PERFORMANCE MANAGEMENT
RESEARCH GROUP

Implementation Issues of Value Based Metrics at Divisional Level

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98/15

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1 The authors would like to thank CIMA, Jackie Fry, Roland Kaye, Janette Rutterford, Matt Hinton, Matthew Davies, Jacky Holloway, Eddie Gonsalves and Fiona Harris for their assistance with this project.
Introduction

Much heralded in management literature value based metrics such as EVA® have been promoted as financial measures which can actually determine whether shareholders’ wealth is being increased. Much of this literature, however, has been consultant driven. What is unclear is how many companies have implemented such measures, at a divisional as well as a group-level, and how the practical difficulties in their application are being overcome. This working paper provides empirical evidence relating to the nature and extent of the use of value based metrics at the divisional level in practice. The range of practical and theoretical problems that an organisation might encounter when adopting an EVA® style measure is also considered.

The idea of measuring shareholder value by comparing cash flows generated by a company against the cost of capital in generating those flows first achieved widespread recognition in the work by Alfred Rappaport in the mid 1980s. Rappaport (1986) suggested seven value drivers; sales growth, operating profit margin, tax rate, working capital investment, fixed asset investment, weighted average cost of capital and the competitive advantage period. The theory is that improvement in these value drivers leads directly to an increase in shareholder value. Stewart, a partner with Stern Stewart the American consulting firm who developed EVA®, adopts the same approach describing EVA® as revealing the;

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2 EVA® is a registered trademark of Stern Stewart & Company
'four ways wealth can be created in business: by cutting costs, by investing in value-added endeavours, by releasing capital imprisoned in underperforming activities and by reducing the cost of capital’

(Source: Kermally 1997).

Value based metrics take these drivers and summarise them into a single measure be it EVA®, Shareholder Value Analysis (SVA) or similar value based measure. However when considering these drivers in a divisional context, which if any are controllable at the divisional level? Even a basic driver such as revenue may be difficult to control where there is an imperfect or possibly non-existent external market for their goods or services.

The desire to reduce performance measurement down to a single metric is not new. For many years prior to this, management accountants were advocating the use of Residual Income, incorporating a cost of capital charge, as a performance measure superior to Return on Capital Employed or other standard accounting measures (see Emmanuel & Otley 1976, Scapens 1979).

Studies of the use of value based metrics

To date much of the investigation of EVA®, and other related techniques, has centred on correlation to share price (Dodd and Chen, 1996, Lehn and Makhija, 1996). This may tell us about its robustness as a historical measure but less has been written on value based metrics in terms of their use as an internal performance measure at the divisional level and whether they can drive performance improvement at the divisional level. Wallace (1998) undertook a survey of 76 firms in the USA using EVA® and found that EVA® performance measures appear to shift managers’ emphasis from bottom line earnings to earning more than the cost of capital. There
have been previous surveys of divisional performance measures (such as Bhimani, 1993, c.f. Drury et al 1993) but these did not focus on value based metrics. The Balanced Scorecard approach advocated by Kaplan and Norton (1992) included only the more traditional financial measures such as profit and Return on Capital Employed alongside other non-financial indicators.

Mills et al (1996), undertook an investigation into the use of SVA and other techniques in valuing businesses for acquisition or divestment, but they did not explore its use as an internal performance measure. Thus, there is an absence of empirical evidence of the use of value based metrics in organisations, particularly in relation to their use as divisional performance measures, despite widespread discussion in the literature of this potential application (see Rappaport, 1986 and Stewart, 1991).

Otley (1998) sets out what he calls a performance management framework one strand of which is EVA®. However his paper asks for research to address ‘…how do they link with currently used measures, and how can they be integrated into an overall control system? In what circumstances do they seem appropriate and where do they need to be amended? What are the contextual factors that affect an organisation’s likely interest in such matters?’ The findings reported here and in Spencer and Francis (1998a) seek to address this gap in the literature.

Nature and prevalence of value based metrics at the divisional level
To examine the nature and prevalence of value based performance measures at divisional level data was collected by means of a large-scale postal questionnaire. The questionnaires were sent to a random sample of members of the Chartered Institute of Management Accountants (CIMA) working in an accounting role in large private sector organisations across the UK. In order to reduce possible bias, and in line with the guidelines suggested by Drury et al (1993) the questionnaire attempted to accommodate all known practices. It also provided an opportunity for respondents to enter unanticipated practices by means of open-ended qualitative questions as well as more quantitative questions.

As far as possible no theoretical stance was adopted within the questionnaire as to which were the more appropriate responses to the questions. Respondents were not obliged to respond to questions where they were uncertain of the correct answer. This was felt to be a critical feature of the questionnaire design as a number of the techniques included are new and may have been unfamiliar even to a qualified management accountant. In total 2331 questionnaires were distributed. To date 258 have been received which represents an unadjusted response rate of 11.1%. All major industry sectors were represented.

The first issue addressed by the questionnaire was that of the objectives of the division. Traditionally, organisations have focused on profit as their primary objective and this has been reflected down the organisation in the use of profit based performance measures such as Return on Capital Employed (ROCE) and divisional profit targets (Ezzamel, 1992). We would expect any move towards the more value
based metrics such as EVA® to be reflected in the increasing importance of cash flow within the objectives of the division (c.f. Wallace 1998).

The respondents were asked to rank the financial objectives of their division with 1 being the most important (see Figure 1).

Profit dominates both as the primary objective, but also when looking at the top three measures. Cash flow came fifth in popularity as the primary objective, but when the top three measures were considered it rose to third in the ranking. Thus despite academic criticism (c.f. Rappaport, 1986 and Ezzamel, 1992) profit continues to be the dominant divisional performance target. This contrasts with Mills et al (1996) work on the overall financial objectives of companies, where the top three objectives were earnings per share, share price and ROCE.

When asked how the respondents established their divisional objectives a range of approaches was expressed (see Table 1). This is consistent with the findings of Goold
and Campbell (1987). Involvement of the centre ranged from consultation to imposing their objectives on the division. No respondents indicated complete autonomy from the centre in setting financial objectives.

Table 1: Content analysis of responses to open ended question
‘How do you establish your divisional objectives?’

<table>
<thead>
<tr>
<th>Description given by respondent</th>
<th>Number of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imposed by the centre</td>
<td>27</td>
</tr>
<tr>
<td>Based on central targets</td>
<td>30</td>
</tr>
<tr>
<td>Set in consultation with the centre</td>
<td>24</td>
</tr>
<tr>
<td>Benchmarked against market/competitors</td>
<td>14</td>
</tr>
<tr>
<td>Set compared to prior year performance</td>
<td>4</td>
</tr>
<tr>
<td>Set to achieve continuous improvement</td>
<td>7</td>
</tr>
<tr>
<td>Implementation of strategic plan via annual budget</td>
<td>47</td>
</tr>
<tr>
<td>From annual budget</td>
<td>38</td>
</tr>
</tbody>
</table>

The respondents were then asked to specify which measures were being used or considered within their division. Table 2 (below) illustrates, that traditional accounting measures still dominate, with only 10% using EVA® at divisional level. The similarities between Residual Income (RI) and EVA® have been noted and it is interesting to find the low incidence of RI in use (see Spencer and Francis 1998a and Drury et al 1993) despite its theoretical superiority over Return on Capital Employed. Its lack of popularity may be explained by the absence of consultancy support for RI, contrasted with the ‘new’ value based metrics such as EVA®.

The awareness of the new measures was surprisingly low, with 26% being unaware of EVA® and a similar percentage being unaware of the Balanced Scorecard. Perhaps even more concerning for a sample of qualified management accountants was the lack of awareness of an established measure such as RI. This is consistent with the findings
by Spencer and Francis (1998b) investigating awareness and use of quantitative methods by management accountants.

Table 2: Use of financial performance measures in the division

<table>
<thead>
<tr>
<th>Measure</th>
<th>Used</th>
<th>Not being considered</th>
<th>Not aware of</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to stay within budget</td>
<td>99%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Balanced Scorecard approach</td>
<td>24%</td>
<td>29%</td>
<td>26%</td>
</tr>
<tr>
<td>Economic Value Added (EVA®)</td>
<td>10%</td>
<td>46%</td>
<td>26%</td>
</tr>
<tr>
<td>Residual Income (RI)</td>
<td>6%</td>
<td>56%</td>
<td>36%</td>
</tr>
<tr>
<td>Return on Capital Employed</td>
<td>71%</td>
<td>18%</td>
<td>5%</td>
</tr>
<tr>
<td>Shareholder Value Analysis (SVA)</td>
<td>15%</td>
<td>53%</td>
<td>19%</td>
</tr>
<tr>
<td>Target cash flow</td>
<td>70%</td>
<td>17%</td>
<td>6%</td>
</tr>
<tr>
<td>Target profit</td>
<td>94%</td>
<td>2%</td>
<td>1%</td>
</tr>
<tr>
<td>Value drivers</td>
<td>28%</td>
<td>35%</td>
<td>19%</td>
</tr>
</tbody>
</table>

We identified 41 companies who were using certain value based metrics at group level that were not used at divisional level. Of these, 15 were not using or considering any form of value based measure at divisional level. We believe that in order to achieve goal congruence throughout the organisation, some form of value based measures should be used at the divisional level when value based measures are being used centrally.

The financial performance measures being used were cross tabulated with the divisions’ primary objectives (see Table 3). The expectation was that those divisions with profit objectives would use profit related performance measures and those with shareholder value based objectives would use more value based measures. This was borne out by the results in Table 3. EVA® was used by 22% of those divisions with sales as a primary objective and 25% with a cash flow primary objective. Only 6% of the divisions with a profit primary objective used EVA®. A similar pattern is seen with SVA.
Table 3: Performance measures cross-tabulated against objectives

<table>
<thead>
<tr>
<th>Financial measures used</th>
<th>Primary financial objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to stay within budget</td>
<td>100% 95% 97% 94% 100%</td>
</tr>
<tr>
<td>Balanced Scorecard approach</td>
<td>22% 21% 21% 35% 38%</td>
</tr>
<tr>
<td>Economic Value Added (EVA®)</td>
<td>22% 11% 6% 6% 25%</td>
</tr>
<tr>
<td>Residual Income (RI)</td>
<td>0% 5% 2% 6% 13%</td>
</tr>
<tr>
<td>Return on Capital Employed</td>
<td>67% 95% 65% 41% 75%</td>
</tr>
<tr>
<td>Shareholder Value Analysis(SVA)</td>
<td>17% 11% 10% 0% 13%</td>
</tr>
<tr>
<td>Analysis(SVA)</td>
<td></td>
</tr>
<tr>
<td>Target cash flow</td>
<td>56% 68% 71% 29% 100%</td>
</tr>
<tr>
<td>Target profit</td>
<td>94% 95% 92% 76% 100%</td>
</tr>
<tr>
<td>Value drivers</td>
<td>11% 26% 23% 41% 50%</td>
</tr>
</tbody>
</table>

A successful performance measurement system not only needs to link performance measures to the division’s objectives. It also needs to motivate the managers within the organisation to work to improve the measures. EVA® has been championed as the basis of a remuneration system. Hopwood (1974) described an ideal control system as one where personal goals and organisational goals are congruent due to the presence of a measurement system which is linked to rewards for individual efforts. Therefore we might expect to see performance related pay (PRP) schemes being tied to the primary measures used to evaluate divisional performance. When asked which, if any, of the measures were linked to a performance related scheme, 186 respondents representing 72% of the cohort indicated that they operate some form of PRP linked to financial measures.

When the use of financial measures was looked on a sector by sector basis (see Table 4) the Financial Services sector was unusual in the high degree of adoption of the Balanced Scorecard and its relatively low level of use of target cash flow. This may be explained by the legal capital requirements of banks making measures based on cash
flows difficult to interpret. Banks also show the greatest use of the Balanced Scorecard.

**Table 4: Divisional performance measures by sector**

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>Manufacturing</th>
<th>Financial</th>
<th>Utilities</th>
<th>Retail</th>
<th>Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to stay within budget</td>
<td>99%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Balanced Scorecard approach</td>
<td>21%</td>
<td>42%</td>
<td>36%</td>
<td>26%</td>
<td>18%</td>
</tr>
<tr>
<td>Economic Value Added (EVA®)</td>
<td>12%</td>
<td>6%</td>
<td>0</td>
<td>17%</td>
<td>7%</td>
</tr>
<tr>
<td>Residual Income (RI)</td>
<td>5%</td>
<td>6%</td>
<td>0</td>
<td>10%</td>
<td>3%</td>
</tr>
<tr>
<td>Return on Capital Employed (ROCE)</td>
<td>80%</td>
<td>53%</td>
<td>70%</td>
<td>65%</td>
<td>53%</td>
</tr>
<tr>
<td>Shareholder Value Analysis (SVA)</td>
<td>13%</td>
<td>25%</td>
<td>0</td>
<td>18%</td>
<td>12%</td>
</tr>
<tr>
<td>Target cash flow</td>
<td>72%</td>
<td>25%</td>
<td>82%</td>
<td>78%</td>
<td>69%</td>
</tr>
<tr>
<td>Target profit</td>
<td>92%</td>
<td>94%</td>
<td>100%</td>
<td>96%</td>
<td>96%</td>
</tr>
<tr>
<td>Value drivers</td>
<td>20%</td>
<td>41%</td>
<td>50%</td>
<td>39%</td>
<td>38%</td>
</tr>
</tbody>
</table>

Despite the dominance of traditional profit based measures there are indications that new measures are gaining recognition and acceptance. Table 5 shows the measures that have been introduced in the past three years or are being considered. This highlights the emergent nature of the new value based measures as well as the increasing adoption of the Balanced Scorecard (Kaplan and Norton, 1992). A high percentages of the respondents are also considering the introduction of new measures.

**Table 5: Recently introduced divisional performance measures**

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>Recently introduced</th>
<th>Being considered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balanced Scorecard approach</td>
<td>9%</td>
<td>21%</td>
</tr>
<tr>
<td>Economic ValueAdded (EVA®)</td>
<td>5%</td>
<td>18%</td>
</tr>
<tr>
<td>Return on Capital Employed (ROCE or ROI)</td>
<td>3%</td>
<td>6%</td>
</tr>
<tr>
<td>Cash Flow Return on Investment (CFROI)</td>
<td>2%</td>
<td>8%</td>
</tr>
<tr>
<td>Economic Profit</td>
<td>2%</td>
<td>10%</td>
</tr>
<tr>
<td>Shareholder Value Analysis (SVA)</td>
<td>2%</td>
<td>13%</td>
</tr>
<tr>
<td>Target cash flow</td>
<td>2%</td>
<td>7%</td>
</tr>
<tr>
<td>Target profit</td>
<td>2%</td>
<td>3%</td>
</tr>
<tr>
<td>Value drivers</td>
<td>1%</td>
<td>18%</td>
</tr>
</tbody>
</table>
The reasons given for introducing new measures varied according to the measure. Justifications for the change to a Balanced Scorecard were mainly internally focussed on gaining a better understanding of the division’s overall performance and stronger links to the division’s strategy. Those implementing EVA® tended to be driven by motivators external to the division, such as takeovers, “response to city analysts” or “desire to improve shareholder value.” Notably there was no mention of EVA® helping to understand the business better.

**Problems associated with implementing value based metrics at divisional level**

There are many difficulties in implementing value based measures at divisional level. The barriers to implementation include technical difficulties such as establishing the cost of capital and capital asset base and organisational barriers such as time, knowledge and resistance to change. This was reinforced by the respondents’ general comments on new value based metrics. Those who were supportive tended to focus on the whole organisation, such as one respondent who wrote, “EVA® is very effective for top management but has limited use for operational management.” The major criticisms addressed at the new value based metrics were that they were “too complicated to apply”, that “non-financial managers could not easily understand them” and they were “possibly a fashionable short-term fad”.

Not least amongst the technical difficulties in calculating a value based metric is establishing a cost of capital. In order to apply them at divisional level these value based metrics require calculation of the divisional cost of capital. From our questionnaire only 15% of the respondents calculated their own divisional cost of
capital. 72% had their division’s cost of capital determined by Head Office. The theoretically advocated approach to calculating a cost of capital for a division is to calculate a weighted average cost of debt and equity. The notional cost of equity attached to each division is calculated using the CAPM with a beta reflecting the risk of the division’s activities. In this way a different cost of equity is applied to each division to reflect their different activities but the divisional cost of capital reflects the overall funding structure of the group (c.f. Emmanuel et al 1990). Very few companies appeared to be adopting this approach. Of those who responded, 24% used a rate that reflected the cost of debt only and 69% did not use a different rate for different divisions. These findings are consistent with the work of Mills et al (1996) who found that 71% of companies used a company wide rate. The requirement to calculate an accurate divisional cost of capital could be viewed as a barrier to successful implementation of value based metrics at the divisional level. Alternatively it could lead to misleading results if an inaccurate cost of capital is used.

In adopting a performance metric that uses a cost of capital as one of its value drivers it must be recognised that changes in this driver will result in fluctuations in perceived performance that cannot wholly or justifiably be considered as controllable by the managers of the organisation. Perhaps value based measures would be less fashionable in times of high interest rates as more firms would be seen as destroying value and performance related bonuses would be significantly reduced. A related difficulty is establishing a value for the capital employed by the division. The most popular basis used to value fixed assets in divisional capital employed calculations is net book value (see Table 6).
Table 6: Valuation basis used in determining divisional capital employed

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>87%</td>
<td>Current value</td>
<td>1%</td>
</tr>
<tr>
<td>Net book value</td>
<td></td>
<td>Replacement cost</td>
<td>4%</td>
</tr>
<tr>
<td>Gross book value</td>
<td>3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>5%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This overwhelming preference for the use of the readily available net book value figure is consistent with the findings of Drury et al (1993). However, in order to calculate a metric such as EVA® the book value must be converted into economic book value. According to Stewart (1991) this includes adjustments for intangible items such as goodwill and research and development expenditure.

Zimmerman considered the ‘conundrum of disaggregating a divisionalised firm’ and the problems of using value based measures at this level. He concluded that:

‘A given performance measure’s degree of correlation to stock returns should not be management’s sole, or even its most important, criterion in choosing to adopt a given performance measure... and that... The EVA practice of “decoupling” performance measures from GAAP while having significant incentive benefits, also has potential costs in the form of increased auditing requirements.’

(Source: Zimmerman 1997)

There are also the difficulties of capturing the synergies among divisions. Old debates about transfer pricing may need to be revisited in order that it can be seen where within an organisation value is being created. Zimmerman (1997) concludes that ‘no divisional performance measure whether it be EVA®, divisional net income or ROA is capable of capturing the synergies among divisions’.

A solution to the difficulties in implementing value based metrics at the divisional level may be to focus instead on the underlying value drivers. The measurement of selected value drivers at the divisional level could be complimentary to value based
measures at group level and remove the need to calculate divisional cost of capital. Selected value drivers could be incorporated as part of a Balanced Scorecard approach. The Balanced Scorecard approach is growing in popularity with 9% of respondents recently introducing it into their divisions and another 21% considering its introduction. Of the 41 companies who used different measures at group and divisional level, 14 companies used EVA® or SVA at the group level and were using value drivers at the divisional level. We view this and the fact that 18% of our whole sample population are considering the future use of value drivers at the divisional level, as being potentially a positive development in divisional performance management.

**Conclusions**

We have shown empirical evidence of the increasing popularity of new measures at divisional level both in terms of value based measures and the Balanced Scorecard. However traditional accounting measures are still dominant in practice. We have also raised concerns over the lack of awareness of some new measures amongst qualified management accountants.

We believe that the current low level of adoption is due in part to the problems of implementing these new measures at divisional level. The difficulties associated with their adoption may well be contingent upon organisational circumstances such as objectives, size, autonomy, corporate governance and industrial sector. Despite the difficulties in implementing such measures, we believe that divisions must adopt measures that are consistent with their organisation’s overall objectives in order to achieve goal congruence. We accept that organisations having considered the new
measures may not wish to adopt them. However it is our contention that the use of these new metrics in some form at divisional level is essential to create goal congruence within an organisation adopting a shareholder value ethos. It is difficult to imagine how the use and reporting of value based metrics for an organisation will produce the long term benefits claimed by consultants if the performance of the divisions making up that organisation are not measured against congruent metrics.

Current value based metrics are designed more for organisations as a whole rather than as divisional performance measures. Where these objectives are stated in terms of shareholder value, then it may be appropriate to use the underlying value drivers instead of the single measure value based metrics such as EVA®. This could be within an adapted ‘scorecard’ framework. We therefore propose that at divisional level, if these measures are to be introduced, they should be in terms of those value drivers which are consistent with maximising shareholder value for the organisation as a whole.
References


While the lower, division level data can be more volatile, trends over the longer-term reveal the different experiences of G’s component industries. Since 2013, industry 45 (sale and repair of motor vehicles and motorcycles) grew faster than the other two components of G, but due to its relatively small weighting this has a relatively small effect on G as a whole. A similar analysis was conducted for the UK economy as a whole see the Quarter 4 (Oct to Dec) Productivity Introduction. Back to table of contents.

4. Uses for these data and next steps. The development of these experimental, more detailed labour productivity metrics for the industries and sub-industries of the UK should enable users to perform more detailed analysis than previously. Directing the implementation of value-based management.

Value-based management deals with numerous performance measures which are implemented by top level management based on reliable information. Thus, a comprehensive value-based management system comprises strategic planning, establishment of value drivers, financial measures, analysis of internal and external factors, and the consistent supervision of skilled, efficient and active top level management.

3. Methodology. Metrics are used to drive improvements and help businesses focus their people and resources on what’s important. The range of metrics that companies can employ vary from those that are mandatory for legal, safety or contractual purposes to those that track increases in efficiency, reductions in complaints, greater profits and better savings. Overall, metrics should reflect and support the various strategies for all aspects of the organization, including finance, marketing, competition, standards, or customer requirements and expectations. Metrics indicate the priorities of the company and