

EARNINGS PER SHARE AS A MEASURE OF FINANCIAL PERFORMANCE: DOES IT OBSCURE MORE THAN IT REVEALS?

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Abstract

The well-known earnings per share measure is simultaneously very popular but also potentially misleading. This study briefly discusses the popularity of EPS and then outlines three limitations, namely the inability of EPS to reflect shareholder value, EPS management and an inherent bias towards positive EPS growth. A case study approach is used to analyze the EPS growth of three listed companies and the four major components of EPS growth are identified. These are inflation, increased asset investment due to retained profit and debt, operating leverage and financial leverage. It is indicated how an "excess" EPS growth can be determined and it was found that none of the three case study companies was able to generate positive "excess" EPS growth.

Keywords: Earnings per Share (EPS), EPS Growth, Earnings Management, Operating Leverage, Financial Leverage, Shareholder Value, Sustainable Growth Rate

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1. Introduction

Pundits in the know and other users of financial statements perhaps not that well informed have been touting EPS as the holy grail of financial performance for a very long time. The requirement for companies in the USA to report earnings every three months has aptly been labeled "quarteritis" and brought immense pressure to bear on managers to deliver acceptable EPS performance. Managers internationally are all too aware of the impact of EPS surprises on share prices and as a consequence a questionable over-emphasis on short term EPS performance has resulted.

Earnings-linked compensation schemes have been a spinoff of this obsession with short term earnings performance. The pressure to constantly come up with unbroken strings of positive EPS growth has affected managerial behavior profoundly. Instead of concentrating efforts and energies on projects that will maximize shareholder wealth in the long term, managers turn to all kinds of schemes to manage EPS. Considering the fact that manager performance is often measured in terms of EPS, the implications of EPS not measuring up to expectations for manager remuneration and job security are patently obvious.

This study outlines the popularity of EPS as a financial performance yardstick, but also addresses three glaring limitations, namely the inability of EPS to reflect shareholder wealth creation, EPS management and an inherent bias towards positive EPS growth. The study then homes in on the issue of the inherent bias towards positive EPS growth and uses a case study approach to analyze the EPS growth

of three companies. The findings are that inflation, the increased asset investment due to retained income and debt, operating leverage and financial leverage are major factors that determine EPS growth. Any EPS growth generated over and above the four factors just mentioned is termed "excess" EPS growth and none of the three companies selected was able to generate a positive "excess".

2. Literature Review

2.1 Popularity of EPS

Even today, EPS is considered to be the single most popular, widely used financial performance benchmark of all. Graham, Harvey and Rajgopal (2004) surveyed 400 financial executives in the USA and reported that the majority, by far, were of the opinion that earnings were the most important performance measure they report to outsiders. EPS is also the linchpin undergirding strategic decision-making like share valuations, management performance incentive schemes and merger and acquisition negotiations. EPS is simple to calculate and easily understood and management is congratulated when there is positive EPS growth. It is no surprise that managers take a special interest in EPS when their compensation is linked to the EPS performance of the company.

Most investors are familiar with the valuation multiple, the P/E ratio, which has EPS as the denominator. Authors such as Chen, Jorgensen and Yoo (2004), Ohlson and Juettner-Nauroth (2005) and Taboga (2011) confirm the continued relevance of

EPS and EPS growth in modern day share valuation methodology. Adkins, Matchett and Toy (2010) attribute the obsession with EPS to the fact that EPS neatly summarises the earnings generated for shareholders and the shareholder's view appeals to investors and management alike.

Rappaport (2005) infers that short term (EPS) performance is especially important for younger companies for which future growth expectations are more sensitive to current performance, compared to older companies with a longer operating history. In addition, he points out that senior executives, who are constantly mindful of the link between their own reputation, the risk of losing their job and the share price, tend to focus on short term measures like EPS. Brown (1999) comments that when companies, under severe pressure to meet market expectations, underperform EPS estimates by only a few cents, experience "double digit nosedives" in share prices. Big share price movements in response to earnings surprises reinforce the perception that short term earnings rather than long term cash flow expectations drive share price changes.

There has been a significant decrease in average share holding periods in the USA, from about seven years in the 1960s to less than a year in 2005 (Rappaport, 2005). It is argued that this short term holding period leads to a greater reliance on the beliefs of others and momentum-motivated trading, rather than long term fundamentals, in investment decisions. With dividend yields in the US averaging about 2%, short term investors rather focus on capital gains when they sell the shares at the end of their investment horizon and not on the dividend. Consequently they look at short-term indicators like earnings to project the share price at the end of their investment horizons.

2.2 Limitations of EPS

The limitations of EPS are summarised into three categories, namely its failure to reflect shareholder value creation, earnings management and an inherent bias towards positive EPS growth. These are discussed in the ensuing sections.

2.2.1 Failure of EPS to Reflect Shareholder Value Creation

According to Jensen (2002) the objective of increasing the long term market value of the firm "has its roots in 200 years of research in economics and finance". Value is determined by the magnitude, timing and risk of the future free cash flows of the company. Equity valuation methods use discounted cash flow techniques to estimate the present value of future cash flows in order to determine the value of the shares today. Companies practically pursue the goal of value maximisation by investing in projects with returns above the cost of capital, thereby yielding

positive net present values (NPVs). Value is created by investing in new projects with positive NPVs, disinvesting or downsizing existing projects with negative NPVs and expanding or improving existing projects with positive NPVs by increasing expected cash flows and/or reducing their risk. The link between present earnings and future cash flows is not altogether clear and earnings can, at most, only serve as an indication or signal of the possible size, timing and uncertainty of future cash flows.

Stewart (2002) asserts that companies that manage EPS are "asking for trouble" and commented that one of the significant contributors to the demise of Enron was that the management was, in their own words, "laser-focused on EPS". Mauboussin (2009) defines the fundamental problem with EPS as the fact that a company can take decisions that increase EPS but destroy shareholder value. Furthermore, an obsession with short term EPS performance can cause management to under-invest, for instance, intentionally limiting critical research and development expenses just to meet quarterly earnings benchmarks. This short term mind-set could cause management to lose sight of longer term strategic factors such as the sustainability and growth of future sales and cash flow, industry growth potential, the company's competitive position, competitors' behaviour and technological changes, which all impact value.

EPS does not take into account the cost of equity and as a result, does not reflect the full cost of running a business. Companies with heavy debt burdens reflected in high levels of financial gearing have a high cost of equity due to the increased risk. Penman (2005:375) indicates that companies can increase EPS simply by increasing their borrowing; however, more borrowing does not necessarily create more value. Rappaport (2005) reports that the widespread obsession with short term performance is the "root cause" of recent corporate scandals and that there is no greater enemy of stock market allocation efficiency than the fixation on earnings. In conclusion, Rappaport (2006) directs that companies should make strategic decisions that maximise expected future value, even at the expense of lower near-term earnings.

2.2.2 Earnings management

Management can and does resort to accounting footwork to maximise EPS rather than shareholder value. This is substantiated by Brown (1999) who states that there is an unprecedented systemic reporting problem and that the manipulation of earnings to the point of including bogus earnings, are on the rise. Stewart (2002), in referring to Enron, remarks: "the company's top brass became so caught up in the vicious EPS management cycle that they resorted to deceitful accounting chicanery to hide much of the debt they were using to finance their EPS

growth". Matsumoto (2002) identifies managing earnings upward and guiding analysts' forecasts downwards as two approaches managers use to prevent negative earnings surprises. Using data from 21 countries, Brown and Higgins (2005) deduced that managers in countries where there is strong investor protection use forecast guidance more than managers in countries with weak investor protection.

Penman (2003) observes that current earnings are not sufficient to forecast future earnings and that wider information in financial statements must be used to evaluate the quality of earnings. Bergstresser and Philippon (2006) find that there is a higher incidence of the use of accruals to manipulate earnings at companies where the CEO's potential compensation is more closely linked to the value of the shares. They cited the capitalisation of operating expenses by WorldCom as a telling example of the erroneous application of accrual accounting. The reported EPS can also be increased by decreasing the number of ordinary shares issued and Hribar, Jenkins and Johnson (2006:26) report that investors seem to recognise and discount the impact of these actions.

Myers, Myers and Skinner (2007) investigate the quarterly earnings strings of at least twenty quarters for companies in the USA. They find significant evidence of earnings management where long periods of unbroken positive EPS growth cannot be ascribed to underlying economic fundamentals or chance. Cornett, Marcus and Tehranian (2008:372) detect a strong link between earnings management and the share option compensation of CEOs. Their study highlights the beneficial impact of corporate governance, but questions the value of performance incentive remuneration as a means to induce superior performance. The quality of reported earnings is elevated significantly with better controls, but drops dramatically in the presence of share option compensation.

Li (2008) presents findings of a study using companies in the USA and concludes that the annual financial reports of companies with poor performance are much harder to read, while those of companies with persistent positive earnings are much easier to read. The evidence suggests that managers are actively manipulating financial reports to hide negative information from investors. Jordan, Clark and Anderson (2008) indicate that earnings are managed to achieve specific target EPSs and that the intensity of earnings management varies with company size, leverage and operating performance.

Gunney (2009) classifies earnings management in two categories, namely accruals management and real activities manipulation. Accruals management involves the use of accounting policies within generally accepted accounting principles (GAAP), while real activities manipulation takes place when managers change the timing or structuring of an operation, investment and/or financing transaction to change the accounting impact. The results of the study

show a strong positive relationship between real activities manipulation and companies just meeting earnings targets.

Cohen and Zarowin (2010) provide evidence that companies do engage in earnings management before and after seasoned equity offerings (SEOs). More specifically, they find that for companies that use real activities manipulation, the deterioration in the post-SEO performance is more severe than for companies that used accrual management. Heidari, Ashtab and Kordestani (2012) assert that two major factors incentivise earnings management, namely debt contracts and capital market pressures such as the expectation for earnings growth. Furthermore, they find that companies with more earnings growth and higher financial leverage are more inclined to adjust earnings.

2.2.3 Inherent bias towards positive EPS growth

Zakon (1968) indicates that the sustainable growth rate (SGR) of a company is dependent upon, not only its return on assets, but also on its financial policies. Gentry and Pyhrr (1973) also developed an interactive model enabling managers to test the impact of different input variables on expected EPS growth. Hamman (1996) tested variations of the SGR model and among others, illustrated the outcome of the scenario where only retained earnings and no new debt were used, as well as the scenario where new debt and new equity are used. The original SGR formula is defined as follows:

$$SGR = D/E(R - i)p + Rp$$

Where:

D = Debt

E = Equity

R = Percentage return on assets after tax

i = Percentage interest rate on debt after tax

P = Proportion of earnings retained

From the formula above one can deduce that in addition to the return on assets, the level of financial leverage as well as the dividend policy play major roles in determining at what maximum rate a company can grow without issuing new shares. Implicit in the SGR formula are the assumptions that the profitability of the assets, the capital structure and the asset turnover, the dividend policy, as well as the average interest rate on debt and the tax rate all remain constant.

If it is assumed that a company retains some profits after paying a dividend in a given year, it can be argued that, in order to maintain the capital structure, an appropriate amount of additional debt can be raised. The retained profit plus the additional debt theoretically constitute the total amount of additional capital the company has at its disposal for investment in assets for the next financial year. Assuming a constant asset turnover (no spare

capacity), the volume of sales should increase by the same percentage as the assets in the next year.

Furthermore, the impact of leverage, both operational and financial, and inflation should cause an even more dramatic percentage increase in earnings compared to the increase in sales volume. The higher amount of earnings generated from a larger asset base in the next year, divided by the same number of issued ordinary shares would most likely lead to a higher EPS, even if the company actually has weaker profitability performance relative to sales and assets than in the previous year. This phenomenon represents an inherent bias towards positive EPS growth when there are positive retained earnings in the preceding year.

In summary, one can conclude that EPS and EPS growth can be extremely unreliable as indicators of past performance and future prospects on the grounds of its failure to reflect shareholder value creation, earnings management and an inherent bias towards positive EPS growth. The next section presents an outline of the objective of the study.

3. Objective of the Study

Previous sections elaborated on the appeal and limitations of EPS and highlighted three main issues that contribute to its unreliability. This study focuses on the third limitation, which is the inherent bias towards EPS growth. Consequently, the objective of the study is to analyze EPS growth in order to find its major contributory components and to evaluate the impact of the retained profits of a given year on the earnings of the next year, as well as the impact of operating leverage and financial leverage on EPS growth. The research methodology is discussed in the next section.

4. Research Methodology

The nature of this research is exploratory and the case study approach is deemed most suitable in order to meet the study objective. To this end, three companies listed on the JSE South Africa, namely Shoprite Holdings Limited ('Shoprite'), Italtile Limited ('Italtile') and Hudaco Industries Limited ('Hudaco'), were selected.

5. Data and EPS Growth Analysis Model

The data for the three case study companies was extracted from the McGregor BFA database and for reasons of comparability, standardized financial statement information was used. The level of total leverage, which is the combined operational and financial leverage, was employed as a guideline in selecting the companies. Shoprite has a low level of total leverage, Italtile has a moderate level of leverage and Hudaco has a high level of leverage.

Shoprite focuses on food retailing to consumers of all income levels. The group has expanded its business into Africa as well as to some of the Indian Ocean Islands and is considered as Africa's largest food retailer. Shoprite uses different brands in targeting customers in different income groups, for instance the brands Checkers, OK stores, Usave stores, Sentra and House & Home are well known in South Africa.

Italtile is described as South Africa's leading retailer of imported and local ceramic tiles, sanitary-ware, bathroom accessories and other related products. The group operates as a franchisor and has expanded its business to other African countries like Kenya and Uganda and also to the east coast of Australia. Italtile also uses the brand names CTM and Top T stores and owns an extensive property portfolio which underpins the retail network.

Hudaco specializes in importing and value-added distribution of selected high quality industrial and security products in the southern African region. The group has a particular focus on replacement, especially for engineering consumables and consumer related products. Products are sourced mainly from international manufacturers and to a lesser extent from local suppliers. A network of specialized branches and independent distributors are used throughout southern Africa.

An Excel spreadsheet model was developed and the data that was inserted for each company include the sales, variable costs, fixed costs, profit before interest and tax (PBIT), interest paid, profit before tax (PBT), taxation, profit after tax (PAT), minority interest, preference dividend, earnings, ordinary dividend and retained income. The model was constructed based on the following assumptions:

- The capital structure remains constant, i.e. for increases in retained profits, long term debt is added proportionately;
- There are no new share issues, buybacks, share splits, scrip dividends or bonus share issues during the year;
- The capital structure is determined by a combination of equity and long term debt, which finance total net assets;
- Total net assets consist of fixed assets plus financial assets plus net working capital;
- Asset turnover, determined by dividing sales by total net assets, remains constant;
- There is no preference shares issued or the issued amount is insignificantly small.

The model uses the input data to determine the level of operating and financial leverage and analyses the EPS growth percentage by identifying and quantifying the factors that contribute to its value. The use of standardized financial statements may cause the calculation of EPS for the three case study companies to be different from the reported EPS per actual published statements. Adjustments were made to turnover and expenses using the consumer price

index (CPI) for all three companies. It is acknowledged that inflation impacts each company in a different way and the use of other indices like the production price index (PPI) for certain expenses may

result in greater accuracy of projections. The results of the model applied to each of the three companies selected are given in the next section.

6. Results and Discussion

Table 1. Results for Shoprite

	2012 Actual	2012 Projected before infl.	Note	2012 Projected after infl.	Note	2011 Actual	2011 Percentage
	Rm	Rm		Rm		Rm	
Sales	82731	89799	1	94827	2	72298	
Variable cost	77011	83654	3	88338	4	67351	
Contribution	5720	6145		6489		4947	
Fixed cost (estimate)	886	886		936	5	886	
PBIT	4834	5259		5553		4061	
Interest paid	223	157	6	157		126	
PBT	4611	5102		5396		3935	
Tax	1528	1757	7	1858	8	1355	34,4% of PBT
PAT	3083	3345		3538		2580	
Minority interest	16	26	9	27	10	20	0,8% of PAT
Preference dividend							
Earnings	3067	3319		3511		2560	
Ord. div.	1598					1279	
Retained income	1469					1281	
Number ord. shares (million)	504.33	504.33		504.33		504.33	
EPS cents	608.13	658.14		696.12		507.60	
EPS actual vs benchmark (growth)	19.8%			-17.34%			
Equity						5292	83.0%
LT debt						1082	17.0%
Tot. net assets						6374	
Adjusted net asset turnover (Sales/Tot. net assets)						11.343	
CPI inflation rate						5.6%	
Operating leverage (Contribution/PBIT)						1.22	
Financial leverage (PBIT/PBT)						1.03	
Total leverage (Contribution/PBT)						1.26	
Percentage volume change in sales (before inflation)						24.21%	
Projected change in earnings (volume change x total leverage)						30.43%	
Projected increase in earnings excluding increase in interest (previous yr earnings x % change)						779.05	
Subtract increase in interest after tax and minority interest (incr.int.x (1-tax rate) x (1-min.int.))						19.84	
Net increase in projected earnings should be						759.21	
Test: Projected earnings (before inflation) minus 2011 earnings						759.21	
Note 1							
Retained income						1281.0	
Additional debt						261.9	
Additional capital available						1542.9	
x Asset turnover						11.3	
Additional sales next year						17500.7	
2011 Sales						72298.0	
Projected 2012 sales before inflation						89798.7	

Note 2	x (1+inflation rate)	Analysis of EPS growth %:	<u>19.80%</u>
Note 3	proj. sales x var. cost % prev. yr	Inflation	7.48%
Note 4	proj. var. cost x (1 + infl)	Higher capital, assets & sales	24.21%
Note 5	fixed cost x (1 + infl)	Operating leverage	5.28%
Note 6	int + int on additional debt	Financial leverage	0.94%
Note 7	proj. PBT x tax rate	Additional interest after tax & min. int	-0.78%
Note 8	proj. PBT after infl x tax rate	"Excess" growth	-17.34%
Note 9	proj. PAT x min. int %		<u>19.80%</u>
Note 10	proj. PAT after infl x min. int%		

The cost behavior of each company was analyzed over a five-year period from 2007 to 2012, using changes in turnover and operating costs, in order to estimate variable cost and fixed cost components. In Table 1, it is shown how the actual EPS of Shoprite for 2011 is determined at 507.60 cents and at 608.13 cents for 2012. The actual growth in EPS is recorded as 19.8%. However, given the retained income of R1 281 million in 2011, and considering the assumption of a constant capital structure, an additional R261.9 million can be borrowed (Note 1). The total additional capital of R1 542.9 million multiplied by the adjusted asset turnover of 11.343, yields an amount of R17 500.7 million in additional sales projected for 2012. Based on this projection of increased sales volume, a projected EPS of 658.14 cents is calculated. After adjustments are made for inflation, the projected EPS for 2012 is determined as 696.12 cents. When the actual EPS for 2012 of 608.13 cents is compared to the projected 696.12 cents and the difference is divided by the 2011 EPS of 507.60 cents, it indicates that the company actually underperformed the projected EPS by 17.34% (of the 2011 EPS).

A more complete analysis of the original 19.8% EPS growth in 2012 is given in the bottom-right of the table. The analysis indicates that 7.48% of the actual EPS growth can be attributed to inflation. The retained income of 2011, combined with the additional long term debt, should have enabled the company to generate more sales and earnings in 2012, contributing to an increase of 24.21% in EPS, without taking into account the impact of leverage. Shoprite, having low levels of fixed cost and interest, has low levels of leverage and therefore the impact of these on the EPS growth is limited. It is estimated that operating leverage should cause EPS growth to increase by 5.28% and that financial leverage contributes only 0.94% to the EPS growth. The additional interest on the increased long term loans has an insignificant impact of -0.78% on EPS growth and the remaining -17.34% represents the "excess" EPS growth the company was (not) able to generate over and above the additional capital invested, inflation and the impact of leverage. In spite of showing a nominal increase in EPS of 19.8%, Shoprite actually underperformed the projected benchmark by 17.34%.

Table 2. Results for Italtile

	2012 Actual	2012 Projected before Infl.	Note	2012 Projected after Infl.	Note	2011 Actual	2011 Percentage
	Rm	Rm		Rm		Rm	
Sales	1845	1711	1	1806	2	1521	
Variable cost	1033	896	3	944	4	796	
Contribution	812	815		862		725	
Fixed cost (estimate)	240	240		254	5	240	
PBIT	572	575		608		485	
Interest paid	24	27	6	27		24	
PBT	548	548		581		461	
Tax	153	152	7	161	8	128	27.8% of PBT
PAT	395	396		420		333	
Minority interest	17	21	9	23	10	18	5.4% of PAT
Preference dividend							
Earnings	378	375		397		315	
Ord. div.	128					110	
Retained income	250					205	
Number ord. shares (million)	902.6	902.6		902.6		902.6	
EPS cents	41.88	41.52		43.96		34.90	
EPS actual vs benchmark (growth)	20.00%			-5.96%			
Equity						1644	83.66%
LT debt						321	16.34%
Tot. net assets						1965	

Adjusted net asset turnover (Sales/Tot. net assets)			0.774
CPI inflation rate			5.6%
Operating leverage (Contribution/PBIT)			1.50
Financial leverage (PBIT/PBT)			1.05
Total leverage (Contribution/PBT)			1.57
Percentage volume change in sales (before inflation)			12.47%
Projected change in earnings (volume change x total leverage)			19.62%
Projected increase in earnings excluding increase in interest (previous yr earnings x % change)			61.79
Subtract increase in interest after tax and minority interest (incr.int. x (1-tax rate) x (1-min.int.))			2.04
Net increase in projected earnings should be			<u>59.75</u>
Test: Projected earnings (before inflation) minus 2011 earnings			<u>59.75</u>
Note 1			
Retained income			205.0
Additional debt			40.0
Additional capital available			245.0
x Asset turnover			0.8
Additional sales next year			189.7
2011 Sales			1521.0
Projected 2012 sales before inflation			<u>1710.7</u>
Note 2	x (1+inflation rate)	Analysis of EPS growth %:	<u>20.00%</u>
Note 3	proj. sales x var. cost % prev. yr	Inflation	6.99%
Note 4	proj. var. cost x (1 + infl)	Higher capital, assets & sales	12.47%
Note 5	fixed cost x (1 + infl)	Operating leverage	6.18%
Note 6	int + int on additional debt	Financial leverage	0.97%
Note 7	proj. PBT x tax rate	Additional interest after tax & min. int	-0.65%
Note 8	proj. PBT after infl x tax rate	"Excess" growth	-5.96%
Note 9	proj. PAT x min. int %		<u>20.00%</u>
Note 10	proj. PAT after infl x min. int%		

In Table 2, the actual EPS of Italtile for 2011 is determined at 34.90 cents and at 41.88 cents for 2012. The actual growth in EPS is recorded as 20.00%. This time, given the retained income of R205 million in 2011, and considering the assumption of a constant capital structure, an additional R40 million can be borrowed (Note 1). The total additional capital of R245 million multiplied by the adjusted asset turnover of 0.774, yields an amount of R189.7 million in additional sales projected for 2012. Based on this projection of increased sales volume, a projected EPS of 41.52 cents is calculated. After adjustments are made for inflation, the projected EPS for 2012 is determined as 43.96 cents. When the actual EPS for 2012 of 34.90 cents is compared to the projected 43.96 cents and the difference is divided by the 2011 EPS of 34.90 cents, it indicates that the company actually underperformed the projected EPS by 5.96% (of the 2011 EPS).

The more complete analysis of the original 20.00% EPS growth in 2012 is given in the bottom-right of the table. The analysis indicates that 6.99% of

the actual EPS growth can be attributed to inflation. The retained income of 2011, combined with the additional long term debt, should have enabled the company to generate more sales and earnings in 2012, contributing to an increase of 12.47% in EPS, without taking into account the impact of leverage. Italtile, having moderate levels of fixed cost and interest, has moderate levels of leverage and therefore the impact of these on the EPS growth is average in magnitude. It is estimated that operating leverage should cause EPS growth to increase by 6.18% and that financial leverage contributes only 0.97% to the EPS growth. The additional interest on the increased long term loans has an insignificant impact of -0.65% on EPS growth and the remaining -5.96% represents the "excess" EPS growth the company was (not) able to generate over and above the additional capital invested, inflation and the impact of leverage. In spite of showing a nominal increase in EPS of 20.00%, Italtile actually underperformed the projected benchmark by 5.96%.

Table 3. Results for Hudaco

	2012 Actual	2012 Projected before infl.	Note	2012 Projected after infl.	Note	2011 Actual	2011 Percentage
	Rm	Rm		Rm		Rm	
Sales	3492	3931	1	4151	2	3182	
Variable cost	2645	2908	3	3070	4	2354	
Contribution	847	1023		1081		828	
Fixed cost (estimate)	184	184		195	5	184	
PBIT	663	839		886		644	
Interest paid	250	305	6	305		247	
PBT	413	534		581		397	
Tax	50	69	7	75	8	51	12.8% of PBT
PAT	363	465		506		346	
Minority interest	11	17	9	19	10	13	3.8% of PAT
Preference dividend							
Earnings	352	448		487		333	
Ord. div.	147					133	
Retained income	205					200	
Number ord. shares (million)	32.52	32.52		32.52		32.52	
EPS cents	1082.43	1376.89		1498.07		1024.00	
EPS actual vs benchmark (growth)	5.71%			-40.59%			
Equity						850	26.9%
LT debt						2306	73.1%
Tot. net assets						3156	
Adjusted net asset turnover (Sales/Tot. net assets)						1.008	
CPI inflation rate						5.6%	
Operating leverage (Contribution/PBIT)						1.29	
Financial leverage (PBIT/PBT)						1.62	
Total leverage (Contribution/PBT)						2.09	
Percentage volume change in sales (before inflation)						23.53%	
Projected change in earnings (volume change x total leverage)						49.10%	
Projected increase in earnings excluding increase in interest (previous yr earnings x % change)						163.51	
Subtract increase in interest after tax and minority interest (incr.int. x (1-tax rate) x (1-min.int.))						48.75	
Net increase in projected earnings should be						114.76	
Test: Projected earnings (before inflation) minus 2011 earnings						114.76	
Note 1						200.0	
Retained income						542.6	
Additional debt						742.6	
Additional capital available						1.0	
x Asset turnover						748.7	
Additional sales next year						3182.0	
2011 Sales						3930.7	
Projected 2012 sales before inflation						5.71%	
Note 2	x (1+inflation rate)		Analysis of EPS growth %:			11.83%	
Note 3	proj. sales x var. cost % prev. yr		Inflation			23.53%	
Note 4	proj. var. cost x (1 + infl)		Higher capital, assets & sales			6.74%	
Note 5	fixed cost x (1 + infl)		Operating leverage			18.83%	
Note 6	int + int on additional debt		Financial leverage			-14.64%	
Note 7	proj. PBT x tax rate		Additional interest after tax & min. int			-40.59%	
Note 8	proj. PBT after infl x tax rate		"Excess" growth			5.71%	
Note 9	proj. PAT x min. int %						
Note 10	proj. PAT after infl x min. int%						

In Table 3, the actual EPS of Hudaco for 2011 is determined at 1024.00 cents and at 1082.43 cents for 2012. The actual growth in EPS is recorded as 5.71%. Again, given the retained income of R200 million in

2011, and considering the assumption of a constant capital structure, an additional R542.6 million can be borrowed (Note 1). The total additional capital of R742.6 million multiplied by the adjusted asset

turnover of 1.008, yields an amount of R748.7 million in additional sales projected for 2012. Based on this projection of increased sales volume, a projected EPS of 1376.89 cents is calculated. After adjustments are made for inflation, the projected EPS for 2012 is determined as 1498.07 cents. When the actual EPS for 2012 of 1082.43 cents is compared to the projected 1498.07 cents and the difference is divided by the 2011 EPS of 1024.00 cents, it indicates that the company actually underperformed the projected EPS by 40.59% (of the 2011 EPS).

The more complete analysis of the original 5.71% EPS growth in 2012 is given in the bottom-right of the table. The analysis indicates that 11.83% of the actual EPS growth can be attributed to inflation. The retained income of 2011, combined with the additional long term debt, should have enabled the company to generate more sales and earnings in 2012, contributing to an increase of

23.53% in EPS, without taking into account the impact of leverage. Hudaco, having high levels of fixed cost and interest, has high levels of leverage and therefore the impact of these on the EPS growth is severe. It is estimated that operating leverage should cause EPS growth to increase by 6.74% and that financial leverage contributes 18.83% to the EPS growth. The additional interest on the increased long term loans has a more significant impact of -14.64% on EPS growth (due to higher financial leverage and interest) and the remaining -40.59% represents the "excess" EPS growth the company was (not) able to generate over and above the additional capital invested, inflation and the impact of leverage. In spite of showing a nominal increase in EPS of 5.71%, Hudaco actually underperformed the projected benchmark by 40.59%.

The summarized results for the EPS growth analysis of the three companies is given in Table 4.

Table 4. Summary of EPS growth analysis for all three companies

	Shoprite	Italtile	Hudaco
Analysis of EPS growth %:	19.80%	20.00%	5.71%
Inflation	7.48%	6.99%	11.83%
Higher capital, assets & sales	24.21%	12.47%	23.53%
Operating leverage	5.28%	6.18%	6.74%
Financial leverage	0.94%	0.97%	18.83%
Additional interest after tax & min. int	-0.78%	-0.65%	-14.64%
"Excess" growth	-17.34%	-5.96%	-40.59%
	19.80%	20.00%	5.71%

A comparison of the summarized results shows that all three companies reported positive EPS growth in 2012. Given the assumptions made, inflation alone should have accounted for between 6.99% and 11.83% of the EPS growth. The impact of inflation was determined to be above the CPI inflation percentage of 5.6% for 2012 and this can be attributed to the fact that sales as well as all operating expenses were adjusted at 5.6% for inflation, with the exception of the interest expense, which varies with the amount of long term loans. The summary indicates that a large portion of the reported EPS growth (between 12.47% and 24.21%) comes from the retained profit of the previous year plus debt, which creates a larger asset base, higher sales and higher earnings. The magnitude of this component of EPS growth is determined by the amount of retained income, the capital structure and the cost structure of the company involved.

Further scrutiny of Table 6.4 reveals that operating leverage made a significant contribution to the reported EPS growth (between 5.28% and 6.74%) and that the impact for the three companies was fairly stable, in spite of difference in the level of operating leverage. A comparison of the impact of financial leverage highlights significant differences (from 0.94% to 18.83%). Shoprite and Italtile have low levels of financial leverage and as expected, the

impact of the financial leverage for these two companies was low. In contrast, for Hudaco with its high level of financial leverage, the impact on the EPS growth was quite significant at 18.83%. The impact of the additional interest was negligibly small for Shoprite and Italtile, but for Hudaco, which uses more debt financing, it was significant at -14.64%. Finally, the "excess" growth in EPS shows whether the company was able to outperform a benchmark EPS it should achieve when taking into account the reinvestment of profits and additional debt, leverage and inflation. None of the three companies was able to show positive "excess" EPS growth and the "excess" EPS growth achieved fell in the interval between -40.59% and -5.96%. It can be concluded that the only way to generate "excess" EPS growth, within the constraints of the assumptions stated, are to improve product mix profitability and to achieve cost savings.

7. Conclusions and Recommendations

Few would contest the supremacy of EPS as the single most well-known, yet also most controversial, financial performance measure available. In spite of being the perennial favorite among financial experts and laymen alike, EPS is predisposed to gross misrepresentation and erroneous interpretation. This

study highlights three pertinent issues that contribute to the unreliability of EPS, namely the failure of EPS to reflect shareholder value creation, earnings management and an inherent bias towards positive EPS growth.

The focus of this study is on finding answers for the inherent bias towards positive EPS growth and the identification of contributing factors that make up the EPS growth percentage. A case study approach is used to analyze the EPS growth of three companies listed on the JSE South Africa, namely Shoprite, Italtile and Hudaco to investigate how different factors impact the EPS growth. The analysis reveals that, given a positive retained income in the previous year and other stated assumptions, four major factors contribute to the reported EPS growth. These factors are inflation, the increased investment in assets financed by retained profits and debt, operating leverage and financial leverage. After identifying and determining the amounts of these four factors, it is possible to calculate the "excess" EPS growth over and above the growth that emanates from the four factors mentioned.

A comparison of the analysis of EPS growth for each company reveals that the impact of inflation is significant and slightly higher for the company with more debt in its capital structure, Hudaco. The contribution of the higher amount of capital invested was found to be quite substantial and the magnitude of this factor can be ascribed to the amount of the retained profit in the preceding year, as well as the capital structure and cost structure. The impact of operating leverage was significant and did not differ much between the three companies analyzed. As could be anticipated, the impact of financial leverage was insignificant for Shoprite and Italtile which carry low debt amounts, but it was significant and much higher for Hudaco which has a high level of debt in its capital structure. None of the companies was able to generate "excess" EPS growth over and above the combined impact of the factors just discussed.

Further areas of possible future research could expand on the current study by incorporating more companies for longer periods. Additionally, comparisons of EPS growth analyses between different sectors can be undertaken and some of the assumptions, for instance the assumption of no new share issues, can be relaxed in order to modify the model and test its results. Hopefully this study will contribute towards a better understanding of the factors that affect EPS growth and also enable analysts and other users of financial statements to employ a more nuanced interpretation of reported EPS growth.

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