value added, found that the champion in the category of wealth destroyed by an industry is the automobile business. Based on these findings, this study hypothesises that category of industry is associated with the ROA, ROS and EVA of a company. The selected categories of industry

used in this study are industrial products, consumer products, construction, property, trading and services, plantation and other industries.

Model 1 - ROA as the Dependent Variable.

Based on the works of Heras et al. (2002), Corbett et al. (2002) and Mokhtar et al. (2005) among others, this study hypothesises that Return on Assets (ROA) is positively associated with ISO 9000, size, capital structure, age, growth, and the seven categories of industry.

Hypotheses Testing on Model 1- ROA as the Dependent Variable

From the foregoing discussion, the hypotheses to be tested, stated in their null forms, are:

H1a: There is no association between ROA and ISO 9000 registration of a company

Hlb: There is no association between ROA and the size of a company

H1c: There is no association between ROA and the capital structure of a company

H1d There is no association between ROA and the growth of a company

H1e: There is no association between ROA and the age of a company

H1f: There is no association between ROA and industrial product companies

H1g: There is no association between ROA and consumer product companies

Hlh: There is no association between ROA and construction companies

H1i: There is no association between ROA and property companies

Hlj: There is no association between ROA and trading and services companies

H1k: There is no association between ROA and plantation companies

H11: There is no association between ROA and companies in other industries

Model 2 - ROS as the Dependent Variable.

Referring to the works by Lima et al. (2000), Kearney (2001), Eriksson and Hansson (2003), Naser et al. (2004) and Mokhtar et al. (2005), this study hypothesises that Return on Sales (ROS) is positively associated with ISO 9000, size, capital structure, age, growth, and the seven categories of industry.

Hypotheses Testing on Model 2- ROS as the Dependent Variable.

From the foregoing discussion, the hypotheses to be tested, stated in their null forms, are:

H2a: There is no association between ROS and ISO 9000 registration of a company

H2b: There is no association between ROS and the size of a company

H2c: There is no association between ROS and the capital structure of a company

H2d: There is no association between ROS and the growth of a company H2e: There is no association between ROS and the age of a company

H2f: There is no association between ROS and industrial product companies

H2g: There is no association between ROS and consumer product companies

H2h: There is no association between ROS and construction companies H2i: There is no association between ROS and property companies

H2j: There is no association between ROS and trading and services companies

H2k: There is no association between ROS and plantation companies

H2l: There is no association between ROS and companies in other industries

Model 3 - EVA as the Dependent Variable

Based on the works of, among others, Dess and Davies (1984), Bhandari (1988), Hensen and Wernerfelt (1989), Kalleberg and Leicht (1991), Johnson and Soenen (2003), Naser et al. (2004) and Mokhtar et al. (2005), the third model hypothesises that EVA is associated with ISO 9000, size, capital structure, growth, age and industrial category of a company.

Hypotheses Testing on Model 3 - EVA as the Dependent Variable

From the foregoing discussion, the hypotheses to be tested, stated in their null forms, are:

H3a: There is no association between EVA and ISO 9000 registration of a company

H3b: There is no association between EVA and the size of a company

H3c: There is no association between EVA and the capital structure of a company

H3d: There is no association between EVA and the growth of a company
H3e: There is no association between EVA and the age of a company
H3f: There is no association between EVA and industrial product companies
H3g: There is no association between EVA and consumer product companies
H3h: There is no association between EVA and construction companies
H3i: There is no association between EVA and property companies
H3j: There is no association between EVA and trading and services companies
H3k: There is no association between EVA and plantation companies
H31: There is no association between EVA and companies from other industries

DATA COLLECTION AND SAMPLE SELECTION METHOD

This study uses the secondary data obtained from various sources. The SIRIM database *(http://www.malaysiancertified.com.my)* provides a listing of all ISO 9000 registered companies in Malaysia. The list of potential companies and all associated financial data were acquired from the Bursa Malaysia (previously called Kuala Lumpur Stock Exchange) database *(http://bursamalaysia.com),* thus ensuring that all the data were comparable. Data for the years 1998-2001 were used in this study. This time frame was chosen in order to exclude the period before 1997, the year of serious economic crisis in Malaysia.

As at the end of 2002, this study identified a random sample consisting of 162 companies listed on the Bursa Malaysia database, which had a population of 736 companies listed in 1998 *(http://www.klse.com.my/website/listing/ listingstats.htm).* The sample collected accounts for 22 percent of the population. Two samples were extracted from the database *(http://www.klse- ris.com.my);* one sample was comprised of 81 ISO 9000 certified companies selected from the SIRIM database *(http://www.malaysiancertified,com.my),* and the second sample consisted of a comparable group of 81 companies that were not registered with ISO 9000. By the end of 1998, there were 1,707 ISO accredited companies on the Malaysian Standard (SIRIM) database, also available at the ISO 9000 Ninth Cycle Survey *(http://www.eos.org.eg.lweb_en/ pdf/survey9.pdj),* but most of them were not listed on the Kuala Lumpur Stock Exchange.

Findings

The findings of this study which is based on the statistical analysis, starting with descriptive statistics on the three financial corporate performance measures (ROA, ROS, and EVA), and twelve company attributes which include size, age, growth, capital structure, ISO 9000 and the seven categories of industries. Following this, Pearson's correlations among the dependent and independent variables are explained in order to illustrate the relationships between all the variables. Subsequently, the study hypotheses and regression results on the model development were presented.

Descriptive Statistics

As for the continuous variables, descriptive statistics have been used to describe the sample data. The descriptive statistics of the variables used in this study are given in Table 2. With respect to variable ROA, which is the return on assets; the range of ROA scores is between -.8066 and .2841, with a mean of -0.043 and a standard deviation of 0.1720. As for ROS, which is the return on sales, the range of ROS scores is -5.2151 and 1.4650, with a mean of -0.2756 and a standard deviation of 0.8646. Looking at EVA, which is the economic value added (Net profit after tax less cost of capital), the range of EVA scores is between -893,347,000 and 820,425,000, with a mean of -26,633,459 and a standard deviation of 183,837,622. SIZE (the size of the company based on total assets) ranges between 4,358,075 and 38,670,900,000, with a mean of 1,401,574,715 and a standard deviation of 4,028,687,121. The variable age, which is the age of the company since incorporation, the number of companies used in the study sample is 162, and the range of ages is from 4 to 94 years, with a mean of 28.44 and a standard deviation of 17.94. Looking at growth, which is the growth of the company based on sales growth, the range of GROWTH scores is between -0.52 and 11.90, with a mean of 0.1557 and a standard deviation of 1.1059. As for CAPSTRUC, this is the ratio of total debt to total assets; the range of CAPSTRUC scores is between 0.0803 and 17.4579, with a mean of 1.0327 and a standard deviation of 1.7438.

Table 2 Descriptive statistics of all the variables used in this study

	N Stat.	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Dev. Statistic	Skewness Statistic	Kurtosis Statistic
ROA	162	-.8066	.2841	-4.3E-02	.172037	-1.790	4.302
ROS	162	-5.2151	1.4650	-.275690	.864654	-2.805	10.154
EVA	162	-893347000	820425000	-26633459	183837622	-.740	8.783
SIZE	162	4358075	38670900000	1401574715	4028687121	6.504	50.855
AGE	162	4	94	28.44	17.94	1.484	2.913
GROWTH	162	-.52	11.90	.1557	1.1059	8.291	82.071
CAPSTRUC	162	.0803	17.4579	1.032736	1.743826	6.737	55.423
INDPRODT	162	.00	1.00	0.3333	0.47287	0.714	-1.509
CONSPROD	162	.00	1.00	0.0926	0.29076	2.837	6.126
CONSTRUC	162	.00	1.00	0.1111	0.31524	2.498	4.293
PROPERTY	162	.00	1.00	0.1111	0.31524	2.498	4.293
TRDGSERV	162	.00	1.00	0.1852	0.38965	1.636	0.685
PLANTATN	162	.00	1.00	0.0556	0.22977	3.917	13.509
OTHERS	162	.00	1.00	0.0988	0.29927	2.715	5.438

MODELDEVELOPMENT

A linear regression analysis was performed to explore the relationship between the three continuous dependent variables, which are classified into the financial corporate performance measures (ROA, ROS and EVA), and twelve independent variables or predictors, which are classified into company attributes (size, age, ISO 9000, capital structure, growth and seven category of industry). Hensen and Wemerfelt (1989) used regression analysis in their study on the relative importance of economic and organizational factors in determining firm performance. The general structural equation that was employed to explain the above association is:

Regression Model 1- ROA as the Dependent Variable

$$ROA = \beta 0 + \beta 1ISO + \beta 2CAPSTRUC + \beta 3SIZE + \beta 4GROWTH + \beta 5AGE + \beta 6INDPRO + \beta 7CONPRO + \beta 8CONSTR + \beta 9PROPTY + \beta 1OTRASER + \beta 11PLANT + \beta 120THERS + \varepsilon$$

Where:

ROA	Return on Assets
ISO	ISO 9000 Registration
CAPSTRUC	Capital structure measured by ratio of debt to total assets
SIZE	Size of a company measured by the total assets
GROWTH	Growth of a company measured by the average growth in sales
AGE	Age of a company since incorporation
INDPRO	Industrial product company
CONPRO	Consumer product company
CONSTR	Construction company
PROPTY	Property company
TRASER	Trading and Services company
PLANT	Plantation company
OTHERS	Companies from other industries
$\beta 0$ and βi	Constant/parameters to be estimated, $i = 1$ to 12, and
ε	Disturbance term

Analysis ofregression results on Model **1** (ROA) as the dependent variable A linear regression analysis was performed to estimate the coefficients and the direction ofrelationships between the dependent and the independent variables in each of the three regression models specified in the study.

Various tests have been performed to assess the severity of the multicollinearity problem. Referring to the correlation analysis shown in Table 3, the results suggest a low correlation among the variables. The largest reported value (0.730) is between ROA and the Capital Structure variable. In this respect, Kennedy (1985) suggests that correlation values below 0.80 do not pose a potential multicollinearity problem. While the correlation matrix can be used to detect potential multicollinearity problems between two explanatory variables, the absence of high correlations does not always mean that there is no multicollinearity. To deal with this problem, a diagnostic procedure that utilises the Variance Inflation Factor (VIF) was also undertaken. VIFs for all variables, as reported in Table 5 are below 8.993. According to Silver (1997) multicollinearity is viewed as a serious problem only when the VIF exceeds 10. Hence, the explanatory variables used in this study do not seem to pose a serious multicollinearity problem and this allows for standard interpretation of the regression coefficients.

Table 3 Pearson's Correlations of Corporate Performance variables with Size, Capital Structure, Age, Growth and ISO 9000

Corporate Performance Measures	Size	Capital Structure	Age	Growth	ISO 9000
ROA	.122	-.730**	-.030	.134	.471**
Sig.	.123	.000	.709	.090	.000
ROS	.115	-.384**	-.128	.022	.443**
Sig.	.145	.000	.105	.777	.000
EVA	.169*	-.177*	-.024	.071	.382**
Sig.	.031	.024	.763	.371	.000
Capital Structure	-.062				
Sig.	.434				
Age	-.008	-.078			
Sig.	.923	.323			
Growth	-.016	-.075	-.135		
Sig.	.842	.342	.087		

ISO 9000	.157*	-.232**	-.164*	.136
Sig.	.046	.003	.037	.084

* Correlation is significant at the 0.05 level (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed)

With regard to the fitness of the model, the significance value of the model (Significant F) is at p<0.000, is less than 0.05 (Table 5). It can be concluded that the model could fit the data. In this model, the R-square (R") value shows that 64.3 percent of the variation in ROA was explained by all the company attributes, which include age, ISO 9000, size, growth, capital structure and the category of industry that the company operates in. The adjusted R" value of 0.614 and the F value of 22.371 mean that the model describes 61.4 percent of the variance in ROA and is significant at the 5 percent level. There is insufficient evidence to support the hypotheses that ROA is directly related to the company's age, company's size, company's growth, and the category of industry that the companies are operating in, namely industrial products, consumer products, construction, property, trading and services, plantation and other industries. Thus, the null hypotheses (Hlb, H id, Hie, Hlf, H lg, H l h, H l i, H lj, H lk, Hll) could not be rejected at a 5 percent significance level.

ISO 9000 and capital structure are the only variables significantly associated with ROA. The beta coefficient for ISO 9000 shows a value of 0.302 and a significance level of p<0.000, suggesting that the relationship between ISO 9000 and ROA is positive and is significant at the 5 percent level. This implies that companies registered with ISO 9000 have a higher ROA than companies that are not registered with ISO 9000. Although the association is not strong, the findings support the hypothesis that ROA is positively associated with ISO 9000 (Heras et al., 2002; Corbett et al., 2002). The null hypotheses (Hla) and (Hie) that there is no association between ROA and ISO 9000 is rejected at a 5 percent significance level. However, as for capital structure, the beta coefficient shows a value of (0.646) and a significance level of p<0.000, which means that the relationship between capital structure and ROA is negatively related and is significant at the 5 percent level. Therefore companies with low capital structure have a higher ROA than companies with high capital structure.

Table 4 Pearson's Correlation of Corporate Performance variables and other company attributes with Category of Industry

Corporate Performance Measures	Industrial Product	Consumer Product	Construction	Property	Trading & Services	Plantation	Others
ROA	.046	.102	-.008	-.003	-.038	.125	-.230**
Sig.	.560	.197	.924	.971	.629	.114	.003
ROS	.125	-.014	.049	-.097	.045	.099	-.291**
Sig.	.113	.861	.533	.218	.567	.209	.000
EVA	-.035	.056	.025	-.045	-.019	.096	-.080
Sig.	.655	.476	.750	.571	.815	.226	.312
Size	-.112	-.079	.078	-.072	.229**	-.027	-.057
Sig.	.158	.317	.323	.365	.003	.736	.470
Age	-.116	-.045	-.165*	.150	-.051	.090	.232**
Sig.	.143	.571	.036	.056	.520	.253	.003
ISO 9000	.157*	.106	.118	-.039	-.064	-.027	-.331**
Sig.	.046	.177	.135	.620	.422	.734	.000
Growth	-.028	-.036	.001	.009	.077	-.067	.019
Sig.	.722	.648	.988	.907	.330	.400	.807
Capital Structure	-.031	-.070	.023	-.070	.093	-.096	.138
Sig.	.695	.377	.772	.379	.238	.222	.080

* Correlation is significant at the 0.05 level (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed)

Regression Model 2 - ROS as the Dependent Variable.

Based on the study hypotheses created, the general structural regression equation that was used to explain the above association is:

Regression Model 2

$$ROS = \beta 0 + \beta 11SO + \beta 2CAPSTRUC + \beta 3SIZE + \beta 4GROWTH + \beta 5AGE + \beta 6INDPRO + \beta 7CONPRO + \beta 8CONSTR + \beta 9PROPTY + \beta 10TRASER + \beta 11PLANT + \beta 120THERS + \varepsilon$$

Analysis of Regression Results, Model 2 - ROS as the Dependent Variable

Table 5 reports the linear regression results for Model 2 where Return on Sales (ROS) is the dependent variable and was regressed against twelve independent variables. In order to determine the fitness of the model, referring to Table 5 for the regression results, the significant value of the model (Significant F) shows that $p<0.000$, which is less than 0.05, so it can be concluded that the model does fit the data. The R-square (R") value shows that

33.4 percent of the variation in ROS was explained by all the company attributes, which include age, ISO 9000, size, growth, capital structure and the seven categories of industry within which the companies operate. The adjusted R" value of 0.281 and the F value of 6.238 show that the model describes 28.1 percent of the variance in ROS and is significant at the 5 percent level. There is not enough evidence to support the hypotheses that ROS is directly related to the company's age, company's size, company's growth, and the category of industry that the companies are operating in, namely industrial products, consumer products, construction, property, trading and services, plantation and other industries. Thus, the null hypotheses (H2b, H2d, H2e, H2f, H2g, H2h, H2i, H2j, H2k, H21) could not be rejected at a 5 percent significance level.

As shown in Table 5, ISO 9000 and capital structure are the only variables that are significantly associated with ROS. The beta coefficient (0.335) and significance level ($p<0.000$) suggest that the relationship between ISO 9000 and ROS is positive and is significant at the 5 percent level. This implies that

companies that are registered with ISO 9000 have a higher ROS than companies that are not. However, as for capital structure (ratio of debt to total assets), the beta coefficient shows a value of -0.307 and significance level of $p<0.000$, which means that the relationship between capital structure and ROS is negatively related and is significant at the 5 percent level. This indicates that companies with low debt to total assets ratios have a higher ROS than companies with high debt to total assets ratios. Although the association is not strong, the findings support the hypothesis that tiere is a relationship between ROS and ISO 9000 (positive association) and between ROS and capital structure (negative association). The null hypotheses (H2a and H2c) that there is no relationship between ROS and ISO 9000 are rejected at a 5 percent significance level. The beta coefficient also shows that ISO 9000 makes a stronger statistically significant contribution than capital structure in contributing to the prediction of the dependent variable (ROS).

Table 5 *Results of the Regression Analysis - Model 1 to Model 3*

	Model 1 - ROA			Model 2 - ROS			Model 3 - EVA		
Independent variables	Beta Coef.	Sig. level	VIF	Beta Coef.	Sig. level	VIF	Beta Coef.	Sig. level	VIF
ISO 9000	0.302	0.000*	1.289	0.335	0.000*	1.289	0.376	0.000*	1.289
CAPITAL STRUCTURE	-0.646	0.000*	1.116	-0.307	0.000*	1.116	-0.074	0.341	1.116
SIZE	0.028	0.587	1.127	0.009	0.896	1.127	0.100	0.202	1.127
GROWTH	0.045	0.370	1.070	-0.055	0.430	1.070	0.022	0.770	1.070
AGE	-0.024	0.653	1.172	-0.068	0.346	1.172	0.007	0.928	1.172
INDUSTRIALPRODUCT	-0.128	0.547	8.911	-0.158	0.588	8.911	-0.608	0.058	8.911
CONSUMER PRODUCT	-0.046	0.738	7.823	-0.188	0.317	7.823	-0.321	0.119	7.823
CONSTRUCTION	-0.107	0.465	8.993	-0.125	0.534	8.993	-0.390	0.078	8.993
PROPERTY	-0.104	0.479	8.980	-0.213	0.289	8.980	-0.394	0.074	8.980
TRADING & SERVICES	-0.070	0.691	3.119	-0.083	0.731	3.119	-0.465	0.082	3.119
PLANTATION	0.016	0.886	5.234	-0.017	0.909	5.234	-0.172	0.306	5.234
OTHER INDUSTRIES	-0.104	0.463	8.337	-0.231	0.233	8.337	-0.297	0.162	8.337
CONSTANT		.828			0.084			0.346	
R^2	0.643			0.334			0.202		
Adjusted R^2	0.614			0.281			0.138		
F	22.371			6.238			3.147		
Significant F	0.000*			0.000*			0.001*		

* Significant at 5 percent level

Regression Model 3 - EVA as the Dependent Variable.

Based on hypotheses created by this study, the general structural equation that was employed to explain the above association is:

Regression Model 3

$$EVA = \beta 0 + \beta 1ISO + \beta 2CAPSTRUC + \beta 3SIZE + \beta 4GROWTH + \beta 5AGE + \beta 6INDPRO + \beta 7CONPRO + \beta 8CONSTR + \beta 9PROPTY + \beta 10TRASER + \beta 11PLANT + \beta 12OTHERS + \varepsilon$$

Analysis of Regression Results, Model 3, with EVA as the Dependent Variable

Table 5 reports the linear regression results for Model 3 where Economic Value Added (EVA) is the dependent variable and was regressed against twelve independent variables, namely company's age, ISO 9000, company's size, company's growth, company's capital structure and the industrial category of the company.

The fitness of the model was examined. The significance value of the model (Significant F) is $p<0.001$, which is less than 0.05 concludes that the model could fit the data. As shown in Table 5, the R-square (R") value suggests that 20.2 percent of the variation in EVA was explained by all the company attributes, which include age, ISO 9000, size, growth, capital structure and the category of industry within which the company operates. The adjusted R" value of 0.138 and the F value of 3.147 mean that the model describes 13.8 percent of the variance in EVA and is significant at the 5 percent level. There is no sufficient evident to support the hypotheses that.EVA is directly related to the companies' age, size, growth, capital structure or the category of industry that the companies are operating in. Thus, the null hypotheses (H3b, H3c, H3d, H3e, H3f, H3g, H3h, H3i, H3j, H3k, H31) could not be rejected at a 5 percent significance level.

As indicated in Table 5, the only variable that is significantly associated with EVA is ISO 9000. The beta coefficient (0.376) and significance level ($p<0.000$) suggest that the relationship between ISO 9000 and EVA is positive and is significant at the 5 percent level. This implies that companies that are

registered with ISO 9000 have a higher EVA compared to companies that are not registered with ISO 9000. Although the association is not strong, the findings support the hypothesis that EVA is positively associated with ISO 9000. The null hypothesis (Hla) that there is no association between EVA and ISO 9000 is rejected at a 5 percent significance level.

CONCLUSIONS AND IMPLICATIONS

Based on the results of this study, several important conclusions can be made. In Regression Model 1, ISO 9000 was found to be positively associated with ROA, whereas capital structure was found to be negatively associated with ROA. This indicates that companies that are registered with ISO 9000 are better in asset management compared to companies that are not registered with that international standard. The negative association between capital structure and ROA means that companies whose capital structure is characterised by low debt to total assets are better in their asset management than those with high debt to total assets capital structure. This may arise due to the fact that ROA was calculated on net income and high debt, which may be due to high interest cost, and therefore the company incurs a lower ROA.

Under Regression Model 2, where ROS was the dependent variable, ISO 9000 was found to have a positive relation with ROS but capital structure is negatively related with ROS. This shows that companies that are registered with ISO 9000 are better in their sales utilization than companies that are not. The negative relation between capital structure and ROS shows that low debt to total assets capital structure companies perform better in their sales utilization than high debt to total assets capital structure companies. As ROS was also based on net income, high debt incurs high interest cost and therefore the company generates a lower net income. In regression model 3, where EVA was the dependent variable, ISO 9000 was the only variable among the twelve company attributes that was found to have a positive relation with EVA. This indicates that companies that are registered with ISO 9000 have a better economic value added than companies that are not registered with ISO 9000. Based on these results, investors are better off if they invest in large asset based companies that are registered with ISO 9000. The lessons for the

companies are as follows. Since ISO 9000 brings good performance, it is advisable for companies to be registered with ISO 9000. Companies which have already registered with ISO 9000 should continue to target for TQM registration. As for the policy makers, they should stress the importance of ISO 9000 registration. The government should also consider giving incentives to companies that have not yet registered with ISO 9000. Provision of subsidies or reduction of cost of certification in order to secure the ISO 9000 registration would facilitate this process.

REFERENCES

Bajaj, M., Chan, Y. S. and Dasgupta, S. (1998) The Relationship Between Ownership, Financing Decisions and Firm Performance: A Signalling Model, *International Economic Review*, 39, 723-745.

Baumol, W. J. (1956) On the Role of Marketing Theory, *Journal of Marketing*, **21,** 413- 418.

Baumol, W. J. (1959) *Business Behavior, Value and Growth.* MacMillan: New York.

Bhandari, L. C. (1988) Debt/Equity Ratio and Expected Common Stock Returns: Empirical Evidence, *Journal of Finance,* 43, 507-528.

Brush, C. G. and Chaganti, R. (1999) Business without Glamour? An Analysis of Resources on Performance by Size and Age in Small Service and Retail Firms, *Journal of Business Venturing,* **14,** 233-25.

Carroll, G. R. (1983) A Stochastic Model of Organizational Mortality: Review and Reanalysis, *Social Science Research,* **12,** 303-329.

Cheng, N. S., Eng, L. L., Mak, Y. T. and Chong, C. L. (2003) Performance Measures in
the Media and Software Division of Kao (Singapore) Private Limited, *Journal of Accounting Education,* **21,** 157-18.

Corbett, C. J., Montes, M. J., Kirsch, D. A. and Alvarez-Gil, M. J. (2002) *Does ISO 9000 Certification Pay?* ISO Management Systems, July-August, 31-39.

Dess, G. G. and Davis, P. S. (1984) Porter's (1980) Generic Strategies as Determinants of Strategic Group Membership and Organizational Performance, *Academy of Management Journal,* 27, 467-88.

Eriksson, H. and Hansson, J. (2003) The Impact of TQM on Financial Performance, *Measuring Business Excellence,* 7, 36-50.

Griffith, J. M., Fogelberg, L. and Weeks, H. S. (2002) CEO Ownership, Corporate Control and Bank Performance, *Journal of Economics and Finance,* **26,** 170-183.

Grinyer, P. H., Yasai-Ardekani, M. and Al-Bazzaz, S. (1980) Strategy, Structure, the Environment, and Financial Performance in 48 United Kingdom Companies, *The Academy of Management Journal,* **23,** 193-220.

Gupta, M. C. (1969) The Effect of Size, Growth and Industry on the Financial Structure of Manufacturing Companies, *The Journal of Finance,* **24,** 517-529.

Hall, M. and Weiss, L. (1967) Firm Size and Profitability, *The Review of Economics and Statistics,* **49,** 319-331.

Haversjo, T. (2000) The Financial Effects of ISO 9000 Registration for Danish Companies, *Managerial Auditing Journal,* **15,** 47-52.

Hensen, G. S. and Wernerfelt, B. (1989) Determinants of Firm Performance: The Relative Importance of Economic and Organizational Factors, *Strategic Management Journal,* **10,** 399-411.

Heras, I., Casadesus, M. and Dick, G. P. M. (2002) ISO 9000 Certification and the Bottom Line: A Comparative Study of the Profitability of Basque Region Companies, *Managerial Auditing Journal,* **17,** 72-78.

International Organisation for Standardization (ISO) (2001) *The ISO Survey of ISO 9000 and ISO I4000 Certificates (Tenth Cycle),* International Organisations for Standardisation, Geneva.

Irwin Professional and Dunn and Bradstreet Information Services (1996) *ISO 9000 Survey,* Irwin Professional Publishing and Dunn and Bradstreet Information Services, Parsippany, New Jersey.

Johnson, R. and Soenen, L. (2003) Indicators of Successful Companies, *European Management Journal,* **21,** 364-369.

Kalleberg, A. L. and Leicht, K. T. (1991) Gender and Organizational Performance: Determinants of Small Business Survival and Success, *Academy of Management Journal,* **34,** 136-161.

Kearney, A. T. (2001) Global Winners, Manufacturing Engineering, *Dearbon,* **126,** 16.

Kennedy, P. (1985) *A Guide to Econometrics* (2nd ed.). The MIT Press: Cambridge.

Ketchen, D. J. Jr., Thomas, J. B. and Snow, C. C. (1993) Organizational Configurations and Performance: A Comparison of Theoretical Approach, *Academy of Management Journal,* **36,** 1278-1314.

Ku Nor Izah, K. I.(2003) *The Timeliness of Quarterly Financial Reports of Companies in Malaysia,* PhD. Thesis, Cardiff University.

Laitinen, E. K. (2002) Financial Rating of European Technology Companies: An International Comparison, *Journal of Business Finance and Accounting,* **29,** 871-901.

Lieber, R. B. (1996) Who are the Real Wealth Creators? *Fortune,* **134,** 107-113.

Lima, M. A. M., Resende, M. and Hasenclever, L. (2000) Quality Certification and Performance of Brazilian Firms: An Empirical Study, *International Journal of Production Economics,* 66, 143-14.

Mancke, R. B. (1974) Causes of Inter-firm Profitability Differences: A New Interpretation of the Evidence, *Quarterly Journal of Economics,* **88,** 181-193.

Marcus, M. (1969) Profitability and Size ofFirm: Some Further Evidence, *The Review of Economics and Statistics,* **51,** 104-107.

Meyer, M. W. and Zucker, L. G. (1989) *Permanently Failing Organizations.* Sage: California.

Mokhtar, M. Z., Karbhari, Y. and Naser, K. (2005) Company Financial Performance and ISO 9000 Registration: Evidence from Malaysia, *Asia Pacific Business Review,* **11,** 349-367.

Naser, K., Karbhari, Y. and Mokhtar, M. Z. (2004) Impact ofISO 9000 Registration on Company Performance, *Managerial Auditing Journal,* **19,** 509-516.

Pallant, J. (2001) SPSS Survival Manual. Open University Press: Philadelphia.

Porter, M. E. (1979) The Structure Within Industries and Companies' Performance, *Review of Economics and Statistics,* **61,** 214-227.

Schmalensee, R. (1985) Do Markets Differ Much? *The American Economic Review,* **75,** 341-352.

Shepherd, W. G. (1972) The Elements of Market Structure, *Review of Economics and Statistics,* **54,** 25-37.

Silver, M. (1997) *Business Statistics* (2nd ed.). McGraw-Hill Publishing Company: New York.

Spinard, F., William, S. and Mark, P. (1996) Banking's Top Performers, *American Bankers' Association Banking Journal,* New York, 88, 34-35.