DISSECTING EVA: THE VALUE DRIVERS
DETERMINING THE SHAREHOLDER VALUE OF
INDUSTRIAL COMPANIES

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ABSTRACT

This study aimed to address issues of shareholder value creation. The EVA model of value creation was used in this study as it is arguably one of the best methods to express and quantify shareholder value creation. As a starting point, EVA was “dissected” into various building blocks or components (value drivers). In the empirical section of this study, multiple regression analyses of a company’s EVA and identified variables were undertaken.

The variables that explained or contributed most to EVA were a number of profitability ratios (in the case of the all company sample). Balance sheet ratios or variables did not provide significant explanations of a company’s EVA in this sample.

For companies that generate positive EVAs, the total regression coefficients not only increased in value, but, more importantly, there was a move away from profitability ratios towards balance sheet ratios. When the regression analyses were performed on the top 20 EVA companies, balance sheet ratios took centre stage.

One can conclude that initially profitability (income statement) ratios are the most important factors in the wealth creating process. However, as companies become established wealth creators and keep improving on their performance, profitability ratios become less important. Efficient financing of the balance sheet, efficient fixed asset and working capital management become top priorities in creating shareholder value.
1. INTRODUCTION

Value-based management requires a deep understanding of the performance variables that drive shareholder value creation. This study aims to investigate some of these variables. A value driver is any variable that affects the value of a company. To be useful, value drivers need to be organized (quantified) in such a way that one can identify which variables have the greatest impact on value and can assign responsibility for their performance to individuals who must then help the organization to meet its targets for shareholders.

Variables determining a company's value can be expressed in different amounts of detail. Copeland, Koller and Murrin (1995:107) categorize value drivers in three levels. Generic value drivers are set out in terms of return on invested capital (ROIC), comprising operating margins and invested capital. The next level of value drivers is business-unit level drivers (variables such as customer mix, sales force productivity or cost allocations). The last level is the operating level where variables such as the percentage of capacity utilized (of a plant or a machine), cost per delivery and debtors’ or creditors’ terms and timing are directly controlled and altered by the decisions of frontline managers or clerical personnel. This study concentrates on the so-called generic variables for which one can obtain information relatively easily from financial statements.

In a study undertaken on companies listed on the JSE Securities Exchange, Hall (1999:141) found that the market value of a company correlate best with the internal performance measurement Economic Value Added (EVA). Grant (1997:44) found a similar trend amongst companies listed in the USA. Therefore, the EVA model of value creation is used in this study as it is arguably one of the best methods to express and quantify shareholder value creation. As a starting point, EVA was dissected into various building blocks or components. In the empirical section of this study, multiple regression analyses were undertaken of a sample of companies’ EVA and identified variables. The regression analyses were undertaken firstly for
the whole sample, then for companies producing a positive EVAs and lastly for the top 20 EVA companies. The analyses in all three cases were done first with and then without inflation adjustments to the data. These analyses will assist in the identification of the variables that contribute most to a company’s EVA.

2. EVA VARIABLES

In order to examine changes in shareholder value creation, one needs to identify those variables that can be controlled, changed, managed or even manipulated by management of a company. Value drivers are included in this category in so far as they can be quantified on the basis of an analysis of the (sometimes adjusted) income statement and balance sheet of the organization.

The formula used to calculate a company's EVA is the following:

\[
EVA = (\text{rate of return} - \text{cost of capital}) \times \text{capital}
\]

It is clear that the weighted average cost of capital (WACC), together with its components, as well as the effective cash tax rate of the company are central to the wealth creation process. In addition to these two variables, one needs to calculate the returns earned on the capital supplied by the shareholders as well as the total invested capital. In order to analyse the rate of return and capital in more detail, one has to look at the calculation thereof from both an operating and financing perspective.

From a financing viewpoint:

\[
\text{rate of return (r)} = \frac{\text{NOPAT}}{\text{capital}}
\]

Stewart (1991:91) calculates NOPAT and capital as follows:
<table>
<thead>
<tr>
<th>NOPAT (Net operating income after tax)</th>
<th>Capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>= Income attributable to ordinary shareholders</td>
<td>= Common equity</td>
</tr>
<tr>
<td>+ Increase in equity equivalents</td>
<td>+ Equity equivalents</td>
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<tr>
<td>= ADJUSTED NET INCOME</td>
<td>= ADJUSTED COMMON EQUITY</td>
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<tr>
<td>+ Preferred dividend</td>
<td>+ Preferred share capital</td>
</tr>
<tr>
<td>+ Minority interest provision</td>
<td>+ Minority interest</td>
</tr>
<tr>
<td>+ Interest payments after tax savings</td>
<td>+ Debt</td>
</tr>
</tbody>
</table>

From an operating perspective:

\[
\frac{\text{NOPAT}}{\text{capital}} = r
\]

NOPAT and capital can be calculated as follows:

\[
\text{NOPAT} = \text{Sales} - \text{Operating expenses} - \text{Taxes}
\]
\[
\text{Capital} = \text{Net working capital} + \text{Net fixed assets}
\]

From these two alternative perspectives, one can see that the amounts needed to calculate the value drivers can be obtained from a company's financial statements. The amounts or variables used in both approaches were used in the calculations of the empirical analyses in this study.

The rate of return (r) can be broken down into three components which reflect the operating profit margin, the turnover of capital and the effective cash tax rate on operating income:

\[
\frac{\text{NOPAT}}{\text{capital}} = r
\]
\[ r = \text{operating profit margin} \times \text{capital turnover} \times (1 - T) \]

\[ r = \frac{\text{NOPBT}}{\text{sales}} \times \frac{\text{sales}}{\text{capital}} \times (1 - T) \]

Capital turnover can be analysed as a function of the efficiency of working capital management and of net fixed assets (Stewart 1990:107):

\[ r = \frac{\text{NOPBT}}{\text{sales}} \times \left( \frac{1}{\text{net working cap}} + \frac{1}{\text{net fixed assets}} \right) \times (1 - T) \]

Although it is the overall rate of return that matters, breaking down the rate of return into various components can indicate which component contributes most to the overall rate.

Stewart (1990:299) has identified six variables that account for the intrinsic value of any company, of which the following four can be controlled by management: a) net operating profit after tax (NOPAT); b) the tax benefit associated with the use of debt, tD; c) the amount of new capital invested; and d) the after-tax rate of return (r) on new capital investments.

Factors which would be very difficult for management to influence are WACC and T (the time period over which investors expect management to have attractive investment opportunities). In this study however, it is assumed that WACC can be influenced by management to some extent and it is included among the quantifiable variables. A small change in a company's WACC has a large effect on shareholder wealth, due to WACC's important function in the calculation formula.

The following variables can determine shareholder value in terms of EVA and are used in the empirical analyses:

- Return on capital employed (ROCE = NOPAT/CE)
- Net operating profit before tax/Capital employed
- Net operating profit before tax/Sales
- Net operating profit after tax/Sales (Margin)
- Gross profit/Sales
- Sales growth
- Retained profit/Capital employed
- Sales/Capital employed
- Sales/Net working capital
- Sales/Average total fixed assets
- Weighted average cost of capital (WACC)
- Debt ratio: Long-term and short-term borrowings/Capital employed
- Total owners' interest/Capital employed
- Total long-term loan capital/Capital employed
- (Short term-borrowings + bank overdraft)/Capital employed
- Investment rate : Change in Capital employed/Net operating profit after tax
- Company cash tax rate
- Operating leverage
- Financial leverage

The empirical analyses attempt to quantify the above variables as value drivers of the shareholder wealth created by the actions of a company's managers and all other personnel.

### 3. RESEARCH METHOD

The theoretical principles applied in this study have been dealt with above. This section sets out the methodology used to collect, measure and analyse the data for the empirical analysis.

The first hypothesis was that, of the variables under the control of management that could influence EVA, the income statement variables drive or explain EVA better than the balance sheet variables. The second hypothesis was that these findings would be more clearly evident among companies with positive EVA results.
3.1 Data collection and analyses

The data base of the Bureau of Financial Analysis (BFA) at the University of Pretoria was used to obtain information about the companies used in the sample. In order for an analysis to be performed on the sample of companies selected, companies that met specified criteria had to be identified. As a first criterion, Economic Value Added can best be calculated by using financial information from industrial companies. When the sample was compiled and the statistical analysis was done (during the last half of 2001) 289 industrial companies were listed on the JSE Securities Exchange. The second criterion was the number of years for which EVA could be calculated for each company. It was decided that a period of ten years would provide sufficient information. This criterion eliminated 142 companies from the original sample of 289, so that 147 were left. Of these, 39 companies generated a positive EVA.

Six different stepwise regression procedures were performed. In the first run, the total sample was utilised. EVA was used as the dependent variable with the 19 independent variables specified in Section 2 above. No inflation adjustments were made to the data. The second run was similar to the first, except that all relevant data items were adjusted to take inflation into account. The next two regressions used as a sample only those companies that produced a positive EVA (for the total 10-year period) as dependent variable with the same independent variables, the third run without and the fourth run with inflation adjustments to the data. In the last two analyses, the sample was reduced further to include only the top 20 EVA companies. The regression analyses were once again performed without and then with inflation adjustments to the data.

4. EMPIRICAL RESEARCH RESULTS

A discussion of the results of these six different regressions is set out below. The discussion concludes with a comparison between the results of the six individual procedures. All variables that were included in the results as presented in Tables 1 to 6 were significant at the 15% (0.1500) level. The fact that only variables or ratios that could be obtained from a company's
published financial statements, as well as the unquantifiability of external (or macro economic) variables, limited the analyses.

4.1 All companies (EVA without inflation adjustments to data)

A summary of the results of this regression analysis is contained in Table 1.

Out of a possible 11 appearances of each of the independent variables used in the regression, WACC featured seven times, return on capital employed (ROCE) six times and net operating profit before tax divided by capital employed five times. A number of other variables recurred two or three times. In total, 38 appearances were recorded.

From this analysis, it seems that WACC and ROCE must be seen as prominent drivers of EVA. In the six times (out of the 11 possible times) that ROCE featured, it explained between 4% and 11% of the variance in EVA with an explanation of 9% for the total 10-year period under consideration. WACC, on the other hand, featured seven times, but explained only between 2% and 10%, with an explanation of 3% for the total 10-year period. The seven profitability ratios featured 16 times in total, with ROCE and net operating profit before tax divided by capital employed appearing 13 times. As can be seen from Table 1, the contribution of the other profitability ratios was approximately 2% when they occurred. It is clear that the various profitability ratios (income statement ratios) played a relatively important role in explaining EVA and must therefore be seen as important drivers of EVA.

The profitability ratios in all cases consisted of a profit margin, an asset turnover ratio and a leverage factor, but it was observed from the results that it was especially the profit margin that was important as an EVA value driver, and not the asset turnover ratio or the leverage factor. This statement is based on the low regression coefficients ($r^2$) found in this particular analysis for the asset turnover ratios and the leverage factors.
### TABLE 1: ALL COMPANIES

**REGRESSION OF EVA WITH THE FOLLOWING VARIABLES (WITHOUT INFLATION ADJUSTMENTS TO DATA)**

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<td><strong>ROCE</strong></td>
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<td><strong>NOPBT/CE</strong></td>
<td></td>
<td>0.0037(5)</td>
<td>0.1454(1)</td>
<td>0.0518(2)</td>
<td>0.1311(1)</td>
<td>0.0795(1)</td>
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<td><strong>NOPAT/SALES(MARGIN)</strong></td>
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<td><strong>EBIT/SALES</strong></td>
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<td><strong>SALES GROWTH</strong></td>
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<td>0.0262(3)</td>
<td>0.0194(5)</td>
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<td><strong>RET PROFIT/CE</strong></td>
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<td><strong>SALES/CE</strong></td>
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<td><strong>SALES/NWC</strong></td>
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<td>0.0169(30)</td>
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<td><strong>SALES/FIXED ASSETS</strong></td>
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<td>0.0169(30)</td>
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<td><strong>WACC</strong></td>
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<td>0.0291(2)</td>
<td>0.0997(2)</td>
<td>0.0208(4)</td>
<td>0.0352(2)</td>
<td>0.0471(2)</td>
<td>0.0599(2)</td>
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<td>0.0220(2)</td>
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<td><strong>DEBT/EQUITY RATIO</strong></td>
<td></td>
<td>0.0026(4)</td>
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<td><strong>OWNERS INTEREST/CE</strong></td>
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<td>0.0020(7)</td>
<td>0.0240(3)</td>
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<td><strong>LONG TERM CAP/CE</strong></td>
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<td>0.0091(3)</td>
<td>0.0192(3)</td>
<td>0.0275(3)</td>
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<td><strong>ST BORR +BANKOD/CE</strong></td>
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<td>0.0251(4)</td>
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<td><strong>INVEST RATE: CHANGE IN CE/NOPAT</strong></td>
<td>0.0251(4)</td>
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<td><strong>CO Tax Rate</strong></td>
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<td>0.0025(6)</td>
<td>0.01270(2)</td>
<td>0.0206(4)</td>
<td>0.0332(4)</td>
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<td><strong>OPPERAT LEV</strong></td>
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<td>0.2767(1)</td>
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<td><strong>FIN LEVE</strong></td>
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<td>0.2767(1)</td>
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<tr>
<td><strong>TOTAL R²</strong></td>
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<td>0.1354</td>
<td>0.3172</td>
<td>0.3927</td>
<td>0.1443</td>
<td>0.1773</td>
<td>0.1661</td>
<td>0.1280</td>
<td>0.4085</td>
<td>0.1073</td>
<td>0.0609</td>
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</table>
The balance sheet ratios or variables contained in this regression procedure performed quite badly, as can be observed from Table 1. A number of variables did not feature once. Total owners' interest, long-term and short-term loan capital were all expressed as portions of total capital employed. Out of a possible 33 occurrences of the three variables, they appeared only five times, with no appearance by owners' interest and only one appearance by the debt ratio. An explanation for this might be that although capital employed as an amount is central to the EVA calculation, profitability ratios and WACC weighed more.

What was also surprising in this analysis was that the company cash tax rate appeared only four times. It explained between 4% and 2% of EVA. One must, therefore, recognize that the cash tax rate, in terms of this study, cannot be viewed as an important driver of EVA or of shareholder value.

This regression analysis must also be discussed in terms of the cumulative regression coefficients as recorded per year to give some indication of the total explanation of variance in EVA for that year. If one observes the total of the regression coefficients at the 15% significance level, there were three years when the total for that particular year was between 30% and 40% whilst the rest were lower. Although the cumulative regression coefficient for the total 10-year period for the total data base was only 14%, it is worth looking at the seven variables that this total of 14% consisted of, due to the fact that these variables represented the most popular occurrences. ROCE explained 9%, WACC 3% and the balance was made up of relatively small contributions by other variables.

At this stage an important pattern already started to emerge, as discussed above: profitability ratios weighed in heavily, WACC contributed relatively significantly and the balance sheet ratios do not appear to do well at all. These preliminary findings were in line with the theoretical calculations and "make-up" of EVA as set out in the literature.

The regression analysis must also be discussed in terms of the ranking between the various independent variables in relation to the dependent variable, EVA. From Table 1 it can be observed that ROCE was ranked first most often and the weighted average cost of capital
ranked second or third on most of its appearances. The balance sheet ratios obtained the lowest rankings, both during the individual years and for the total 10-year period.

4.2 All Companies (EVA with inflation adjustments to data)

Out of a possible 11 appearances of each of the independent variables used in the regression, return on capital employed (ROCE) featured 11 times and WACC eight times. The rest of the variables occurred two, three or four times. In total, 46 appearances were recorded, only slightly more than the 38 of the previous regression analysis without inflation adjustments.

In the eleven times that it featured, ROCE explained between 7% and 12% of the variance in EVA in nine cases, with an explanation of 8% for the total 10-year period under review. This appearance was much more consistent and had a higher regression coefficient ($r^2$) than in the previous analysis, where no inflation adjustments to the data were made. In the eight times that it featured, WACC explained between 5% and 7% of the variance in EVA six times. These regression coefficients are higher than in the previous analysis, where no inflation adjustments to the data were made.

As was the case in the previous analysis, the balance sheet ratios or variables contained in this regression procedure performed quite badly. Sales divided by net working capital and sales divided by fixed assets occurred only once between them, with no really meaningful regression coefficients. Total owners' interest and long-term loan capital were expressed as a portion of total capital employed. Out of a possible 22 occurrences of these two variables, they appeared twice. The debt to equity ratio and short-term loan capital divided by capital employed each occurred twice.

If one observes the cumulative regression coefficients ($r^2$), there were six years when the total regression coefficient was below 20%. In three years it was between 25% and 30% and in two years more than 40%. The regression coefficients obtained in this analysis were slightly higher than when the data were not adjusted for inflation. The cumulative regression coefficient of the total data base for the total 10 years under consideration was more than 16%. The number of
variables that occurred during the total 10-year period under review increased by one to eight. It is worthwhile to observe these eight variables, due to the fact that these variables represented the most popular occurrences. ROCE explained 8%, WACC 5%, whilst the balance was made up of relatively small contributions by the other variables.

If one observes a year such as 1992, one sees that five profitability ratios explained 23% of the variance in EVA, four balance sheet ratios 12% and the company tax rate 2%.

The pattern identified in the previous regression analysis was confirmed: profitability ratios weighed in heavily, the company tax rate and WACC contributed relatively significantly and the balance sheet ratios did not appear to do well at all. What enhances this finding further is the fact that the regression coefficients ($r^2$) with inflation adjustments to the data were slightly higher than those without inflation adjustments.

ROCE was ranked first and WACC second in the total for the 10-year period under review. These two variables also achieved the highest number of first and second rankings during the individual years. This was identical to the finding of the previous analysis where no inflation adjustments to the data were made. The results of this regression analysis show that it was the balance sheet ratios that obtained the lowest rankings, both during the individual years and the total 10-year period.

4.3 All companies with a positive EVA (EVA without inflation adjustments to data)

Out of a possible 11 appearances of each of the independent variables used in the regression, net operating profit before tax divided by sales appeared seven times, and sales divided by net working capital five times. The rest of the variables, including the weighted average cost of capital (WACC) and return on capital employed (ROCE) featured two or three times each. Although the total number of appearances seems disappointing (33), two important phenomena were observed from this analysis. Firstly, significantly higher total regression coefficients were obtained. The $r^2$ for the total 10-year period was only 13% and for two of the other years it was
below 20%. However, for four years it was between 20% and 40%, for another four years between 40% and 60%, and one year it was 88%.

More important, however, was the fact that the balance sheet ratios appeared to be increasingly important. Of a total of 33 appearances, nearly one third was represented by these ratios. In the previous analyses, the balance sheet ratios appeared in only approximately 15% of the cases. Their occurrence (and hence their importance) has therefore doubled. This fact is also illustrated if one analyses the variables of a particular year. If one looks at 2000, for example, one sees that two profitability ratios explained 23% (net operating profit before tax divided by sales 19%), whilst two balance sheet ratios explained 36% (debt/equity ratio 25%). From the results of this analysis it is clear that the profitability ratios still got the highest number of high rankings, but the balance sheet ratios also achieved high rankings. Sales divided by net working capital and the debt equity ratio had three first rankings between them.

4.4 All companies with a positive EVA (EVA with inflation adjustments to data)
Out of a possible 11 appearances of each of the independent variables used in the regression, net operating profit before tax divided by sales appeared six times, whilst WACC appeared eight times. The total number of appearances is the same as in the previous analysis when the data was not adjusted for inflation. What was disappointing about this analysis was the fact that significantly lower total regression coefficients were obtained. It therefore appears that the inflation adjustments to the data did not help to explain more about EVA, especially in this sample (companies with a positive EVA). One possible reason for this might be the fact that during the last decade inflation as measured by the Consumer Price Index and the Producer Price Index showed a marked decline. One should recall that in the first sample (all the companies, with a positive or negative EVA) only relatively small improvements in \( r^2 \) were obtained when inflation adjustments to the data were introduced. However, as observed in the previous analysis, the importance of balance sheet ratios seems to continue to increase. Of a total of 33 appearances, nearly 20% were represented by these ratios. In the sample containing all the companies, the balance sheet ratios appeared to play a smaller role.

4.5 Top 20 EVA companies (EVA without inflation adjustments to data)
A summary of the results of this regression analysis is contained in Table 2.
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<td>ROCE</td>
<td>0.0393(4)</td>
<td>0.3983(1)</td>
<td>0.0647(4)</td>
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<td>NOPT/CE</td>
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<tr>
<td>NOPT/SALES</td>
<td>0.1087(1)</td>
<td>0.3522(1)</td>
<td>0.3705(1)</td>
<td>0.4101(1)</td>
<td>0.0242(8)</td>
<td>0.0596(3)</td>
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<td>0.0956(4)</td>
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<td>NOPAT/SALES/MARGIN</td>
<td></td>
<td>0.0224(9)</td>
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<td>0.5189(1)</td>
<td>0.1689(2)</td>
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<tr>
<td>EBIT/SALES</td>
<td>0.0291(5)</td>
<td>0.0918(4)</td>
<td>0.1283(3)</td>
<td>0.0850(4)</td>
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<td>0.0881(3)</td>
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<tr>
<td>RET PROFIT/CE</td>
<td>0.0470(5)</td>
<td>0.1775(1)</td>
<td>0.0474(5)</td>
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<td>SALES/CE</td>
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<td>SALES/NWC</td>
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<td>SALES/FIXED ASSETS</td>
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<td>WACC</td>
<td>0.0488(2)</td>
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<td>DEBT/EQUITY RATIO</td>
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<td>OWNERS INTEREST/CE</td>
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<td>ST BORR =BANKOD/CE</td>
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<td>INVEST RATE: CHANGE IN CE/NOPAT</td>
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<td>OPRERAT LEV</td>
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<td>FIN LEV</td>
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<td>0.0725(4)</td>
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<tr>
<td>TOTAL R²</td>
<td>0.2948</td>
<td>0.8293</td>
<td>0.8104</td>
<td>0.1775</td>
<td>0.8203</td>
<td>0.8728</td>
<td>0.9968</td>
<td>0.7162</td>
<td>0.9398</td>
<td>0.5041</td>
<td>0.8934</td>
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</tbody>
</table>

Number in bracket indicates ranking
Out of a possible 11 appearances of each of the independent variables used in this regression, net operating profit before tax divided by sales appeared seven times and long-term capital expressed as a portion of total capital employed appeared six times. Another profitability ratio (earnings before interest and tax divided by sales) and a balance sheet ratio (sales divided by net working capital) appeared five times each. The rest of the variables, including weighted average cost of capital (WACC) and return on capital employed (ROCE), featured two or three times each.

The total number of appearances of the variables has increased to 52, which is the highest of the total study. The trends that were observed in the sample containing only companies with positive EVAs were enhanced in this sample with the top 20 EVA companies.

Firstly, the highest total regression coefficients were obtained. The $r^2$ for the total 10-year period was 29% and for only one other year was it below 20%. For two other years it was 50% and 72% respectively and for the other seven years it varied between 81% and 100%. Secondly, the number of appearances of balance sheet ratios continue to increase. Of the 52 total appearances, nearly 40% were represented by these ratios (up from 33% in the previous sample and 15% of the first sample containing all companies). Their continuous importance is also illustrated if one analyses the variables of a particular year. If one looks at 2000, for example, one sees that two profitability ratios explained 44% (net operating profit before tax divided by sales 35%) whilst two balance sheet ratios explained 39% (sales divided by net working capital 27%). In 1995 a total regression coefficient of 99.6% was achieved. Four profitability ratios explained 12%. The balance sheet ratios featured prominently and represented approximately 70% of the total $r^2$ (of this, 30% of EVA is explained by long-term capital divided by capital employed and 22% by sales divided by fixed assets). The company tax rate explained the other 18%.

As Table 2 shows, the profitability ratios had the highest number of high rankings by a small margin. The balance sheet ratios also now achieved regular high rankings. Sales divided by net working capital, the debt equity ratio and long-term capital divided by capital employed have three first rankings and five second rankings between them.
4.6 Top 20 EVA companies (EVA with inflation adjustments to data)

The total number of variables recorded was 29. The total 10-year period had eight variables with a total regression coefficient of 33%. Four profitability ratios explained 15%, two balance sheet ratios 9%, WACC 6% and the company tax rate 3%.

The total regression coefficients, although lower than in the previous analysis without inflation adjustments to the data, were the second highest of the study. Three years had an $r^2$ of more than 80% with two others close to 50%.

Most significant, however, was the almost complete absence of income statement ratios from the rankings. The bulk of the variables were balance sheet ratios. This is the strongest form of the shift away from profitability ratios towards financing ratios which was experienced in this study as the sample companies changed.

The findings and results of the six stepwise regression procedures are compared and contrasted in the conclusion to this study.

5. CONCLUSION AND RECOMMENDATION

Market Value Added (MVA) is a method to quantify the value that has been added or subtracted from the total capital employed by a company's shareholders. It is an external performance measure which uses the share market as a basis. EVA is an internal performance yardstick used to quantify the shareholder wealth created or destroyed by the operating activities of the company and its management. Previous studies indicated the close relationship between these two variables. Both MVA and EVA consist of a number of building blocks or variables which determine their value.

Once it has been determined that EVA is one of the best indicators of value created or destroyed by management, it is logical to analyse EVA in terms of its variables or components. The hypotheses to be tested dealt with the variables that determine EVA, and six stepwise regression
analyses were done. Three different samples of companies were used in the regression analyses. The total group consisted of all industrial companies listed for 11 years in order to calculate EVA for 10 years, 1991 to 2000). This was labelled the “All companies” sample. From this sample, only companies producing a positive EVA were extracted as the second sample. The third sample consisted of the top 20 EVA companies.

The variables that explained or contributed most to EVA were, in the case of the all companies sample, a number of profitability ratios (of which ROCE provided the best explanation), and, secondly, net operating profit before tax divided by capital employed. WACC and the company tax rate also explained a significant portion of EVA. The balance sheet ratios or variables did not provide significant explanations of a company's EVA in this sample. There was a slight improvement in the results when the data was adjusted for inflation.

When the regression analysis was performed on the second sample, the total regression coefficients not only increased, but more importantly, there was a move away from the profitability ratios towards the balance sheet ratios. The balance sheet ratios not only increased in terms of the number of appearances, but also in ranking (importance).

This trend continued when the regression analysis was performed on the top 20 EVA companies. In fact, when inflation adjustments were made to the data, there were virtually no regression coefficients for the profitability ratios. Balance sheet ratios such as sales divided by net working capital, the debt equity ratio, long-term capital divided by capital employed and sales divided by fixed assets, took centre stage.

One can conclude that initially profitability (income statement) ratios are the key value drivers in determining shareholder value creation. However, as companies become established wealth creators and improve on their performance, profitability ratios become less important. Efficient financing of the balance sheet, efficient fixed asset and working capital management become top priorities in driving shareholder value.

The recommendations based on the results from this study entail a discussion of what management can do to improve the identified value drivers. All decisions that affect these
variables eventually affect the wealth of shareholders. Moreover, management should specifically set out to re-assess and continuously manage these value drivers in the company.

The variables that initially have the biggest impact on shareholder value are the various income statement or profitability ratios. ROCE is the most important, and a number of other profitability ratios also contribute to a significant degree. In order to improve profitability margins in a company, it is recommended that the following actions be undertaken: increase the gross profit margin by lowering the cost of sales through more efficient production; optimising inputs and substituting inputs without affecting product quality; reduce operating expenses by calculating and monitoring (reducing) the ratios of various operating costs to output (sales); achieve relevant economies of scale for each of the value activities; introduce mechanisms to improve the rate of learning (for example, standardization, product design modifications and improved scheduling) and eliminate overheads that do not add value to the product.

Another variable that makes a significant contribution towards shareholder value is WACC. In order to increase shareholder wealth, WACC must be lowered by targeting an optimal capital structure, selecting least-cost debt and equity instruments and reducing business risk factors in a manner consistent with overall company strategy.

The company tax rate is another variable that influences a company's EVA, and therefore shareholder value. This study has found that the company tax rate is of significant importance (as represented by \( r^2 \)) in explaining EVA. Although the company tax rate is set by the fiscal authorities (in essence the government), there are a number of ways in which a prudent company can minimize its tax burden. It falls beyond the scope of this study to discuss this matter in detail. It is recommended, however, that a company sees to it that all available tax incentives and deductions are used to the fullest extent.

According to the results of this study, balance sheet ratios or variables become increasingly important as a company becomes an established value creator. Therefore, the efficient management of both working and fixed capital investment contribute towards more overall efficiency in operations and enhanced shareholder value. The following actions are
recommended for working capital investment: minimize cash balances; manage accounts receivable to reduce the average number of days debt outstanding; increase inventory turnover and make maximum use of non-interest-bearing current liabilities such as creditors and taxes.

The following actions are recommended for fixed capital investment: promote policies to increase utilization of fixed assets; obtain productivity-increasing assets by means of prudent project or investment evaluation techniques, such as net present value; sell unused or under-utilized fixed assets if possible and set levels of utilization or returns on assets employed.

Finally, some comments can be made on the variables which determine shareholder value (value drivers) and on possible pitfalls to avoid when using them in practice. Although the key variables were identified by means of the statistical analyses above, the value drivers need to be broken down to operating level. These value drivers depend on each company's unique situation and identifying them can be a process that requires some trial and error. Operating margins can be split up according to product, geography or consumer segment. If a company is struggling to match the skills of its sales force against a given customer segment, better results might be obtained if such a ratio is measured on a geographic basis.

The key value drivers are not static. They must be reviewed periodically. The value drivers can also not be considered in isolation. A price increase might have a large impact on value through an increased profit margin, but not if it results in a substantial loss of market share.

In most cases it is to the advantage of shareholders (with little agency cost involved) that management have an incentive scheme to induce them to adopt value-based management and actively manage those variables that determine shareholder value. Such an incentive scheme can be based on value created as measured by the EVA of a company over a period of time. Management can be remunerated (or penalised) on the basis of value created (or destroyed).
REFERENCES


