Shareholder value: An analysis of return on assets and equity and their impact on corporate strategic donation using profit margin and turnover

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Abstract

Return on assets (ROAs) and return on equity (ROE) are key performance indicators that the investors of company shares always look at to assess their future earning potentials. Any shareholder who anticipates a decline in ROA or ROE in the form of shares usually takes a proactive step to avoid such unprecedented event to happen. From the biblical perspective, in Mathew 25:27, investors put their money into the bank to obtain interest. The study uses the sample size of the consolidated financial statement of 471 subsidiaries that were registered and reported their financial statement with the Security and Exchange database. It is a quantitative study that used IBM SPSS version 21 and the responses received were analysed through descriptive statistics. The research reveals that CSD does not have an adverse impact on the measurement of ROA and ROE while turnover has a positive impact on CSDs and profit margin has a negative relationship with CSD.

Keywords: Corporate strategic donation, return on assets, return on equity, ANOVA test regression, turnover.

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1. Introduction

1.1. Research backgrounds

The research into shareholder returns vis-a-vis corporate donation which is usually their strategic philanthropy programme is limited in the area of business research. Investors of the corporations usually expect two types of returns on their investment at the end of the year. These two types are capital gains and the dividend. Capital gains come in the form of share price appreciation which is featured in the stock exchange. Capital gains usually achieved by the interaction of forces of demand and supply for the share on the exchange market. However, the dividend decision is really an interaction between the investment decision and the financing decision, as the amount of money paid out as dividends will affect the level of retained earnings available for investment. Most companies follow a target dividend payout policy where a constant proportion of earnings is distributed as dividends each year. These important decisions have to be taken care of so that the investor can really assess the quantum of his return on assets (ROAs) or return on equity (ROE) invested before any corporate donations can be considered. This study examines the relationship between the ROAs and ROE with a corporate strategic donation (CSD) from profit margin and turnover.

1.2. Statement of the problem

Academic finance researchers have stated that in the financial management of the business, the key objective is the maximisation of shareholders' wealth. The maximisation of shareholders' wealth is equivalent to the maximisation of the market value of the company's ordinary shares. A company is financed by ordinary shareholders, preference shareholders, loan stockholders and other long-term and short-term payables. All surplus funds, however, belong to the legal owners of the company, its ordinary (equity) shareholders. Any retained profits are an undistributed wealth of these equity shareholders.

Shareholders are interested in how much they will receive as dividends. Retained profits can be increased by reducing the dividend payout ratio or by not paying a dividend at all. This is not necessarily in the best interests of the shareholders who might prefer a certain monetary return on their investment.

However, there are situations whereby turnover and profit margin will decline and stock prices plug due to changes in the market conditions. These situations can affect the company's strategic philanthropy commitment and dividend payout policy drastically. Therefore, there remains a gap in the research to assess the situation of corporate philanthropy commitment in such a rough business situation whether the same trend continues to achieve shareholder wealth maximisation in terms of ROAs and ROE.

1.3. Purpose of the study

The rationale behind this research is to provide a specific and accurate synopsis of the overall purpose of the study (Locke, Spirduso & Silverman, 1987). Nevertheless, there is a school of thought that believes that corporate charitable activities known as strategic philanthropy adversely impact the corporate performance and shareholder returns especially in the times where corporate margin and turnover are in decline. The purpose of this study is to test this assertion in the academic literature. Strategic philanthropy is a unique and powerful way where corporations change their philosophy of giving from one of pure generosity to one that aligned charity with commercial objectives. Measurement of the impact of strategic philanthropy will be on profitability measures: ROAs and ROE, as dependent variables and gross margin and turnover as independent variables.

1.4. Research objectives

The specific research objectives for this study include the following:

i   To assess the relationship between ROAs and the CSDs.
ii To measure the relationship between ROE and the CSDs.
iii To relate the level of turnover to CSDs.
iv To find out if there is any relationship between profit margin and CSDs.

1.5. Research questions

The general research questions are the measure of these variables affects CSDs and relate them to one another. The specific research questions are identified as follows:

i   Is there any relationship between ROE and the CSDs?
ii What is a relationship between ROE and CSDs?
iii Does turnover relate to CSD in any way?
iv Can profit margin be related to CSD as well?

1.6. Significance of the study

Research into the nature of CSDs is of deep interest in the sense that, many organisations have been redeemed and restored by philanthropies. At the individual organisational level, the importance cannot be overemphasised. This study will make a unique contribution to academic literature in that it examines philanthropic activities in the context of elements that are of much concern to shareholders and will provide strong indications to shareholders to consider in making investment and financing decisions especially in times of fierce economic downturn, acute corporate losses or mass laid off of company employees. It will contribute to the body of knowledge to be used to prevent the collapse of many too big to fail corporations.

It also aims to contribute to academic literature and bridge the knowledge gap on CSDs which can be very resourceful to future studies in terms of organisation and the level of academic citation for future research purposes.

1.7. Limitations and delimitations

All the firms used for this study are listed in the stock exchange market and are in the high-tech industry. Non-listed high-tech firms are not included in the sample size for this study. The sample of the population study was only in the high-tech industries in the US. Other industries were not used and might also serve as delimitation to this research.

2. Literature review

2.1. Introduction

The review covers the theoretical or conceptual framework of the study. The researcher also reviews prior but related studies on tracing the development of this study and measurement and definition of the variables used in the study.

2.2. Conceptual framework
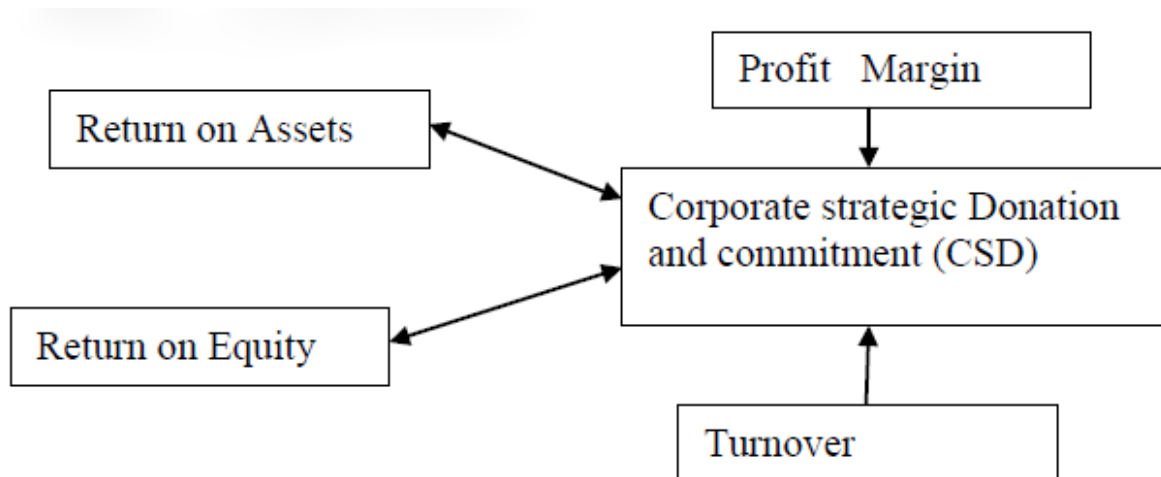
2.3. Tracing the development of corporate strategic donation

Rimel (2001) gave a technical view of CSD; according to Greek tradition, the first philanthropist was Prometheus. He gave mankind fire. The impulse behind his act is imbedded in the Greek root of the word philanthropy 'love of mankind'. But philanthropy is not simply a kind attitude—it also implies a certain kind of approach. The gift of fire transformed the world. Fire did not simply permit a few people to enjoy a hot meal and a warm shelter on the day it was given. It was a new tool that could be used forever to help humans make their often—hostile environment more accommodating. Leisinger (2007) drew a dichotomy between strategic philanthropy and charity. He said a differentiation can be made between philanthropy and charity, defining charity as unconditional short-term relief (for example, for tsunami victims) while philanthropy attempts to investigate and address the underlying causes to make a tangible positive change in the social conditions that cause the problem. Furthermore, a robust operational definition of philanthropy can be drawn from the accounting literature : philanthropy is 'an unconditional transfer of cash or other assets to an entity or a settlement or cancellation of its liabilities in a voluntary non-reciprocal transfer by another entity acting other than as an owner' (Financial Accounting Standards Board, 1993,p. 2). The non-reciprocity condition becomes the acid test of philanthropic activity; it is not an explicit exchange of value between two parties such as cause-related marketing but, rather, a transfer of wealth from one party to another.

Strategic philanthropy from a more managerial perspective is a corporate philosophy of giving from one of pure, if scattered and unplanned, generosity to one that aligns giving with commercial objectives. It is the alignment of a corporation's charitable strategy with its business strategy. The strategic philanthropic activities reinforce strategic business goals. A well-designed programme balances the positive impact on the community with a clear understanding of the positive impact a giving programme will have for the company, its brand, customers and importantly employee recruitment and retention. For example, Mattel donated $25 million to put its name on the children's hospital at the University of California, Los Angeles, now called Mattel Children's hospital. The company has no role in running the hospital. Adding the company name to the hospital increases brand recognition and contributes to compassionate corporate image among toy buyers. This benefit reinforces the commercial goals while helping sick children.

Porter and Kramer (2002) explained that strategic philanthropy can often be the most cost-effective way for a company to improve its competitive context, enabling companies to leverage the efforts and

infrastructure of non-profits and other institutions transfer of wealth from one party to another. Godfrey, Merrill and Hansen (2009) posit that for firms with negative social impacts, engagement in corporate social responsibility (CSR) may be perceived as money to either atone for past sins or it may be a substitute/complement for other negative practices (for example, tobacco companies that try to offset their negative product image through generous philanthropy). Roper and Cheney (2005) advocate that today as in the past, strategic philanthropy work often represents a shift away from the traditional business pursuits or at least a parallel 'social stream' for successful leaders at turning points in their careers. Many well-known articles and scholarly publications have been made on the aspects of strategic philanthropy prior to the recent US recession.

Corporations point out that this new wave of strategic philanthropy is inevitable because intensive competition in the global marketplace will soon force them to function in the poorest regions of the world. These have been a point where many research have emanated and corporations have been measured on their philanthropic contributions. However, Riecken and Yavas (2005) investigated that, there is an important debate among academics about the relationship between corporate philanthropy and corporate financial performance (CFP). There are several fundamental reasons for the tremendous growth of interest in the new wave of strategic philanthropy. In the first place, well-designed contributions can increase the firm's name and brand recognition among customers in a similar manner to advertising (Lev, Petrovits & Radhakrishnan, 2010).

In addition, Wang, Choi and Li (2008) examined that despite substantial growth over the past two decades, corporate philanthropy remains controversial. Some critics argue that corporate contributions are a drain on shareholder wealth and a distraction of managers' attention while others claim that the business sector is not giving enough. Wood (1991) studied that in the 1960s and 1970s, one shock after another—the OPEC oil crisis and the resulting economic 'stagflation'; the dramatic regulatory successes of environmental, consumer protection and civil rights activists; business crises involving political payoffs, life-threatening products and toxic pollution-pounded home the message that the business environment was social and political, not just economic and technological. Devinney (2009) argued out that, first, corporations exist to generate economic returns, not to solve societal problems. They live to optimise for themselves (that is, their near stakeholders: shareholders, managers, employees, suppliers, governments, etc.), not the general public. However, Pearce and Doh (2005) in their research found out that, strategic philanthropy without active engagement—cash donations, for instance—has been criticised as narrow, self-serving and often motivated to improve the corporation's reputation and keep at bay the critics of non-governmental organisations and other naysayers. Godfrey (2005) argues that strategic philanthropy does not represent an oxymoron but, rather, this position can faithfully meet the objections of critics at both extremes of CSR and CFP debate. In sum, rational managers should engage in corporate philanthropy because such activity benefits shareholders. Historically, faith-based giving dominates in the United States with 43% of all charitable contributions. However, there are indications that philanthropy appears to be heading for a period of significant change, especially from the standpoint of non-faith based organisations. Kong (2008) said there is relatively little written on what adapted strategic management methods are most appropriate for the pursuit of non-profit activities in today's knowledge economy. Cone, Feldman and Dasilva (2003) straightway said that too much time and money spent bragging about your philanthropic efforts is no better than being silent about them. Xin and Pearce (1996) replicated finally that private executives made more extensive use of gift giving to build these connections and maintained business connections of greater trust than did executives in the more structurally secure collective-hybrid and state-owned companies. Giving or acting prosaically may result in internal rewards to the donor, such as feeling proud or reducing guilt or sadness. Waddock and Graves (1997) tested out the difference clearly, that firms that are in financial trouble may have little ability to make discretionary investments in the traditional corporate social performance activities such as philanthropy while those doing well financially have resources to spend in ways that may have long-term strategic impacts such as investments in improved local schools or community conditions to improve a workforce. Therefore, a firm selects a distinct position in what it exante perceives to be an

unexploited or underexploited niche. Werbel and Wortman (2000) studied and pointed out that corporate philanthropy is rooted in questions of corporate identity. The primary basis for making this link is that the corporate philanthropy is a discretionary activity. Contrasting this, Grant, Dutton and Rosso (2008) found out that giving strengthens affective organisational commitment through a 'prosocial sense-making' process in which employees interpret personal and company actions and identities as caring. Conversely, Goleman (2000), emphasised that in order to lead, one needs to know how to negotiate, understand the politics of any situation and handle them sensitively, use humour appropriately and maintain an even temperament despite the extremes of a situation. Deephouse (2000) demonstrated that some of these actions (like charitable donations) are viewed favourably in reputation research and others are viewed positively by stakeholders. Choi and Wang (2009) found support for the arguments that a high stakeholder relation rating both helps a well-performing firm to sustain superior profits and helps a poorly performing firm to move out of its disadvantageous position more quickly. Lev et al. (2010) made a persuasive case that charitable contributions appear most effective in enhancing revenues in the customer sectors, such as retailers and financial services. Leszczyc and Rothkop (2010) advanced the understanding that, research in cause-related marketing has demonstrated that consumers tend to select products bundled with philanthropy. Notwithstanding that Doh, Rodriguez, Uhlenbruck, Collins and Eden (2003) noted that some companies employ the strategy of social contributions and public donations as an alternative to both avoidance and compliance. Matten and Crane (2003), carefully suggested that as opposed to corporations engaging in charity simply for the sake of it, corporate citizenship presents a case for strategic philanthropy.

2.4. Measurement of variables

In this research, four main key variables having an effect on CSDs are measured using dependent and independent variables. ROAs and ROE are the main dependent variables. In order words, the change in CSDs will have a direct impact on ROA and ROE all other things being equal. Independent variables are the profit margin and turnover. Changes in turnover and profit margin may have an indirect effect on the firms' strategic donation commitment. There are cases where turnover and margin will decrease yet, the firm will have to meet its strategic donation commitment to enable the company to maintain its status quo or reputation in the market.

2.5. Definition of variables

CSD: Giving that strengthens affective organisational commitment through a 'prosocial sense-making' process in which employees interpret company actions as caring.

ROA: Defined as the rate at which assets are turned over to generate profit, computed as (profit before interest and tax/total assets).

ROE: Defined as the rate of return attributable to equity shareholders for their investment.

Computed as profit after tax/capital employed.

Profit margin: This the net profit obtained after deducting all expenses from the turnover.

Turnover: Net sales for the year obtained as both the cash and credit sales less bad debts and returns.

3. Methodology

3.1. Research design and approach

The research uses a quantitative approach using statistical tool IBM SPSS version 21 to confirm and validate the findings from the data collected from secondary source clearly and unambiguously. The firms selected have the obligation to report all their final statements in the Security and Exchange Commission database. Companies that do not have financial statements comprising income statement, statement of financial position and statement of cashflow on the database were not considered.

3.2. Population and sampling

The population for the study comprises all the high tech companies that report their financial statement on the Security and Exchange Commission database. Since it is impossible to deal with the entire population, an initial selection of fortune 500 companies operating in the information technology industry in the United States were selected. Out of these, the financial data was pulled out from the 59 consolidated company's website and Edgar/ Securities and Exchange Commission (SEC) database for the 4 year period. These 59 consolidated companies have subsidiaries firms comprise 471 subsidiaries included in the consolidated statements of operations. The 471 subsidiaries constituted the sampling size for this study. All these subsidiaries have their financial statements clearly reported in the database. The sampling technique adopted is simple random sampling where firms with all the required information are selected for the study.

3.3. Research instrumentation

A number of statistical methods or tools are used to analyse the data. Strategic philanthropy or CSD is the main key variable measured in relation to dependent and independent variables. Dependent variables associated with this study are ROAs and ROE. Independent variables associated with this research study are profit margin (M) and turnover (T).

Some of the statistical tools that are utilised in the data analysis include simple and multiple regression analysis to evaluate the numeric data; factor analysis is used to analyse the relationship between the variables. Reliability tests, including mean, median and standard deviation are performed on data that is collected to determine data reliability and usefulness. Analysis of variance (ANOVA) tests is used to determine how the various groups within the data collected may have greater or lesser influence on the success of CSD as a management tool.

3.4. Data collection procedure

Brammer, Pavelin and porter (2008) stated that firm-level strategic philanthropic activities are reported in the Annual Report of each company. This suggests that the financial information of each firm would primarily be the major source of information for the study. Financial data of firms are required by regulation to be reported to the US SEC/Edgar Electronic database on the corporate filling. Corporate filling information is reported on form 10K. By regulations, firms that fail to report their financial statements by the timeline given face the penalties as expressly stated in the applicable regulations. Because of this disclosure requirement, companies make every effort to submit their 10K to the Security and Exchange Commission as per the timelines set by Security and Exchange Commission.

3.5. Validity and reliability

To ensure internal validity, accounting measures of ROAs and ROE are used as dependent variables to measure performance on CSDs while the independent variables of profit margin and turnover are used to predict performance on CSD. External validity was ensured by choosing firms in the fortune 500 companies in the information technology company for the study which are entered into the Security and Exchange database. This makes it easier for generalisation and comparability of results. Reliability is ensured in this study by adhering to the same procedure in the collection of financial data on firms and the performance of the statistical analysis for each of the dependent and independent variables selected for this study.

3.6. Ethical issues

Ethical issues have been a major concern in recent research. Because of this actual names of firms which financial information are used for the statistical analyses are not disclosed rather a simple mathematical matrix was prepared using the financial ratio formulas to calculate the value of ROAs and ROE. Profit margin figures and turnover figures can straightaway be obtained from the financial statements without computation. The actual results obtained after the calculations are provided as input to the SPSS to obtain the results of the analysis. The result obtained from the database is used for the purpose of this research only and for any particular gains or public disclosure as ethical or moral obligations may require.

4. Results of study

4.1. Data analysis and statistical analysis tool

IBM SPSS version 21 was used to analyse the data collected to provide various information needed for the study. The rationale for using the IBM SPSS version 21 was for the sake of avoiding complex statistical analysis and provides easy to understand design methodology and analysis using the most current version of the software. Preliminary data analysis revealed the following descriptive statistics for the 59 consolidated companies selected in the sample in the information technology industry. The figure shows the relationship between CSD and ROA and ROE by statistical mean and median.

Table 1. Relationship between ROA, ROE and CDS

Statistics		ROA	ROE	CSD
N	Valid	59	59	59
	Missing	0	0	0
Mean		0.035712	−0.17737	12.69105
Median		0.030000	0.02000	3.25000

The first and initial analysis indicates a positive relationship between ROA and CSD in terms of the statistical mean of 0.0357 while there is a negative relationship between ROE and CSD in terms of statistical mean of −0.177 CSD, however, is high with a positive statistical mean of 12.691.

Table 2. Relationship between CSD and margin and turnover

Statistics		CSD	Margin	Turnover
N	Valid	59	59	59
	Missing	0	0	0
Mean		12.69105	0.35261	7.58822
Median		3.250000	0.32000	2.54000

The second initial data analysis of firms selected in the sample in the information technology industry indicates a positive overall performance in terms of internal measures. The two independent variables as performance measures compared with CSD recorded positive variables for margin, with positive mean values of 0.352. Turnover ratio is, however, high with a mean of 7.588 compared with a CSD positive mean of 12.69.

However, according to Tabachnick and Fidell (2007), although the normality of the variables is not always required for analysis; the solution is usually quite a bit better if variables have a normal distribution. It follows that if variables are not the same, some of the variables will be too peak or skewed positively or negatively and this will affect the solution. A normal distribution for Tables 1 and 2 will provide a better view in appearance in this case. The two approach usually used are a logarithmic transformation to reduce skewness and kurtosis of sample data, and improved the statistical evaluation of the distribution by assuming 5% trim mean which helps to eliminate the effect of outliers from the IBM SPSS version 21 as illustrated in Table 3 below.

Table 3. Descriptive statistics with logarithmic transformation of variables (*Z* score) and trim mean of 5%

	N	Minimum	Maximum	Mean	Standard deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	SE	Statistic	SE
Z score (ROA)	59	−2.74954	3.66611	0.000000	1.0000	0.456	0.311	2.489	0.613
Z score (CSD)	59	−0.42820	6.17140	0.000000	1.0000	4.688	0.311	25.988	0.613
Z score (ROE)	59	−5.13431	1.82184	0.000000	1.0000	−4.125	0.311	19.373	0.613
Z score (Margin)	59	−1.92532	2.75342	0.000000	1.0000	0.447	0.311	−0.480	0.613
Z score (Turnover)	59	−2.75208	4.85405	0.000000	1.0000	3.050	0.311	13.640	0.613
Valid *N* (listwise)	59								

Table 3 shows the effect of skewness and kurtosis when a 5% trim mean is assumed. The skewness was very high for CSD (4.69) among all the variables. The rest have shown a positive relationship except ROE, which recorded a negative skewness of −4.125. The kurtosis indicated high positive relationship for CSD. All other variables have a relatively good positive relationship except profit margin which indicates a negative relationship of −0.480 to CSD.

Table 4. Correlations among variables (*Z* scores)

		ROA	ROE	CSD	Margin	Turnover
ROA	Pearson correlation	1	0.317*	0.200	0.107	−0.076
	Sig. (two-tailed)		0.014	0.129	0.420	0.566
	N	59	59	59	59	59
ROE	Pearson correlation	0.317*	1	0.092	−0.028	−0.046
	Sig. (two-tailed)	0.014		0.490	0.835	0.730
	N	59	59	59	59	59
CSD	Pearson correlation	0.200	0.092	1	−0.075	0.001
	Sig. (two-tailed)	0.129	0.490		0.571	0.992
	N	59	59	59	59	59
Margin	Pearson correlation	0.107	−0.028	−0.075	1	−0.060
	Sig. (two-tailed)	0.420	0.835	0.571		0.651
	N	59	59	59	59	59
Turnover	Pearson correlation	−0.076	−0.046	0.001	−0.060	1
	Sig. (two-tailed)	0.566	0.730	0.992	0.651	
	N	59	59	59	59	59

When ROA (dependent variable is held constant, turnover produces a higher positive relationship of 0.566 to CDS than margin and ROE together. However, if ROE is held constant, margin turns to produce a higher positive relationship of 0.835 to CSD than turnover and ROA combined.

On the aspect of the independent variables, if the margin is held constant, the ROE produces higher correlations to CDS, 0.835 follow by turnover, 0.651, then ROE with 0.571 and ROA.

Finally, if turnover is assumed to be constant, ROE produces higher positive correlations than ROA.

On the whole, the two independent variables margin and turnover produce higher positive relationship to CDS than the dependent variable of ROA and ROE put together.

Table 5. (*T*-test for ROA group mean) Group statistics for CSD
for firms who gave at least $0.2 million

	CSD (m)	*N*	Mean	Standard deviation	Standard error mean
Z score (ROA)	≥0.2	54	−0.0079411	1.00383120	0.13660412
	<0.2	5	0.0857642	1.06688007	0.47712327

Group statistics is the result of IBM SPSS version 21 calculation of sample size, sample mean, standard deviation and standard error mean when testing for a mean difference in ROA with CSD as the main variable. Fifty-nine firms constitute the sample of which 54 firms were big givers who contributed to CSD of an amount equal to or greater than $0.2 million and only five firms were small givers who contributed to CSD of an amount less than $0.2 million. One can conclude that the mean of the CSD group which contribute more than $0.2 million is lesser than the mean of the group which contributes less than $0.2 million. However, positive difference in mean between the two groups is statistically insignificant.

		Levene's test for equality of variances		*t*-test for equality of means						
		F	Sig.	*t*	Df	Sig. (two-tailed)	Mean difference	SE difference	95% confidence interval of the difference	
									Lower	Upper
Z score (ROA)	Equal variances assumed	0.058	0.811	−0.199	57	0.843	−0.09370528	0.47137897	−1.037625	0.85021482
	Equal variances not assumed			−0.189	4.680	0.858	−0.09370528	0.49629357	−1.396132	1.2087216

Independent samples test

The *t*-test value in Table 5 continued with equal variances assumed as −0.199; this falls in the left-hand rejection region for any commonly used α and the *p*-value is 0.843.

The *p*-value of 0.843 implies that the difference between the two means is not statistically significantly different from zero at the 5% level of significance. There is an estimated change of −0.093% (standard error (SE) = 0.471%). However, there is an insufficient evidence (*p* = 0.843) to suggest that ROA has a negative impact on CSD. Based on a confidence level of 95% and a confidence interval of [−1.03, 0.850], one can say that ROA does not negatively impact firm performance CSD.

Table 6. (*T*-test for ROE group mean) Group statistics.

	CSD (m)	*N*	Mean	Standard deviation	Standard error mean
Z score (ROE)	≥0.2	54	−0.0116207	1.04099063	0.14166088
	<0.2	5	0.1255034	0.34637167	0.15490212

Fifty-nine firms constitute the sample of which 54 firms contributed to CSD of an amount equal to or greater than $0.2 million and only five firms contribute to CSD of an amount less than $0.2 million. One can conclude that the mean of the CSD group which contribute more than $0.2 million is lesser than the mean of the group which contributes less than $0.2 million. However, positive difference in mean between the two groups is statistically insignificant.

Independent samples test

		Levene's test for equality of variances		*t*-test for equality of means						
		F	Sig.	*t*	Df	Sig. (two-tailed)	Mean difference	SE difference	95% confidence interval of the difference	
									Lower	Upper
Z score (ROE)	Equal variances assumed	0.304	0.584	−0.291	57	0.772	−0.13712405	0.47119242	−1.080670	0.80642250
	Equal variances not assumed			−0.653	12.81	0.525	−0.13712405	0.20991063	−0.5912847	0.31703663

The *t*-test value in Table 6 continued with equal variances assumed as −0.291; this falls in the left-hand rejection region for any commonly used α and the *p*-value is 0.772.

The *p*-value of 0.772 implies that the difference between the two means is not statistically significantly different from zero at the 5% level of significance. There is an estimated change of −0.137% (SE = 0.471%). However, there is insufficient evidence (p = 0.772) to suggest that ROE does impact CSD negatively. Based on a confidence level of 95% and a confidence interval of [−1.08, 0.806], one can say ROE does not negatively impact CSDs.

A standard multiple regression analysis and ANOVA were performed between ROA as the dependent variable and CSD, margin and turnover as independent variables. The results are shown in the tables below:

Table 7. Regression analysis with ROA as first dependent variable

Variables entered/removed[a]

Model	Variables entered	Variables removed	Method
1	*Z* score (SPP), *Z* score (Margin), *Z* score (Turnover)[b]	.	Enter

[a]Dependent variable: *Z* score (ROA).
[b]All requested variables entered.

Model summary

Model	R	R Square	Adjusted R square	Standard error of the estimate
1	0.326a	0.107	0.040	0.97962016

[a]Predictors: (Constant), *Z* score (CSD), *Z* score (margin) and *Z* score (turnover).

ANOVA[a]						
Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	6.179	4	1.545	1.610	0.185[b]
	Residual	51.821	54	0.960		
	Total	58.000	58			

[a]Dependent variable: *Z* score (ROA).
[b]Predictors: (Constant), *Z* score (CDS), *Z* score (margin) and *Z* score (turnover).

Coefficients[a]										
Model	Unstandardised coefficients		Standardised coefficients	t	Sig.	95% confidence interval for B		Correlations		
	B	Standard error	Beta			Lower bound	Upper bound	Zero-order	Partial	Part
1 (Constant)	1.000E-	0.128		0.000	1.000	−0.256	0.256			
Z score (CSD)	0.191	0.136	0.191	1.400	0.167	−0.082	0.464	0.107	0.187	0.180
Z score (margin)	0.070	0.153	0.070	0.456	0.650	−0.237	0.377	−0.076	0.062	0.059
Z score (turnover)	−0.265	0.158	−0.265	−1.681	0.098	−0.582	0.051	−0.171	−0.223	−0.216

[a]Dependent variable: *Z* score (ROA).

Table 7 shows the correlation between the variables and the unstandardised regression coefficients (B) and the intercept, the standardised regression coefficients (β), the partial correlation, R^2, and adjusted R^2. *R* for the regression was significantly different from zero, $F_{(4,54)} = 1.610$, $p < 0.001$, with R^2 at 0.107 and 95% confidence levels. The adjusted R^2 value 0.040 indicates less than a 10th of the variability in performance (ROA) is predicted by CSD, margin and turnover. For the two regression coefficients that differed significantly from zero, 95% confidence limits were calculated, those for (log) of CSD were [−0.082, 0.464]. The (log) of margin was [−0.237, 0.377] and that of turnover is (−0.582, 0.051), respectively.

A standard multiple regression analysis and ANOVA were performed between ROE as the second dependent variable and CSD, margin, turnover as independent variables as shown below.

Table 8. Regression analysis with ROE as second dependent variable

Variables entered/removed[a]			
Model	Variables entered	Variables removed	Method
1	*Z* score (CSD), *Z* score (margin), *Z* score (turnover)[b]	.	Enter

[a]Dependent variable: *Z* score (ROE).
[b]All requested variables entered.

Model summary				
Model	R	R square	Adjusted R square	Standard error of the estimate
1	0.107[a]	0.011	−0.062	1.03045396

[a]Predictors: (Constant), *Z* score (SPP), *Z* score (margin) and *Z* score (turnover).

ANOVA[a]

Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	0.661	4	0.165	0.156	0.960[b]
	Residual	57.339	54	1.062		
	Total	58.000	58			

[a]Dependent variable: Z score (ROE).
[b]Predictors: (Constant), Z score (CSD), Z score (margin) and Z score (turnover).

Coefficients[a]

Model	Unstandardised coefficients		Standardised coefficients	t	Sig.	95% confidence interval for B		Correlations		
	B	SE	Beta			Lower bound	Upper bound	Zero-order	Partial	Part
1 (Constant)	−1.000E	0.134		0.000	1.000	−0.269	0.269			
Z score (CSD)	−0.030	0.143	−0.030	−0.208	0.836	−0.317	0.257	−0.028	−0.028	−0.028
Z score (margin)	−0.059	0.161	−0.059	−0.365	0.716	−0.382	0.264	−0.046	−0.050	−0.049
Z score (turnover)	0.022	0.166	0.022	0.132	0.896	−0.311	0.355	−0.010	0.018	0.018

Table 8 shows the correlation between the variables and the unstandardised regression coefficients (B) and the intercept, the standardised regression coefficients (β), the partial correlation, R^2 and adjusted R^2. R for the regression was significantly different from zero, $F_{(4,54)} = 0.156$, $p < 0.001$, with R^2 at 0.011 and 95% confidence levels. The adjusted R^2 value −0.062 indicates less than a 10th of the variability in performance (ROE) is predicted by CSD, margin and turnover. For the two regression coefficients that differed significantly from zero, 95% confidence limits were calculated. The confidence limits for (log) of CDS were [−0.317, 0.257]. The (log) of margin was [−0.382, 0.264] and that of turnover is (−0.311, 0.355), respectively.

4.2. Discussion of findings

The statistical analysis was used to perform analysis on the key dependent variables and independent variables on CSDs. It is a quantitative study that uses 59 consolidated giant companies. The data used is primarily secondary which were available at the Security and Exchange Commission database as companies are required to file their 10k by regulation annually. The 59 consolidated companies have 471 subsidiaries located internationally. The four variables used are ROA and ROE as dependent variables and profit margin and turnover as independent variables. These variables were used to find out their main relationship to the CSD activities.

The first dependent variable ROA by the use of statistical mean indicates a positive relationship to CSD as stated in objective one. Further analysis was done to confirm the mean results by regression and ANOVA. For research objective 1, the result for ROA indicates that there is insufficient evidence ($p = 0.843$) to suggest that ROA has a negative impact on CSD. The regression the adjusted R^2 value 0.040 indicates less than a 10th of the variability in performance (ROA) is predicted by CSD, margin and turnover.

The ROE as the second dependent variable, however, shows a negative relationship to CSD as required in research objective 2. However, when regression analysis is performed, there is insufficient evidence ($p = 0.772$) to suggest that ROE does impact CSD negatively. The adjusted R^2 value −0.062 indicates less than a 10th of the variability in performance (ROE) is predicted by CSD, margin and turnover.

To achieve objectives 3 and 4, margin and turnover as independent variables also shown a positive relationship to CSD but mean relationship is stronger for a turnover than the margin on CSD.

5. 5. Conclusion

5.1. Summary of findings

Research objectives	Method adopted	Results
ROA and its relationship to CSD	Statistical mean, regression and ANOVA	Both analysis support that ROA has a positive relationship to CSD and other variables predict ROA by less than 10%
ROE and its measurement with CSD	Statistical mean, regression and ANOVA	ROE has a negative relationship with CSD by mean test; however, the regression analysis lacks sufficient evidence to support the negative relationship.
Turnover and its relationship with CSD	Statistical means	Turnover has a strong positive relationship to CSD.
Profit margin and its relationship with CSD	Statistical means	Margin has a less positive relationship to CSD.

5.2. Conclusion

Conclusion thought on the analysis of the data suggests companies emerging from the downturn were committed to their communities but also seeking to generate a bigger impact with their contributions. The key findings of this study reveal that in the information technology industry, there is not enough evidence to support the hypothesis that adaptation of strategic philanthropy negatively impact performance on ROA and ROE in the quantitative measure. The overall result shows some significant trend though statistically insignificant but practically significant but not to generalise for the industry. The study takes a holistic approach from the selectivity of importance performance indicators of both internal and external to the firm that has bearing on the profitability.

6. Recommendations for future research

It is recommended for future researchers in the same area to use a larger sample size with other industries such as retails, agriculture and mining where the application of the theory is very minimal. Cooperative learning has occurred in more formal organisations in most of the advanced countries but little has been done in an informal sector especially where the companies are located in less developed countries. Alliance formations in these areas can also provide enough sector for the growth of the informal sectors. Future research studies must also focus on finding process on standard policy formulations for existing alliances that will serve as a standard for future alliance formations for new alliances. Finally, future alliance researchers must go beyond just the process of the alliance formation but the degree of policy implement after the alliance formation to assess the party that stays or defaults in their promises during the formation.

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