WHICH METRICS ARE RELEVANT IN EUROPEAN LISTED COMPANIES? EVIDENCE FROM NINETIES

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Abstract

The paper investigates the relation between the Share Price and three performance indicators: Net Operating Profit expressed by EBIT, Cash Flow From Operation and Economic Value Added. The sample includes 42 listed industrial companies chosen in four European financial markets, such as United Kingdom, Germany, France and Italy, all listed in the period 1992-2001.
The findings of this paper are consistent with the previous results in assessing the relevance of EVA in predicting future financial performance, but they ought to be interpreted with cautions due to two main limitations: (i) relatively small sample adopted, that is companies chosen are the highest in terms of Market Capitalisation within the markets they are listed in, but they might not be representative of the whole market; (ii) results, when tested for the presence of structural factors in each market might change in significance, due to some specific structural factors within each market. However, investigation of those factors in more depth is outside the scope of this paper.

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Introduction

This paper investigates on the relation between three Performance Indicators and Share Price. The indicators taken are Operating Profit, Cash flow From Operations and EVA focusing on the latter as a predictor of financial performance of a firm trying to confirm whether or not EVA is a superior performance measure in terms of information content provided both to managers and investors. The objective of statistical investigation is to assess a rank of performance measures in explaining the stock price performance of sample. So that, main purpose of paper is testing whether EVA could be considered a *better* indicator of companies' performance in assessing shareholder value creation compared with indicators as Operating Profit or Cash Flow From Operation.

This investigation is based on the use of Annual Financial Report and Accounts of each firm. When using this information one should remember limitations associated with reporting accounting data in reflecting the *True and Fair Value* of companies[7].

Why EBIT, CFFO and EVA?

As stated above, the main point of the paper is assessing the superiority of some performance measures against others. The choice of these three performances measures - EBIT, CFFO , EVA - is justified by specific reasons related to information content of each indicators.

EBIT, acronym for *Earnings Before Interest and Tax*, gives information about the ability of the firm to cover the operating costs, but it does not provide information on the repayment of different sources of financing, such as repayment of debt and equity.

Information released by EBIT allows to state the potential in increasing of sales and, hence, the capability of firm to operate profitably in a particular market. Problem with EBIT is that it does not measure the value creation of firm, providing only information to evaluate "how good is" the performance of operating activities.

[7] Terms reported in the IAS 1 titled *Presentation of Financial Statements* that on heading (as in the original document) states as follows "Financial Statements are frequently described as showing a true and fair view of, or as presenting fairly, the financial position, performance and changes of an enterprise. Although this Framework does not deal directly with such concepts, the application of the principal qualitative characteristics and of appropriate accounting standards normally results in financial statements that convey is generally understood as a true and fair view of, or as presenting fairly such information". On the *True and Fair view* and *Fair Presentation* in accordance with generally accepted accounting principles an interesting is investigation has been conducted by Alexander D. and Archer S., *On the Myth of "Anglo-Saxon" Financial Accounting, The International Journal of Accounting*, Vol. 35, n° 4, pp. 539-557

CFFO, or *Cash Flow From Operations*, is a performance measure providing information on cash flows from the operating activities. It does not provide any information on cash flows invested in fixed capital nor on cash flows used to repay the financing sources[8]. It limits the information on the cash flowing in and out of operating activities, providing information only on how the cash has been managed to maintain the operating equilibrium within the firm. Moreover, it releases useful information on the cost that impact on the cash outflow, and on the costs that are not associated with the use of cash, such as Depreciation and Amortization Costs.

These two measures of operating activity performance are relevant because they give information on *how the firm works* and on its *capability to operate profitably* in the market. Moreover, information released is useful from two points of analyses: *Internal* and *External* analysis.

Internal analysis is considered form the point of view of managers operating in the firm. EBIT and CFFO give to the manager the information they need in order to manage corporate structure in the most efficient way. For example, through analysing the content of EBIT, managers obtain information they need in order to decide on the amount of new fixed capital and on working capital requirements of firm.

However, EBIT does not provide any information on how much cash has been spent in acquiring particular items such as, for example, inventory, which is determined by valuation policy adopted by the firm[9]. The information necessary to determine the exact amount of cash used in acquiring the additional inventor during the year can be found looking at Cash Flow Statement, in the section Cash Flow From Operating Activities.

Therefore, in order to better understand the dynamics of the operating activities of the firm, one should look both measures, EBIT and CFFO, since their high level of complementary.

The problem with the use of these operating performance measures is the fact that they do not provided any information on the value creation of the company. They are useful in analysing how the company is managing its resources in achieving its operating strategy objectives and in assessing the capability of the firm to operate in a particular market and with limited resources. However, no information is provided in order to establish the ability of the firm in creating value for shareholders.

For the *external analysis*, the problem is still opened. EBIT and CFFO are interesting performance measures from the investors point of view because they provide information on the ability of the firm in managing resources and therefore the investors are able to evaluate whether the growth strategy of the company has been achieved. Investors are particularly interested in the capability of the firm in creating shareholder value and they often have limited investment horizon. Moreover, they have the ability of selling shares in case they feel that the company is not operating at a required rate of return, if compared with rate of return of similar investment in terms of risk profile. It follows, therefore, that more information on the current and future trend of operating activities are important in order to reassure the investors that the company they invested in meets their original expectations in terms of stock price performance.

Since there is a lack of performance measures taking into account the Cost of Capital, both equity and debt, an indicator of economic value creation, such as EVA, has been built. This indicator and the logic on how it works it is described next.

What is EVA?

EVA, *Economic Value Added*, is a performance measure build by G. Bennett Stewart III in 1991[10]. It can be expressed as the excess of income, or Residual Income, generated by company after paid for the capital invested and for working capital requirements.

EVA is defined by Stewart as the deduction of a Capital Charges from the Net Operating Profit After Tax. In formulas, from an *operating* point of view:

[8] This type of information are provided in the other two parts of the Cash Flow Statement, titled *Cash Flow from Investing activities* and *Cash Flow from Financing activities*.

[9] Inventory can be valuated applying different methods, such as LIFO, FIFO or Weighted Average. The possibility of switching from a method to an other one allows to change the value of Inventory in Balance Sheet according with the accounting strategy of managers; however limits on manipulation of this item are provided by international accounting rules.

[10] G. Bennett Stewart III, *The Quest For Value: A Guide for Senior Manager*, Harper-Collins Publishers, and Inc. 1991.

EVA = NOPAT – Capital Cost

Such as

EVA = (EBITDA – Dep&Am – Taxes) – (Capital Employed x WACC)

Or equivalently, from a *financial* point of view, if rate of return could be defined as NOPAT/Capital, this can be restated as:

EVA = (Rate Of Return – WACC) x Capital Employed

The logic behind EVA is that the shareholders have to earn a return that compensates for the risk undertaken. It means that the Equity Capital has to earn at least the same rate of return of similar investment, in term of equivalent risk exposure in the equity markets. If the company does not earn this rate of return, it follows that there is not profit for the shareholders and the company operated at loss.

On the other side, if EVA is zero, this should be treated as a sufficient result because it means that shareholders earned a return that compensates the investment for the risk undertaken.

As we can see by the equation above, EVA is based on accounting items such as Interest Bearing Debt, Equity Capital and Net Operating Profit After Tax. The difference between EVA and other traditional performance measures is basically the inclusion of Cost of Capital, defined as the Weighted Average Cost of Capital, because it takes into account all the form of financing such as Equity capital and Debt capital. The superiority of EVA against accounting profit in measuring value creation can be stated in recognising the Cost of Capital and, then, in considering risk level of activity operations of firms.

To better understand why the focus of the paper is on EVA, next is provided a brief overview on the literature in the Nineties reporting the main results achieved and the main argumentations that have been kept opened the debate on EVA.

Literature Review

During the Nineties many researchers investigated the relationship between Share Price movements and some particular Performance Measures. The debate is still open and presents new frontiers for the application of one of the most important contribution in corporate finance of the last few decades: EVA. To understand the main points of the usefulness of EVA as a better performance measure in predicting companies market value compared with other, it is useful to briefly review the evolution of debate.

In an article published in 1996[11], O'Byrne investigated, using a sample of 6551 companies over a period of 1989 to 1993, the relationship between EVA and Market Value, taking onto account the information content of EVA and NOPAT. He found that variation of EVA explains more of the variation in ten years stock returns than do variation in earnings. Over a period of five years, EVA explains 55% of variation in Market Value while Earnings explain just 24%. Given these results, O'Byrne concludes that when two variables are added, one to reflect whether the company earns positive or negative EVA and one other capturing differences in the way market values different size companies, then EVA is superior to NOPAT in explaining changes in market value.

Following this article, Biddle-Bowen-Wallace (1997) investigated the relationship between EVA, NOPAT and Stock Returns, taking into account the information content of Residual Income and Cash Flow From Operations as components of EVA . The sample included 6174 companies. Their results are different when compared with O'Byrne findings. They investigated each component of EVA analysing the Relative and Incremental information content [12] of each component. They found that, in term of R^2, Earnings are significantly more highly associated with market adjusted annual returns than Residual Income or EVA[13]. They also found those EVA components, such as Capital Charge and Stern Stewart' Accounting Adjustments, do not appear to be economically relevant if compared with the significance of Cash Flow From Operations and Accrual Adjustments.

Moreover, considering the Relative and Incremental Information content of each EVA component, they found that "*neither EVA nor Residual Income appear to dominate Earnings in*

[11] O' Byrne S. F., *EVA and Market Value*, Journal of Applied Corporate Finance, Vol. 9, n. 1, Spring 1996.

[12] *Relative Information Content* compares which performance measure is superior in term of association with stock returns in a class of performance measures, while *Incremental Information Content* addresses whether one measure adds to the information provided by the other.

[13] They found that $R^2_{Earnings}$ = 12.8%, $R^2_{Residual\ Income}$ = 7.3% and R^2_{EVA} = 6.5%.

[their] association with Stock Market Return[14]". They conclude that there is no evidence showing that EVA is superior to earning in predicting future financial performance. This would demonstrate that EVA and Residual Income value relevance is, in fact, not higher than the relevance of Earning and Cash Flow From Operation. In most cases the evidence suggests that Earnings outperform EVA, pointing that "*Stern Stewart adjustments for accounting distortions show some marginal evidence of being incrementally important and the difference does not appear economically significant*[15]".

In 1999, same authors published new results relating to the relationship between current EVA, current Earnings and the level of future Residual Income[16] with the Market Adjusted Annual Return. They found, using the sample used in the previous investigation, that Net Income outperforms on average EVA, as demonstrated by the Adj-R^2 measures[17]. Components of EVA are still not significant in explaining contemporaneous returns and their contribution is marginal if compared with the information provided by earnings. The authors achieved new results demonstrating that EVA is better than other performance measures in motivating managers to create added value for the shareholders. They found that companies adopting Residual Income (or EVA) Based Incentive Plans improve operating efficiency, dispose of selected assets, reduce investments – which adds value provided these assets were failing to earn adequate returns when compared to the firm's overall cost of capital - and repurchase more shares. This indicates that managers respond positively to Residual Income based incentives. Authors conclude that "*EVA and Residual Income could prove effective in motivating shareholder wealth creation without conveying new information to investors*[18]".

Findings reported in Biddle-Bowen-Wallace's article generated considerable amount of criticism. O'Byrne defended his results by saying that Biddle-Bowen-Wallace's model was not a good model, specifically pointed out that it included the Interest Costs but not the Equity Capital Costs. The authors also attributed an explanatory power to NOPAT that is really attributable to NOPAT plus Capital, as it is a proxy of an EVA model. Finally, O'Byrne concluded that by using Cash Flow From Operations, that includes after-tax interest expenses, "*their regressions obscures the impact of capital costs because it does not fully separate financing and operating performance*[19]". Using a Pure NOPAT Model just 17% of variation in the ratio MV/BV is explained by NOPAT, but, if a model was used that account for NOPAT and Capital, it would have explained 33% of variation of MV/BV and 31% if an EVA Model has used. These results suggest that Capital adds a significant amount of information to NOPAT.

Out of the debate between the opposite positions on the power of EVA as a predictor of profitability, other researchers, as Chen and Dodd (2001), investigated the relationship between Operating Income, Residual Income and EVA[20].

Using the same valuation model adopted by Easton and Harris[21], they used a sample of 6683 firms in the period 1983-1992. They used two approaches– *Residual* and *Incremental* information content – showing that EVA adds new information but not significant information in term of value relevance[22]. They concluded that Operating Income regression has a higher R^2 than Residual Income regression, which in turn has a higher R^2 than EVA. Their suggested explanation for this result is the fact that "*Market may see through various accounting conventions than Stern Stewart does calculating EVA, but suggests also that market places higher reliance on audited accounting earnings than unaudited EVA metric*[23]". They also found that Residual Income contains significant incremental information, which is not available in Operating Income measure. This would suggest that including Cost of Debt and Cost of Equity in profitability measures seems to be good practice in terms of increasing value relevance. In synthesis, their results are consistent with prior studies, finding that accounting-based information explains little of variation of stock returns between firms, because of low R^2 of accounting measures regressions.

[14] Biddle-Bowen-Wallace, *Does EVA beat Earnings? Evidence on Associations with Stock Returns and Firm Values*, Journal of Accounting and Economics, 1997, Vol. 24, pg. 304.
[15] Biddle-Bowen-Wallace (1997), pg. 332.
[16] Biddle-Bowen, *Evidence on EVA*, Journal of Applied Corporate Finance, Vol. 12, n. 2, Summer 1999.
[17] Adj-R^2 $_{\text{Net Income}}$ = 13%, Adj-R^2 $_{\text{Residual Income}}$ = 7%, Adj-R^2 $_{\text{EVA}}$ = 6%, Adj-R^2 $_{\text{CFFO}}$ = 3%.
[18] Biddle-Bowen, 1999, pg. 79.
[19] O'Byrne, *EVA and its critics*, Journal of Applied Corporate Finance, Vol. 12, n. 3, Summer 1999.
[20] Chen S. – Dodd J. L., *Operating Income, Residual Income and EVA: Which metric is more value relevant?*, Journal of Management Issues, Spring 2001, Vol. 13, Issue 1.
[21] Easton – Harris, *Earnings as Explanatory Variable for Returns*, Journal of Accounting Research, Spring 1991. Using a valuation model based on cross sectional by year as well as using pooled cross-sectional and intertemporal data, they found an empirical association between earnings level and change variables to stock returns, using 19 years data with a sample of 19,996 firms.
[22] Using the Relative approach they found the following results, in term of power of explanation expressed by R2: R^2 Operative Income = 6.2%, R^2 Residual Income = 5%, R^2 EVA = 2.3%, meaning that Operating Income information are more important from a stock valuation perspective.
[23] Chen S. – Dodd J.L. (2001), pg. 10.

O'Hara, Lazdowsky, Moldovean and Samuelson (2001) [24] extended the investigation including Dividend Per Share as profitability measures. The relationship between Dividend Per Share (DPS), Earning Per Share (EPS) and Cash Flow Per Share (CFS) with the Share Price was investigated using a sample of 1700 firms taking a period of 17 years. The researchers found that Earnings are more closely correlated to Stock Price than Cash Flow or Dividend and that Cash Flow is in turn more correlated with Stock Price than Dividend, meaning that EPS and CFS are stronger indicators than DPS. However, the most important result of their investigation is that companies that increase their Earnings Per Share on a consistent basis should see stronger positive correlation between changes in EPS and changes in Share Price.

Other studies investigated the relationship between EVA and the Share Price movements. Lehn and Makhija (1996)[25] found a positive and significant correlation between EVA and Market Value Added. Myers (1996) [26] and Dodd & Chen (1996) [27] achieved similar results. They found a strong correlation between Income Before Extraordinary Items and the Residual Income with changes in Share Price. This relationship appears to be as strong as it is with EVA.

De Villiers and Auret (1998) [28] found that EPS better explains share price changes than EVA and concluded: "*It is clear that in explaining or predicting share price, EVA does not impart a simple advantage in share analysis. If it has an advantage, it has to be applied in a more subtle or complicated way than simply substituting EVA or EPS in share evaluation*". They also highlighted some problems associated with EVA[29]. The fact that inflation distorts EVA shows that it cannot be used during times of inflation to estimate actual profitability.

As demonstrated by findings of studies carried out so far, the superiority of EVA as a predictor of future profitability is not completely proved. This allows other profitability and performance measures to be superior in describing the potential for value creation of a company.

[24] O'Hara H. T., Lazdowsky C., Moldovean C., Samuelson S. T., *Financial Indicators of Stock Price Performance*, American Business Review, January 2001.

[25] Lehn K., Makhija A. K., *EVA and MVA as performance measures and signals for strategic change*, Strategy and Leadership Magazine, May/June 1996.

[26] Myers, R., *Metrics wars*, CFO, Vol. 44, October 1996.

[27] Dodd J. L. & Chen S., *EVA a new panacea?*, Business and Economic Review, July/ September 1996.

[28] De Villiers J. U. & Auret C. J., *A comparison of EPS and EVA as explanatory variables for share price*, Journal for Studies in Economics and Econometrics, 22(2), 1998.

[29] De Villiers J. U. & Auret C. J., *The distortion in Economic Value Added caused by inflation*, Journal of Economics and Business, n. 49, 1997.

Contribution of the paper

Objective of the paper is to confirm or not, using statistical tools, the usefulness of specific performance indicators with a view to establish whether looking at the financial performance achieved in the market over a long term, investors are better informed looking at specific ones or whether they need to take into account all the three performance measures to better understand the wealth of the company.

In particular, this paper will focus on the usefulness of EVA as a better indicator in assessing the whole performance of a firm. The idea arose as a consequence of open debate reported in financial journals on the superiority of EVA over other performance measures, in predicting financial performance. Results obtained through analysing EVA, EBIT and CFFO could be allow to indicate combinations of value drivers for listed company in order to boost internal efficiency and, hence, higher stock price performance.

So that, following same line of investigation undertaken by researchers reported above, the paper tries to contribute to find out whether the relationship between Share Price and some profitability measures - such as Operating Profit, Cash Flow From Operation and EVA – can be proved or whether it still remains an open debate. However, results achieved have to be interpreted with cautions because of limitations to be recognized for the use of accounting data. As although financial reports could provide satisfactory expected results, one should bear in mind all significant limitations imbedded in the accounting data in assessing a prediction on future financial performance of firms.

Methodology

Data

Cross Sectional and Time Series Analysis

In order to investigate the relationship between the profitability measures and the annual return, different approaches have been adopted. Cross Sectional and Time Series analysis was conducted for all companies included in the sample. Analysis has been conducted starting with testing variables one by one and, then, different combinations of them in order to find out if some are better in explaining share price trend over the period after publication of Annual Reports. All results achieved in this investigation are reported in Appendix .

Panel models

In order to take into account both aspects of investigation as time and cross sectional features, *panel models* were built. Analysis has been conducted by *variable* and by *country*, in order to assess if same variables can differently explain the

financial performance and profitability of sample firms. This way of investigating has been kept for whole sample, building one pool model when firms have been analysed together, and for each market too building four different pool models.

Rate of return: focus on assumption

The *rate of return* that provides the level of the financial performance of a firm has been calculated taking share price at opening and closing date of Financial Annual Report of each firm. Even if it implies assumption of Strong Form Hypothesis on Market Efficiency, it can be considered as reasonable. Companies, even if accounting data are not still publicly available at the closing date of the balance sheet, provide in advance news or accounting results on firm's profitability and performance. The reason is that markets investors often require updated information on financial and operating performance, even if it has not been audited or published in Annual Report. For this reason, the study assumes that, at the closing date of the balance sheet, financial and operating information is provided with a sufficient level of reliability. This assumption allows to take into account the price adjustment operated by markets investors and, hence, to consider listed prices at opening and closing date of balance sheet to calculate annual financial performance expressed in terms of rate of return for companies' shareholders.

Testing for Structural Factors

Through the use of *dummy variable* results have been stressed in order to investigate for the presence of structural factors in financial markets observed. However, results do not provide any information on the type of differences that might exist between markets and, in case of presence, the effect on companies' share prices.

Testing Models

T-statistics have been used to assess the significance of the variables in the models. The choice of "optimal" model has been done using the *correlation coefficient*, R^2[30]. *F-test* is considered too in order to know if models are well specified in terms of functional form. Value of probability distribution associated to *null hypothesis* on the relevance of variables is also reported in order to give information on the exact results provided by the regressions run.

Sample firms

For the purpose of this study, the sample is a selection of companies chosen in the first 25 firms of each market in terms of highest market value, as reported in *The Business Week Global 1000*[31].
All the companies operate in industrial sectors. Financial firms have been excluded because of specific features of their reporting and specific rules in calculating the profitability measures used in this study, such EVA[32].
The whole sample account for 42 companies, all listed in four European financial markets, such as United Kingdom, Germany, France and Italy, observed in the period 1992-2001[33]. This restriction allows excluding some firms, even if they were included in the first 25 companies in term of market value for the investigation, and it allows carrying out investigation over a longer period of time so that trends over at least the two last business cycles could be captured. Company sample adopted in the investigation is reported in Appendix (Table 1).

Market Indexes

The main indexes for each country, such as FTSE All Share (UK), DAX 30 Performance (Germany), CAC 40 Instantaneous (France) and Milan MIB Storico General (Italy) were adopted as benchmarks in order to calculate cost of capital for companies in the sample. These benchmarks are all market weighted indexes and commonly used as proxies for their respective markets. Market indexes adopted in the investigation is reported in Appendix (Table 2).

Data Sources

Various data sources, depending on the type and nature of the data, have been used including sources like Company Analysis, Hydra, DataStream

[30] As stated by Lev "The correlation coefficient, R^2, is not generally of major concern in hypothesis testing, however, when information contribution of the premier financial statement item – earnings - is at issue, the degree to which observed price revisions con be ascribed to (or explained by) earnings obviously provides evidence on earnings usefulness (or, rather, the extent to which earnings are actually used by investors). Moreover, since earnings are postulated by economic theory to be a major determinant of asset values (e.g., Miller and Rock [1985] and Ohlson [1988b]), not just one of many potentially value relevant variables, the R^2 of the returns/earnings regression cannot be ignored". Lev B., *On the Usefulness of Earnings and Earnings Research: Lessons and Earnings from Two Decades of Empirical Research*, Journal of Accounting Research, Vol. 27 Supplement 1989, pg. 156-157.

[31] Source: *The Business Week Global 1000*, published on Business Week July 15, 2002.

[32] We know that the definition of leverage in the financial and insurance companies is different due to their different structure of financial report, meaning that all the profitability measures have to be calculated taking into account all these differences.

[33] Some of them have been listed after the first observation considered in the investigation, such as 1.1.1992. The following list presents the companies listed during the period observed including month and year of quotation: Aventis (FR), 2/1993; France Telecom (FR), 11/97; Autostrade Concessioni e Costruzioni (IT), 10/98; ENI (IT), 11/95; Mediaset (IT), 7/96.

International and Bloomberg Financial Markets. In order to collect all necessary information to calculate EVA for companies sample, financial reports for all firms have been used. Reports were provided by Company Analysis database.

Theoretical Models

For the investigation different Panel Models have been build. They have been investigated using Common Intercept Model, Fixed Effect Models and Seemingly Unrelated Regression Model.
The main advantage of working with Panel data, as compared to a single cross-section or series of cross sections with non-overlapping cross-section units, is that it allows testing and relaxing the assumptions that are implicit in the Cross-Sectional analysis.
Explanation on how they work and on the pros and cons of each model are reported are reported next.

Fixed Effect Model
For simplicity let us consider only an explanatory variable, so that the model is

$$Y_{it} = \alpha_i + \beta X_{it} + u_{it},$$
$$u_{it} \sim IN(0, \sigma^2)$$

Where Y_{it} is the output and X_{it} is the vector of inputs for the i_{th} farm in the t_h period. α_i captures farm specific inputs assumed to be constant over time. This model also referred to as the Least Squares with Dummy Variables (LSDV) model. The α_i is estimated as coefficients of dummy variables.

Common Intercept Model
The model is the same expressed above in the Fixed Effect Model. The difference is in the meaning of constant, α_i. In previous model it captures specific inputs and its value is assumed to be constant over time. Hence, each company in the sample has a particular α_i able to represent specific factors that affect behaviour of its Share Price.
In the Common Intercept Model, constant is the same for all companies in the sample. It represents "something" able to capture different factors affecting Share Price of firms. In respect with previous model, α_i in Common Intercept model is less representative of what *really* affects share price of each company. In synthesis, this model is more general in representing the real trend of the share price for each firm and, in statistical terms, it is equivalent to a loss of information to allow representing with the same value of the constant the behaviour of the share Price of the whole sample.

Fixed Effects Model and Common Intercept Models: Pros and Cons
Main arguments for the use of Fixed Effects Models are that if we want to make inferences about only a set of cross-section units then we have to treat α_i as fixed. On the other hand, if we want to make inferences about the population from which these cross-section data came, we should treat α_i as random. Moreover, the fixed model often results in a loss in a large number of degrees of freedom (if N the number of cross-section units is large).
Another argument is that α_i captures different specific factors to the cross-section units, and thus α_i represent "*specific ignorance*"; so that, it can be treated as random variables by much the same argument that u_{it} representing "*general ignorance*" are treated as random variables[34].

Seemingly Unrelated Model
This model uses GLS method estimation applied to exploit the correlations in the errors across cross-section units. In the SUR model the errors are independent over time but correlated cross-section units:

$$\mathbf{Cov}\ (u_{it}, u_{js}) = \sigma_{is} \quad \text{if} \quad t = s$$
$$\mathbf{Cov}\ (u_{it}, u_{js}) = 0 \quad \text{if} \quad t \neq s$$

If we have large N and small T, this method is not feasible. Also, the method is appropriate only if the errors are generated by a true multivariate distribution.

Empirical Relations

In order to investigate on relationship between profitability measures and share price annual return, two approaches have been adopted: *Simple Regressions* and *Multiple Regression*.
The Univariate Analysis has been used to make inference of Annual Return with each variable, one by one. This approach has been applied to know if different results come out compared with the Multivariate Analysis. Multiple Regressions have been run, using Pair Wise combinations of variables and all the variables together, in order to know Incremental Information Content of each variable used in the models.
Following relations have been investigated through *Simple Regression*:

[34] This theoretical and descriptive part on how the models work is integrally taken from G.S. Maddala, *Introduction to Econometrics*, Wiley & Sons Ed., 2001, pp. 576.

$$\mathbf{R_{nt} = \alpha_{nt-1} + \beta_1\ EBIT_{nt-1} + \varepsilon_{nt}} \quad \textit{(Eq.1)}$$

$$\mathbf{R_{nt} = \alpha_{nt-1} + \beta_1\ CFFO_{nt-1} + \varepsilon_{nt}} \quad \textit{(Eq.2)}$$

$$\mathbf{R_{nt} = \alpha_{nt-1} + \beta_1\ EVA_{nt-1} + \varepsilon_{nt}} \quad \textit{(Eq.3)}$$

Multivariate Regression has been applied to following relations investigated.

(i) Pair Wise Combinations

$$\mathbf{R_{nt} = \alpha_{nt-1} + \beta_1\ EBIT_{nt-1} + \beta_2\ CFFO_{nt-1} + \varepsilon_{nt}} \quad \textit{(Eq.4)}$$

$$\mathbf{R_{nt} = \alpha_{nt-1} + \beta_1\ EBIT_{nt-1} + \beta_2\ EVA_{nt-1} + \varepsilon_{nt}} \quad \textit{(Eq.5)}$$

$$\mathbf{R_{nt} = \alpha_{nt-1} + \beta_1\ CFFO_{nt-1} + \beta_2\ EVA_{nt-1} + \varepsilon_{nt}} \quad \textit{(Eq.6)}$$

(ii) All Performance Measures

$$\mathbf{R_{nt} = \alpha_{nt-1} + \beta_1\ EBIT_{nt-1} + \beta_2\ CFFO_{nt-1} + \beta_3\ EVA_{nt-1} + \varepsilon_{nt}} \quad \textit{(Eq.7)}$$

R_{nt} = Annual Rate of Return of Security, computed as logarithm of prices at Balance Sheet opening and closing dates[35].
$EBIT_{nt-1}$ = Earnings Before Interest and Tax, as Operating Profit[36] *of previous year*
$CFFO_{nt-1}$ = Cash Flow From Operations, defined as net cash provided by operating activities of previous year
$EVA^{®}_{nt-1}$ = Economic Value Added[37].

[35] Because of different closing date of the balance sheet of the companies used in the investigation, all the rates of return are computed in order to catch these differences. In this way a better measures of the regressors coefficient are estimated and it is also possible to know how the market consider the performance measures to price correctly the security with the available set of information.
[36] Operating Profit can be defined as revenue less cost of goods sold and related operating expenses applying to the normal business activities of the entity. It excludes financial items (i.e. , interest income, dividend income, interest expense), extraordinary items, taxes, and other peripherical activities.
[37] EVA® is entirely treated in the Paragraph 2.2.

Empirical Investigation

To better understand empirical validity of models and the role of each variable in explaining share price annual return, correlations between Stock Returns and each variables investigated are first considered. The relations are investigated via *Simple Regressions* to facilitate a comparison with the *Multivariate Regression* which estimates the relations expressed in the systems expressed by Eq. 4 to Eq. 7**.** In this way, analysis facilitates consideration of incremental explanatory power of variables and the extent to which overall explanatory power is improved when other variables are included and observed one by one[38].

Simple Regression Model

Full Sample: Analysis and Results

Cross Sectional Analysis

First of all, simple regression of returns and the variables involved, such as EBIT, CFFO and EVA have been run. The models used are:

[38] Lev, 1989.

$$R_{jt} = \alpha_{t0} + \beta_1 EBIT_{t-1} + \varepsilon_t \quad (Eq.1)$$
$$R_{jt} = \alpha_{t0} + \beta_1 CFFO_{t-1} + \varepsilon_t \quad (Eq.2)$$
$$R_{jt} = \alpha_{t0} + \beta_1 EVA_{t-1} + \varepsilon_t \quad (Eq.3)$$

All other models are estimated for the Pooled Cross-Section and Time Series sample as well as for each year of available data. The results achieved in the Simple Regression analysis, considering both year by year and the pooled sample are reported in Appendix (Table 3)

In the regression using the Pooled Sample of all 396 firm-year observations the coefficient α and β_{t1} are not significantly different from zero at the 0.05 level, and the R^2 from the pooled regression, based on the simple regression model, is also very low. It seems that the *Cross-Sectional analysis does not have any explaining power in term of predictability of the return* for company observed. Just few coefficients are significant, the ones related to the constant. It can be interpreted as non-predictability of firm's returns looking at the trend of the other companies in the sample.

Even if we look at the annual cross-sectional regressions the results do not change too much. The *significant coefficients are still the ones related to the constant and the variables seem to be not significant at all*. In term of R^2, the model seems to be better but not so much as we can expect. All coefficients of three models are not significant. It can be useful to underline that in some years R^2 is higher than in others. If we look at the EBIT model in the year 2001 the R^2 is more than thirty times that the one in the previous year, while, taking the same years of comparison for the CFFO model, R^2 in 2001 appears to be less than twice.

The results show that the cross sectional analysis on EBIT, CFFO and EVA doesn't have incremental information content in predicting profitability of the firm sample. To check if Cross Sectional analysis, including Time Series data too, can be better in explaining these relations it could be useful to run all the simple regressions for each variable on 10 years basis. The results are commented in the next section [39].

Cross Sectional and Time Series Analysis

Looking at relations of each variable with Annual Returns across countries on a period of 10 years, results seem to be more interesting if compared with ones achieved in Cross Sectional analysis (Table 4). Depending on the weights applied to sample firms, results are different but they show a trend useful in assessing a first rank in the information content provided by performance measures investigated. Results achieved in this first analysis are commented by variables, according to the rank in significance of each item as predictor.

EVA and Share Price

Common Model in two different options, such as Non Weighting (NW) and Cross Sectional Weighting (CSW), seems to be the best in term of reliability of results. It gives us a possible ranking of variables as best predictors, such as EVA, EBIT and CFFO. In term of significance of coefficient, EVA seems to be the best looking at the probability distribution associated to them. This result is confirmed in all models adopted, except in Common Intercept and None Intercept Models when Non Weighting option is applied, while in the Cross Sectional Weighting Model two out of three models, such as Fixed Effect and Common Intercept, confirm relevance of EVA as good predictor.

To test robustness, we have to look at the R^2. Fixed Model shows higher R^2 in both versions, NW and CSW. In the first one, R^2 is 8,09% while in the second one is 11,44%. T-statistics are robust, 2,79 in NW and -3,85 in the CSW, confirming relevance of EVA as a performance measure able to predict future financial performance. Common Intercept Model confirms these results. EVA is significant at 95% in both weighting options, even if R^2 are lower, just 0,95% in NW and 1,49% in CSW. T-statistics are robust, confirming relevance of EVA. Moreover, the intercept is still significant in regressions but, because of higher R^2 in Fixed Effect Model, specific intercepts seem to be important in considering the results.

In term of overall significance, F-tests show that models are always well specified. This is confirmed in NW model and not in CSW models. These results don't modify previous ones in term of significance of variables but suggest that different combination and specification of variable are possible in order to better investigate on relations.

CFFO and Share Price

Results on CFFO are different depending on model adopted to run regression. Using NW option in all models, CFFO seems to be not significant at all. These results are not strongly confirmed by T-stats, never robust enough; also R^2 are always too low to assess that CFFO is not significant.

On the contrary, using the CSW version, CFFO appears to be significant in both the Common Intercept and in the Fixed Effect models, in term of R^2: 1,49% in the former and 10,84% in the latter. Looking at T-statistics, showing values out of the critical range (-2, +2), results appear robust. In both

[39] From a statistical point of view, these results showed problems in the residuals distributions. Corrections about Autocorrelation and Heteroskedasticity have been done.

models constants appear to be significant and the specific ones of the firms have to be taken into account, as stated by R^2 in the Fixed Effect Model, higher than R^2 in Common Intercept Model.

EBIT and Share Price
Running regression using NW version of models, results show that EBIT is never significant in term of probability distribution associated to coefficient, even if T-statistics are not robust enough to confirm this. R^2 is too low to accept this proposition as absolutely true but these results are confirmed by two out of three models if models using CSW have been run: None and Fixed Effect Models confirm this but Common Model gives us significance of EBIT, as expressed by probability distribution associated to hypothesis of relevance of EBIT in predicting future financial performance, and in term of R^2 as well, even if it is low at level of 0,22%. T-statistics show robustness and F-stat confirms that model specification is significant.

Results
The Simple Regressions Models run in this first part of statistical analysis allows to rank the variables in term of contribution in the information content provided to assess predictability of financial performance for sample firms investigated. The best model in term of description of variables behaviour is the Common Intercept Model. We can say that EVA is better in explaining trend in share price return and that it is confirmed in all models adopted. CFFO appears to be second in term of contribution in information content, even if these results have to be interpreted with cautions depending on model used. Finally, EBIT seems to be unable to give any information on future financial profitability of firms in all models applied and these are confirmed by high F-test, 33,62% in the NW version of Common Model and 9,39% in the CSW. Nevertheless, results on EBIT are not strongly and always confirmed by strong T-statistics associated to null hypothesis of the coefficients because of their low value in term of robustness, almost always in the critical range (-2; +2).

Four Markets: Analysis and Results

Analysis
Considering markets one by one is useful to better understand possible differences in financial performance of firms. For each markets Simple and Multiple regression, applying three different models used in previous section and applying the *Seemingly Unrelated Regression Correction*, has been run. This allows correcting regressions for Autocorrelation and Heteroskedasticity in residuals distribution. This method has been applied to each regression for four markets investigated.

United Kingdom
In UK market all variables seem to be highly significant, in any model applied (Table 5). Probability distributions of each coefficient are high in term of significance, also confirmed by all T-statistic. Just in one case CFFO appears to be not significant, when Common Intercept Model is applied. In term of R^2, Fixed Model remains the best: R^2 for EBIT regression is 9,70%, for CFFO regression is 9,22% and, finally, for EVA regression it is 9,80%.

Germany
In German market the results achieved are very close to the UK ones (Table 6). High significance of all variables as predictors of financial performance, confirmed by strong T-statistics and high R^2. None Intercept Model dominates the other models, except in the case of EBIT, where this model states non-significance of relationship; however this has to be interpreted with caution because of critical value of T-statistics.

France
Results for French market are less strong than previous ones (Table 7). Variables seem to be significant only when Fixed Effect Model is applied, in term of probability distribution of coefficient confirmed by T-statistics values. R^2 gives reasonable percentage of significance of variables, stating that R^2 for EBIT is 5,74%, for CFFO is 5,03% and 9,22% for EVA. Other models do not seem to be good in explaining relationship between Annual Return and performance measures investigated.

Italy
For this market all variables do not seem to be significant at all, except for Fixed Model when it is applied to test significance of CFFO (Table 8). In this case, CFFO appears to be significant at 95% and the T-statistic is strong enough, presenting a value of –2,16. The R^2 is 9,19% confirming the goodness of the model. The other models applied state that these variables are not good predictors of profitability of Italian listed companies.

Results
A deeper analysis conducted for each market give results showing consistent differences. Same variables seem to have different explanatory in term of power of prediction of Annual Return depending on financial market,. In order to confirm that each market presents peculiar differences, regressions have been run using the same performance measures data for annual performance and only one regressor, such as EVA, adding *dummy variables* to take into account the possibility that some structural factors have an explanatory power and can be

useful adopted in order to predict show trend of Annual Return. In case of relevance of dummy variable, factors of each market have to be investigated more in depth in order to know the nature of factors, macroeconomic or microeconomic, and, then, including new variables to explain relation between performance measures and financial performance of firms sample.

Multiple Regression Model

Full Sample: Analysis and Results

Regressions of performance using different combinations of variables are carried out. Hence, following analysis is conducted pair wise and a multiple regression, involving all the performance measures together, has been run for each country and for the whole sample.

(i) Pair wise regressions

$$R_{jt} = \alpha_{t0} + \beta_1 EBIT_{t-1} + \beta_2 CFFO_{t-1} + \varepsilon_{t-1} \quad (Eq.4)$$
$$R_{jt} = \alpha_{t0} + \beta_1 EBIT_{t-1} + \beta_2 EVA_{t-1} + \varepsilon_{t-1} \quad (Eq.5)$$
$$R_{jt} = \alpha_{t0} + \beta_1 EVA_{t-1} + \beta_2 CFFO_{t-1} + \varepsilon_{t-1} \quad (Eq.6)$$

(ii) All performance measures regression

$$R_{jt} = \alpha_{t0} + \beta_1 EBIT_{t-1} + \beta_2 CFFO_{t-1} + \beta_3 EVA_{t-1} + \varepsilon_t \quad (Eq.7)$$

Testing Pair wise Performance Measures: Results

Results confirm the rank for performance measures stated in the SRM analysis (Table 9). All models used show significance of EVA. This is confirmed in both versions adopted in running regressions, Non Weighting and Cross-Sectional Weighting, of the three models: None Intercept Model, Common Intercept Model and Fixed Effect Model. Fixed Effect Model remains the one with higher R^2 in assessing relevance of EVA as share price return predictor, even if there are still problems in the F-test, allowing saying that model might not be well specified in term of functional form. Although, T-statistics on EVA coefficients are strong, but not the ones related to EBIT and CFFO coefficients. Hence, according to results, EBIT and CFFO seem to be not significant in term of predictability power about financial performance. Probability distribution of relevance hypothesis of these coefficients are always higher than 5%; this allows to confirm irrelevance of those financial measures as predictors of performance at 95% level of confidence. It seems that investors don't take into account EBIT and CFFO levels to price correctly the securities of firms.

These findings are robust, in term of T-statistics, only for EVA, while for EBIT and CFFO they don't show strong robustness when the regressions were run using Non Weighting model; moreover, they don't improve even when Cross Sectional Weighting intercept is taken into account. Also for these results, R^2 is higher in Fixed Model than in other two, None and Common intercept models.

The proper coefficient of each firm seems to be rather important in explaining the relationship between share price and performance measures. All models seem to be well specified looking at probability distribution of null hypothesis of F-statistic.

Testing All Performance Measures: Results

Following relation is deeply investigated.

$$R_{jt} = \alpha_{jt0} + \beta_1 EBIT_{jt-1} + \beta_2 CFFO_{jt-1} + \beta_3 EVA_{jt-1} + \varepsilon_{jt} \quad (Eq.7)$$

Results of regressions of financial performance on all three variables are very similar to ones achieved in SRM using same sample of 42 firms. MRM was run using three different models and Non-Weighting and Cross-Sectional Weighting version were applied to all of them. Consistent results were achieved for all models (Table 10). EVA is confirmed to be significant, in accordance with probability distribution of relevance hypothesis, whereas EBIT and CFFO are not. These results are robust enough for EVA, in term of T-statistic. Only in NW version of Fixed Model EVA appears to be not significant but T-statistic is in the critical range, which means that result provided by this model cannot be totally relied on. In terms of R^2 8,50% was achieved in Fixed Model and, therefore, it seems to be better in explaining relationship between Share Price and Performance measures, however coefficients appear to be not significant as demonstrated by their probability distributions. Despite the fact that R^2 is quite high, T-statistics are too low to confirm irrelevance of all variables tested. This uncertainty suggests that MRM should be run using same variables for each market, in order to establish whether they have different explanatory power in those markets. EVA seems to be still relevant when taking into account the whole sample. However, EBIT and CFFO show different relevance depending on models chosen and on combinations with other performance measures.

Four Markets: Analysis and Results

Analysis

United Kingdom

Fixed Effect Model is the best in assessing relevance of all variables, showing R^2 always over 10% in all combinations considered. In term of robustness, T-statistics are very significant.

It seems that in a well-developed market, such as the UK market, all variables observed are significant, meaning that all performance measures observed have to be considered in forecasting financial performances of UK firms (Table 11).

These results confirm results of SRM analysis, where performance measures have been regressed one by one with Share Price: EVA is confirmed to be abetter measure in evaluating financial performance regardless of model applied. In terms of EBIT and CFFO, although they are still highly significant, their relevance depends on the model applied.

Germany

Results achieved for German market demonstrate high dependence on the model applied (Table 12). Combination with all variables is significant just in one out of three models: None Intercept Model. These results are strong in terms of T-statistic but R^2 is negative. In the other two models, results show that EBIT and EVA are relevant. This is also confirmed by tests. However, CFFO is not significant when Common and Fixed Models are run, but results are not well confirmed in term of robustness expressed by T-statistic associated with hypothesis of non-relevance. Running MRM with different combinations of two variables, EVA is always significant, in all models and combinations considered, confirmed by strong T-statistics too. EBIT is significant too, however when combined with EVA in the None Intercept Model, it shows non-significance, but this is not strongly confirmed by EBIT T-statistic. In terms of R2, when MRM has been ran with all variables, best model is Common Model, showing R^2 of 6,31% and a constant as significant. When combinations of two different performance measures are considered, Fixed Model is better, showing strong R^2 in pair wise combinations, always in the range 8-10%.

In summary, results achieved in German market investigation confirm ranking of EVA, EBIT and CFFO in terms of predictive power of financial performance, results achieved in investigation conducted on four markets together. However, EBIT shows stronger results in all three models run and this is also confirmed by strong T-statistics. CFFO, on the other hand, shows certain relevance in all three models only if it is regressed alone with Share Price and pair wise with EVA. In other cases it shows reasonable level of uncertainty in assessing any predictability on future annual financial performance.

France

Fixed model seems to be still the best in assessing any relationship between Share Price and Performance Measures (Table 13). It confirms relevance of EVA in all combinations. The other two performance measures seem to be not significant, however T-statistics results achieved do not confirm irrelevance of those variables when None and Common Intercept Models are ran. On the other hand, when Fixed Effect Model is ran on significance of three performance measures show their relevance, which is well confirmed by strong T-statistics. Also, high R^2, always on the range 7,5-9,5%, in Fixed Effect Model confirms their relevance. It appears that Fixed Effect Model always has highest R^2 for all the combinations considered. To confirm relevance of other variables, we can observe combination of EBIT-CFFO. Results show that coefficients are significant in three out of four results, and T-statistics confirm their relevance. Problems in confirming these results came out when different combinations of performance measures were ran against share price. It can be seen that, when EBIT or CFFO are combined pair wise with EVA, results show no significance of EBIT and CFFO. These numbers have to be interpreted with cautions looking at the T-statistics, which shows uncertain values for EBIT and CFFO tests in all models involving combinations of them with EVA.

According to these results, it seems that all variables are relevant even if EBIT and CFFO maintain a certain level of uncertainty depending highly on model adopted and on combination with other performance measures. A first conclusion could state that these market seems to be sensitive to all performance measures, meaning that investors look at these accounting items in asses future trend of price for French securities, still confirming ranking stated (EVA, EBIT, CFFO).

Italy

This market shows different and not consistent results (Table 14). Considering all the combinations, just two of them - EBIT-CFFO-EVA and EBIT-CFFO - show relevance, according to T-statistics: regression involving three variables together and the one including EBIT and CFFO. The former shows R^2 of 10,25%, demonstrating that most relevant performance measures are EBIT and CFFO, whereas EVA is not significant at all. T-statistics are strong enough in confirming relevance of first two variables but it is not so strong for EVA, demonstrating considerable level of uncertainty of irrelevance of this performance measures. When EVA has been dropped out, EBIT and CFFO are still significant, with R^2 of 9,79%.

All other combinations show irrelevance for all variables even if T-statistics are too low to be sure of that.
It seems that, in Italian Financial Market, EVA is never significant in releasing useful information on future securities prices. It's interesting to note level of capitalisation: Italian financial market is the lowest if compared with the other financial markets. It could be a possible factor to explain different findings when compared with other financial markets.

Results
Results for each market are slightly different from the ones achieved in MRM on overall sample, presenting a variable ranking for performance measures. In three out of four markets, EVA seems to dominate EBIT and CFFO but in two of them, such as Germany and France, EBIT and CFFO measures have to be considered as a good predictor of expected return of the firms.
As anticipated, in order to establish whether all of these results depend on characteristics of each market, same regressions, adding a dummy variable, was run. Results are shown and commented next.

Testing for Structural Factors: Dummy Variable Analysis

Analyses conducted up until now show different results in all the financial markets considered. Any structural factors, able to explain differences across countries, are investigated using dummy variable[40]. Investigation is conducted by countries; Multiple Regressions Model (MRM) is ran, considering first the relevance of the three variables together and then considering EVA contribution in terms of predicting power for future financial performance.
Regression analysis is limited to two combinations: (i) EVA with dummy variable; (ii) All the performance measures with dummy variable. EVA is considered pair wise with dummy variable as main variable investigated in this paper.

Analysis

United Kingdom
When analysing the MRM with dummy variable and EVA, results show that the latter is still significant, as showed in previous results; however, the former does not seem to be significant (Table 16). Different results were achieved when other two variables, EBIT and CFFO, are added: they appear not significant when the model includes dummy variable.
Best model in describing variables' behaviour is the Common Intercept Model when Cross Sectional Weighting is applied, showing best R^2, even if very low, at 2,12%, and also strong T-statistics for EVA relevance. Results are not strong enough in assessing irrelevance of dummy variable when looking at T-statistic associated.
A possible interpretation of this is that there are not factors in the UK market able to drive share prices, and then the financial performance of the companies. Moreover, results confirm what was found when looking at the previous MRM in UK market, such as the relevance of EVA as a predictor of the financial performance.

Germany
Looking at the results achieved in the German market, one can note that EVA and the dummy variable are significant when Cross Sectional Weighting is applied to the Pooled Least Square Method (Table 16). That is confirmed when EBIT and CFFO are added, even if T-statistics of these two variables appear not strong, not allowing to assess their irrelevance in MRM with dummy variable. Results are supported by R^2, even if it is very low in all models, ranging between 0,01-0,41%, and also by strong T-statistics of EVA and Dummy variable. The best results still come out when Common Intercept model in Cross Sectional Weighting is applied, as in the previous investigation in the same market, when dummy variable was not taken into account.
The results appear always strong enough to state presence of exogenous factor; even if we know nothing about this factor's nature and the way it can affect securities prices.

France
Results in French market confirm that, even when dummy variable is added, EVA is still significant in whatever model is applied (Table 17). Also in this case, the best model is Common Model in the CSW version, showing higher R^2, that is 2,25% for the MRM including all three explanatory variables and 1,66% when MRM includes just EVA and dummy variable. Nevertheless, in this last model F-test is too low to consider the model as well specified.
It is interesting to note that results are different when EBIT and CFFO are added in MRM. the dummy was dropped out, EBIT and CFFO have uncertain significance depending on the model applied: Common Model confirms non relevance of these variables as predictors, however the T-statistics are not strong enough to confirm their irrelevance, maintaining high level of uncertainty in the interpretation of results. Moreover, dummy variable seems to be not significant in French market, meaning that there are no structural factors

[40] To explain differences across countries through the existence of structural factors, regression model include Dummy variable that is 1,00 for the market to test for structural factor in the market and 0,00 for the other market.

able to affect securities prices, but T-statistics on dummy are still not strong enough to confirm this position.

Italy

Results for Italian market are quite different comparing with the ones achieved when MRM was run without taking dummy variable into account (Table 18). As previously stated, EVA appears to be not significant in explaining securities' prices for Italian firms' sample. On the other hand, adding a dummy variable into the model, EVA is significant and strong in tests. However, dummy variable appears not significant but, as shown by T-statistics, dummy variable irrelevance cannot be considered as totally reliable. These results are not totally consistent and maybe need to be investigated in more depth, which is outside the scope of this thesis.

Conclusions

Considering a sample of 42 firms operating in four European Financial Markets, results show different contribution of specific performance measures - EBIT, CFFO, EVA - in term of prediction capacity of financial performance. EVA seems to be a good performance indicator in offering information useful to predict future financial performance, followed by EBIT and than CFFO. Nevertheless, results are highly dependent on the model applied, also appearing affected by structural factors.

When analysis is conducted on each specific market separately, results are not strongly and always confirmed. United Kingdom shares changes seem to be predictable in term of performance looking primarily at the EVA. EBIT and CFFO explanatory power appear not so strong, even if they are consistent with the rank stated in the overall investigation in term of predictability.

For German and French Financial Markets results appear to be similar: EVA can be considered a good predictor and value relevance of EBIT too is strongly confirmed by evidence. CFFO seems to have very poor explanatory power of financial performance in Germany but not in France, where it is still quite significant.

Results for Italian market appear to be different from other markets observed. EVA is never considered as a good predictor and all the results achieved are highly dependent on the model applied. However, CFFO seems to have better power in assessing any forecasting on future trend of share price; nevertheless, these results are not always strongly consistent.

In order to better understand whether results can be affected by presence of specific or structural factors in each market, dummy variable were used in the investigation. This variable appears not relevant in United Kingdom market but it is relevant in the other three markets. These results, which are based on test run on dummy variable, are strong enough for German market, but not confirmed in French and in Italian market.

Results achieved suggest that one of the possible factors, that might affect the level of explanatory power of the performance measures investigated, should be found in the different level of market capitalisation, however this suggestion was not tested in this paper.

Findings reported are consistent with the EVA supporters only if the following condition is respected: EVA is relevant when it is investigated in a well-developed financial market. However, when future performance is to be predicted in a non-well developed market, results do not support the superiority of EVA as a predictor of future performance. It seems that, in less-developed financial markets the relationship between Share Price and Performance Measures is better expressed by audited accounting measures such as EBIT and CFFO, useful performance measures in assessing goodness of the operational activity and financial position.

Since the results suggest the possibility that different explanatory power of the variable involved in the investigation, it could be interesting investigate on the level and the trend of market capitalisation of a sample of companies and their relation with the explanatory power of different accounting measures. What we can expect from that is a positive correlation between the level of capitalization and his growth rate when compared with the incremental information content of new accounting and performance measures as EVA is.

References

1. Bennett Stewart III G., 1991, *The Quest For Value: A Guide for Senior Manager*, Harper-Collins Publishers, Inc.
2. Biddle G.C. – Bowen R.M. – Wallace J.S., 1997, *Does EVA beat Earnings? Evidence on Associations with Stock Returns and Firm Values*, in *Journal of Accounting and Economics*, Vol. 24.
3. Business Week, European Edition, July 15, 2002.
4. Chen S. – Dodd J.L., 2001, *Operating Income, Residual Income and EVA: Which metric is more value relevant?*, in *Journal of Management Issues*, Spring, Vol. 13, Issue 1
5. De Villiers J.U. – Auret C.J., 1997, *The distortion in Economic Value Added caused by inflation*, in *Journal of Economics and Business*, n. 49
6. De Villiers J.U. – Auret C.J., 1998, *A comparison of EPS and EVA as explanatory variables for share price*, in *Journal for Studies in Economics and Econometrics*, 22(2).
7. Dodd J.L. - Chen S., 1996, *EVA a new panacea?*, in *Business and Economic Review*, July/ September.
8. Easton P.D. – Harris, T.S., 1991, *Earnings as Explanatory Variable for Returns*, in *Journal of Accounting Research*, Spring.
9. Kleiman R.T., 1999, *Some New Evidence on EVA Companies*, in *Journal of Applied Corporate Finance*, Vol. 12, Summer
10. Lehn K. - Makhija A.K., 1996, *EVA and MVA as performance measures and signals for strategic change*, in *Strategy and Leadership Magazine*, May/June.
11. Lev B., 1989, *On the Usefulness of Earnings and Earnings Research: Lessons and Earnings from Two Decades of Empirical Research*, in *Journal of Accounting Research*, Vol. 27 Supplement
12. Modigliani F. - Miller M., 1961, *Dividend Policy, Growth, and The Valuation of Shares*, in *Journal of Business,* 34 (No. 3, October).
13. Myers R., 1996, *Metrics wars*, in *CFO*, Vol. 44, October, Vol. 12 Issue 10.
14. O' Byrne S.F., 1996, *EVA and Market Value*, in *Journal of Applied Corporate Finance*, Vol. 9, n. 1, Spring 1996.
15. O'Byrne S., 1997, *EVA and Shareholder Return*, in *Financial Practice and Education*, Vol. 7.
16. O'Byrne S., 1999, *EVA and its critics*, in *Journal of Applied Corporate Finance*, Vol. 12, n. 3, Summer.
17. O'Hara H.T. – Lazdowsky C. - Moldovean C. – Samuelson S. T., 2001, *Financial Indicators of Stock Price Performance*, in *American Business Review*, January.
18. Olsen E.E., 1996, *Economic Value Added*, in *Perspectives*, Boston, MA, Boston Consulting Group.
19. Peterson P.P. – Peterson D.R., 1996, *Company Performance and Measures of Value Added*, in *The Research Foundation of The Institute of Chartered Financial Analysts*, Charlottesville, VA.
20. Rappaport A., 1986, *Creating Shareholder Value. The New Standard for Business Performance*, The Free Press, New York, N.Y.
21. Tutino M., 2005, *Performance dell'azienda e creazione di valore*, Borghetto, Pisa
22. Tutino M., 2008, *L'azienda, il sistema dei mercati finanziari e la "competizione sul valore"*, Aracne, Roma
23. Young S.D. - O'Byrne S.F., 2001, *EVA and Value-Based Management*, McGraw-Hill.

Appendix

Table 1. Companies Sample

THE BUSINESS WEEK GLOBAL 1000	Global 1000 Rank	Country Rank	Market Value in USD Mil.	Industry
United Kingdom				
BP PLC	8	1	$ 192.116	Energy
Vodafone PLC	27	4	$ 102.949	Telecommunication Services
Shell Transport and Trading PLC	NR	7	$ 75.540	Energy
Diageo PLC	91	11	$ 41.753	Consumer Staples
BT GROUP PLC	116	12	$ 35.555	Telecommunication Services
Unilever PLC	NR	13	$ 26.752	Consumer Staples
Tesco PLC	164	14	$ 26.411	Consumer Staples
Rio Tinto PLC	NR	19	$ 20.290	Materials
BAE Systems PLC	241	21	$ 17.149	Industrials
Cadbury Schweppes PLC	279	23	$ 15.023	Consumer Staples
Germany				
Siemens AG	61		$ 54.771	Industrials
BMW Bayerische Motoren Werke AG	153	9	$ 28.790	Consumer Discretionary
BASF AG	155	10	$ 28.205	Materials
Bayer AG	179	11	$ 23.745	Materials
RWE AG	193	12	$ 21.522	Utilities
Volkswagen AG	200	13	$ 20.614	Consumer Discretionary
Schering AG	373	17	$ 12.051	Health Care
Beiersdorf AG	445	21	$ 9.916	Consumer Staples
Altana AG	596	24	$ 7.533	Health Care
Linde AG	726	27	$ 5.905	Industrials
France				
Total Fina Elf	26	1	$ 110.509	Energy
Aventis SA	60	2	$ 55.377	Health Care
Carrefour SA	113	6	$ 35.845	Consumer Staples
Vivendi Universal SA	121	7	$ 34.144	Consumer Discretionary
Suez SA	150	9	$ 29.038	Utilities
France Telecom SA	184	14	$ 22.389	Telecommunication Services
Group Danone SA	211	16	$ 19.487	Consumer Staples
Pinault Printemps La Redoute SA	276	18	$ 15.128	Consumer Discretionary
Alcatel SA	289	20	$ 14.523	Information Technology
Air Liquide, L' SA	302	21	$ 14.141	Materials
Peugeot SA	313	23	$ 13.677	Consumer Discretionary
Italy				
ENI Ente Nazionale Idrocarburi	52	1	$ 60.939	Energy
Telecom Italia SpA	64	2	$ 53.230	Telecommunication Services
Olivetti & C, Ing C, SpA	431	9	$ 10.439	Telecommunication Services
Autostrade Concessioni e Costruzioni SpA	466	10	$ 9.617	Industrials
Mediaset	475	11	$ 9.446	Consumer Discretionary
Fiat SpA	658	19	$ 6.718	Consumer Discretionary
Finmeccanica SpA	666	20	$ 6.571	Industrials
Edison SpA	NR	NR	NR	Energy
Italgas Sta Italiana per il Gas SpA	NR	NR	NR	Energy
Saipem SpA	NR	NR	NR	Energy
Pirelli	NR	NR	NR	Industrials

Table 2. Market Indexes: Annual Performance*

YR	United Kingdom	Germany	France	Italy
	FTSE 100	DAX 30 Performance	CAC 40 Instantaneous	MIB 30 Storico General
2001	-16,15%	-19,79%	-21,97%	-28,90%
2000	-10,21%	-7,54%	-0,54%	5,23%
1999	17,81%	39,10%	51,12%	20,12%
1998	14,55%	17,71%	31,47%	34,33%
1997	24,69%	47,11%	29,50%	45,84%
1996	11,63%	28,17%	23,71%	12,28%
1995	20,35%	6,99%	-0,49%	-7,13%
1994	-10,32%	-7,06%	-17,06%	3,24%
1993	20,09%	46,71%	22,09%	31,75%
1992	14,18%	-2,09%	5,22%	-12,41%

* Annual Return is computed using logarithm

Table 3. Simple Regressions of Annual Returns on EBIT, CFFO and EVA

Year	Ebit Model $R_{jt} = \alpha_{t0} + \beta_1 EBIT_{t-1} + \varepsilon_t$			Cffo Model $R_{jt} = \alpha_{t0} + \beta_1 CFFO_{t-1} + \varepsilon_t$			Eva Model $R_{jt} = \alpha_{t0} + \beta_1 EVA_{t-1} + \varepsilon_t$			N
	α	β	R^2	α	β	R^2	α	β	R^2	
All	0,0154*	0,0000	0,23%	0,0186*	0,0000	0,60%	0,0118	0,0000	0,96%	396
	2,4898	*-1,2929*		*2,7653*	*-1,8882*		*2,2993*	*-2,5697*		
1992	0,0908*	0,0000	2,12%	0,0849*	0,0000	0,02%	0,0799*	0,000	1,50%	36
	5,4606	*-0,8578*		*4,6516*	*-0,0819*		*5,0800*	*-0,7207*		
1993	-0,0357*	0,0000	0,01%	-0,0364*	0,0000	0,05%	-0,0413*	-0,0000	3,30%	37
	-4,8230	*-0,0477*		*-4,6073*	*0,1296*		*-5,1304*	*-1,0925*		
1994	-0,0019	0,0000	0,20%	0,0021	0,0000	2,57%	-0,0015	0,0000	0,66%	38
	-0,2177	*-0,2700*		*0,2385*	*-0,9740*		*-0,1849*	*-0,4899*		
1995	-0,0132	0,0000	0,01%	-0,0091	0,0000	0,70%	-0,0132*	-0,0000	0,89%	37
	-1,0280	*0,0438*		*-0,6737*	*-0,4962*		*-1,1791*	*-0,5601*		
1996	0,0284	-0,0000	3,79%	0,0348*	0,0000	7,25%	0,0118	0,0000	0,87%	39
	1,7816	*-1,2078*		*2,1094*	*-1,7001*		*0,6405*	*-0,5708*		
1997	0,0357*	0,0000	0,34%	0,0430*	0,0000	0,75%	0,0524*	0,0000	6,80%	38
	2,5925	*0,3489*		*2,9627*	*-0,5206*		*3,7282*	*1,6208*		
1998	-0,0367	0,0000	2,16%	-0,0534*	0,0000	9,20%	-0,0238	0,0000	0,30%	41
	-1,3893	*0,9270*		*-2,1575*	*1,9878*		*-1,0356*	*-0,3410*		
1999	-0,0284	0,0000	2,33%	-0,0351	0,0000	3,59%	-0,0140	0,0000	0,00%	42
	-1,2062	*0,9771*		*-1,3958*	*1,2198*		*-0,6700*	*0,0423*		
2000	-0,0274	0,0000	0,24%	-0,0182	0,0000	2,75%	-0,0189	0,0000	9,06%	42
	-1,7004	*-0,3118*		*-1,0484*	*-1,0637*		*-1,3590*	*-1,9960*		
2001	-0,0185	1,8486	8,90%	-0,0194	0,0000	3,57%	-0,0044	0,0000	1,33%	37
	-1,6685	*0,5069*		*-1,4206*	*1,1380*		*-0,3616*	*-0,6863*		

T-statistics are provided in Italic
* indicates significance of the variable coefficients
N is the number of observations in regressions
All the results are reported at 95% of significance

Table 4. Full Sample: Share Price on Each Performance Measure

No Weighting					
	Model	*Significance of coefficients**	*T-statistic*	*R2*	*F-Test Probability*
EBIT	*None Intercept*	56,44%	*0,57*	-1,45%	
	Common Intercept	19,68%	*-1,29*	0,23%	33,62%
	Fixed Effect	24,99%	*-1,15*	7,23%	
CFFO	*None Intercept*	75,56%	*0,31*	-1,48%	
	Common Intercept	5,97%	*1,88*	0,60%	12,30%
	Fixed Effect	6,49%	*1,85*	7,97%	
EVA	*None Intercept*	0,48%	*-2,83*	-0,35%	
	Common Intercept	1,05%	*-2,57*	0,95%	5,19%
	Fixed Effect	0,55%	*-2,79*	8,09%	

Cross Sectional Weighting					
	Model	*Significance of coefficients**	*T-statistic*	*R2*	*F-Test Probability*
EBIT	*None Intercept*	15,20%	*1,44*	-1,46%	
	Common Intercept	2,21%	*-2,29*	0,22%	9,39%
	Fixed Effect	10,61%	*-1,62*	10,48%	
CFFO	*None Intercept*	29,84%	*1,04*	-1,82%	
	Common Intercept	0,29%	*-2,99*	0,99%	4,70%
	Fixed Effect	0,61%	*-2,76*	10,84%	
EVA	*None Intercept*	0,01%	*-3,83*	-0,66%	
	Common Intercept	0,06%	*-3,48*	1,49%	1,48%
	Fixed Effect	0,01%	*-3,85*	11,44%	

* Probability Distribution associated to Null Hypothesis, stating Non Significance of variable

Table 5. United Kingdom Market: Share Price On Each Performance Measure

Performance Measures	*Model*	*Significance of coefficients**	*T-statistic*	*R2*	*F-Test Probability*
EBIT	*None Intercept*	2,99%	*2,20*	-0,30%	2,18
	Common Intercept	0,06%	*-3,56*	-0,60%	2,19
	Fixed Effect	0,00%	*-65,08*	9,70%	2,36
CFFO	*None Intercept*	41,13%	*-0,83*	-0,40%	2,19
	Common Intercept	0,03%	*-3,73*	0,35%	2,21
	Fixed Effect	0,00%	*-9,18*	9,22%	2,43
EVA	*None Intercept*	0,00%	*-5,12*	1,20%	2,23
	Common Intercept	0,00%	*-4,31*	1,70%	2,24
	Fixed Effect	0,00%	*-7,51*	9,80%	2,44

* Probability Distribution associated to Null Hypothesis, stating Non Significance of variable

Table 6. German Market: Share Price On Each Performance Measure

Performance Measures	*Model*	*Significance of coefficients**	*T-statistic*	*R2*	*F-Test Probability*
EBIT	*None Intercept*	71,00%	*0,37*	-13,40%	2,00
	Common Intercept	0,00%	*-13,00*	6,30%	2,26
	Fixed Effect	0,00%	*-16,00*	10,04%	2,32
CFFO	*None Intercept*	0,03%	*3,00*	-9,60%	2,09
	Common Intercept	0,00%	*-6,20*	0,80%	2,25
	Fixed Effect	0,00%	*-31,00*	7,18%	2,37
EVA	*None Intercept*	0,00%	*-5,70*	-9,00%	2,02
	Common Intercept	0,00%	*-4,43*	2,11%	2,26
	Fixed Effect	0,00%	*-7,60*	7,19%	2,37

* Probability Distribution associated to Null Hypothesis, stating Non Significance of variable

Table 7. French Market: Share Price On Each Performance Measure

Performance Measures	Model	Significance of coefficients*	T-statistic	R2	F-Test Probability
EBIT	None Intercept	77,80%	-0,28	-0,90%	2,00
	Common Intercept	0,34%	-3,00	0,34%	2,00
	Fixed Effect	0,00%	-7,80	5,74%	2,09
CFFO	None Intercept	30,37%	1,03	-0,80%	2,01
	Common Intercept	7,53%	-1,79	-0,03%	2,01
	Fixed Effect	0,04%	-3,70	5,03%	2,12
EVA	None Intercept	0,00%	-5,90	3,43%	2,02
	Common Intercept	0,00%	-5,70	3,64%	2,02
	Fixed Effect	0,00%	-7,00	9,22%	2,15

* Probability Distribution associated to Null Hypothesis, stating Non Significance of variable

Table 8. Italian Market: Share Price On Each Performance Measure

Performance Measures	Model	Significance of coefficients*	T-statistic	R2	F-Test Probability
EBIT	None Intercept	68,40%	0,40	-0,75%	2,30
	Common Intercept	37,77%	-0,88	0,08%	2,33
	Fixed Effect	79,27%	-0,26	7,46%	2,52
CFFO	None Intercept	93,92%	-0,07	-0,74%	2,31
	Common Intercept	11,39%	-1,59	0,53%	2,34
	Fixed Effect	3,34%	-2,16	9,19%	2,59
EVA	None Intercept	9,02%	-1,71	-0,31%	2,33
	Common Intercept	17,51%	-1,36	1,00%	2,34
	Fixed Effect	13,90%	-1,49	7,91%	2,54

* Probability Distribution associated to Null Hypothesis, stating Non Significance of variable

Table 9. Full Sample: Share Price On Pair Wise Combinations Of Performance Measures

No Weighting										
Performance Measures		*Model*	*Significance of Coefficients*		*R2*	*T-Statistics*		*Durbin Watson*	*F-Test Probability*
EBIT	CFFO	*None Intercept*	67,39%	82,55%	-1,44%	*0,42*	*-0,22*	2,23	
		Common Intercept	53,08%	16,78%	0,67%	*0,62*	*-1,38*	2,27	26,25%
		Fixed Effect	46,44%	5,88%	8,04%	*0,73*	*-1,89*	2,46	0,00%
EBIT	EVA	*None Intercept*	45,57%	0,45%	-0,29%	*0,74*	*-2,85*	2,24	
		Common Intercept	27,09%	1,60%	1,10%	*-1,10*	*-2,42*	2,47	11,24%
		Fixed Effect	38,90%	0,59%	8,22%	*-0,86*	*-2,77*	2,44	0,00%
CFFO	EVA	*None Intercept*	57,07%	0,52%	-0,30%	*0,57*	*-2,80*	2,24	
		Common Intercept	14,67%	2,57%	1,33%	*-1,45*	*-2,24*	2,27	7,16%
		Fixed Effect	27,52%	6,41%	8,48%	*-1,09*	*-1,85*	2,45	0,00%
Cross Sectional Weighting									
Performance Measures		*Model*	*Significance of Coefficients*		*R2*	*T-Statistics*		*Durbin Watson*	*F-Test Probability*
EBIT	CFFO	*None Intercept*	44,98%	67,75%	-1,44%	*0,75*	*-0,41*	2,06	
		Common Intercept	12,25%	1,93%	1,35%	*1,54*	*-2,35*	2,10	6,90%
		Fixed Effect	15,10%	0,05%	11,06%	*1,44*	*-3,52*	2,30	0,00%
EBIT	EVA	*None Intercept*	10,96%	0,01%	-0,55%	*1,60*	*-3,92*	2,07	
		Common Intercept	6,96%	0,16%	1,72%	*-1,82*	*-3,18*	2,09	3,32%
		Fixed Effect	44,12%	0,02%	11,53%	*-0,77*	*-3,81*	2,30	0,00%
CFFO	EVA	*None Intercept*	15,74%	0,01%	-0,39%	*1,42*	*-3,84*	2,07	
		Common Intercept	2,04%	0,25%	1,92%	*-2,33*	*-3,04*	2,10	2,22%
		Fixed Effect	18,62%	0,19%	11,62%	*-1,32*	*-3,13*	2,30	0,00%

Table 10. Full Sample: Share Price On All Performance Measures

No Weighting											
Performance Measures			*Model*	*Significance of Coefficients*			*T-Statistics*			*R2*	*Durbin Watson*	*F-Test Probability*
EBIT	CFFO	EVA	*None Intercept*	76,26%	98,59%	0,69%	*0,30*	*0,01*	*- 2,71*	-0,20%	2,24	
			Common Intercept	59,86%	26,03%	3,37%	*0,53*	*- 1,12*	*- 2,13*	1,38%	2,28	14,23%
			Fixed Effect	72,96%	33,08%	11,23%	*0,34*	*- 0,97*	*- 1,59*	8,50%	2,46	0,00%
Cross Secrional Weighting												
Performance Measures			*Model*	*Significance of Coefficients*			*T-Statistics*			*R2*	*Durbin Watson*	*F-Test Probability*
EBIT	CFFO	EVA	*None Intercept*	80,26%	84,03%	0,04%	*0,25*	*0,20*	*-3,59*	-0,54%	2,07	
			Common Intercept	33,94%	10,77%	0,73%	*0,96*	*-1,61*	*-2,70*	2,04%	2,11	4,42%
			Fixed Effect	66,75%	21,43%	1,05%	*0,43*	*-1,24*	*-2,57*	11,62%	2,30	0,00%

Table 11. United Kingdom Market: Share Price On Pair Wise Combinations Of Performance Measures

Performance Measures			*Model*	*Significance of Coefficients*			*T-Statistics*			R^2	*Durbin Watson*
EBIT	CFFO	EVA	*None Intercept*	0,00%	0,00%	0,00%	*-7,72*	*5,76*	*-11,69*	1,78%	2,20
			Common Intercept	0,00%	85,00%	0,00%	*-4,51*	*0,18*	*-8,52*	2,44%	2,25
			Fixed Effect	0,00%	0,64%	0,64%	*-13,71*	*-5,33*	*-2,79*	12,47%	2,52
EBIT	CFFO		*None Intercept*	12,00%	49,00%		*-1,56*	*0,69*		-0,20%	2,20
			Common Intercept	28,80%	4,67%		*-1,07*	*-2,02*		0,50%	2,20
			Fixed Effect	0,00%	0,00%		*-19,55*	*-16,12*		11,61%	2,40
EBIT		EVA	*None Intercept*	0,000%		0,00%	*-4,60*		*-7,56*	1,40%	2,21
			Common Intercept	0,00%		0,00%	*-5,74*		*-7,86*	2,44%	2,22
			Fixed Effect	0,00%		0,00%	*-17,60*		*-7,59*	11,90%	2,41
	CFFO	EVA	*None Intercept*		99,87%	0,00%		*0,00*	*-4,80*	1,20%	2,22
			Common Intercept		0,27%	0,00%		*-3,08*	*-4,89*	1,82%	2,24
			Fixed Effect		0,00%	0,00%		*-5,39*	*-5,39*	10,00%	2,44

Table 12. German Market: Share Price on Pair Wise Combinations of Performance Measures

Performance Measures			Model	Significance of Coefficients			T-Statistics			R^2	Durbin Watson
EBIT	CFFO	EVA	None Intercept	3,13%	0,32%	0,18%	-2,18	3,00	-3,20	-4,47%	2,08
			Common Intercept	0,00%	94,00%	0,12%	-5,00	-0,71	-3,34	6,31%	2,26
			Fixed Effect	0,00%	19,50%	0,19%	-9,00	1,30	-3,20	-9,00%	2,32
EBIT	CFFO		None Intercept	0,00%	0,00%		-3,99	4,80		-5,47%	2,06
			Common Intercept	0,00%	54,60%		-6,70	0,60		6,40%	2,26
			Fixed Effect	0,00%	11,50%		-2,90	1,59		10,08%	2,31
EBIT		EVA	None Intercept	15,00%		0,00%	-1,45		-5,51	-8,60%	2,05
			Common Intercept	0,00%		0,06%	-12,00		-3,50	6,37%	2,26
			Fixed Effect	0,00%		0,09%	-17,00		-3,40	10,12%	2,32
	CFFO	EVA	None Intercept		1,58%	0,01%		2,45	-4,23	-6,08%	2,09
			Common Intercept		0,00%	0,00%		-7,70	-8,40	2,94%	2,26
			Fixed Effect		0,00%	0,00%		-79,00	-57,00	8,40%	2,04

Table 13. French Market: Share Price on Pair Wise Combinations of Performance Measures

Performance Measures			Model	Significance of Coefficients			T-Statistics			R^2	Durbin Watson
EBIT	CFFO	EVA	None Intercept	45,70%	8,34%	0,00%	- 0,74	1,74		4,08%	2,02
			Common Intercept	86,30%	33,20%	0,00%	- 0,17	0,97		3,74%	2,02
			Fixed Effect	0,00%	0,00%	0,00%	- 20,00	20,00		11,00%	2,08
EBIT	CFFO		None Intercept	0,00%	0,15%		- 3,59	3,27		0,23%	1,96
			Common Intercept	0,50%	7,61%		- 2,87	1,79		0,59%	1,98
			Fixed Effect	0,00%	0,00%		- 37,00	29,00		7,45%	2,04
EBIT		EVA	None Intercept	7,81%		0,00%	1,78		- 5,25	3,80%	2,04
			Common Intercept	29,90%		0,00%	1,04		- 5,00	3,63%	2,03
			Fixed Effect	20,80%		0,00%	1,27		- 6,20	9,20%	2,14
	CFFO	EVA	None Intercept		5,91%	0,00%		1,90	- 5,24	4,02%	2,03
			Common Intercept		22,64%	0,00%		1,22	- 5,19	3,82%	2,03
			Fixed Effect		17,79%	0,00%		1,36	- 6,62	9,34%	2,15

Table 14. Italian Market: Share Price on Pair Wise Combinations of Performance Measures

Performance Measures			Model	Significance of Coefficients			T-Statistics			R^2	Durbin Watson
EBIT	CFFO	EVA	None Intercept	66,75%	69,72%	15,09%	0,43	-0,39	-1,44	-0,02%	2,34
			Common Intercept	71,15%	48,35%	30,32%	0,37	-0,70	-1,03	1,07%	2,36
			Fixed Effect	0,26%	0,07%	18,17%	3,11	-3,52	-1,34	10,25%	2,60
EBIT	CFFO		None Intercept	80,12%	83,45%		0,25	-0,21		-0,65%	2,30
			Common Intercept	77,09%	47,49%		0,29	-0,71		0,64%	2,34
			Fixed Effect	0,37%	0,14%		2,98	-3,31		9,79%	2,58
EBIT		EVA	None Intercept	74,45%		11,02%	0,33		-1,61	-0,33%	2,33
			Common Intercept	48,65%		22,90%	-0,70		-1,21	0,22%	2,35
			Fixed Effect	97,68%		19,02%	0,02		-1,32	7,91%	2,54
	CFFO	EVA	None Intercept		79,93%	12,88%		-0,25	-1,53	-0,25%	2,33
			Common Intercept		14,05%	23,05%		-1,19	-1,21	0,78%	2,36
			Fixed Effect		3,68%	51,69%		-2,12	-0,65	9,39%	2,60

Table 15. United Kingdom: Testing Structural Factors:

Performance Measures	Model	Weight	Significance of Coefficient				T-Statistics				R2	F-Test Probability
EBIT CFFO EVA DUMMY	None Intercept	No Weighting	75,94%	92,66%	0,78%	63,17%	0,30	- 0,09	- 2,67	0,48	-0,26%	
	Common Intercept		59,50%	29,44%	3,36%	58,13%	0,53	- 1,05	- 2,13	0,58	1,43%	22,87%
	None Intercept	Cross Section Weighting	75,68%	98,98%	0,05%	57,68%	0,30	0,01	- 3,52	0,55	-0,53%	
	Common Intercept		35,62%	15,79%	0,67%	28,07%	0,92	- 1,41	- 2,72	- 1,08	2,17%	7,17%
EVA DUMMY	None Intercept	No Weighting			0,55%	45,42%			- 2,79	0,75	-0,28%	
	Common Intercept				1,11%	37,24%			- 2,55	- 0,89	1,09%	11,66%
	None Intercept	Cross Section Weighting			0,02%	-25,78%			- 3,75	1,13	-0,57%	
	Common Intercept				0,04%	8,17%			- 3,54	1,74	1,87%	2,45%

Table 16. Germany Market: Testing Structural Factors

Performance Measures	Model	Weight	Significance of Coefficient				T-Statistics				R2	F-Test Probability
EBIT CFFO EVA DUMMY	None Intercept	No Weighting	96,85%	97,70%	1,23%	0,41%	0,04	-0,03	-2,51	2,86	0,75%	
	Common Intercept		72,81%	38,19%	3,41%	31,19%	0,35	-0,87	-2,13	1,01	1,57%	23,05%
	None Intercept	Cross Section Weighting	93,94%	91,62%	0,09%	0,00%	-0,08	0,11	-3,37	6,45	3,27%	
	Common Intercept		62,97%	39,35%	0,45%	0,08%	0,48	-0,85	-2,85	3,38	3,48%	6,36%
EVA DUMMY	None Intercept	No Weighting			0,84%	38,00%			-2,65	2,91	0,75%	
	Common Intercept				1,19%	18,48%			-2,53	1,33	1,26%	14,09%
	None Intercept	Cross Section Weighting			0,03%	0,00%			-3,61	6,58	3,27%	
	Common Intercept				0,05%	0,01%			-3,52	4,00	3,40%	3,73%

Table 17. France Market: Testing Structural Factors

Performance Measures	Model	Weight	Significance of Coefficient				T-Statistics				R2	F-Test Probability
EBIT CFFO EVA DUMMY	None Intercept	No Weighting	68,51%	84,77%	0,82%	38,40%	0,41	-0,19	-2,66	0,87	-0,14%	
	Common Intercept		62,70%	26,52%	3,50%	66,12%	0,49	-1,12	-2,12	-0,44	1,42%	23,05%
	None Intercept	Cross Section Weighting	70,72%	99,57%	0,04%	31,52%	0,38	0,00	-3,54	1,01	-0,41%	
	Common Intercept		37,52%	10,59%	0,82%	24,29%	0,89	-1,62	-2,66	-1,17	2,25%	6,36%
EVA DUMMY	None Intercept	No Weighting			0,52%	35,69%			-2,81	0,92	-0,17%	
	Common Intercept				1,11%	68,78%			-2,55	-0,40	1,00%	14,09%
	None Intercept	Cross Section Weighting			0,02%	25,10%			-3,83	1,15	-0,50%	
	Common Intercept				0,07%	31,82%			-3,43	-1,00	1,66%	3,73%

Table 18. Italian Market: Testing Structural Factors

Performance Measures	Model	Weight	Significance of Coefficient				T-Statistics				R2	F-Test Probability
EBIT CFFO EVA DUMMY	None Intercept	No Weighting	66,16%	80,38%	1,02%	48,55%	0,44	0,25	-2,58	0,69	0,00%	
	Common Intercept		60,60%	26,93%	3,54%	99,44%	0,52	-1,11	-2,11	0,00	1,38%	24,57%
	None Intercept	Cross Section Weighting	80,85%	82,38%	0,04%	85,22%	0,24	0,22	-3,55	-0,19	-0,54%	
	Common Intercept		41,17%	15,04%	0,64%	25,05%	0,82	-1,44	-2,74	-1,15	2,35%	5,40%
EVA DUMMY	None Intercept	No Weighting			0,59%	45,99%			-2,77	0,74	-0,04%	
	Common Intercept				1,09%	99,65%					0,95%	15,15%
	None Intercept	Cross Section Weighting			0,01%	98,44%			-3,84	-0,02	-6,90%	
	Common Intercept				0,05%	20,68%			-3,49	-1,26	1,87%	2,47%