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Investigating Relationship between EVA and MVA of Selected Construction Companies in Malaysia

Shrikant Panigrahi
Faculty of Industrial Management, University Malaysia Pahang, Kuantan, Malaysia
Yuserrie Bin Zainuddin
Faculty of Industrial Management, University Malaysia Pahang, Kuantan, Malaysia
Noor Azlinna Binti Azizan
Faculty of Industrial Management, University Malaysia Pahang, Kuantan, Malaysia

Abstract:
There has always been high pressure on the companies to provide good performance in relation to increase wealth for shareholders. Shareholders in order to know the company's performance rely on economic measures like Market value added (MVA). According to Stewert (1991) MVA is proxied by EVA and many of the studies found it evident similar to Stewert. Thus this paper examines the relationship between Economic Value Added (EVA) and Market Value Added (MVA) for the selected construction companies listed in Bursa Malaysia. Very few studies in Malaysia attempted to focus on the importance of economic measurement tools like EVA and MVA and their relationship. EVA measures the profitability of the companies considering cost of capital in the calculation.Thus the performance of the selected construction companies is identified based on the mean value of EVA and MVA for the periof of 11 years from 2002-2003 to 2012-2013). Thus this study makes an endeavor to fill this gap.The final result found that there is negative relationship between EVA and MVA. The negative relationship between EVA and MVA evidenced that the ability of using the capital by managers are adverse.

Keywords: Economic Value Added, Market Value Added, Performance measurement

1. Introduction
EVA is a economic measurement tool that calculates operating performance of the company. EVA is defined as the changes in residual income along with the adjustments to the calculations in earnings and capital. EVA is a concept used to avoid problems caused by trade marking. According to Stewart (1991) EVA is a performance measurement tool reflecting the absolute amount of shareholder's value creation through an effective investment decision.

EVA is considered as superior performance measure as compared to operating profit, profit after finance items, EPS, ROI, and ROE. EVA is very simple and operatively practical. It improves profitability normally first through improved capital turnover. EVA is very suitable for bonus system. One of the major goals of EVA is to improve efficiency of managers towards their firms through an effective cost decision making. Due to EVA, managers are obliged to generate value for their shareholders or investors. Mäkeläinen and Roztocki (1998) mentioned that EVA shows the value for the capital used or utilized and judges the efficiency. EVA as a performance measurement tool helps managers and employees to know the true cost of capital (Kramer & Pushner, 1997). The calculation of EVA is based on accounting information on interest bearing debt, equity capital and net operating profit. According to (Makelainen, 1998) "EVA compensates the risk taken by the shareholders for investments. Thus positive EVA indicates profit achieved by the shareholder, whereas negative EVA shows that no real profit is made and company is operating in a loss".

2. Research Objectives
The main objective of the study is to investigate the relationship between EVA and MVA and to rank the companies based on these measures.

3. Review of Literature
Due to the economic profit evolution, EVA with its historical roots have been considered as a classical notion called residual income (Grant, 2003). Many corporate have shown great interest in the usage of EVA as a performance measurement tool in recent years. According to Lehn & Makhija (1997), EVA is known for its most appropriate and reliable year to year indicator of market based performance like MVA. Economic Value Added was relaunched by Stern Stewart Company in 1980's after being introduced first by General Motors in 1920 and then forgotten. EVA is a measurement tool used to replace the traditional value measures. The primary aim of EVA and MVA is to measure value of shareholders.

3.1. EVA and its importance

EVA works as per the requirement of the shareholders. This is the main reason of emphasizing heavily on EVA. EVA takes away the confusion of multiple goals that vary in standards and terms influencing planning, strategic and decision making. EVA removes such confusions by considering ultimate goal of organization to improve EVA as a common focus. This attempt to monitor, compensate and communicate effectively and improves all management decision along with creating value of shareholder's investment.

3.2. Previous researches on EVA and MVA

Rajesh, Raman, and Narayan (2012) Investigated a comparative study between EVA and MVA for the selected cement companies in India and found that EVA and MVA play an important role in order to assess the financial performance of the companies. The findings also proved the two measures (EVA and MVA) provide consistent shareholder's value creation activities.

Sharma & Kumar (2010) presented a narrative literature review of published papers on EVA from 1994 to 2008. They found that studies that have been conducted in advanced economy have largely found to be supporting EVA as compared to less developing economies.

Aminimehr and Iqbal (2008) Through the trend analysis and pearson correlation analysis investigated the relationship between EVA and MVA. The study found that there is significant negative relationship between them.

De Wet (2005) Investigated the correlation between EVA and accounting measures like EPS, DPS, ROA, and ROE and found that there is little correlation between them.

O'Byrne (1996), linked EVA with MVA and investor's expectation using nine year data for the period from 1985 to 1993 for companies in the 1993. Initial finding shows that Free cash flow (FCF) was able to explain 0% of the change in the market value divided by the capital ratio, whereas the R square for NOPAT was 33% and for EVA was 31%. There was some adjustment made to the original model. EVA multiplies were bigger for companies with a positive EVA compared to companies with a negative EVA. Then a bigger multiple was used for companies with more invested capital. This adjustment showed that EVA explained 31% of the variance in the market values whereas NOPAT showed 17%.

Uyemura, Kantor, and Pettit (1996), used a sample of 100 largest banks of United States for the period of ten years from 1986 to 1995 to calculate the correlationship between MVA and EVA including with four accounting measures like net income, EPS, ROE and ROA. The regression analysis measured with the variables as performance measures identified EVA as the most powerful performance measures as compared to other accounting measures to explain MVA and shareholder's wealth.

Thus from the above mentioned previous researches it is evident that both the measures play a crucial role for shareholder's wealth creation. Thus it is obvious to investigate the relationship between EVA and MVA.

4. Research Methodology

Construction companies listed in Bursa Malaysia were considered as a sample for the study. Initially total of 43 construction companies were selected as a population for the study. But after the extraction of companies due to lack of historical financial data availability in total 28 companies were identified that suites the theme of the study. The companies were selected based on the availability of 11 year historical financial data (2002-2003 to 2012-2013).

The following are the selected construction companies considered as a sample for the study.

1	Muhibbah Engineering	15	Hock Seng
2	Binapuri Holdings	16	PLB Engineering
3	Ho Hup Construction	17	Ekovest
4	Kumpulan Jetson	18	Bina Goodyear
5	Ahmad Zaki	19	Gamuda Berhad
6	TRC Synergy	20	Gadang Berhad
7	Protasco	21	Fajarbaru
8	TSR Capital	22	Pintaras
9	Crest Builder	23	MTD ACPI
10	MRCB	24	Brem Holding
11	Mitrajaya	25	Ireka Corporation
12	Principtek	26	Zelan Berhad
13	DKLS Industries	27	IJM corporation
14	Bina Darulaman	28	Merge Energy

Table 1: List of Selected construction companies in Malaysian Capital Market
Source: Bursa Malaysia Website

4.1. Analysis tools

EVA is calculated as:

EVA = NOPAT – Capital Employed * WACC ……………………………………………………….. (1)

Where,

Capital employed = Average of Debt+Average of Equity ……………………………………………... (2)

WACC = (Average of Debt * Rate of Interest Post Tax) + Average of Equity Capital * Rate of Cost of Equity) / Average capital Employed …………………………………………………………………… (3)

MVA = Equity Market Value – Book value of Equity ………………………………………………….. (4)

Where,

Equity Market Value = Number of shares issued * Share price ………………………………………..(5)

4.2. Calculation of Economic Value Added

Below is the data for the EVA after the calculation based on the formula provided in equation 1. Table.2. provides the data of Economic Value Added (EVA) of the selected construction companies from the year 2002-2003 to 2012-2013.

Companies	EVA for the selected construction companies										
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Mean
Muhibbah	-2032	-8033	-1429	-1417	894	-19310	-126821	-36194	-23601	-60553	-27850
Binapuri	46	-98	-787	-627	-3134	-2116	62680	-9114	-8032	-3971	3485
Ho Hup	372	7052	41	-1696	2583	14156	-5834	1542	-539	725	1840
Kumpulan Jetson	-7105	147	-2319	-5680	-3645	-1110	-7527	-1525	-4756	-4107	-3763
Ahmad Zaki	956	-5950	-651	-1802	515	-345	-13001	-11486	-3788	-3287	-3884
TRC Synergy	-127	-1018	-473	-419	803	2080	-8357	-1474	-2904	-3119	-1501
Protasco	745	1075	569	371	210	285	382	1878	1832	525	787
TSR Capital	-89	2	-3	89	69	-312	6	-28	-700	-5	-97
Crest Builder	422	326	112	498	1548	229	-1579	-1329	-111	718	83
MRCB	-2298	-9340	-12142	-12196	-22450	-9868	-35400	-26917	-22162	-48272	-20105
Mitrajaya	-2479	-3050	-3421	-6181	-2524	-2954	-22503	-1375	-9701	-17872	-7206
Principtek	-510	-4946	835	968	953	74	-3120	-454	-564	-760	-752
DKLS Industries	-541	-901	-27	-132	22	642	81	-7	277	-40	-63
Bina Darulaman	422	353	-132	-346	115	233	-1680	-231	48	74	-114
Hock Seng	1980	3382	326	488	1649	573	-18338	1384	-801	-3447	-1280
PLB Engineering	-21	-56	-105	6	-8	-19	65	-24	-41	-45	-25
Ekovest	-181	-63	-493	-307	-1232	-2534	-3357	-1576	-663	3394	-701
Bina Goodyear	-1442	-567	145	-2405	-2256	-2877	-7874	-2200	-3316	-8211	-3100
Gamuda Berhad	5564	9570	-14555	-2045	2727	-24737	-279825	-50077	-86512	-84985	-52488
Gadang Berhad	1580	-490	-47	-1721	387	94	-3401	-725	-2589	-1940	-885
Fajarbaru	-6022	-204	-307	1090	-313	165	-6787	-18	-3309	-14089	-2979
Pintaras	-1888	109	199	132	289	565	91	505	989	1241	223
MTD ACPI	-5495	-11929	-15931	-17960	-6723	-6404	-33407	-8603	-7309	-8126	-12189
Brem Holding	3	-71	315	283	-557	899	-5720	-326	1116	211	-385
Ireka Corporation	613	2167	-4185	-2193	-1858	6261	-8607	-1980	-2803	-930	-1352
Zelan Berhad	-4470	-22624	-13471	-6356	-1433	-8015	-213402	-124120	55371	-22491	-36101
IJM corporation	-596	-1721	5544	-5088	-40479	-172011	-135762	-23529	-48681	-63078	-48540
Merge Energy	3186	-1373	272	-254	2234	648	-2072	1161	-850	-642	231

Table 2: EVA for the construction companies

The data provided in the above table showed that from the 28 companies the average EVA of 25% of the construction companies are positive.

4.3. Calculation of MVA

EVA is known as the best value measurement tool for the shareholders as it has strong relation with MVA. MVA shows the additional value added to the book value of the invested capital. For the calculation of MVA there was a need of data of number of ordinary shares issued, total shareholder's equity or book value of equity and market price of shares. Book value of equity and number of issued shares were obtained from annual reports of the selected construction companies whereas, share price of the selected construction companies were obtained from the historical share prices section in Bursa Malaysia website. From the product of number of shares issued and share price, equity market value is achieved which is substracted with shareholder's equity to obtain MVA. Below table.3 provides the MVA value for the selected construction companies from the year 2002-2003 to 2012-2013.

Companies	MVA for the selected construction companies										
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	MEAN
Muhibbah	-198370	-194946	-239532	-207900	356560	566187	-239178	-158491	20066	590858	29525
Binapuri	-12824	54475	15157	-18763	-23952	-29145	-41885	38	1890	-37777	-9279
Ho Hup	-84707	56056	-81161	-54282	-4909	12601	46109	113638	84897	100797	18904
Kumpulan Jetson	-41764	-33176	-38986	-34523	-39263	-45525	-74917	23523	-20338	-23817	-32879
Ahmad Zaki	-84284	-52281	-101670	-105025	8294	91258	-110104	62405	61498	18146	-21176
TRC Synergy	-21814	-14130	-17208	-43075	230	-4973	-92957	-80018	-1947	-177390	-45328
Protasco	135290	402775	-1259	-91626	-65277	-116675	-219680	-83080	-65243	-124618	-22939
TSR Capital	-130364	59107	-18019	-12649	33632	7268	7141	-41225	-1441	-28590	-12514
Crest Builder	-32571	30932	18431	-60514	-90064	-94749	-169977	-148353	-177800	-212232	-93690
MRCB	350696	192760	-634	-59103	1004359	487485	22120	817162	1632616	1147433	559489
Mitrajaya	-145128	-83649	-159049	-171934	-153245	-154180	-232689	-189288	524378	-115338	-88012
Principtek	-88227	48326	11897	-31039	-16797	-30561	-58749	-78175	-89248	-94319	-42689
DKLS Industries	-45133	-68546	-112090	-121457	-133427	-146491	-165349	-152794	-176006	-191988	-131328
Bina Darulaman	-74093	-73542	-86775	-119564	-114852	-141652	-166472	-158138	-157506	-169148	-126174
Hock Seng	-44088	-48396	-109660	-122438	144274	190642	-31447	464173	567600	389715	140038
PLB Engineering	8233	61380	-26723	-37913	-37411	6852	-11936	-29025	-28915	-41237	-13670
Ekovest	-61506	-44809	-83018	-132246	68432	-86322	-157048	-108820	292876	54150	-25831
Bina Goodyear	-12698	-2650	-32608	-61379	-59297	-70400	-59057	-53866	-35150	1382	-38572
Gamuda Berhad	458042	566828	-467715	-827419	3836889	3495670	765409	2543764	4030409	3272135	1767401
Gadang Berhad	-23086	-3028	-5948	-43603	-61122	-88547	-118176	-88315	-94364	-137471	-66366
Fajarbaru	-8661	-8213	-12393	-25422	-23296	-28136	-15574	8341	45671	29044	-3864
Pintaras	-37971	-25937	-48877	-64119	-44448	-63147	-87427	-62128	-54103	-30881	-51904
MTD ACPI	-25879	-6280	-194451	-92477	51068	-38061	-146469	-91160	-69997	-66509	-68022
Brem Holding	-186383	-153363	-197942	-159729	-201042	-235127	-295868	-334694	-296596	-391028	-245177
Ireka Corporation	-76902	-16850	-62880	-76641	30574	-111220	-167930	-148286	-130782	-147952	-90887
Zelan Berhad	-204386	-329257	-210044	-127017	1799819	588601	-194615	-148507	14611	16066	120527
IJM corporation	285662	352361	-362138	-348534	-5710	-1858456	-1921815	-18589	2156953	760435	-95983
Merge Energy	23222	43500	21759	8572	9166	-26911	-40143	-25027	-24727	-29345	-3993

Table 3: MVA for the construction companies

The data for the number of shares issued were extracted from the annual reports of the selected construction companies whereas, the share price of the companies for the specific year were extracted from the bursa Malaysia website.

5. Data analysis

In order to confirm EVA to be the best performance measurement tool for the shareholders the relationships between MVA and EVA have been considered.

5.1. Trend analysis of EVA and MVA

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
MVA in MYR	-13561	25337	-92983	-115779	223899	74153	-142096	65538	286047	155733
EVA in MYR	-693.11	-1723.25	-2218.6	-2317.86	-2557.6	-8061	-31466.8	-10601.5	-6217.8	-12252.9

Table 4: Trend of EVA and MVA in Construction companies
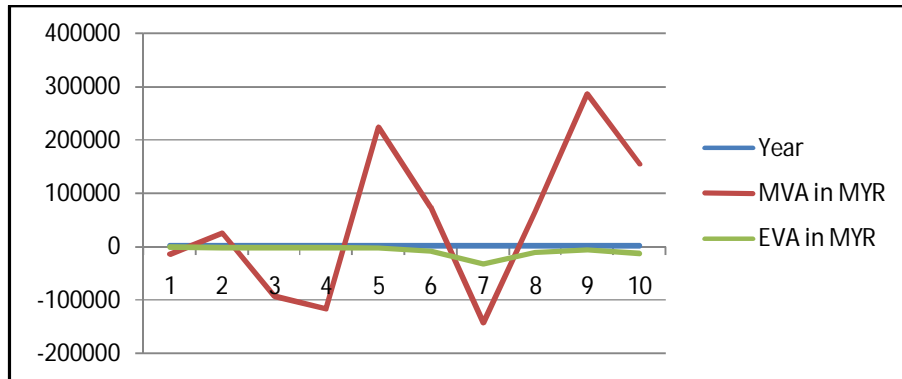

Figure 1: Trend of MVA and EVA

As shown in the trend analysis table.4, EVA and MVA were having ascending trend. The amount of MVA in 2003 was -13561 thousand MYR and it has reached to 155733 thousands MYR in 2012. Similarly, the amount of EVA in 2003 was -693 thousand MYR and has reached -12252 thousands MYR in 2012. Also it was noticed that all over the years construction companies were having negative EVA. Thus the figure emphasize of negative relationship between EVA and MVA.

5.2. Pearson Correlation Analysis

Pearson correlation analysis was performed between EVA and MVA in order to confirm the relationship between them.

Correlations			MVA	EVA
MVA		Pearson Correlation	1	-.624[**]
		Sig. (2-tailed)		.000
		N	28	28
EVA		Pearson Correlation	-.624[**]	1
		Sig. (2-tailed)	.000	
		N	28	28
**. Correlation is significant at the 0.01 level (2-tailed).				

Table.5: Correlation between EVA and MVA in 2003 to 2012

The p value for the pearson correlation analysis between EVA and MVA was smaller than .01 and there was negative correlation between them. The study finding reveals that there is low level of correlation for the companies with negative EVA as compared to high level of correlation for the companies having positive EVA.

6. Conclusion

Thus in conclusion, EVA and MVA has been proved to be excellent performance measurement tool for motivating managers to increase their performance. Study based on the listed construction companies of Malaysia revealed that on an year to year basis negative MVA leads to negative EVA. Thus there was a strong correlation of 62.4% between EVA and MVA.

The finding suggests that when there is negative EVA so the stocks will sell at negative MVA. The negative EVA and MVA is due to high fixed assets which makes the market value of the stocks to be reflected and in turn leads to negative rate of return. Such shares will be sold below the book value. The final result found that there is negative relationship between EVA and MVA. The negative relationship between EVA and MVA evidenced that the ability of using the capital by managers are adverse.

7. References

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