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Evaluating Corporate Performance: a Critique of Economic Value Added

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Abstract

There has been a revival of interest in economic techniques to measure the value of a firm through the use of economic value added as a technique for measuring such value to shareholders. This technique, based upon the concept of economic value equating to total value, is founded upon the assumptions of classical liberal economic theory. Such techniques have been subject to criticism both from the point of view of the level of adjustment to published accounts needed to make the technique work and from the point of view of the validity of such techniques in actually measuring value in a meaningful context. This paper critiques economic value added techniques as a means of calculating changes in shareholder value, contrasting such techniques with more traditional techniques of measuring value added. It uses the company Severn Trent plc as an actual example in order to evaluate and contrast the techniques in action. The paper demonstrates discrepancies between the calculated results from using economic value added analysis and those reported using conventional accounting measures. It considers the merits of the respective techniques in explaining shareholder and managerial behaviour and the problems with using such techniques in considering the wider stakeholder concept of value. It concludes that this economic value added technique has merits when compared with traditional accounting measures of performance but that it does not provide the universal panacea claimed by its proponents.

Measuring value added for shareholders

The nature of the discourse regarding the measurement and evaluation of corporate performance has broadened in recent years with the adoption of different perspectives (Crowther 1996) and this has been reflected in the changing nature of corporate reporting. Thus Beaver (1989) states that there has been a shift from an economic view of corporate performance measurement to an informational perspective with a recognition of the social implications of an organisation's activities. Similarly Eccles (1991) states that there has been a shift from treating financial figures as the foundation of corporate performance measurement to treating them as part of a broader range of measures, while McDonald and Puxty (1979) maintain that companies are no longer the instruments of shareholders alone but exist within society and so have responsibilities to that society. Others (eg Tinker 1985) argue for a changed basis for accounting to reflect these changes.

The discourse therefore seems to have moved away from the concerns of shareholders in the firm and away from the economic rationale for accounting towards a consideration of the wider stakeholder environment. At the same time however these concerns cannot be ignored and part of the discourse has seen a return to economic values in assessing the performance of the firm. Thus Rappaport (1986) recognises some of the problems with accounting, such as the exclusion of risk and investment policies from the analysis but goes on to consider the concept of shareholder value and how this can be created and sustained. He develops a methodology of shareholder value, arguing (1992) that a shareholder value approach is the correct way of evaluating alternative company strategies, stating that the ultimate test of a corporate plan is whether it creates value for the shareholders, and that this is the sole method of evaluating performance. He identifies a conflict between the achievement of competitive advantage and creating shareholder value when he states:

“Increasingly, companies are becoming polarised into two camps: those who consider shareholder value the key to managing the company and those who put their faith in gaining competitive advantage.” ( p 85)

but argues that both are based upon long term productivity.

The return to a consideration of the importance of economic value to the theory of the firm is based upon the assumption that maximising the value of a firm to its shareholders also maximises the value of that firm to society at large. Within the discourse therefore the concept of shareholder value is frequently mentioned and there is acceptance of the need to account for shareholder value within the practitioner community. Indeed the annual reports of companies regularly report the creating of value for shareholders and it is frequently cited as a corporate objective. What is less clear however from an examination of such annual reports is precisely what is meant by this creation of shareholder value, which often seems to be used in a nebulous manner to indicate some desirable but unidentifiable objective.

The concept of shareholder value as an objective therefore appears to be widely accepted within the accounting community but its use as a quantified evaluation is less often found in practice. This, it is argued, is because the managers of a firm are preoccupied with other objectives such as growth in size, turnover, market share or accounting returns, which are more easily measured. The achievement of these objectives is also often correlated with managerial rewards but less so with increasing shareholder value (Williamson 1963). Indeed Jensen and Meckling (1976) use agency theory to demonstrate how following managerial interests can lead to higher rewards for those managers at the expense of a reduction in the value of the company.

Problems arise from the use of accounting measures as a means of evaluating company performance, and Stewart (1991) and Brealy and Myers (1991) separately consider how the use of earnings per share can be of doubtful value in achieving this end, both because of the different calculations used for the same accounting measure and because of the adoption of different accounting measures, while Fisher and McGowan (1983) show that ROI, ROA and ROE suffer from the same problem.

### Value-Based Management

In the US, there has been a shift in recent years towards a more explicit shareholder value oriented approach to corporate performance measurement, described variously as “Value-Based Management” or “Shareholder Value Management”. An increasing number of US companies, including such household names as Coca-Cola and Quaker Oats (Fortune, September 20, 1993) are reported to have adopted this approach, and it is receiving increasing interest in the UK and Western Europe.

In this paper, the term Value Based Management (VBM) is used to encompass the closely related concepts of value-based planning (VBP), shareholder value analysis (SVA), strategic value analysis and economic value added (EVA)<sup>1</sup>. VBM approaches involve the application of the principles of discounted cash flow (DCF) analysis as used in the net present value (NPV) technique. Although theoretically consistent with NPV, the scope of VBM is much wider. Whereas the use of NPV has traditionally been associated primarily with capital investment decisions only, VBM involves the use of DCF principles within an integrated financial system, covering strategic decision-making, performance measurement and reporting and also as the basis for managerial incentive schemes.

The VBM concept which seems to have received most interest is the EVA approach, which has been advocated (Stewart 1991) as a better measure to assess corporate performance and the creation of shareholder value than conventional accounting measures. Indeed Stewart (1994) states that:

“ Economic value added is an estimate, however simple or precise, of a business’s true economic profit.” ( p73)

Economic value added is claimed to have a number of important advantages over traditional accounting measures, the chief one being that economic performance is only determined after the making of a risk adjusted charge for the capital employed in the business. Critics however argue that while this may be theoretically sound, the need to make arbitrary adjustments to standard accounting numbers in order to put the technique into practice makes the technique of doubtful validity. The application of the technique and the adjustments needed were evaluated by Coates, Davies, Davis, Zafar and Zwirlein (1995) who suggest that simplified calculations produce satisfactorily reliable results.

This paper uses a study of Severn Trent plc in order to evaluate the technique in practice and to consider some of the limitations of the technique in assessing the performance of this company.

### Value added in traditional evaluations

Severn Trent plc is a regional water company in the UK providing water and sewerage services to a geographical area in the midlands. Severn Trent plc, as a limited company, came into existence in 1989 as part of the transfer by the Government of these services from the public to the private sector, in its privatisation program. This company therefore provides a particularly interesting case study of the use of shareholder value analysis techniques in action

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<sup>1</sup> EVA is a trademark name of Stern Stewart & Co. for economic value added.

as the results can be evaluated since its date of incorporation. Since that date it has reported a continuing increase in turnover, operating profit, earnings per share (after exceptional items) and dividends per share, as follows:

	1991	1996
turnover (£m)	627.0	1157.5
operating profit (£m)	197.2	420.8
earnings per share	64.5p	89.6p
dividends per share	17.55p	28.53p
share price (at year end)	346p	594p

During this period however this growth, both in turnover and in market valuation, has been achieved partly through an acquisition program, with consequent increased borrowings, but nevertheless there has been a reported increase in shareholder funds. The salient figures are as follows:

	1991 £million	1996 £million
fixed assets	1821	3386
shareholder funds	1592	2992

The reported results of the company indicate a company which is in a strong financial position and has increased in value over the years since its formation, and the directors remuneration has reflected this improvement in results:

Directors' Remuneration		
	all directors	executive directors
	total remuneration £'000	excluding pension cont's £'000
1991	1024.4	
1992	1006.1	
1993	1165.2	
1994	1320.2	709.8
1995	1351.8	869.0
1996	1249.9	985.8

Total remuneration is given in the annual report for all years in question and has increased by 32% between 1991 and 1995. Figures for executive directors are only reported separately from 1994 and, once pension contributions are excluded, show an increase of 38% in the 2 years to 1996, reflecting the achievement of objective based upon growth in profit before tax and in earnings per share.

The company has shown a steady increase in net operating profit during this period, but this has been achieved partly through increased capitalisation and the taking on of increased long term debt. The net result of this is that the return on capital employed has remained reasonably steady. These figures can be summarised as follows:

	net operating profit £million	long term debt £million	capital employed £million	ROCE %
1991	197.2	82.9	1592.5	12.4
1992	260.8	481.4	1997.7	13.1
1993	299.0	609.2	2402.6	12.4
1994	329.7	805.8	2715.4	12.1
1995	374.3	849.4	2857.3	13.1
1996	420.8	797.4	2992.4	14.1

Calculations of traditional performance measures therefore indicate that since privatisation there has been an increase in earnings per share, dividends per share and the share price of Severn Trent plc. The figures also show a increase in return on capital employed when calculated conventionally. Conventionally these would be taken to suggest a strong

performance by the company and hence an increase in value to the shareholders. The calculation of the return on capital employed can however be criticised because it does not consider risk or the cost of capital to Severn Trent plc. These measures can be contrasted with EVA calculations considered later in this paper, which specifically incorporate the company's cost of capital.

### The Use of Traditional Accounting as a Measure of Shareholder Value

Traditionally, performance measurement and reward systems have been based on accounting numbers such as EPS and ROCE. A number of authors have criticised such measures for promoting a short-term focus for managerial actions (eg Ezzamel and Hart, 1987; Rappaport, 1986). Rappaport also argues that accounting profit fails to measure changes in the economic value of the firm, citing the following reasons:

- alternative accounting methods can be employed
- risk is excluded
- investment requirements are excluded
- dividend policy is not considered
- the time value of money is ignored

Despite these limitations, there is a widespread belief in the UK and the US that share prices are driven by the capitalisation of a company's earnings per share at an appropriate price/earnings ratio multiple (e.g. Stewart, 1991). A number of writers have described an apparent 'fixation' with EPS, and Rappaport (1986), states, '...In both corporate reports and the financial press, there is an obsessive fixation on earnings per share (EPS) as the scorecard of corporate performance'.

In the UK, a survey by 3i in 1990 found that '...81% (of UK finance directors) believed that EPS was the main basis for the valuation of share prices'. The Accounting Standards Board have sought to reduce the emphasis placed on earnings per share, primarily through Financial Reporting Standard 3 (FRS 3), 'Reporting Financial Performance', which required a number of changes to the presentation of the profit and loss account as well as the calculation of earnings per share and the definition of extraordinary items. FRS 3 states:

'It is not possible to distill the performance of a complex organisation into a single measure. Undue significance, therefore, should not be placed on any one such measure which may purport to achieve this aim'.  
(para. 52)

However, soon after FRS 3 was published the Institute for Investment Management and Research (IIMR) published guidance under which 'maintainable EPS' could be calculated. The IIMR argued that this 'maintainable EPS' statistic was the key indicator of corporate performance, providing further evidence of the EPS fixation. More recently, a Sunday Times survey of the top 200 UK companies, carried out in conjunction with Braxton Associates, found that most companies are still using EPS as the key target for guiding their businesses (Sunday Times, August 11, 1996).

The popularity of share option schemes and profit-related bonus schemes for top management, combined with the EPS fixation means that EPS is a widely adopted performance measure in the UK. However, Stewart (1991) and Rappaport (1986) emphasise that there is only a limited relationship between EPS and value creation by a company. VBM approaches, on the other hand, are claimed to offer a superior means of promoting wealth-creating corporate behaviour.

In the next part of the paper, the performance of Severn Trent plc is again analysed, this time using the Stern Stewart EVA and MVA approach.

### Calculating value added in context

Mechanisms for calculating economic value added are described by Stewart (1991), who elaborates the standard adjustments needed to transform accounting information into an economic value added calculation. A definition of economic value added can be given simply as operating profits after tax less a charge for capital used to generate these profits. The residual from this calculation is the measure of economic value added and if positive demonstrates that the company has earned a greater return on its capital employed than the opportunity cost of the capital employed, and has hence added value to the company from the viewpoint of shareholders. Opportunity cost is defined in this context simply as the market cost of capital, appropriately weighted between equity and debt capital. If negative the opposite is the case and value has been lost. A full model description of the model used in this analysis is given as Appendix 1.

Associated with economic value added is the measure market value added which is defined by Stewart (1991) as the market value of the company (ie stock price x shares outstanding) minus the economic book value of the capital employed. Stewart argues that this measure is superior to just using market value as a means of assessing the value creating performance of a company because market value can be increased simply by investing as much capital as possible, without consideration of the returns to be achieved from this investment. In theory, market value added should reflect the present value of expected future value added and thereby provides a measure of the expectation of shareholder value created. In practice this relationship is not as simple as this because of the factors affecting the operation of the market. It is therefore argued in this paper that both measures need to be considered in order to evaluate the value of the techniques of shareholder value analysis in assessing company performance. The two measure together are therefore taken as a representation of shareholder value, and applied to the company used as a case study in the paper.

### Economic value lost

The preceding analysis of Severn Trent between 1991 and 1996 based on traditional accounting measures indicated a relatively strong financial performance in the period. It would be expected therefore that an analysis of economic value added would reflect this, and would demonstrate an increase in value created for shareholders. An analysis using the economic and market value added models outlined above, however, shows that this is not the case and that value has actually been lost in the business over this period. Full details of the calculations and results are given as Appendix 2 but are summarised as follows:

	economic value added £million	market value added £million	market capitalisation £million
1991	(48)	(633)	1,224
1992	(105)	(900)	1,128
1993	(142)	(375)	1,840
1994	(104)	(361)	2,046
1995	(33)	(759)	1,855
1996	(80)	(659)	2,178

Cost of capital in the calculations has been arrived at by using the Capital Asset Pricing Model for cost of equity and the average London Clearing Bank Base Rate for cost of debt, weighted for market value of equity and book value of the debt. The implications of changing the cost of capital used in this analysis are considered later in the paper but it should be noted that this only affects the economic value added calculation. The market value added calculation is independent of any cost of capital assumptions, being determined solely by book value of debt and market valuation.

These figures therefore indicate that the company has lost value in each of its years of operating using the economic value added calculation and has also lost value in terms of its expected future value, although the reported figures for market value added are cumulative. Thus via the MVA calculations it can be seen that the company had on a cumulative basis destroyed £900m of shareholder value by the 1992 year-end, but recovered some of this value in 1993 and 1994 before losing value again in subsequent years. From the EVA numbers it can be seen that in each year under review the company has failed to generate a return in excess of its cost of capital, and has therefore destroyed value.

These figures can be compared with actual market capitalisation which shows considerable increase over the period, although not consistently. Market capitalisation is of course affected by other factors than the performance of the company, such as the level of business confidence and the economic climate generally. These results, however, conflict with the reported accounting measures of performance and an explanation needs to be sought. It would appear that either the concept of shareholder value encapsulated in these measures of economic and market value added is faulty, or that other factors are at work in the determination of accounting measures of performance which are not accurately reflected in the calculation.

The calculation of economic value added is highly dependant upon the accuracy of the estimated cost of capital used in the analysis, and this is one problem with the use of this technique. Merely changing the cost of capital used in the calculation changes the results of the calculation and the estimate of economic value added. The figures used, compared with the calculated ROCE (Appendix 2) are as follows:

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	cost of capital %	ROCE %	difference %
1991	14.1	11.3	2.8
1992	13.6	8.5	5.1
1993	13.8	8.4	5.5
1994	12.7	9.2	3.5
1995	11.3	10.2	1.1
1996	11.0	8.7	2.9

It is clear therefore that this calculation is significant to the analysis and that if these assumptions were not appropriate for Severn Trent plc then the calculation of economic value lost changes. Nevertheless it is equally clear that the discrepancy between cost of capital and ROCE is such that significantly different assumptions regarding the cost of capital for this company (except perhaps for 1995) would be needed in order to arrive at a positive calculation of economic value added. It is also apparent however that the increase in long term debt during this period indicates an extensive capital investment program, and the need for such a program to replace the infrastructure of the company was acknowledged at the time of its flotation. It can therefore be argued that this capital investment lowers the calculation of value added in the short term but will increase it in the longer term. This argument is supported by the changes in the market value added calculation throughout the period.

An evaluation of the concept of shareholder value as an economic measure of the success of a firm, as represented by these economic value added techniques, is however necessary and can be undertaken through a consideration of the technical problems with the calculation before considering the environmental context in which the evaluation takes place. This technical evaluation is based upon Stewart's model and is undertaken both in terms of market value added and in terms of economic value added.

### A Technical Evaluation of Market Value Added and Economic Value Added

#### a) Market Value Added

The Market Value Added (MVA) concept recognises that the market value of equity by itself does not constitute a reliable measure of shareholder wealth creation. As Stewart (1991) explains:

“Any company can maximise its *total* value simply by spending as much money as possible (both by retaining most of its earnings and raising new capital) ... The effective use of investor capital can be measured only according to *net* present values - that is, the increase in value minus the amount of new capital drawn into or retained by the firm”. ( p.190)

Thus, MVA seeks to measure how much a company has added to, or subtracted from, its shareholders investment, and is calculated as follows:

$$\text{Market Value Added} = \text{Market Value} - \text{Capital}$$

“Market value” refers to the total market value of the equity and debt of a company, though in the case of debt, book value is often used as a surrogate. “Capital” reflects the cash invested in the business, both by shareholders and debtholders. Accurately estimating the amount of cash invested in a company represents a difficult task in practice. Stern Stewart advocate using an approximation to this which they describe as “adjusted book value”, which is based on the balance sheet capital employed of a business subject to a number of adjustments.

It should also be noted that MVA does not indicate whether the amount of value created by a company in excess of that invested represents a sufficient level of return. For example, since MVA is an absolute measure, it fails to reflect the impact of the size of a business on its potential ability to create value. Comparisons of MVA between businesses of different sizes are, therefore, in themselves, not particularly meaningful.

One of the main drawbacks of the MVA measure is that the level of dividend return to shareholders is ignored. Dividend returns are of course a potentially significant source of wealth-creation for a shareholder, and for certain companies which adopt relatively high dividend payout policies, to ignore dividends would potentially distort their “true” wealth creation performance. It is useful, therefore, to compare MVA with the total returns accruing to shareholders in a period. Total Shareholder Returns (TSR), in its simplest form, is calculated as the increase in market capitalisation for a period plus the total dividend paid in the period, expressed as a percentage of the market capitalisation at the start of the period. The calculation must be adjusted for the effect of any share issues or share buy-backs which have occurred during the period.

The annual TSR for Severn Trent plc between 1 January 1991 and 31 December 1995 are as follows:

	TSR%
1991	7.0
1992	-2.2
1993	68.9
1994	14.2
1995	-5.4
1996	21.1

The compound annual average TSR for the period is 16.05%, which is slightly below the company’s cost of equity capital which has been approximately 17% for the period. In other words, comparably to the MVA measure, the TSR for Severn Trent for the period also suggests that the company has in fact lost value for shareholders.

MVA and TSR are both dependant upon movements in the market value of shares, which leads to an important common limitation. The market price of a share is influenced by many factors, some of which might be regarded as “market-wide” factors that are not directly under

the control of a company's management. Neither MVA nor TSR, therefore, may report the "true" underlying value-generating performance of a business. Also, since the market price of a share largely reflects expectations of the future performance of a company, there is some difficulty using these measures as periodic measures of actual performance. An improvement in a company's share price may be as a result of improved expectations about a company's future prospects, and very little to do with managerial performance during the period.

#### b) Economic Value Added

Economic Value Added is a measure of the economic profit of a business and describes the surplus earned by a business in a period after deduction of all expenses, including the opportunity cost of capital employed. An evaluation of the EVA technique can be undertaken firstly as to its appropriateness as a measure of periodic performance, and secondly as to its appropriateness for valuation purposes.

#### EVA as Measure of Periodic Performance

For any year, EVA represents the amount of capital invested in a business multiplied by the "performance spread", the difference between the return achieved on invested capital and the weighted average cost of capital. In other words, a "true" profit in an economic sense is only earned if a business generates a return in excess of that required by the investors, both in the debt and also the equity of the business.

The calculation can be summarised as follows:

$$\text{EVA} = \text{Invested capital} \times (\text{Return on capital} - \text{WACC})$$

Alternatively, EVA can also be calculated as operating profits after tax less a charge for the capital employed in the business.

$$\begin{aligned} \text{EVA} &= \text{Operating profits after tax less capital charge} \\ &= \text{Operating profits after tax less (Invested capital} \times \text{WACC)} \end{aligned}$$

Both methods give the same EVA result.

The second method used to calculate EVA reveals an apparent dependence upon traditional accounting measures of profit and capital employed. Potentially therefore EVA is susceptible to distortions caused by the historic cost accounting convention, as well as by the choice of accounting policies and methods which companies may employ.

The second method for calculating EVA also reveals the very close resemblance, in principle, between EVA and the residual income measure which has been used as measure of divisional performance for many years. It is important to recognise, therefore, that at a technical level, EVA suffers from many of the same drawbacks as residual income.

Solomons (1965) is generally recognised as establishing RI as a significant management accounting technique. There is, however, evidence that residual income was used before this time. At the “Stern Stewart EVA Roundtable” (Journal of Applied Corporate Finance, Summer, 1994) Zimmerman reported that he has traced the technique back to a 1955 monograph by General Electric’s management, whilst Bennett Stewart states that Alfred Sloan’s book, ‘My Years at General Motors’, describes how in the 1920’s General Motors were using a system where they set aside a 15% return on net assets as a target for their business.

A number of technical problems which affect residual income also affect EVA. The calculation is highly sensitive to the accuracy of the cost of capital calculation. This calculation is highly subjective and requires a number of significant assumptions to be made. Also the accuracy of EVA is dependent upon the extent to which the measure of capital employed used in the calculation reflects the value of the investment in the business. Since the purpose of the balance sheet under conventional financial reporting practice is not to attempt to measure the “true” value of the business, it is not surprising that this is a significant issue. Some of the major problem areas in this respect are discussed below.

The effect of the historic cost convention which systematically understates the balance sheet value of the business, has already been mentioned. This results in EVA being distorted in times of inflation. This is because whilst cash revenues and costs are measured in terms of current prices, fixed assets and depreciation are measured at historical cost. This means that, without some form of inflationary adjustment, the investment base will be understated and profits will be overstated. This combination causes EVA to be overstated in times of inflation.

Another potential distortion is caused by the impact of depreciation itself. Depreciation has the effect of reducing the investment base over the life of fixed assets. This means that the cost of capital charge will reduce each year, and EVA will increase. This could encourage managers to continue to employ older assets, with low net book values, and defer new investment.

To overcome these and other potential deficiencies of EVA as a periodic measure of performance, Stern Stewart have identified as many as 164 adjustments which may need to be made to reported accounting numbers which they argue may be required to ensure the accuracy of EVA. Though Stern Stewart point out that on the grounds of materiality, few firms if any would require all 164 adjustments, the need to make these adjustments does, nevertheless, result in a potentially significant measurement cost. Many of the adjustments are time-consuming to make and from an external perspective would be rather complex and arbitrary given the limited amount of information available.

### EVA as a Valuation Tool

EVA can also be used as a valuation tool at either the corporate, business unit or indeed project level. Using EVA, corporate value can be determined by adding the amount of capital invested in the business to the present value of future years’ EVA:

$$\text{Corporate value} = \text{Invested capital} + \text{Present value of future expected EVA}$$

At the project appraisal level, the net present value of a project can be determined by discounting the project's future expected EVA:

$$\text{Net present value} = \text{Present value of future expected EVA}$$

For valuation purposes, the problems relating to the use of accounting numbers in calculating annual EVA do not apply. Conventional accounting balance sheet values, and EVA based on conventional accounting profit can be combined to determine the appropriate measure of corporate, and ultimately, shareholder value. This property of economic profit measures such as EVA was recognised by O'Hanlon and Peasnell (1996), who state:

“...even if accounting book values and profits bear little resemblance to economic reality, EP [economic profit] numbers can be used within a valuation model that has just as strong a theoretical basis as the standard dividend capitalisation model.” (p.50)

Using EVA as a valuation tool is therefore equivalent to the traditional NPV approach. This of course does not mean that the familiar problems with NPV are overcome simply by using EVA. The subjectivity involved in projecting future EVA, for example, is surely as great as that for future cash flows, and there is still the difficulty in accurately measuring the company's cost of capital.

It is also recognised that, although as Solomons (1965) states residual income (and therefore EVA) is the long-term counter-part of discounted net present value, the use of residual income as a short-term performance measure does not guarantee that decisions will be taken that are consistent with the long-term net present value objective. A manager may be inclined to accept a project which generates healthy residual income in its early years, even though the total NPV it will generate is inferior to alternative investment opportunities. On the other hand, positive NPV projects may not be undertaken if they involve short-term reductions in residual income. EVA is of course also subject to this same potential problem.

#### Accommodating the external environment

As well as the shareholders of a business there are a wide variety of other stakeholders of that business, both internal to the firm and external (Crowther 1995a). While it is true that these have no legal ownership of the business, in practical terms it can be argued that they have power and influence over the operating of the firm (McDonald & Puxty 1979) which equates to quasi-ownership. This stakeholder view of the firm is of particular significance to Severn Trent plc in terms of some of its external stakeholders, particularly its customers, society at large and the Government. Using the shareholder value analysis undertaken in this paper it can be seen that the company has sacrificed value in the present in order to satisfy the needs of these other stakeholders. This contrasts with traditional reported measures of performance which suggest that all gains have been appropriated by the shareholders, and EVA analysis provides such a company with a means of demonstrating that all parties have lost in the present for the sake of future gains. Conversely if the shareholder value had been shown to have increased during this period the technique would have failed to demonstrate that this

increased value had not been at the expense of other stakeholders. No other evaluative tool based solely upon the concerns of the shareholders can achieve such an end.

The ownership and management of a large firm are divorced, thereby effectively divorcing the two elements of reward for capital from each other - reward for risk belonging to shareholders and reward for expertise belonging to managers. Shareholder value analysis assumes that all value in the business belongs to the shareholders without recognising that the valuation of the firm would change significantly if the expertise departed from the business. Conversely the results of the firm suggest that managerial expertise has been rewarded without any commensurate increase in value to the owners of the business. The analysis also assumes that the firm is managed on behalf of the shareholders who desire maximum value in the firm; others have argued that the divorce of managerial expertise and reward from risk is deleterious to corporate performance (eg Monks & Minow 1991) and has resulted in the firm being run for the benefit of its managers rather than its owners. It is possible, however, to argue that shareholders are interested only in short term performance and will sacrifice future value in the company for immediate rewards in the form of dividend payments. Evidence exists in the form of increasing dividends paid (17.55p per share in 1991 rising to 28.53p per share in 1996) while the economic value added calculation demonstrates value lost in the business consistently throughout the period of analysis. This argument may suggest therefore that, in this instance, managerial and shareholder interests are in alignment and that the short term focus of the business is a reflection of shareholder interests rather than an effect of the managerial reward scheme, as suggested by Coates, Davis and Stacey (1995), this being merely a mechanism to align these interests.

One objective of the firm is often considered to be survival but, considering the divorce of ownership from management of the firm, it is probably more realistic to argue that this objective is survival for the dominant coalition (ie primarily management) (Crowther 1995b). This objective can lead to risk minimising behaviour and to sub-optimality in performance (Coates, Davis, Longden, Stacey and Emmanuel 1993), but more significantly will lead to behaviour within the firm which does not consider the addition of value for shareholders. Shareholder value analysis takes this behaviour into account insofar as it is overt and manifest (ie has already happened or been planned) but not for covert behaviour - this can lead to a faulty analysis of the future and consequent problems in valuation. In the case of Severn Trent plc this can be interpreted as the managers of the business meeting shareholder objectives in terms of dividends and EPS while at the same time meeting their own objectives of rewards for performance, without either party demonstrating any apparent concern for the future survival of the firm. It is possible, however, to argue that traditional accounting measures are used in such a way that this reported performance continues to improve, and hence reward managerial performance, while value continues to be lost in the business.

Govindarajan & Gupta (1985) argue that long run criteria contribute to organisational effectiveness rather than short term criteria whereas Rappaport (1986, 1992) suggests that shareholder value analysis addresses both and maximises both. There is, nevertheless, a considerable body of evidence which suggests otherwise and that a concern with shareholder value added and returns to shareholders leads to a short term focus and lack of regard for the longer term (eg Coates et al 1995). Indeed some managerial actions taken to boost short term valuations (eg downsizing) can be argued to actually reduce long term value, particularly when the product and market development capability is externalised. Evidence of these techniques exist in Severn Trent plc which has seen a 20% reduction in number of employees

over the past 5 years, to 5900, with this reduction continuing into the future. While it is argued that this reduction can be accounted for in terms of efficiency gains in working practices there is a very real danger that value in the firm has been lost, in terms of expertise, and that future value has been sacrificed for present performance, as reported with traditional accounting measures. Neither conventional accounting measures nor shareholder value analysis are able to effectively quantify unknowns such as this and both rely upon classical liberal economics which states that the market provides a mediating mechanism.

#### The use of value added techniques in context

Criticisms of the techniques of economic and market value added are founded in the ability of models to accurately reflect, by means of calculation, the value of a business. Such value is assumed to belong to the legal owners of the business (ie the shareholders) whereas the reality is that there are a variety of stakeholders in any business who have some claim to ownership of that business, and some power to effect their claim. Indeed there is evidence that the power of these other stakeholders is increasing over time and that the balance of power between the various stakeholders in a business is shifting on a continuing basis. The acceptance of this argument inevitably means that it is recognised that any model based upon economic calculations cannot fully reflect the value in a business. The techniques evaluated in this paper thus suffer from the same drawback as any other models which have been proposed in the past. This does not mean however that the use of EVA is without merit as it can be seen that the analysis gives some insights into the behaviour and performance of an organisation which are lacking when traditional accounting measures of performance are used. Recognition of the limits of the technique as a means of evaluating performance is however necessary in order to satisfactorily interpret the results of any such analysis. Thus it is argued that there is a place for the technique in the discourse concerning performance measurement but that it needs to be set alongside other techniques, rather than supplanting them as its proponents claim.

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Appendix 1

Method of calculating economic value added:	
	£
calculation of net operating profit after tax:	
profit available to ordinary shareholders	x
add returns to providers of non-equity finance	x
adjust for non-recurring items	x
adjust for research and development	x
adjust for provisions	x
adjust for goodwill	x
<b>Net Operating Profit After Tax (NOPAT)</b>	<b>x</b>
calculation of capital employed:	
adjusted capital and reserves	x
add debt	x
add provisions	x
<b>Capital Employed</b>	<b>x</b>
Economic value added calculation:	
EVA = ( r - c ) x opening capital employed	
where:	
r = net profit after tax / capital employed	
and	
c = cost of capital	

Appendix 2 - calculation of Economic Value Added

	year ending 31st March						
	1996	1995	1994	1993	1992	1991	1990
	£mill	£mill	£mill	£mill	£mill	£mill	£mill
profit available to ord shareholders	327.7	238.0	260.2	247.6	249.9	218.4	
adjustments:							
non-recurring items		55.0			(8.6)	9.7	8.9
+ R & D	6.0	7.4	8.3	8.2	6.4	4.3	2.5
- amortisation of R & D	(7.3)	(6.9)	(5.9)	(4.3)	(2.6)	(1.4)	
+ P&L charge for provisions	63.1	116.8	75.7	71.9	89.2	82.2	
- cash cost of provisions	(99.9)	(85.3)	(70.6)	(95.6)	(108.7)	(47.7)	
+ net interest charges	47.8	51.8	48.3	28.9	(4.3)	(51.5)	
- tax credit	(15.8)	(17.1)	(15.9)	(9.5)	1.4	17.5	
NOPAT	321.6	359.5	300.0	247.2	222.7	231.6	
debt:							
short term debt	45.6	25.8	31.1	59.7	30.9	20.6	6.5
long term debt	726.1	762.5	742.7	609.2	481.4	82.9	47.5
provisions	75.0	111.8	75.0	70.0	89.5	79.8	45.3
total debt	846.7	900.1	848.8	738.9	601.8	183.3	99.3
capital and reserves	2511.1	2290.0	2139.4	1979.8	1830.0	1828.3	1675.2
goodwill write off		246.2	244.1	242.9	212.3	179.6	5.2
non-recurring items	65.0	65.0	10.0	10.0	10.0	18.6	8.9
R&D NBA	14.2	15.5	15.0	12.6	8.7	4.9	2.0
adjusted capital and reserves	2836.4	2559.6	2407.3	2214.7	2028.3	1857.0	1688.1
minority interest	0.3	0.2	0.2	0.4	0.1	0.1	0.0
capital employed	3683.4	3514.9	3256.3	2954.0	2630.2	2040.4	1787.4
r =							
NOPAT / cap employed	8.7%	10.2%	9.2%	8.4%	8.5%	11.3%	
cost of capital	11.0%	11.3%	12.7%	13.8%	13.6%	14.1%	
EVA	(79.7)	(33.2)	(104.4)	(142.2)	(104.7)	(48.4)	

Appendix 2 - calculation of Market Value Added

	year ending 31st March						
	1996	1995	1994	1993	1992	1991	
	£mill	£mill	£mill	£mill	£mill	£mill	
market value at year end	2178.2	1855.5	2046.3	1840.2	1128.7	1224.2	
book value of debt	846.7	900.1	848.8	738.9	601.8	183.3	
total market value		3024.9	2755.6	2895.1	2579.1	1730.5	1407.5
capital employed (per EVA)	3683.4	3514.9	3256.3	2954.0	2630.2	2040.4	
MVA	(658.5)	(759.3)	(361.2)	(374.9)	(899.7)	(632.9)	