ACC001 by Sean G Weldon

The Relationship Between Economic Value Added and Future Accounting Earnings: A Study of South African Listed Companies

Abstract

EVA has been globally adopted as a tool for shareholder value creation, however in South Africa it does not appear to be widely used. The aim of this study is to analyse whether EVA has relevance and should be implemented as a performance measure in South Africa. It concludes that, although there appears to be a statistically significant correlation between EVA and turnover, EVA and share price performance, and EPS and share price it seems to not be practically important as the correlations between all of these are very weak.

Introduction

The concept of using EVA for creating shareholder value was developed by the USA-based business consultancy firm, Stern Stewart & Company, who propose that "earnings, earnings per share, and earnings growth are misleading measures of corporate performance [and that] the best practical periodic performance measure is economic value-added" (Stewart, 1991, p. 66). EVA has continued to grow in popularity, while the implementation of it in organisations has also increased due to the effectiveness of the principles previously explained. Drury (2007) states that three hundred organisations world-wide were identified as having adopted EVA during 1997, including Coca-Cola, GE, AT&T, ICL, Boots, SAB Miller and the Burton Group. The implementation of EVA worldwide and by well renowned companies has generated creditability to the concept of EVA as a performance measure, and as a result there has been significant research performed on comparing EVA to traditional measures.

A large amount of research has focused on investigating the claim, by Stern Stewart & Company that EVA is a better measure of value than traditional measures. However as noted previously, this empirical research has revealed mixed results. This study, however, does not enter that area of research and instead assumes that EVA is a suitable measure of shareholder value.

This study contributes to the limited research performed on the association between EVA and future earnings, especially from a South African point of view. In addition, the adoption of EVA by companies in South Africa, to measure shareholder value, is not common and this study could provide evidence for the usefulness or otherwise of EVA in a South African context.

The objective of this research is to establish whether there is a positive relationship between EVA, as defined by Stern Stewart & Company, and future earnings, turnover growth, and share price performance, of industrial companies in a South African context. The sample of South African companies used for this study is based on firm-year observations for the period 2000 – 2010 and will include only industrial sector companies, as the information is readily available on the McGregor BFA database. In addition, only those industrial sector companies which have information available for the entire period i.e. 2000 to 2010, will be included in the sample. All financial information of the sample will be obtained from the McGregor BFA database.

Finally, correlation coefficients are calculated between the change in EVA figures and the future earnings of the sample, using EPS as a proxy. In addition, this study investigates whether there is a positive relationship between the change in EVA and turnover growth, and the change in EVA and change in share price. This is done to determine the strength and direction of the relationship between these variables.

This paper first discusses relevant prior research, which is followed by a discussion on the definition of the components of EVA for this study, as well as the development of the hypotheses to be tested. The research methodology is then discussed, along with a summary of the findings of this study.

Literature review

Shareholder value

In light of shareholder value creation being an important key performance indicator of companies, it has become imperative to find the best measure of shareholder value. Kaur and Narang (2009) identify that research dealing with shareholders' value has focused on comparing traditional measures (earnings, cash flow, productivity parameters and NPV), and value based measures (EVA and EVA as percentage of capital employed). This was done to indicate which explanatory variable best measured this shareholder value, however, as pointed out by Kaur and Narang (2009, p. 17) "the existing literature on the underpinnings of shareholder value creation is not well-developed." They go further to challenge the view that companies in India are creating value, as they believe the understanding by managers of Indian companies of EVA is flawed. They find that by using two-valued metrics of financial performance, EVA and MVA, 50% of the sampled companies representing India's wealth club undoubtedly destroyed value for their shareholders.

The findings by Kaur and Narang (2009) are critical as they emphasise the fact that companies in India do not entirely understand the concept of EVA and are under the impression that they are creating value, however, they are in fact destroying value. It also highlights that the EVA calculation may differ from organisation to organisation; thus the clarification of how EVA is calculated is critical. For the purposes of this study and to ensure consistency of the findings, the calculation of EVA is defined later in this paper.

Kaur and Narang (2009, p. 16) go further to indicate that their study "provides a fact base for the strategic investors, academic researchers, portfolio managers and corporate decision makers to dig below the surface numbers and interpret the economic realities of these big businesses." They calculate the EVA and MVA of the companies and categorise them as value creators or destroyers. The study by Kaur and Narang (2009) highlights that there are misunderstandings of what shareholder value creation is, how best to measure it and what increases shareholder value.

As a result of the vast amount of research performed on EVA, Sharma and Kumar (2010) acknowledge the number of uses of EVA to an organisation thus highlighting its importance.

Reasons for using EVA

The research which supports EVA, rather than traditional measures, as a measure of shareholder value is comprehensive. Bao and Bao (1998, p. 262) in an analysis of price levels and firm valuations conclude that the "results are not consistent for earnings and abnormal economic earnings, but are consistent for value added, i.e. value-added is significant in both levels and changes deflated by price analyses". Similarly, Uyemura, Kantor and Petit (1996) demonstrate that EVA has a high correlation with MVA and thereby share price, while O'Byrne (1996) estimates that more changes in EVA explain more variation in long-term share returns than changes in earnings. Finally, and from a share selection perspective, Herzberg (1998, p. 52) concludes that the residual income valuation model (including EVA) "appears to have been very effective in uncovering firms whose stock is underpriced when considered in conjunction with expectations for strong earnings and growth".

Banerjee (2000) uses data from 200 Indian companies over a period of five years and investigates whether the market value of a firm can be predicted using estimated future EVA

streams. Banerjee (2000) concludes that market value of firms can be predicted using estimated EVA and that market value is explained more by current operational value than by future growth value.

Finally, Jalbert and Landry (2003) highlight the following overall advantages of EVA, which are: explicitly considers the cost of capital; allows projects to be viewed independently; capitalises expenses that have multi-period benefits; and provides detail of corporate performance beyond that obtained from market-determined measures. In light of these advantages as well as the proponents for EVA above, the list of which is not exhaustive, the use of EVA to measure shareholder value is sound for the purposes of this study.

EVA as a predictor of future earnings

The relevance of EVA as an indicator of future earnings could assist in cementing it as an appropriate tool for investors and analysts from a South African point of view. This study will use the principles identified by Movassagh et al (2011) and Machuga et al (2002) wherein they examine the relative effectiveness of EVA in predicting future earnings and its role in enhancing the accuracy of analysts' forecasts. They find that EVA contains information that is incremental to EPS in predicting future earnings and that EVA adds incremental value to analysts' forecasts of future earnings. In light of the findings by these two sets of researchers, the study performed here will be used as a platform to evaluate whether further research regarding analyst forecasts is required and is relevant in a South African context.

As discussed, future earnings is one means of measuring the effectiveness of EVA. However, in addition to evaluating the impact of EVA on future earnings, this study assesses the impact of EVA on turnover and share price.

Impact of EVA on turnover growth and share price performance

EVA represents the value created or destroyed by a company and therefore EVA may have an impact on other performance measures. Turnover growth and share price performance of the companies are highlighted in this study.

As Stern (2004) states, share markets are smart, as share prices contain valuable information about a company's expected future performance which is expressed as the growth in EVA. In light of this, should there be an expected increase in EVA, shareholders will prefer to let their money ride on share ownership. As a result, share price performance may be affected by the shareholders/investors' perceptions of the growth and value added by a company and thus depend on their interpretation of the abovementioned elements. This study will attempt to determine whether the correlation exists between EVA and turnover growth and share price performance.

The impact of this possible correlation is reinforced by Young and O'Byrne (2000) who acknowledge that shareholders expect to gain a return for making their funds available to the business and therefore it is expected that the share price should correlate well with EVA.

South African research

The concept of EVA does not seem to be in widespread use in South Africa and as a result, very limited research has been performed to enhance the standing of EVA in a South African context. Poll et al (2011) perform research to determine the extent to which EVA is used by South African organisations. They focus on the methods used by South African organisations to calculate EVA and identify which sectors would most likely use EVA. Poll et al (2011) use focus group discussions with financial experts, which include consultants, analysts and statisticians, to discuss EVA and the challenges that are faced relating to its

implementation. They establish that South African companies would benefit from using EVA in conjunction with other metrics.

Another study is performed by De Wet (2005), who performs a comparative analysis between EVA and traditional accounting measures of performance, as drivers of shareholder value in South Africa. The study uses the results of companies listed on the Johannesburg Securities Exchange (JSE) and MVA as a proxy for shareholder value. De Wet (2005) finds that EVA is not superior and that there is a stronger relationship between MVA and cash flow from operations. In addition, the study finds very little correlation between MVA and EPS, or between MVA and dividends per share, concluding that the credibility of share valuations based on earnings or dividends is questionable.

Finally, Hall (1998) investigates the relationship between MVA and EVA, as well as other financial ratios such as ROA, ROE and EPS for listed South African companies. The study uses the top 200 companies listed on the JSE for the period from 1987 to 1996. The sample includes only industrial sector companies (financial, investment and mining sector companies were excluded). In addition, companies with thinly traded shares are also not included in the sample, as this would affect the reliability of the estimated WACC calculations. Hall's (1998) study finds the highest correlation is between MVA and discounted EVA, with inflation adjustments to the data. Besides this correlation, the remaining correlations are low and the author ascribes this to the fact that no distinction is made between companies that create value and those that destroy value.

As illustrated above, there has been very limited research performed with regard to EVA in the South African context, therefore this study will contribute significantly to this area of research in South Africa.

Definition of EVA and development of the hypotheses

Stewart (1991) expresses EVA as net operating profit after tax subtracted with a capital charge multiplied by invested capital. It represents residual income that remains after all costs have been recognised, including the opportunity cost of the equity capital employed.

Therefore in equation form:

$$EVA = NOPAT - (\text{cost of capital} * \text{invested capital}) \tag{1}$$

and according to Ward and Price (2006),

$$NOPAT = EBIT - Tax$$

Where:

EBIT = earnings before interest and tax

NOPAT = net operating profit after tax and before interest

Invested capital = economic book value of capital employed

The result of changes in EVA over a specific period provides the corresponding trend in economic performance of that company during that period. According to Stewart (1991), positive EVA firms provide higher returns than shareholders can earn by investing in other investments, and therefore they deserve to sell for a premium-to-book value. EVA firms with a zero EVA just meet investor expectations, and should sell for book value, while negative EVA firms should sell at a discount-to-book value. This fundamental evaluation principle is summarised by McCormack and Vytheeswaran (1998) as they state that the change in EVA over a period should, more accurately than any other measure, explain and correlate with the corresponding change in market value added.

As the components of EVA have been defined and the parameters of the calculation have been set, the hypotheses of this study will be described.

Development of hypotheses

The main objective of this study is to provide empirical evidence on the ability of EVA and earnings to explain and predict future earnings changes in a South African context and therefore to determine whether EVA is relevant to future earnings. As indicated previously, it is critical to associate EVA with EPS, as is the case in Movassagh et al (2011) and Machuga et al (2002). They use a model to examine the predictability of earnings; however for the purposes of this study, that model is not used. The principle identified by their studies is utilised in this study, the principle being that EVA in year one is correlated to EPS in year two.

To go further and explain the above principle, earnings changes in period t are related to levels and changes of earnings in period t−1 as well as levels and changes of EVA in period t−1. EPS is the change in earnings per share before discontinued operations, and EVA is the change in EVA calculated in terms of the guidelines outlined above. In light of this, the following hypothesis is outlined:

H1 − there is a positive relationship between EVA and future earnings

The above hypothesis is tested to examine the association between EVA and future accounting earnings, using EPS as a proxy for earnings.

As a result of the above hypothesis, two additional hypotheses are developed. Firstly, in regard to EVA and turnover growth, should the company be creating shareholder value, it would be expected that the turnover of the company would increase accordingly, and vice versa. Therefore in light of this, the following hypothesis results:

H2 − there is a positive relationship between turnover growth and EVA.

Secondly, as stipulated earlier, share prices contain valuable information about a firm's expected future performance, expressed as the increase in EVA. Therefore the following hypothesis is proposed:

H3 – there is a positive relationship between the change in share price and EVA.

Research method, data and results

This study attempts to establish a correlation between the economic values added performance of specific companies with their future earnings, using EPS as a proxy for earnings, as well as the relationship between their: EVA and turnover growth, and EVA and share price performance. As there is numerical data involved, a quantitative research approach is required for this study.

Zikmund (2003) defines a population as any complete group of people who share the same set of characteristics e.g. hospitals, stores, or college students. In this case, the population of relevance includes all industrial companies listed on the main board of the JSE at 31 December 2010. As is the case with the De Wet (2005) study, only industrial companies (which would be capital intensive) are used, as they provide the required information which helps to determine the critical variables for the analysis, in the McGregor BFA database.

The population of these capital intensive companies is supported by prior literature. Deo and Mukherjee (2009) conduct research on the perceptions of EVA among Fortune 1000 firms and find that 90% of respondents agree that EVA is more appropriate in capital-intensive organisations, such as manufacturing, rather than in an environment where organisations rely on intellectual capital. In addition, Silverman (2010) investigates the appropriateness of EVA in a high-technology environment and finds that calculated equity

values based on EVA were lower than the market values of the same organisations. In certain cases, the market value is almost double the intrinsic value of these organisations.

Sample and method

There are a limited number of companies which comprise the industrial sector and therefore all industrial companies listed in the JSE during the 2010 financial period will form part of the sample for this study. However, to be included in the sample, the information required for the period 1998 – 2010 for that company would need to be available. The reason why information is needed from 1998 is due to the change in EVA in 1999, which uses 1998 end of period EVA figures, being required to see if it correlates to the change in 2000 earnings.

Companies with thinly traded shares will be excluded as the WACC cannot be determined reliably for those companies. As is the case in De Wet (2005) and Hall (1998), the beta factor used in the determination of the cost of equity and the WACC cannot be determined reliably for companies with thinly traded shares. For this reason, all companies with thinly traded shares are eliminated from the database. Companies for which the average ordinary share trading volume was below 500 000 shares per year, as per De Wet (2005), for the eleven years from 2000 to 2010 were excluded. For the purposes of not reducing the sample size any further, where a company has ceased being listed or operating, and only one year of data is missing, this company has been included in the sample. The number of companies that remain in the final database are 44.

Data collection process

The EVA figures and any company specific data are obtained from the McGregor BFA database. The EVA is determined for a given year and is expressed as an amount in Rands.

Standardised annual financial statements and supporting financial and performance information for industrial shares are used. Standardised annual financial statements, instead of published annual financial statements, are used for research purposes, so as to ensure that the financial results of the companies listed in the industrial sector of the JSE are comparable.

Due to compliance with the rules and regulations of South African GAAP, companies listed on the JSE often present their financial statements based on individual company interpretation. The result of this is that the information presented in their financial statements is not comparable. Therefore the financial statements undergo a standardisation process which is performed by the Bureau for Financial Analysis. This results in certain figures in the income statement and balance sheet being changed from the company's published annual statements. These changes occur during the standardisation process, which procedure is done according to set rules and standards. This is merely noted for information purposes and does not detract from the reliability of the information.

Data analysis

Excel is used in order to calculate EVA, where required, as well as any other necessary calculations. Models and templates are used in order to standardise the dataset of the individual companies included in the sample.

Where required, the cost of capital is calculated using the WACC formula. For the CAPM, the South African government bond R153 rate, which is used by De Wet (2005), is used as a proxy for the risk-free rate. Based on the South African studies performed, Poll et al

(2011) found that the market premium is estimated to be between five (5%) and six (6%) percent while in the De Wet (2005) study, a market premium of six percent (6%) was estimated. The beta-factor is automatically calculated by the BFA database. The cost of debt and preference capital (where applicable) is calculated as indicated in prior literature and in terms of the guidelines included in the BFA database.

Research limitations

The research is only conducted for industrial companies during a specific period, and therefore possible correlations between the 2000 and 2010 period, and no other periods, are established.

Inflation is ignored for the purposes of this study as the inclusion of using an inflation-corrected EVA metric could be an area of future research. In this regard, Warr (2005) finds that inflation distorts EVA through the operating profit, the cost of capital, and the capital base and that these distortions have the potential to result in inefficient investment and compensation outcomes.

Finally, corporate activities such as mergers and acquisitions are considered as the normal course of business and are therefore not specifically excluded or adjusted in the data analysis.

Findings

The EVA data captured from the McGregor database is untabulated however depicts the year-wise EVA created by the sample companies for a period of 11 years. It is evident that in 2010, 18 companies out of 44 reported negative EVA. This compares less favourably to the fact that over the entire 11 year period, only 15 companies reported negative EVA. This reflects a positive shareholder value creation for the sample, as a majority of the

companies created value over the 11 year period. This data takes into account the fact that the EVA for Remgro Limited in 2009 was winsorised as it was an outlier in the statistical data.

The top three companies which create the most shareholder value over the 11 year period were The Bidvest Group Limited, Pretoria Portland Cement Company Limited and Reunert Limited. It is interesting to note that these three companies create shareholder value for all years of the sample, with the exception of Pretoria Portland Cement Company Limited, who destroy value in the 2000 year. In light of this, the shareholders needs in terms of value creation are met for the sample period.

The bottom three companies which appear to destroy value were Remgro Limited, Barloworld Limited and Mobile Industries Limited. Mobile Industries Limited and Remgro Limited (after winsorizing the 2009 year) destroy value for all the years of the sample. Barloworld Limited however initially destroys value, then creates value for a number of years until 2007 and then commences destroying value from 2008 onwards. The fact that it destroys value from 2008 is indicative of the sample which overall reduces in its shareholder value creation. Remgro Limited is by far the company with most shareholder value destruction of the sample.

Table 4.1 indicates the EVA-based frequency distribution of the sample companies. It is interesting to note that in the years 2000 to 2002, most of the companies destroy shareholder value, while the remaining companies create value of less than R500 000. However from the years 2003 to 2008, there is a gradual increase in shareholder value creation whereby there are often periods where EVA exceeded R500 000. Notably, it appears that for the years 2009 and 2010, there is an increase of 40% in the number of companies destroying value from the 2008 year. In addition, there are fewer companies with an EVA of less than R50 000 in comparison to the year 2008. This would indicate a shift in these

companies showing a positive EVA to a negative EVA. For the sample it appears, especially in the year 2010, that the EVA is shown to be reducing.

Table 4.1: EVA-based frequency distribution of sample companies

Year \ EVA	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	Total	Average	%
Negative	18	18	10	8	6	12	15	12	26	24	26	175	16	37
< R50 000	8	13	16	15	14	10	14	17	14	16	14	151	14	32
< R100 000	5	2	3	5	9	8	8	4	2	0	2	48	4	10
<R500 000	5	4	7	10	9	9	5	8	2	3	1	63	6	13
<R1 000 000	3	4	6	3	3	4	2	2	0	0	0	27	2	6
Above R1 000 000	2	2	2	2	2	1	0	0	0	0	0	11	1	2
Total	**41**	**43**	**44**	**43**	**43**	**44**	**44**	**43**	**44**	**43**	**43**	**475**	**43**	**100**

Table 4.2 provides descriptive statistics for EVA and here the results are described as measures of central tendency (mean and median), measures of variability (range and standard deviation) and measures of shape (kurtosis and skewness).

The above EVA frequency distribution in Table 4.1 is corroborated in Table 4.2 where it is evident that the mean is negative from 2000 to 2002, then positive and steadily increasing (with the exception of the year 2004) until the year 2006. In 2007 the mean is still positive and above R100 000, while in 2008 and onwards it steadily decreases. The period of negative EVA, as explained by Kaur and Narang (2009, p. 27), is indicative of "corporate managers'

decision about growth opportunities not being adequate to drive the long-term shareholder value creation". Kaur and Narang (2009, p. 27) explain that where EVA is positive, "shareholder activism and scrutiny increased, managers started making better firm value added decisions." Where the EVA is positive, however decreasing, the scrutiny of shareholders and the decision making of managers may reduce, but not significantly enough to result in negative EVA. The minimum values are negative ranging between -R31 638 and -R3 290 207, while the maximum values are positive throughout, ranging between R211 939 and R1 452 347.

The values of range show volatility, i.e. the difference between the smallest and the largest values. The standard deviation measures the variation of the data points from the mean value. Here, large standard deviation values of EVA indicate that data points are distant from the mean value. It highlights the significant difference between the EVA values of the best and worst performing companies in each year under study e.g. The Bidvest Group Limited reports a positive EVA worth R1 340 865 in the 2010 year, whereas Remgro Limited, in the same year, erodes shareholder value and reports negative EVA worth -R2 794 537.

Further to the above, skewness quantifies the extent of departure from symmetry and indicates the direction in which the departure takes place. The skewness of EVA figures show a negative direction in eight out of 11 years that indicates greater dispersal towards the left of the central value. For the remaining years, the skewness of EVA being positive indicates the opposite. The nearer the value towards zero, the more likely it is that the data is normally distributed. Hence, we can observe the skewness values close to zero, kurtosis being positive in all the years, indicating distributions that tend towards leptokurtic (high peaks with fat tails).

Table 4.2: Descriptive statistics (all in Rands)

Year	Mean	Median	Sum	Minimum	Maximum
2000	(62 179)	(11 438)	(2 673 680)	(877 131)	215 017
2001	(65 616)	(11 227)	(2 821 495)	(1 450 310)	268 120
2002	(89 926)	(4 829)	(3 956 728)	(1 332 594)	211 939
2003	44 994	16 896	1 934 745	(830 061)	715 409
2004	5 267	13 960	231 752	(2 662 052)	814 287
2005	126 873	42 376	5 582 404	(633 304)	1 195 685
2006	181 599	63 221	7 808 767	(31 638)	1 353 388
2007	114 007	47 932	4 902 306	(1 604 657)	1 268 767
2008	77 889	39 714	3 427 135	(3 290 207)	1 452 347
2009	67 200	13 873	2 889 597	(1 138 406)	1 332 867
2010	29 988	29 786	1 229 513	(2 794 537)	1 340 865

Year	Std. Deviation	Skewness	Kurtosis	Range
2000	170 414	(3.15)	12.81	1 092 148
2001	266 229	(4.07)	19.01	1 718 430
2002	281 681	(3.20)	10.75	1 544 532
2003	225 209	(0.56)	7.27	1 545 470
2004	450 051	(4.83)	30.17	3 476 340
2005	296 158	1.35	4.20	1 828 989
2006	312 615	2.32	5.10	1 385 026
2007	416 780	(0.64)	7.96	2 873 424
2008	640 657	(3.19)	18.14	4 742 553

2009	448 669	0.43	2.88	2 471 273
2010	591 158	(2.55)	13.59	4 135 402

Earnings per share

The association between EVA and future earnings of companies, using EPS as a proxy for earnings, is critical for the purposes of this study. In light of this, the findings and descriptive statistics performed for EVA are also performed for EPS.

The year-wise EPS in cents of the sample companies for a period of 11 years are untabulated. It is evident that in 2010, the entire sample of 44 companies reported a positive EPS while there are only 28 instances out of 520 in the entire period where there is a negative EPS. This compares more favourably to the EVA findings where there are a number of instances of negative EVA in the sample period.

The total of the EPS by company is calculated, and it is found that the top three companies who have the best EPS over the sample period are Remgro Limited, Pretoria Portland Cement Company Limited and Imperial Holdings Limited. This is very interesting considering that Remgro Limited is seen to destroy the most value in terms of EVA findings. With regard to Pretoria Portland Cement Company Limited and Imperial Holdings Limited, both of these companies are in the top 10 value creators in terms of EVA.

The three companies with the worst EPS over the period are Control Instruments Group Limited, Metrofile Holdings Limited and Command Holdings Limited. Control Instruments Group Limited records a total negative EPS for the entire period and also records a negative EPS for more than half of the number of years in the sample. In relation to EVA, these companies are all considered to be value destroyers.

The descriptive statistics (untabulated) for the EPS of the sample (containing the required data for all the years) of companies do not reflect any areas of significance, except

that the skewness reflects values are >0 indicating outliers to the right. Kurtosis reflects that for some years, values are >3 showing leptokurtic distributions that are more peaked than normal with more outliers (i.e. fat tails), while for other years, values are <3 showing platykurtic distributions that are flatter than normal with fewer outliers (i.e. thin tails).

EVA and future earnings

The statistics herein thus far reflect the actual EVA and EPS of the sample. However, as the case of Remgro Limited illustrates, it is possible that the EVA shows to be negative while the EPS is positive. Therefore, this study uses the change in EVA (in the prior year) and EPS (in the current year) and determines if there is a correlation between the changes in these two factors.

In addition, this study also uses the correlation coefficient (r) to test the hypothesis:

H_0: $\rho = 0$ (there is no linear correlation in the population); against the alternative

H_A: $\rho \neq 0$ (there is a linear correlation in the population)

The test is two-tailed and the test statistic is $t = \dfrac{r\sqrt{n-2}}{\sqrt{1-r^2}}$ at a 5% level of significance.

The total sample comprises of 472 data sets. The correlation coefficient was r = 0.0825 and therefore the relationship between EVA and future earnings is positively correlated. The coefficient of determination (r^2) is 0.0068 which indicates that only 0,68% of the variation in future earnings is explained by the variation in EVA. The t-value is 1.794(470) which is below the critical t-value of 1.96 at a 5% significance level so we fail to reject H_0 and conclude that there appears to be a non-significant correlation between EVA and future earnings.

EVA and turnover growth

Growth rates in turnover and EVA are compared to determine if there is any statistically significant correlation between these two growth rates. Correlation coefficients between turnover growth and growth in EVA are calculated for the entire sample.

The total sample comprises of 475 data sets and the correlation coefficient was $r = 0.1414$ and therefore the relationship between growth in EVA and turnover growth is positively correlated. The coefficient of determination (r^2) is 0.02 which indicates only 2% of the variation in turnover growth can be explained by the variation in EVA. The t-value of 3.106(473) is above the critical t-value of 1.96 at a 5% significance level so we reject H_0 and conclude that there appears to be a significant correlation between EVA and turnover growth.

EVA and share price performance

Annual share price for companies listed in the industrial sector are obtained per the year end of each company. The annual change is calculated between the share price change and change in EVA, so as to establish whether the correlation is significantly positively correlated.

The total sample comprises of 475 data sets and the correlation coefficient is $r = 0.273$ and therefore the relationship between growth in EVA and share price performance is positively correlated. The coefficient of determination (r^2) is 0.074 which indicates that only 7,4% of the variation in share price performance is explained by the variation in EVA.

The relationship is stronger than the relationship with future earnings and turnover growth. However, it is still weak. The t-value of 6.172(473) is above the critical t-value of 1.96 at a 5% significance level so we reject H_0 and conclude that there appears to be a significant correlation between EVA and share price performance.

In addition to determining the correlation between EVA and share price, this study also performs a correlation between EPS and share price to determine the strength of the correlation. The correlation coefficient is 0.3411 while the coefficient of determination is 0.1164, which indicates that this relationship is the strongest out of all the above correlations. The t-statistic is 7.89(473) which far exceeds the 1.96 at the 5% significance level so we reject H_0 and conclude that there appears to be a significant correlation between EPS and share price.

Conclusion

EVA is used globally as a measure of company performance especially in regard to indicating shareholder value creation, however its use in South Africa is not extensive. Globally there are a number of advocates of EVA which range from the founders, Stern Stewart and Company, to external researchers. In light of this, it is surprising that the use of EVA in South Africa is not common.

This study sets out to establish whether a correlation exists between EVA and future earnings, using EPS as a proxy. The use of EPS as a proxy is critical as it is still regarded by investors as a key performance measure. The establishment of the correlation between EVA and future earnings may be used as a foundation for an argument in favour of using EVA as a performance measure in a South African context. It is expected that if there is a growing EVA, an increase in expected future earnings should follow.

In this study, 44 companies are analysed for evidence of the expected relationship between EVA and future earnings. The findings in this study however indicate that the correlation is positive, but non-significant and therefore it would be difficult to convince companies in South Africa to use EVA as a performance measure in light of this finding.

In addition to finding a correlation between EVA and future earnings, additional analysis is performed to establish if a correlation exists between EVA and turnover growth, as well as EVA and share price performance. These correlations are positively significant, however are not practically important, as they are very weak.

A possible area for future research may include the analysis of the adjustments made to South African GAAP earnings which have the most significant impact on the EVA calculation. In addition, refinements in the research design or a re-interpretation of EVA (for example invested capital) may be successful in addressing the non-significant correlation with future earnings.

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