

## Does EVA or residual income beat earnings?

Earnings is a measure of performance. It is one of the first numbers that analysts look for when reviewing the performance of a company. However, recently, there has been much discussion of alternative performance measures: Economic Value Added (EVA) and residual income (RI). For example, some companies evaluate managers and compensate them according to EVA.

The question then arises as to whether these new measures of performance have a greater association with changes in economic fundamentals (as measured by share price) than earnings. The paper which examines this is

**Biddle, Bowen & Wallace, "Does EVA beat earnings? Evidence on associations with stock returns and firm values", Journal of Accounting & Economics , December 1997, 301-336.**

### *1. The relationship between earnings, EVA and residual income*

At the beginning of the paper, there is a neat exposition of the relationship between the measures of performance.

#### **Earnings**

= Cash flow from operations  
+ accruals

#### **Residual income**

= Cash flow from operations  
+ accruals + interest expense - capital charge

#### **EVA**

= Cash flow from operations  
+ accruals + interest expense - capital charge + accounting adjustments

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Earnings are an adjustment of cash flow with accruals (eg sales and purchases on credit)

Residual income adds back the interest expense to earnings to obtain operating profits for all assets (no matter how financed), but then deducts a capital charge for all the assets used. For example, in the Ohlson valuation model, this is the cost of capital multiplied by the book value of assets.

EVA makes some accounting adjustments to residual income. For example, all research and development is treated as an asset and not an expense. Therefore, the R&D expense is added back and the R&D asset is amortised to the P&L as any other fixed asset.

### *2. The main result*

The data for the test was purchased from Stern Stewart the operators (and copyright holders) of the EVA system. The year ends covered by the study were from 1983-94, giving a sample of around 6000 company/year observations.

The metric used for analysis is the  $R^2$  from regressing the adjusted equity returns<sup>1</sup> on the changes in the performance measure over time. The key results are given in their Table 2, which is summarised below.

<b>Tests of the relative information content of EVA, RI (residual income), E (earnings) and CFO (cash flow from operations)</b>				
<b>Result 1</b>				
	E	RI	EVA	CFO
$R^2$ in rank order	0.09	0.06	0.05	0.02
<b>Result 2: Allowing positive and negative values of the performance measure to take different coefficient values</b>				
	E	RI	EVA	CFO
$R^2$ in rank order	0.12	0.07	0.06	0.02

The first result shows that E performs better than RI, which performs better than EVA, which performs better than CFO. The differences between the  $R^2$  are all significant at 5%.

The second test allows the regression model to have different coefficients, depending on the sign of the measure (as the stock market might react differently to good and bad news). The ranking of the  $R^2$  is the same as before, except that the difference between RI and EVA is not significant.

The main result is that these new measures (EVA and RI) are poorer than earnings at capturing the fundamentals of company activity.

### **3. Sensitivity tests**

In order to give EVA and RI a chance to shine, it may be that companies which use the new measures for management purposes (to drive their fundamentals) may have performance that is more closely associated with EVA and RI.

In order to test this, the tests in the section above were repeated, but only for those companies using EVA for management purposes. The full results are given in their Table 4, but a summary is shown below for those 626 companies which used EVA in any management context (performance evaluation or compensation).

<b>Tests of the relative information content of EVA, RI (residual income), E (earnings) and CFO (cash flow from operations) for companies using EVA for management purposes.</b>				
	E	RI	EVA	CFO
$R^2$ in rank order	0.07	0.05	0.04	0.03

<sup>1</sup> The returns are measured over a 12 month period, commencing 3 months after the year end of the company.

The results are that the rankings of the performance measures are the same as before. However, none of the differences are significant at 5%. Although this is more promising for EVA, it is still surprising that earnings does so well, even when EVA measures are being used to drive economic performance.

#### 4. Commentary

EVA and RI do not appear to do better than traditional earnings in capturing underlying economic performance, as measured by stock price changes. What should be made of this? What are the implications, do the results make sense? There are a number of explanations.

1. The economic performance of a company is driven by many factors, some economic some political, some within and some outside of a company's control. Within this context the small adjustments made by the new measurement methods (EVA and RI) do not add anything to capturing the underlying economic performance of the company.

2. However, why do EVA and RI appear to do *worse* than earnings? This is really puzzling. It is easy to see why the adjustments might not make that much difference, but they appear to be counterproductive! Is this plausible? There are two basic adjustments to earnings, so let's consider them in turn:

+ interest expense - capital charge	the problem may be the capital charge; how is the cost of capital calculated, and is it likely that those who estimate EVA and RI will have enough information to make the estimations? This may be a source of noise in EVA-RI.
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+ accounting adjustments	these include reclassifying R&D as an asset, and then amortising it. But perhaps <i>generally</i> R&D <i>does not</i> have any carry over value to the next year. Most R&D may be wasted!
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In support of this interpretation is that the ranking of the measures is generally E, RI, EVA, CFO. Specifically, RI which has just one adjustment to earnings is ranked next to earnings; EVA which has the RI adjustment but also the accounting adjustments is ranked below RI. Therefore the ranking seems to fit in with the notion that the adjustments to earnings are counter productive.

3. So at least there is an a priori case for thinking that EVA and RI adjustments in practice are counter productive. However, an alternative explanation is that the equity return itself does not capture fundamental economic performance because analysts have not yet adjusted to the use of EVA and RI. There are good reasons why they would not. Brennan in his paper "Latent assets" in the July 1990 Journal of Finance (his presidential address) suggests that part of an investors objective is to track what others are thinking. Therefore, if most investors are thinking in "earnings mode", then any individual investor or analyst has very little incentive to think in "EVA-RI" mode.