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**AN EMPIRICAL EVALUATION OF THE RELATIONSHIP OF  
MARKET VALUE ADDED WITH INTERNAL COMPANY  
CHARACTERISTICS**

BY

OKUN OMOKHUDU & FRANCIS K. EMENI  
DEPARTMENT OF ACCOUNTING  
UNIVERSITY OF BENIN, BENIN CITY - NIGERIA

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**ABSTRACT**

*The window dressing of financial statements creates problems for investment decision making. This necessitates the use of other measures that capture the fundamental economic reality of the organization. This paper seeks to examine the relationship between market value added and the internal performance characteristics and how this affects share prices.*

The paper using OLS regression technique shows that Market Value Added is highly correlated with Economic Value Added than other internal company characteristics. The import of this is that, for management to increase market value added it must concentrate on increasing its Economic Value Added.

**L21. Keywords: Market value added.**

**INTRODUCTION**

The primary objective and goal of a firm is to make profit. This singular objective propels the firm to maximize its shareholder equity and adopt policies that will increase its relevance within its industry and the economy at large. Firms can be ranked according to how much value they have added or subtracted from their shareholders investments and so for a firm to sustain its credibility it must continue to add and increase value. This increase in value is seen externally as the worth or market value of the firm.

The increase in value of a firm over time has a strong influence on the share prices of the firm in the stock market. It also serves as a basis for determining the investment decision to make by actual and potential investors. The effectiveness of the management of a firm in employing capital invested by shareholders is one strong factor amongst others that impacts on the value of firm. Thus the ability to create value is the only real control that managers have in attracting investors. Value creation by a firm can be done by establishing differing performance metrics to track value creation for both insiders and outsiders alike.

This study seeks to determine through a cross sectional series spectrum the relationship between market value added and the internal performance characteristics and how this relationship affects the share price (market value) of a firm. In order to achieve this goal, an empirical analysis was conducted. The research methodologies, including the statistical analysis as well as boundaries of sample used were set out.

The significance of this study derives from the fact that financial statement is prone to window dressing in order to portray a more robust performance. Financial statements on which investment decisions are made only reflect 'accounting profit'. This profit is subject to the manipulation of the management of the organization. This require a shift from the use of accounting profit to more realistic economic profit to determine whether the organization has increased in economic value. This increase which is a true picture of the organization will in turn influence the market worth of the organization and lead to a better return on investment.

## **THEORETICAL FRAMEWORK**

### **Market value added and internal performance measures.**

In determining the factors that drives share prices, there are a host of

factors, broadly captured in the forces of demand and supply deriving from the sentiments of market actors. There are two competing answers. Variables used as internal performance measures can be derived from accounting principles or factors relating to fundamental economics of the firm.

Internal performance measures irrespective of the basis of computation must be related to external performance measures. It is contended that the best internal performance measure is the Economic Value Added (EVA), while the best external measure is the Market Value Added (MVA) which is the share's valuation by the market of the value added to shareholders.

#### Internal Performance Characteristics

The metrics for measuring the internal performance of an organization can be broadly classified into:

- Financial Models
- Non-financial models
- Economic models.

#### **Financial Models**

These are performance characteristics based on the accounting model of valuation. The accounting model of valuation relies on two distinct financial statements – the income statement and Balance Sheet. The traditional accounting model of valuation contends that share prices are set when appropriate price/earning ratio (P/E ratio) are capitalized by the stock market.

The financial model of performance measurement have been used for many decades, however they are bedeviled by a number of factors. Ray (2002) highlights some of the deficiencies to include:

they are prepared based on financial statement prepared under the

Generally Accepted Accounting Principles (GAAP). These financial statements are subject to “window dressing” to reflect a

- better picture.

Accounting earnings net of non-cash expenses are not a true

- measure of actual cash earnings generated by the firm.

Accounting changes ignore the returns required by shareholders.

That is it does not recognize the cost of capital committed into the company.

- 

They tend to be single period measure which can always be

- maximized by ignoring long term health of the company.

They are usually influenced by accrual-based accounting conventions.

Verma (2003) adduces the shortcoming of accounting models of

- valuation to the following:

The models are easily influenced by the smart and perhaps

- mischievous management through window dressing.

- They do not incorporate the time value of money or risk.

They do not help investors understand the intricate process of

- value creation.

The models use historical data in most part to measure current performance.

### **Non-Financial Models**

Non-financial models focus on non-financial/ quantitative feature of the firm. One example is the Balance Scorecard which was first introduced by Norton and Kaplan in their book Balance Scorecard. They argue that the financial characteristics must be balanced by non-financial indicators. The thrust of balance scorecard is the behaviour at the





profit of the organization. The key principle of EVA is that value is created when the return on an investment exceeds the total cost of capital that correctly reflects its investment risk.

There are various perspectives as to how EVA should be measured and seen. Some researchers see EVA as a mere theoretical model, thus it apply in a real world setting as the adjustment necessary for EVA may be difficult to get in a real world. Weissenrieder (1997) argues that even if it is possible to make all 164 adjustments it will still not function well in practice. Shimin et al (1997) disagree pointing out that notable companies such as Coca-Cola, AT&T have been implementing EVA as a performance characteristics tool. Russ (2001) state that Coca-Cola's share price increased from \$3 when EVA was first adapted to over \$60.

There is a school of thought who sees EVA as re-packaged NPV at the departmental, divisional and firm-wide levels (Russ 2001). Moreover they argue that both EVA and NPV take cognizance of the cost of capital and value created. EVA is thus given as:  $EVA = NOPAT - WACC \times TA$ .

According to Velez-Pareja (2001) NOPAT is what remains of the return of a firm after subtracting expenses and depreciation. What is left is used to pay the providers of resources (debt and equity). When  $WACC \times$  Total asset is subtracted what is recognized is the cost of money that they firm pays to the creditors and cost of capital it recognizes to the shareholders. This is the equivalent to the discounting processes when NPV is calculated. What remains Goetzman (1999) establishes the difference stating that NPV is multi-period model while EVA is a single period model; moreover NPV is meant for strategic decisions only, while EVA can be helpful for both tactical and strategic decisions. Estin (1999) also argues that EVA provides a consistent measure of value at different levels as well as for different areas of business action programs and strategies. Thus EVA allows for more detailed differentiated calculation of

minimum returns.

EVA is seen by some researchers as a form of or taken as the Residual Income. Proponents believe that there appears to be no difference between the measurement paradigm of Residual income which has existed for decades and the present day EVA (Shimin et al 1997). Gray et al (1999) argue that Residual income was modified by Stern Stewart to obtain EVA metric. Shimin et al (1997) conclude that Eva may seem similar to Residual income, adjusting the equity reserves to both capital and operating profit may differentiate EVA from the Residual income. Furthermore EVA purportedly measures what investors truly care about and that's "the net cash return" from operation. When comparing EVA and residual income, various accounting rules may distort Residual income. Despite these differences, EVA and Residual income are related as EVA is merely adjustment made to Residual income.

Although EVA has been adjudged a better internal performance measure when compared to financial/accounting models, critics are of the view that EVA assumed advantage is misplaced. Weissenrider (1997) argue that EVA adjustment cannot be possible in the real world of business. He advocates a different model called Cash Value Added (CVA). Goetzmann (1999) is of the view that EVA does not address the inter-temporal nature of the valuation problem. Estin (1999) contends that EVA suffers from the same shortcomings as all the performance characteristics and ratios based solely on current data. Velez-Pareja (2001) submits that EVA does not measure value and increase in EVA does not mean value creation. Russ (2001) states "On the surface EVA is seemingly a powerful financial management tool which is being used successfully and increasingly by some of our corporations. However, when the empirical surface is scratched, EVA does not seem to be quite the elixir purported by its proponents. Indeed EVA may be nothing more than a clever repackaging of some very old business principles". Brewer et al (1999) argue that

some limitations of EVA to include;

inability to control for size differences across plant or divisions like financial models. Large plant or divisions tend to have higher EVA relative to small counterpart.

EVA is a computed number that relies on financial accounting method of revenue realization and expense recognition. Managers can manipulate these numbers by altering their decisions making process. Discretionary expenditure can be terminated to boost EVA.

EVA overemphasizes the need to generate immediate results; therefore it creates a disincentive for managers to invest in innovative product or process technologies.

In spite of the criticisms against EVA it is still regarded as a better internal performance metric because it takes into cognizance the cost of generating returns. Moreover EVA is comprehensive and provides a consistent measure; of value at different levels (Estin 1999). It provides a link of overall strategy to individual investment and minor programs since creation of value at any point in the business chain promises benefits for the company or group as a whole. Other perceived advantage of EVA over accounting models includes:

It avoids the problems associated with approaches that focus on percentage spread between Return on Equity and cost of equity. This approach may lead firms to turn away good projects to avoid lowering percentage spread.

It makes top Managers responsible for a measure that they have more control over (the return on capital and the cost of capital are affected by their decisions) rather than one that they feel they cannot control as well (the market price per share).

EVA is influenced by all of the decisions that managers have to make within a firm. The investment decisions and dividend decisions affect the return on capital and the financing decision affects the cost of capital.

### **The Relationship between Market Value Added and Economic Value Added.**

Market value added is the difference between a company fair market value, as reflected primarily in its share prices and the economic book value of capital employed. The economic value added is considerably larger than accounting book value shown in the financial statement. Equity values in the books is made up of share capital, share premium, retained earnings and reserves, but also includes equity equivalent reserves as bad reserves, capitalization of R & D in order to show accurately the shareholders total cash investment in the company (Stewart 1990 : 180). Market value is the share market's assessment, at any given time of how successfully the company has invested its capital in the past and how successfully investors expect the capital to be invested in the future. The ultimate goal of the firm which is wealth accretion is attained when market value added is maximized. Changes in MVA provide more useful information than total MVA. An increase in MVA indicates that the firm is generating returns in excess of the cost of capital.

EVA can be viewed as an internal measure of performance which reflects the ability of the firm in adding value to shareholders. Thus it is related to the quantum of MVA and changes in MVA. EVA can also be seen as the economic earnings that are capitalized by the market in arriving at the firm's MVA. Thus we can conceive MVA as an external measure of the

company's efforts at generating value. The link between MVA and EVA can be mathematically expressed showing MVA at any point in time to be equal to the discounted present value of all the EVA the company expects to generate in future. Where a company returns is exactly equal to the cost of capital, EVA is zero naira, and it will at a market value equal to capital and hence MVA would be equal to zero. Stewart (1990: 153) argues that EVA of a firm is like fuel that fires its MVA. EVA is the internal measure which logically results in building a premium or discount into the market value of a company.

### **Methodology**

For the purpose of this study, we selected a sample of twenty-five firms across different sectors of the economy, listed in the Nigerian Stock Exchange in Lagos during the 2002 financial year. The information was obtained from records of the Nigerian Stock exchange data base and from financial statement of sample firms. All companies for which net earnings, book values of shareholders equity and prices at year end were available in the year under review were included in the sample. Firms in the sample were healthy firms non with a case of financial distress. All variables except market value are at fiscal year end. Stock prices will be the month-end average over twelve month period for 2002 financial year.

With the sample of companies selected, it will be necessary to calculate relevant variables that can be used as internal performance characteristics of a company. A correlation between these variables as and Market Value Added (MVA) is calculated. These variables are organized as follows:

Dependent Variable : Market Value Added (MVA)  
Independent Variables: Economic Value Added (EVA)



Return on Asset (ROA)  
Return on Capital Employed (ROCE)  
Current Ratio (CR)  
Earnings Per Share (EPS).  
Net Operating Profit After Tax/Sales  
(NPM)  
Sales to Capital Employed (SCE)  
Total Asset Turnover (TOA)  
Shareholder Fund/ Capital Employed  
(SHF)

### **Data and Empirical Results**

Analyzing the above equation using an ordinary least square estimation; we have a result that shows that the Market Value Added (MVA) is positively related to EVA, Current Ratio (CR), Total Asset Turnover (TOA) and Shareholders fund/Capital Employed (SHF), but negatively correlated to Return on Capital Employed (ROCE), Return on Asset (ROA), Earnings Per Share (EPS) and Sales/Capital Employed (SCE). We find that EVA is statistically significant, while current ratio is slightly insignificant. All other variables are statistically insignificant.

From the R-squared of 0.96603, the regression of multiple determination is 0.93322, indicating that 93.3% of the changes in MVA is explained by the changes in the independent variables. The F-value of 56.879 shows that joint significance of the parameter estimates cannot be dismissed at 5% as the observed value is greater than F-table value of 2.59 and also acceptable at a more stringent 1%.

### Conclusion

Literature suggests that there should be a high relationship between MVA and EVA. This study provides evidence in line with literature. The correlation between MVA and EVA was positive and highest of all internal performance characteristics. We conclude that EVA is a better performance characteristic, thus is it imperative for management to concentrate on increasing its EVA if it is to increase MVA for shareholders.

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APPENDIX

Table 1 MONTH-END SHARE PRICES FOR 2002

FIRM (Number)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVE
1	33.00	32.70	42.15	49.66	35.33	29.60	30.60	30.86	30.20	30.00	29.75	31.00	33.74
2	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.50	0.50	0.50	0.50	0.50	0.27
3	9.95	9.05	9.81	10.34	9.97	9.40	13.00	12.50	10.81	7.00	6.70	7.85	9.70
4	1.92	2.10	0.74	0.67	0.66	0.60	0.59	0.57	0.56	0.56	0.54	0.54	0.65
5	0.92	0.84	0.74	0.67	0.66	0.60	0.59	0.57	0.56	0.56	0.54	0.54	0.65
6	6.38	6.30	6.87	6.70	6.12	6.34	6.60	5.52	5.35	5.50	4.96	5.00	5.97
7	2.18	2.18	2.18	2.18	1.80	1.35	1.15	1.32	1.25	1.30	1.43	1.29	1.63
8	1.18	1.07	1.47	1.42	1.05	1.03	1.00	1.25	1.30	1.30	1.14	1.39	1.24
9	3.72	3.89	3.65	3.40	3.13	3.62	3.62	3.42	3.42	3.42	3.42	3.42	3.51
10	0.56	0.60	0.60	0.61	0.61	0.61	0.61	0.61	0.61	0.64	0.64	0.64	0.61
11	10.55	10.28	10.08	9.60	10.05	10.00	7.61	6.99	5.92	5.90	5.80	5.71	8.21
12	2.07	1.67	1.70	2.25	1.59	1.70	1.97	2.33	2.63	2.93	3.40	3.19	2.29
13	1.36	1.30	1.32	1.27	0.93	0.85	0.85	0.89	0.83	1.15	1.56	1.56	1.16
14	3.35	3.10	2.82	2.60	2.15	2.12	2.40	2.85	2.60	2.35	3.00	2.70	2.67
15	50.50	47.20	43.99	51.22	55.81	50.00	49.00	51.25	46.00	52.00	5.00	52.00	50.08
16	4.30	4.32	55.2	6.08	3.86	3.21	3.37	3.42	3.00	3.25	3.25	3.05	3.86
17	4.00	4.00	4.00	4.00	2.40	2.51	2.80	3.05	2.70	3.01	2.93	3.11	3.19
18	1.79	1.50	1.30	0.83	0.82	0.78	0.85	0.58	0.82	0.57	0.53	0.57	0.91
19	1.63	1.23	1.24	1.80	1.55	1.51	1.51	1.10	1.14	1.12	0.90	0.90	1.30
20	2.25	2.31	2.50	2.40	1.83	2.42	2.45	2.72	2.55	2.43	2.31	2.83	2.42
21	2.10	1.95	2.00	1.98	2.00	1.99	1.97	1.80	1.79	1.79	1.75	1.60	1.89
22	27.05	25.32	34.30	38.80	20.10	19.00	20.65	19.00	17.25	14.44	13.50	15.40	22.07
23	26.39	22.50	29.30	29.45	28.34	27.00	27.65	29.65	31.00	28.20	29.97	31.50	28.41
24	3.40	3.13	3.40	3.50	3.64	3.38	3.65	4.29	4.10	4.11	4.71	4.12	3.79
25	1.29	1.29	1.29	0.70	0.65	0.82	0.82	1.09	1.19	1.49	1.26	1.52	1.12

Table II VARIABLES

FIRM (Number)	MVA N000 000	EVA N000 000	ROA	ROCE	CR	NET PROFIT MARGIN (NPM)	EPS	SALES/CAPITAL EMPLOYED (SCE)	TOTAL ASSET TURN OVER (TOV)	SHARE HOLDERS FUND/CAPITAL EMPLOYED (SH F)
1	125687	7204	0.203	0.469	0.827	0.233	2.438	1.307	0.584	0.876
2	-9		0.158	0.269	1.033	0.082	1.163	1.256	1.164	0.991
3	13357	657	0.121	0.159	2.774	0.082	1.163	1.256	0.952	0.874
4	53	39	0.102	0.313	1.119	0.039	0.295	2.729	0.889	0.395
5	38		0.008	0.012	0.854	0.009	0.30	0.831	0.544	0.744
6	10690	2012	0.102	0.649	1.110	0.359	2.955	0.806	0.126	0.785
7	2260	277	0.132	0.407	1.407	0.128	0.424	0.704	0.228	0.474
8	1480	284	0.161	0.09	1.141	0.109	0.148	2.034	0.299	1.00
9	1543	95	0.079	1.141	1.842	0.192	0.194	0.808	0.341	0.718
10	10	-4	0.006	0.008	2.069	0.035	0.021	0.209	0.154	1.00
11	13107	1122	0.038	0.685	1.027	0.105	0.921	1.362	0.075	0.967
12	1427	271	0.146	0.369	1.374	0.121	0.623	1.912	0.756	0.651
13	79	35	0.123	0.14	0.966	0.083	0.827	1.100	0.738	0.953
14	1313	298	0.097	0.185	1.145	0.015	0.113	2.229	1.165	0.533
15	14702	1167	0.079	0.189	0.589	0.038	0.202	3.314	1.380	0.467
16	499	28	0.111	0.328	1.181	0.067	0.310	2.581	0.875	0.889
17	2269	-15	0.102	0.161	1.760	0.490	1.280	1.716	1.086	0.781
18	326	102	0.079	0.233	0.958	0.181	0.135	0.822	0.279	0.972
19	168	40	0.776	0.091	2.906	0.972	0.352	0.084	0.072	0.486
20	4212	51	0.149	0.209	2.899	0.334	0.371	0.404	0.289	0.633
21	278	35	0.107	0.176	1.583	0.216	0.340	0.689	0.417	8.812
22	52228	1402	0.191	0.831	0.167	0.083	0.519	3.525	1.769	0.773
23	26.39	22.50	29.30	29.45	28.34	27.00	27.65	29.65	31.00	0.764
24	27198	3086	0.185	0.289	1.222	0.101	4.273	2.108	1.353	0.764
25	2990	259	0.089	0.184	0.852	0.077	1.283	1.965	0.949	0.721