

Separating Business Performance of Listed Companies using Financial ratio scoring: Evidence of Stock Exchange of Thailand

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ABSTRACT

In general, the fundamental analysis of securities using the financial ratios for performance evaluation and classifying firms with good performance in order to make a useful investment decisions. This paper uses the performance score which is derived from the financial ratios of the business as research from Mohanram, Partha S., (2004). In this paper, the analyses were based on the financial ratios of 1,416 listed companies on the Stock Exchange of Thailand (SET) from the year 2012 to 2016. This paper aims to analyze the relationship between firm performance of the listed companies with market value. Results show that the performance scores can classified the company's market value. The higher the market value, the higher the performance scores. In addition, there is a statistically significant in average score for each group. After ranking the listed companies by the market value, the group that has higher ranking will also have a higher average score. Thus, the scoring system of this paper can classify the firms' performance as well as it reveals strong relationship between that score and firm's performance.

Keywords: Capital Market, Financial Statement Analysis, Score, Firm Value

การจำแนกผลการดำเนินงานของธุรกิจจดทะเบียน ด้วยการให้คะแนนอัตราส่วนทางการเงิน: หลักฐานจากตลาดหลักทรัพย์แห่งประเทศไทย

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บทคัดย่อ

การวิเคราะห์ปัจจัยพื้นฐานของหลักทรัพย์โดยทั่วไปจะใช้วิธีวิเคราะห์อัตราส่วนทางการเงินในการประเมินผลการดำเนินงานและจำแนกบริษัทที่มีผลการดำเนินงานโดยรวมดีกว่าเพื่อการตัดสินใจลงทุน แต่ในงานวิจัยฉบับนี้ได้ใช้ดัชนี คะแนนผลการดำเนินงาน ซึ่งพัฒนาขึ้นจากวิธีการให้คะแนนแก่อัตราส่วนทางการเงินของกิจการตามข้อเสนอของ Mohanram, Partha S., (2004) ในการวิเคราะห์ปัจจัยพื้นฐานโดยใช้ข้อมูลอัตราส่วนทางการเงินของบริษัทจดทะเบียนในตลาดหลักทรัพย์แห่งประเทศไทย จำนวน 1,416 บริษัทตั้งแต่ปี พ.ศ. 2555-2559 รวม 5 ปี และทดสอบความแตกต่างของดัชนีคะแนนผลการดำเนินงานระหว่างกลุ่มบริษัทจดทะเบียนที่มีมูลค่าตลาดของกิจการและคะแนนรวมแตกต่างกัน ผลการทดสอบแสดงให้เห็นว่าดัชนีคะแนนผลการดำเนินงานที่จำแนกตามกลุ่มบริษัทจดทะเบียนที่มีมูลค่าตลาดของกิจการนั้น แตกต่างกัน โดยกลุ่มที่มีมูลค่าตลาดของกิจการสูงกว่าจะมีดัชนีคะแนนผลการดำเนินงานสูงกว่า นอกจากนี้ ค่าเฉลี่ยของคะแนนที่ได้จะมีความแตกต่างกันในแต่ละกลุ่มที่มีดัชนีคะแนนผลการดำเนินงานแตกต่างกันอย่างมีนัยสำคัญโดยกลุ่มที่มีดัชนีคะแนนผลการดำเนินงานสูงกว่าจะมีค่าเฉลี่ยคะแนนสูงกว่าเช่นกัน ดังนั้นจึงกล่าวได้ว่าดัชนีคะแนนผลการดำเนินงานสามารถจำแนกบริษัทที่มีผลการดำเนินงานที่แตกต่างกันได้

คำสำคัญ: ตลาดทุน การวิเคราะห์งบการเงิน คะแนน มูลค่าตลาด

1. Introduction

This paper aims to examine whether applying financial ratios can support the investors by earning excess returns on a broad sample of growth, or good performance firms in the Thailand Stock Exchange. However, there are many ratios that can be use. Since the studied of Financial Statement Analysis and the Prediction of Stock (Ou and Penman, 1989) and after that there are many researches in this area which aim to find the methodology to predict firm future performance and stock return. Therefore, this paper is focus searching the firms with good performance in order to achieve such objectives. In this paper, is using the financial ratio to formulate the score and traces that score back to firms' performance. The result of this paper found that scoring system of this paper can classify the firms' performance. This result also supports the prior study from Mohanram, Partha S., (2004) and also found high correlation between score and market value. Then, this research has provided the guide to the financial users about factors of good performance firms.

The rest of this paper is organized as below. Section 2 literature review Section 3 Research design and prior research to develop fundamental score Section 4 Finding and Section 5 result and recommendation

2. Literature review

In general, financial ratios have been used as keys to forecast a number of business related situations such as financial distress, credit ratings, risk, future cash flows, among others (Beaver, 1966; Call, 2008). A famous research area has been investigating the statistical relationship between financial ratios and stock returns since ratios are perceived as useful in forecasting future rates of returns (Barnes, 1987). The literature of this area mostly aim for using the financial statement analysis in predicting the future performance in term of earning and return such as the studied from Ou and Penman (1989) has demonstrated that certain financial ratios can be useful in predicting future changes in earnings. Then the next famous research from Lev and Thiagarajan (1993). In their research, they had analysed 12 financial signals which used for financial analysts, and demonstration that these signals are directly correlated to contemporaneous returns. Also the research that conducted by Abarbanell and Bushee (1997) showed that developing an investment strategy based on these signals earns significant abnormal returns. After that there has also been a set of research focusing on abnormal returns that can be earned on the basis of particular financial signals. For example, Bernard and Thomas (1989) highlight the post earnings announcement drift, and Sloan (1996) demonstrations that firms with a higher proportion of accruals in their earnings underperform in the future.

As mention the literature on stock predictability has evolved over the past few decades. Initial evidence that market returns are predictable was questioned by later studies that found such predictions did not hold in subsamples. Nonetheless, once methodological corrections have been made, some financial ratios, particularly dividend yield, earnings per share, and book to market value of equity have been found to consistently forecast market returns for long periods (Lewellen, 2004). Then the methodology has been improved, the researchers apply many technics such as divided the sample into high and low book to market value which's conducted by Piotroski (2000), who applied the tools of financial statement analysis to develop an investment strategy for high book to market firms. He argues that high book to market or value firms are ideal candidates for the application of financial statement analysis, as financial analysts generally neglect such firms. He also proved that within the high book to market sample firms with the strongest fundamentals earn excess returns that are over 20% greater than those with the weakest fundamentals. The other efficient technics also have conducted by Beneish et al. (2001), who used a two-stage approach towards financial statement analysis. First, they use market based signals to categorise probable severe performers; then they used fundamental signals to differentiate between good performance out from the other firms. Their results indicated the importance of carrying out fundamental analysis contextually. In a similar

to Soliman (2004) revealed that, there are high possibility to develop the performance of the traditional Dupont analysis for ROA decomposition by industry-adjusting both profit margin and asset turnover.

Then the research in this area has moved to the other region or industry in order prove such result still valid or not. In the year later there are researches from Wang and Lee (2010), who conducted research in Taiwan, used financial ratio categories (leverage, solvency, turnover, and profitability) to generate a matrix that provided an estimate of the strength of a firm within the shipping industry which was similar to the research of the U.S. agricultural industry by Katchova and Enlow (2013) used the DuPont ratios to compare return on equity components of agribusiness firms. The outcome of both research found the asset turnover was the most predictive ratio, leading to a stronger financial performance.

However, in 2013 the studied from Velnampy. T (2013) who studied about the relationship between corporate governance and firm performance with the samples of 28 manufacturing companies using the data the periods of 2007–2011 found, that ROE and ROA are not correlated with performance measures. Therefore, in period later there have another stream of research that concern with dividend policy and firm's performance such as the studied from Amidu (2007) found that dividend policy affects firm performance especially the profitability measured by the return on assets. Not only that but also his result found a positive

and significant relationship between return on assets, return on equity, growth in sales and dividend policy. The next research from Howatt et al. (2009) also stated that positive changes in dividends are associated with positive future changes in mean real earnings per share. The other researches also presented the similar result such as (Baker, H.K., & Powell, G.E, 2001). stated that firm's dividend policy is has a major impacted on firms' performance and Nissim & Ziv (2001) revealed that dividend increases were directly related to future increases in earnings in each of the two years after the dividend change. All the results can present that a firms' dividend policy can influence to the firm's performance and firm value and the return.

Then, there are researchers have relied on statistical techniques to permute the relevant information out. Delen, Kuzey, & Uyar (2013) first used factor analysis to identify underlying dimensions of the ratios, followed by predictive modelling methods to determine relationships between firm performance and financial ratios. Chen and Shimerda (1981) employed principal component analysis to 34 financial ratios that

were useful in various studies on prediction of bankruptcy and found that all ratios were highly correlated to seven major factors. That is, many ratios revealed the same information. Such findings indicate that there are opportunities to reduce the number of ratios employed to a much more limited but still representative set.

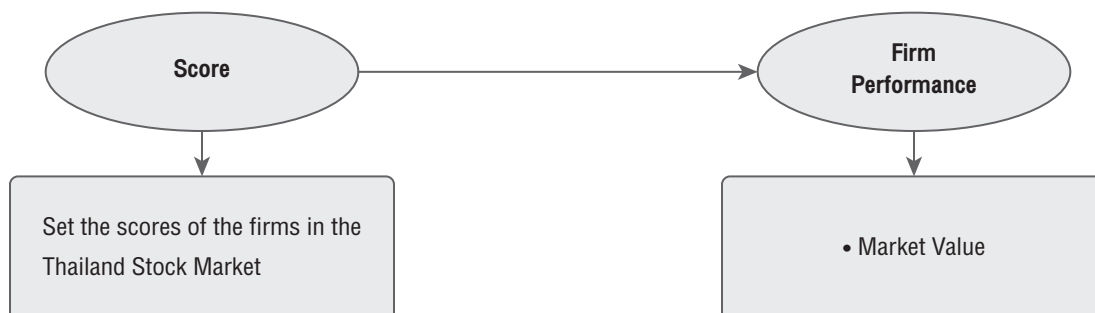
After all this guide to the study of Mohanram, Partha S., (2004) who studied about the method to analysis the financial statement in order to develop a strategy for making investment choices in by combining the traditional fundamentals, therefore in this paper will follow some of these technics and adapt to Thailand stock market to find the useful tools in order to find the relationship with the firm performance then this could help the investors to develop tactic to formulating investment plan which lead to the research question. *Can scoring system classify the efficiently of firm performance?* which also will lead the the research hypotheses.

H1a: The scoring system can separate the firm performance.

H2a: The firm performance can be classifying from the number of score.

3. Research Design

Research Framework



Total SCORE is the sum of six fundamental ratios,

Setting the Score

Variables	Definition
S1: $ROA_i > \text{median} = 1$	ROA = Return on asset
S2: $ROE_i > \text{median} = 1$	ROE = Return on Equity
S3: $BPES_i > \text{median} = 1$	BPES = Earning Per share
S4: $DE_i < \text{median} = 1$	DOE = Debt to Equity Ratio
S5: $CA_i > \text{median} = 1$	CA = Current Ratio
S6: $BV_i > \text{median} = 1$	BV = Book value
$i = \text{industrial}$	

3.1 Financial Statement Analysis for Firms Performance

This set of signals used in this paper are based on profitability, performance and ability to manage assets, measured either in terms of earnings or cash flows. Firms that are currently profitable are likely to be fundamentally strong and maintain their fundamental strength in the future, if current profits have any implications for future profits.

The first measure is ROA, defined as the ratio of net income before extraordinary items scaled by average total assets. In this research compares the ROA of a given firm to the ROA of all other firms in the same industry at the same time which consistent with Soliman (2004) who illustrates the importance of industry-adjustment. The define the first score, S1, to equal 1 if a firm's ROA is greater than the contemporary median ROA for all firms in the same industry and 0 otherwise.

The second measure is ROE, defined as the ratio of net income before extraordinary items scaled by average total equity. In this research compares the ROE of a given firm to the ROE of all other firms in the same industry also follow the concept of industry-adjustment as ROA. The define the second score S2, to equal 1 if a firm's ROE is greater than the contemporaneous median ROE for all firms in the same industry and 0 otherwise.

The third measure for the operation due to the research from Freeman (1987) investigated the relationship between the accountings earnings and stock and Beaver, Lambert and Morse (1980)

reverse the direction of the find the variations of stock prices have significant correlation with the variations of earnings. Along with the other studies in this area up until year 2014. There was a research founds the positive relationship between earning per share (EPS) on firm value in their analysis (Islam et al., 2014). Therefore, the third score, S3, to equal 1 if an earning per share (EPS) is greater than the contemporaneous median BPES for all firms in the same industry and 0 otherwise.

3.2 Score relate to Capital Structure and Firm Performance

The next group of signals, is related to the capital structure of the firm. According from the studied from Akintoye (2009). He found that capital structure is based on the trade-off between risk and expected return, these are important factors in determining a target capital mix, any changes made in the level of debt or equity will modify the firm's performance which also support by the research from Rouf (2018) who found the Debt Ratio, Debt Equity Ratio and Proprietary of Equity Ratio are negatively and significant relationship with Return On Asset (ROA) and Return On Sales (ROS) therefore in our case, score S4 to equal 1 if a firm's debt to equity ratio (DE) is lesser than the contemporaneous median DE for all firms in the same industry and 0 otherwise.

The rest of the scores are related to the company value refers to more than market capitalization, which consider the the value of firm's operation assets (Mehran, 1995; Ang et al.,

2009; Allen et al., 2007). Base from the prior studied found firm performance reflects how effectively companies manage their resources. There is a multitude of capital structure indicators that influence the firm performance and profitability. Then, score S5 equal 1 if a firm's current ratio (CA) is greater than the contemporaneous median CA for all firms in the same industry and 0 otherwise. Final score, S6 equal 1 if a book value per share (BV) is greater than the contemporaneous median BV for all firms in the same industry and 0 otherwise.

3.3 The Market Value

Base from many prior studies about the return and market value (MVE) such as Banz, 1981, Griffin, J. and M. Lemmon. (2002) and Abarbanell, J. and B. Bushee. (1997). The positive relationship between those can be found therefore in this paper is going to use market as a measurement for return. Therefore, the issues related to time and announcement date will be less important.

4. Finding

4.1 Data selection

In this paper uses hand collect data from the SEC website by selecting only the data that relate to the firm performance between 2555 to 2559. The data only contain the firms that have complete data in those periods. In this paper also separates the data into different industrials which is part of research methodology which setting the score. There are seven industrials in total. We exclude the firms that in the financial section out

of the sample because the nature of business is difference from the other.

The final sample consists of 1,416 firm-years. The scores relating to Financial Statement Analysis

for Firms Performance (S1:S3) as well as those related to Capital Structure and Firm (S4:S6) are created using the annualized financials which presented in the table 1

Table 1 presents descriptive statistics for the sample firms

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
MV (Thousand Baht)	1,416	146.00	746,246.93	22,008.79	60,757.25
BEPS	1,416	-39.82	120.49	2.26	7.90
BV	1,416	.01	758.37	21.36	56.29
CR	1,416	.02	64.80	2.69	4.19
DE	1,416	.01	29.21	1.23	1.58
ROA	1,416	-127.00	93.75	7.16	11.09
ROE	1,416	-277.97	113.16	8.43	21.74

4.2 Correlation between scores, market value and financial ratio.

Table 2 Correlations

		Total Score	MVE	BEPS	BV	CA	DE	ROA	ROE
Total Score	Pearson Correlation	1	.128**	.324**	.264**	.155**	-.317**	.532**	.474**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000	.000
	N	1,416	1,416	1,416	1,416	1,416	1,416	1,416	1,416
MVE	Pearson Correlation	.128**	1	.089**	.005	-.091**	.128**	.207**	.251**
	Sig. (2-tailed)	.000		.001	.843	.001	.000	.000	.000
	N	1,416	1,416	1,416	1,416	1,416	1,416	1,416	1,416
BEPS	Pearson Correlation	.324**	.089**	1	.809**	.006	-.094**	.216**	.169**
	Sig. (2-tailed)	.000	.001		0.000	.825	.000	.000	.000
	N	1,416	1,416	1,416	1,416	1,416	1,416	1,416	1,416

Table 2 Correlations (Cont.)

		Total Score	MVE	BEPS	BV	CA	DE	ROA	ROE
BV	Pearson Correlation	.264**	.005	.809**	1	.064*	-.116**	.065*	.042
	Sig. (2-tailed)	.000	.843	0.000		.016	.000	.015	.111
	N	1,416	1,416	1,416	1,416	1,416	1,416	1,416	1,416
CR	Pearson Correlation	.155**	-.091**	.006	.064*	1	-.150**	-.033	-.025
	Sig. (2-tailed)	.000	.001	.825	.016		.000	.218	.341
	N	1,416	1,416	1,416	1,416	1,416	1,416	1,416	1,416
DE	Pearson Correlation	-.317**	.128**	-.094**	-.116**	-.150**	1	-.157**	-.215**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000	.000
	N	1,416	1,416	1,416	1,416	1,416	1,416	1,416	1,416
ROA	Pearson Correlation	.532**	.207**	.216**	.065*	-.033	-.157**	1	.792**
	Sig. (2-tailed)	.000	.000	.000	.015	.218	.000		.000
	N	1,416	1,416	1,416	1,416	1,416	1,416	1,416	1,416
ROE	Pearson Correlation	.474**	.251**	.169**	.042	-.025	-.215**	.792**	1
	Sig. (2-tailed)	.000	.000	.000	.111	.341	.000	.000	
	N	1,416	1,416	1,416	1,416	1,416	1,416	1,416	1,416

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Table 2 presents the correlations between the total score (sum of six scores) and the market value (MVE) and the financial ratios. After we set the score to the sample, there are significant association between score and all financial ratio and market value for all data. In addition to the

obvious high correlation between total score, ROA and ROE, some interesting patterns are observed. The DE ratio yield the similar result from Rouf (2018) the Debt Equity Ratio shows negatively and significant relationship ROA and ROE and all of other measurements.

4.3 Market Value to Score

Table 3 Relationship of score and market value

MVE_rank	N	Mean		Std. Deviation	
		MVE (Thousand Baht)	Total Score	MVE	Total Score
1.00	236	637.02	2.29	218.49	1.91
2.00	237	1,381.51	2.58	253.59	1.78
3.00	237	2,638.95	2.97	442.85	1.85
4.00	237	5,092.26	3.07	1,126.99	1.72
5.00	237	14,900.20	3.50	4,867.12	1.87
6.00	232	109,151.08	3.69	115,438.57	1.61

In this section, table 3 provides evidence as to whether the scores are effective, this paper presents the pattern between the scores and the market value for the data. In order to provide clear view, the market value has been divided into 6 section by using ranking system (MVE rank) and it will be related to the scores, which can be value up to 6 marks as the maximum. This market value ranking system has employed similar method to the percentile indication (rather than 4 parts in this case use 6 instead). The value order from the

lowest to the highest. For the lowest rank 1 the mean of total score is 2.29 and mean of market value is 637.02 thousand baht, the rank 2 mean of total score is 2.58 and keep increasing to 3.69 in MVE rank 6 with mean of the market value at 109,151.08 thousand baht. That means the higher the market value of the business, the higher the score of performance. However, this is the preliminary result which present the phenomenon of the outcome. In order for solid outcome the statistic result also present in the next table.

Table 4 is illustrating the result of the statistical test, after classify the market value by rank and then using the ANOVA to test the means different between those groups. This table presents the statistical significant different between those rank when using the scores and the MVE as a factors. In short, there is a statistically significant in average score for each group which is the evidence to support the hypothesis 1 that, the scoring system can separate the firm performance.

The table 5 has increased internal validity of the result by present each in each section starting from the lowest rank which yield the same result as table 4 but more aspects. In table 5 shows the behaviour od MVE and Score.

The MVE of the market has been separate into 6 groups. The different between group 1 to group 2 and 3 are not significant but to group 5 and 6 yield significantly different. The different value between the group that close together is not too dissimilar compare with the group that really alike. In the other word, for the good performance firms

which in the highest group, is statistically significant different with the other (P-value = .000) which can be explained that the good performance firm can out perform the other group in many ways.

The table 6 present similar to the table 5 but in term of scores. The result shows the clear view that the score can precisely separate firms performance between each group. The firm that has scores 1 is statistically significant different from group 3 to 6 but the group 2 is nearly yield the same outcome but still show the positive result. Then again for group 2 also not statistically difference to group 1 and 3, however it is totally separate out from the group 4 to 6. The out come remain the same format up until the highest rank which confirm the result for the table 5, which can state that after rank the listed companies by the market value, the group that has higher rank will also have a higher average score. The result this table show the evidence support the hypothesis 2 that, the firm performance can be classify from the number of score.

Table 4 the ANOVA of Market value and the Total Score

		Sum of Squares	df	Mean Square	F	Sig.
MVE	Between Groups	2,139,108,552,200.72	5	427,821,710,440.14	195.58	.000
	Within Groups	3,084,283,701,881.74	1,410	2,187,435,249.56		
	Total	5,223,392,254,082.46	1,415			
Total Score	Between Groups	332.02	5	66.40	20.64	.000
	Within Groups	4,534.67	1,410	3.216		
	Total	4,866.69	1,415			

Table 5 the ANOVA of Market value and the Total Score

Dependent Variable			Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
MVE	1.00	2.00	-744.50	4,300.99	.863	-9,181.52	7,692.52
		3.00	-2,001.94	4,300.99	.642	-10,438.96	6,435.08
		4.00	-4,455.24	4,300.99	.300	-12,892.26	3,981.78
		5.00	-14,263.18*	4,300.99	.001	-22,700.21	-5,826.17
		6.00	-108,514.06*	4,324.05	.000	-116,996.33	-100,031.81
	2.00	1.00	744.50	4,300.99	.863	-7,692.52	9,181.52
		3.00	-1,257.44	4,296.44	.770	-9,685.54	7,170.65
		4.00	-3,710.75	4,296.44	.388	-12,138.84	4,717.35
		5.00	-13,518.69*	4,296.44	.002	-21,946.79	-5,090.60
		6.00	-107,769.57*	4,319.52	.000	-116,242.95	-99,296.19
	3.00	1.00	2,001.94	4,300.99	.642	-6,435.08	10,438.96
		2.00	1,257.44	4,296.44	.770	-7,170.65	9,685.54
		4.00	-2,453.30	4,296.44	.568	-10,881.40	5,974.79
		5.00	-12,261.24*	4,296.44	.004	-20,689.35	-3,833.15
		6.00	-106,512.12*	4,319.52	.000	-114,985.51	-98,038.74
	4.00	1.00	4,455.24	4,300.99	.300	-3,981.78	12,892.26
		2.00	3,710.75	4,296.44	.388	-4,717.35	12,138.84
		3.00	2,453.30	4,296.44	.568	-5,974.79	10,881.40
		5.00	-9,807.94*	4,296.44	.023	-18,236.04	-1,379.85
		6.00	-104,058.82*	4,319.52	.000	-112,532.21	-95,585.44
	5.00	1.00	14,263.18*	4,300.99	.001	5,826.17	22,700.21
		2.00	13,518.69*	4,296.44	.002	5,090.60	21,946.79
		3.00	12,261.24*	4,296.44	.004	3,833.15	20,689.35
		4.00	9,807.94*	4,296.44	.023	1,379.85	18,236.04
		6.00	-94,250.87*	4,319.52	.000	-102,724.26	-85,777.49
	6.00	1.00	108,514.06*	4,324.05	.000	100,031.81	116,996.33
		2.00	107,769.57*	4,319.52	.000	99,296.19	116,242.95
		3.00	106,512.12*	4,319.52	.000	98,038.74	114,985.51
		4.00	104,058.82*	4,319.52	.000	95,585.44	112,532.21
		5.00	94,250.87*	4,319.52	.000	85,777.49	102,724.26

*. The mean difference is significant at the 0.05 level.

Table 6 the ANOVA of Total Score

Dependent Variable			Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Total Score	1.00	2.00	-0.29	0.16	.075	-0.62	.03
		3.00	-.682*	0.16	.000	-1.01	-.36
		4.00	-.779*	0.16	.000	-1.10	-.46
		5.00	-1.214*	0.16	.000	-1.54	-.89
		6.00	-1.402*	0.17	.000	-1.73	-1.08
	2.00	1.00	0.29	0.16	.075	-0.03	.62
		3.00	-.388*	0.16	.019	-0.71	-.07
		4.00	-.485*	0.16	.003	-0.81	-.16
		5.00	-.920*	0.16	.000	-1.24	-.60
		6.00	-1.107*	0.17	.000	-1.43	-.78
	3.00	1.00	.682*	0.16	.000	0.36	1.01
		2.00	.388*	0.16	.019	0.07	.71
		4.00	-0.10	0.16	.556	-0.42	.23
		5.00	-.532*	0.16	.001	-0.85	-.21
		6.00	-.719*	0.17	.000	-1.04	-.39
	4.00	1.00	.779*	0.16	.000	0.46	1.10
		2.00	.485*	0.16	.003	0.16	.81
		3.00	0.10	0.16	.556	-0.23	.42
		5.00	-.435*	0.16	.008	-0.76	-.11
		6.00	-.622*	0.17	.000	-0.95	-.30
	5.00	1.00	1.214*	0.16	.000	0.89	1.54
		2.00	.920*	0.16	.000	0.60	1.24
		3.00	.532*	0.16	.001	0.21	.85
		4.00	.435*	0.16	.008	0.11	.76
		6.00	-0.19	0.17	.258	-0.51	.14
	6.00	1.00	1.402*	0.17	.000	1.08	1.73
		2.00	1.107*	0.17	.000	0.78	1.43
		3.00	.719*	0.17	.000	0.39	1.04
		4.00	.622*	0.17	.000	0.30	.95
		5.00	0.19	0.17	.258	-0.14	.51

*. The mean difference is significant at the 0.05 level.

5. Conclusion

The result of this paper found that scoring system of this paper can classify the firms' performance because we found a statistically significant difference in the size of the business base from the scoring system. This particular results have supported the prior study from Mohanram, Partha S., (2004) who used GSCORE to identify good performance firm out from the total sample. The greater the market value of the business, the better the score of performance.

Secondly, after rank the firm by the market value the score also can perform precisely in order to distinguish the firms' performance confirm because there is a statistically significant in average score for each group. In addition, there are high correlation between score and market value which means that higher rank will also have a higher average score.

Base from the outcome of this can prove that the scoring system from the financial ratio can classify the efficiently of firm performance therefore methodology of this research can support financial user to form the strategy in order to make the earning excess from the investment.

REFERENCES

- Abarbanell, J. and B. Bushee. (1997). Financial Statement Analysis, Future Earnings and Stock Prices. *Journal of Accounting Research*, 35, 1–24.
- Akintoye, I.R. (2009). Sensitivity of Performance to Capital Structure. *Banking and Finance Letters*, 1(1), 29–35.
- Allen, F., Carletti, E., Marquez, R.S. (2009). *Stakeholders Capitalism, Corporate Governance and Firm Value, EFA 2007 Ljubljana Meetings Paper*. ECGI - Finance Working Paper No. 190/2007, Wharton Financial Institutions Center.
- Amidu, M. (2007). How does dividend policy affect performance of the firm on Ghana stock Exchange?. *Investment Management and Financial Innovations*, 4(2), 104–112.
- Ang, J.S., Cole, R.A., Lin, J.W. (2000). Agency Costs and Ownership Structure. *Journal of Finance*, 55(1), 81–106
- Baker, H. K., Veit, E. T., & Powell, G. E. (2001). Factors influencing dividend policy decisions of Nasdaq firms. *The Financial Review*, 36(3), 19–37.
- Banz, R. (1981). *The relationship between return and market value of common stocks*. [online] Citeseerx.ist.psu.edu. Available at: <http://citeseerx.ist.psu.edu/viewdoc/citations;jsessionid=BB00EB77AB86803BA074C1C5C02260D8?doi=10.1.1.554.8285> Retrieved February 14, 2018,.
- Barnes, P. (1987). The Analysis and Use of Financial Ratios: A Review Article. *Journal of Business Finance & Accounting*, 14(4), 449–461. <https://doi.org/10.1111/J.1468-5957.1987.TB00106.X> Retrieved February 17, 2018,
- Beaver, M. McAnally, and C. Stinion. (1997). The information content of earnings and prices: A simultaneous equations approach. *Journal of Accounting and Economics*, 23, 53–81.
- Beaver, R. Lambert, and D. Morse. (1980). The information content of security prices. *Journal of Accounting and Economics*, 2, 3–28.

- Beaver, R. Lambert, and S. Ryan. (1987). The information content of security prices: A second look. *Journal of Accounting and Economics*, 9, 139–158.
- Beaver, W. (1966). Financial ratios as predictors of failure. Supplement to vol. 4 (Empirical Research in Accounting: Selected Studies). *Journal of Accounting Research*, 4, 71–111.
- Beneish, M.D., C.M. Lee and R.L. Tarpley. (2001). Contextual Financial Statement Analysis through the Prediction of Extreme Returns. *Review of Accounting Studies* 6, 165–189.
- Bernard, V. and J. Thomas. (1989). Post Earnings Announcement Drift: Delayed Price Response or Risk Premium?. *Journal of Accounting Research*, 27, 1–36.
- C.S. Agnes Cheng, Bong-Soo Lee, Simon Yang, (2013). The value relevance of earnings levels in the return-earnings relation. *International Journal of Accounting and Information Management*, 21, 260–284, <https://doi.org/10.1108/IJAIM-04-2012-0019> Retrieved February 17, 2018.
- Call, A. (2008). *Analysts' cash flow forecasts and the predictive ability and pricing of operating cash flows*. Available at SSRN: <http://ssrn.com/abstract=1362177> or <http://dx.doi.org/10.2139/ssrn.1362177> Retrieved February 17, 2018.
- Campbell, J. Y. and R. Shiller. (1988). Stock prices, earnings and expected dividends. *Journal of Finance*, 43, 661–676.
- Chen, K., & Shimerda, T. (1981). An empirical analysis of useful financial ratios. *Financial Management Spring*, 51–60.
- Delen, D., Kuzey, C., & Uyar, A. (2013). Measuring firm performance using financial ratios: A decision tree approach. *Expert Systems with Applications*, 40(10), 3970–3983.
- Freeman, R. (1987). The association between accounting earnings and security returns for large and small firms. *Journal of Accounting and Economics*, 9, 195–228.
- Griffin, J. and M. Lemmon. (2002). Book-to-Market Equity, Distress Risk, and Stock Returns. *Journal of Finance*, 57, 2317–2336.
- Howatt, B. et al. (2009). Dividends, earnings volatility and information. *Applied Financial Economics*, 19(7), 551–562.
- Islam, R., Khan, T. R., Choudhury, T. T., & Adnan, A. M. (2014). *How Earning Per Share (EPS) Affects on Share Price and Firm Value*. Retrieved February 17, 2018, from European Journal of Business and Management www.iiste.org ISSN 2222-1905 (Paper) ISSN 2222-2839 (Online) Vol. 6, No. 17, 2014. <http://www.iiste.org/Journals/index.php/EJBM/article/viewFile/13572/13841>
- Katchova, A., & Enlow, S. (2013). Financial performance of publicly-traded agribusinesses. *Agricultural Finance Review*, 73(1), 58–73.
- Kothari, D. (2009). *Factors Influencing Share Prices in Markets*. viewed September 2, 2009. <http://www.moneymatters360.com/index.php/article-list/Factors+that+influence+share+prices+in+the+stock+market/1574263/>
- Lev, B. and R. Thiagarajan. (1993). Fundamental Information Analysis. *Journal of Accounting Research*, 31, 190–214.

- Lewellen, J. (2004). Predicting returns with financial ratios. *Journal of Financial Economics*, 74, 209–235.
- Mehran, H. (1995). Executive compensation structure, ownership and firm performance. *Journal of Financial Economics*, 38, 163–184.
- Mohanram, Partha S., (2004). Separating Winners from Losers Among Low Book-to-Market. *Stocks Using Financial Statement Analysis* (April 2004). Available at SSRN: <https://ssrn.com/abstract=403180> or <http://dx.doi.org/10.2139/ssrn.403180> Retrieved June 18, 2017.
- Nissim, D. & Ziv, D. (2001). Dividend changes and future profitability. *Journal of Finance*, 56(6), 2111–2133.
- Ou, J. and S. Penman. (1989). Accounting Measures, Price-Earnings Ratio and the Information Content of Security Prices. *Journal of Accounting Research*, 27, 111–143.
- Piotroski, J. (2000). Value Investing: The Use of Historical Financial Statement Information to Separate Winners from Losers. *Journal of Accounting Research*, 38, 1–41.
- Md. Abdur Rouf. (2015) Capital Structure and Firm Performance of Listed Non-Financial Companies in Bangladesh. *The International Journal of Applied Economics and Finance*, 9: 25–32. <https://scialert.net/abstract/?doi=ijaef.2015.25.32> Retrieved February 17, 2018.
- Sloan, R. (1996) Do Stock Prices Fully Reflect Information in Accruals and Cash Flows About Future Earnings?. *The Accounting Review*, 71, 289–316.
- Soliman, M. (2004) *Using Industry-Adjusted Dupont Analysis to Predict Future Profitability*. Working paper, Stanford University.
- Velnapy, T. (2013) Corporate Governance and Firm Performance: A Study of Sri Lankan Manufacturing Companies. *Journal of Economics and Sustainable Development*, 4(3), 228–235.
- Wang, Y., & Lee, H. (2010) Evaluating financial performance of Taiwan container shipping companies by strength and weakness indices. *International Journal of Computer Mathematics*, 87(1), 38–52.

