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A Factor Analysis of Corporate Financial Performance: Prospect for New Dimension

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ABSTRACT

This study aims to find the dimensions of financial indicators where both ratio and non-ratio indicators are accommodated. It is expected that the new dimensions of financial indicators be found. Both Exploratory and Confirmatory Factor Analysis is used in analyzing the data. Data are taken from 120 companies listed in Indonesian Stock Exchange (IDX). Twenty financial indicators from the financial reports of each company are identified. While it has been a common practice to use ratio in indicating financial performance, it is not common to use an individual value from financial statements as financial indicators. This study shows that financial indicators can be grouped into four dimensions; they are Operational Performance, Asset-Income Performance, Owner Returns Performance and Leverage Performance. All of the non-ratio indicators that are expressed in the amount are grouped in the Asset-Income Performance dimension. New dimensions of financial performance indicators that do not commonly exist in this study, they are Asset-Income, and Leverage Performance. With the new dimension, non-financial performances such as customer satisfaction, corporate social responsibility, reputation, nepotism, and professionalism may be detected.

Introduction

Managers need financial information to evaluate corporate performance. Aside from evaluation, financial information is also needed in planning and decision-making purposes. That is why it is necessary to present financial information in an appropriate way that is well understood by users, in most cases are managers and investors.

Several ways of looking at corporate performance. One way is to look at corporate performance from an operational point of view (Chakravarthy, 1986). Reputation and customer satisfaction are elements of operational performance (Wang et al., 2012), also goals achievement (Etzioni, 1964), and engaging in corporate social responsibility (Fisman, Heal, and Nair, 2008; Wang and Qin, 2010; Cellier and Chollet, 2011; Scholtens and Kang, 2013). Organizational performance can also be viewed from a financial point of view (Venkarraman and Ramanujam, 1986), where studies show that the most widely used measurement of corporate performance is profit, growth, and efficiency (Brush and Vanderwert, 1992) which link to the financial performances. It is because financial rewards seem to be the most fundamental motive for engaging in business (Anand et al., 2012; Wang and Chen, 2013). However, non-financial performance started to get more attention from managers and investors than financial performance, such as non-financial performance as customer satisfaction and reputation (Wang et al., 2012).

There are many ways of grouping financial indicators into dimensions. In the study of Gottardo & Moisello (2015), they were using six dimensions; those are, liquidity (liquid assets/total asset), growth ((sales/salest-1) – 1), leverage (financial debts/total assets), firm market share (salesown/∑salesothers), capital turnover (sales/capital employed), and legged performance (ROAEBIT t-1, ROAnet income t-1). Among all of these financial performance

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indicators, ROA was commonly used (Anderson & Reeb, 2003; Barontini & Caprio, 2006; Miller et al., 2013). It appears that all of the indicators used in each of these financial performance dimensions are all in ratio, that is, a comparison of two or more values. In most cases, ratio analysis is better since they give a better indicator of performance. However, in some cases, the use of ratio hides some important non-financial performance, such as reputation, customer satisfaction, or corporate social responsibility. For example, the effect of reputation or customer satisfaction will be in sales or revenue, which is the non-ratio indicator and not in profit margin or sales turnover, which are ratio indicators.

In another study, Murphy, Trailer & Hill (1996) grouped the corporate performance indicators into eight dimensions where most of them are financial indicators, they are efficiency (return on investment, return on equity, return on assets, return on net worth, and gross revenues per employee), growth (change in sales, change in employees, market share growth, change in net income margin, change in CEO/owner compensation, change in labour expense to revenue), profit (return on sales, net profit margin, gross profit margin, net profit level, net profit from operations, pre-tax profit, and clients estimate of incremental profits), size liquidity (sales level, cash flow level, ability to fund growth, current ratio, quick ratio, total asset turnover, and cash flow to investment), success/failure (discontinued business, researcher subjective assessment, return on net worth, and respondent subjective assessment), market share (respondent assessment, and firm product sales to industry product sales), leverage (debt to equity, and times interest earned), and other (change in employee turnover, and dependence on corporate sponsor). These dimensions of financial performance still lack in indicating the contribution of non-financial indicators such as reputation, customer satisfaction, or corporate social responsibility. Corporate social responsibility, for example, has effects on corporate revenue when it helps mitigate conflicts of interest between management, shareholders, and non-investing stakeholders (Jensen 2002; Harjoto & Jo, 2011; Jo & Harjoto, 2012). Serving the interests of other non-investing shareholders, corporate social responsibility help firms build good relationships with them and gain their support that builds a good reputation, which will enhance the firm's financial performance and shareholders' wealth (Wang & Choi, 2013). Thus, the non-financial performances may be identified through financial indicators as long as they are presented in non-ratio indicators.

The traditional ways of grouping corporate financial performance indicators that have been commonly used so far are known as financial ratios. They are grouped into four dimensions, namely profitability, liquidity, solvency, and activity (Lan, 2012; Brigham, Eherthard, 2013; Kountur, 2014; Titman, Keown, Martin, 2017; Jun-Ming, Yoon Kee, Bany-Arifin, Brigham, Houston, 2018). Several marginal ratios, such as margin of gross profit, a margin of operating profit, and margin of net profit, include return on equity, and return on assets are used to indicate profitability ratios. The current ratio, quick ratio, k-liquidity ratio, and cash ratio are used to indicate liquidity ratios. Debt-to-asset ratio, debt-to-capital ratio, debt-to-equity ratio, and interest coverage ratio are used to indicate solvency ratios. Activity ratios are inventory turnover, receivable turnover, payable turnover, and asset turnover. The grouping of financial indicators that was introduced by Gottardo & Moisello (2015) has some similarities with the traditional ways of grouping financial performance. Both have categories as liquidity and leverage. None of them use non-ratio indicators. Therefore, a study needs to be done to include the non-ratio indicators when analyzing finance performance.

Managers, investors, and other parties that have an interest in the financial information of a corporation need to be supplied with the proper presentation of the information. Though there had been several popular ways of grouping financial indicators into several dimensions; however, we still need other ways of grouping them, especially to accommodate the non-financial performance indicators. Since non-financial indicators that seem not appear in the existing traditional financial dimensions may appear in other dimensions that not being identified yet. Lansberg, Rogolsky, and Perrow (1998); and Garcia-Castro and Aguilera (2014) discovered that financial indicators might be affected by some of the non-financial indicators such as professionalism, and nepotism since they seem to increase costs. Therefore, a study needs to be done to factor the financial indicators in such a way that can cover more areas of performance, both ratio and non-ratio, and finance and non-financial.

The purpose of this study is to factor the financial indicators into several dimensions that may accommodate both the ratio and non-ratio indicators. The participation of non-ratio indicators in the model may be used to detect the non-financial performance such as reputation, customer satisfaction, nepotism, professionalism, and corporate social responsibility that had been known to affect the non-ratio corporate financial performances.

Method

This study is a cross-sectional where data are taken from the Indonesian Stock Exchange (IDX) for the year 2017. About 120 companies listed in EDX were studied. We were using a secondary source of data that is published by ISE on its website. Twenty financial indicators from 2017 financial reports of each company were identified.

Data were analyzed using exploratory factor analysis technique. It started from determining the variables to be included, then followed by identifying the factors, and lastly, naming the factors. However, the validity of the factor needs to be tested. The factors derived then were checked for their convergent and discriminant validity with the use of the Partial Least Square technique.

In determining the variable to be included, the Kaiser-Meyer-Olkin's (KMO) overall measure of sampling adequacy is used, which must be > 0.6 and Bartlett's test of sphericity that must be significant. In determining the number of factors, the eigenvalue and the rotated factor loading were used. The method used in the rotation is Varimax. A factor that had eigenvalues greater than one (1.0) and factor loading higher than point five (0.50) were considered. The Varimax rotation technique was used in determining the composition of the factors. While in naming the factor, the first and second highest factor loading was used as a clue.

Result

Variables to be Included

From twenty variables selected, it appears that the KMO value is lower than required. It indicates that some of the variables that have been selected need to be removed. Looking at the numbers in the diagonal of Anti-Image Correlation, four variables have a correlation lower than 0.5, which are removed. The variables that are removed are Price Earnings Ratio (PER), PER Industry, Yield, and Price-to-Book value (PBV). Finally, all the 16 variables can be further analyzed (KMO = 0.675, Bartlett's test of sphericity $p < 0.05$), as shown in Table 1.

Table 1. KMO and Bartlett's Test of Sphericity

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		**.675**
Bartlett's Test of Sphericity	Approx. Chi-Square	1075.753
	df	136
	Sig.	.000

The communalities indicate the variance of each variable that can be explained by its factor ranges from 0.706 to .976 except for one variable that has a commonality of 0.460 that is the Current Ratio.

The variables included in the analysis are Return On Asset (ROA), Net Profit Margin (NPM), Operating Profit Margin (OPM), Gross Profit Margin (GPM), Return On Equity (ROE), Pay-out Ratio (P/O Ratio), Equity, Assets, Revenue, Profit, Liability, Earning Per Share (EPS), Dividend, Book Value, Debt-to-Asset Ratio (DAR), Debt-to-Equity Ratio (DER), and Current Ratio (CR).

Number of Factors

From the scree plot and the initial eigenvalues shows that four factors can be used to explain the financial performance of any company. As shown in Figure 1, the first four factors have eigenvalue > 1.0, while the fifth factor had eigenvalue lower than required, which is 1.0.

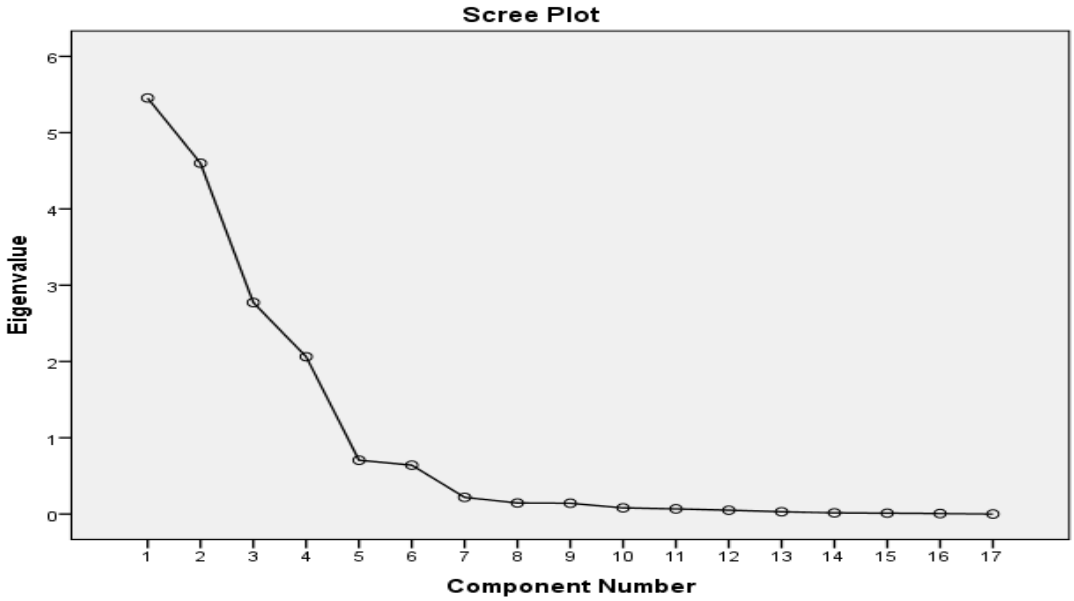

Figure 1. Number of Factors or Component

The first factor has rotation sums of squared loading of 29.33%, which indicates the first factor can explain 29.33 percent of financial performance. The second, third, and fourth factors have rotation sums of squared loadings of 26.72%, 16.85%, and 14.66%. The total variance that can be explained by the four factors is 87.57%, as shown in Table 2. In other words, 87.57 percent of corporate financial performance can be explained by these four factors.

Table 2. Total Variance Explained

Component	Total	Initial Eigenvalues		Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
		% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.454	32.081	32.081	5.454	32.081	32.081	4.986	29.332	29.332
2	4.599	27.052	59.133	4.599	27.052	59.133	4.543	26.725	46.057
3	2.773	16.313	75.446	2.773	16.313	75.446	2.866	16.858	72.916
4	2.062	12.132	87.578	2.062	12.132	87.578	2.493	14.662	87.578

The Rotated Component Matrix indicates the loading of the variable to its factor ranges from 0.796 to 0.979, as shown in Table 3. The second factor has a loading range from 0.897 to 0.981. The third factor has a loading range from 0.899 to 0.969. And the fourth factor has a loading range from 0.640 to 0.940.

Table 3. Rotated Component Matrix

	Component			
	1	2	3	4
ROA	**.979**	-.078	.077	-.008
NPM	**.970**	-.025	-.041	-.141
OPM	**.964**	.018	-.046	-.106
GPM	**.871**	.174	-.118	-.155
ROE	**.834**	-.083	.121	.324
PayoutRatio	**-.796**	.116	.234	.070
Equity	-.075	**.981**	.084	-.044
Asset	-.072	**.976**	.022	.133
Revenue	-.031	**.916**	.277	.160
Profit	.133	**.907**	.095	.054
Liability	-.065	**.897**	-.047	.315
EPS	-.021	.104	**.969**	.050
Dividend	-.019	.023	**.943**	.009
BV	-.139	.187	**.899**	-.106
DAR	-.123	.148	-.103	**.940**
DER	-.050	.072	-.103	**.935**
CurrentRatio	.004	-.177	-.138	**-.640**

Name of Factors

As shown in Table 3, the first factor composes of ROA, NPM, OPM, GPM, ROE, and P/O Ratio. The second factor comprises variable Equity, Asset, Revenue, Profit, and Liability. The third factor composes of variable EPS, Dividend, and BV. And the fourth factor composes of variable DAR, DER, and CR. The first and second variables that have the highest loading for factor one is ROA and NPM, which indicate how good a company manages its operation. With an amount of assets and Equity given to the company, it can get a certain amount of margin. Therefore, the first factor may be named as OPERATIONAL PERFORMANCE, since the financial indicators for factor one indicate the operational performance of a corporation.

The first and second variables of the second factor related to the amount of equity and assets. These are the amount invested in the corporation. It shows how good a corporation makes use of the invested capital by owners as compared to its assets, revenue, profit, and liability. Therefore, the second factor may be called ASSET-INCOME PERFORMANCE. In the third factor, EPS and Dividend are the first and second variables that may be used as a clue in naming the factor. It indicates how good a company provides a return to its owner. Therefore, the third factor may be called OWNERS RETURN PERFORMANCE that is measured by Earning Per Share and Dividend. The BV or book value may be used as the denominator in the ratio that makes use of EPS and DV as the numerator.

The fourth factors seem to indicate the use of debt since the first and second variables in this factor are DAR and DER. The third variable is CR, which indicates the ability to pay its current obligation. Therefore, the fourth factor may be named LEVERAGE PERFORMANCE. The CR may be used as the numerator to compute the leverage ratio where the denominator is DAR or DER. That shows how good the company able to pay its current obligation.

Validity of Factors

A confirmatory factor analysis was performed to test the validity of the factors. Two kinds of validity are tested convergent validity, and discriminant validity. Convergent Validity indicates how strong the variables in a construct, or a factor related to each other. They should have a strong relationship with themselves. In this study, a composite reliability score is used to indicate convergent validity. All of the four factors have acceptable composite reliability. Operational Performance (0.938), Asset-income performance (0.976), Owner Return Performance (0.763), and Leverage Performance (0.581).

Discriminant Validity indicates that no variables in a factor have a strong relationship with other factors than their factor. It is measured by the average variance extracted that is greater than the shared variance between construct, as shown in Table 4. The average variance extracted for Asset-income performance is 0.944 higher than the relationship with other factors. Leverage Performance is 0.854 higher than the relationship with other factors. Operational Performance is 0.942 higher than the relationship with other factors, and Owner Return Performance is 0.730 higher than the relationship with other factors.

Table 4. Discriminant Validity

	Asset-Income Performance	Leverage Performance	Operational Performance	Owner Return Performance
Asset-Income Performance	0.944			
Leverage performance	0.200	0.854		
Operational Performance	-0.152	-0.214	0.942	
Owner Return Performance	0.184	-0.142	-0.131	0.730

Discussion

Our study makes use of 16 financial variables. They are Return On Asset, Net Profit Margin, Operating Profit Margin, Gross Profit Margin, Return On Equity, Pay-out Ratio, Equity, Assets, Revenue, Profit, Liability, Earning Per Share, Dividend, Book Value, Debt-to-Asset Ratio, Debt-to-Equity Ratio, and Current Ratio. Quite different than what Gottardo & Moisello (2015) introduced, they are using Liquidity (liquid assets/total asset), growth ($(sales/sales_{t-1}) - 1$), leverage (financial debts/total assets), firm market share ($sales_{own}/\sum sales_{others}$), capital turnover (sales/capital employed), and legged performance ($ROA_{EBIT\ t-1}$, $ROA_{net\ income\ t-1}$). While Murphy, Trailer & Hill (1996) make use of 35 variables, which include both financial and non-financial variables. Some of their variables are the same as what we are using, but not all the same. The traditional financial ratio variables, as mentioned by Lan (2012); Jun-Ming,

Yoon Kee, Bany-Arifin, Brigham, Houston (2018); Titman, Keown, Martin (2017); Brigham, Eherthard (2013) have about 16 financial variables too. However, some of the variables they are using are not the same as what we are introducing. Eight variables are different. We are adding some of the non-ratio indicators, such as total assets, total liabilities, equity, revenue, and net profit.

Most analysts avoid the use of non-ratio indicators since they are not comparable. Indeed, they are not comparable horizontally between companies, but they may be comparable vertically between different times. For example, revenue, it cannot be compared between companies since companies have different size of assets let say. Still, we can compare the revenue of last year and the revenue of this year of the same company. When the ratio is combined with another indicator to form a ratio, it may reduce its power to indicate specific performances. For example, when the customer satisfies with the company's product, the tendency, there will be repeat buying and, in the end, will increase the revenue of the company. So, revenue increase may be due to certain non-financial aspects such as customer satisfaction. However, when revenue is combined with total asset and become asset turnover which is a ratio indicator, it losses some information about revenue increase and as a result, some of the non-financial performance may not be detected.

In our study, we discover four new dimensions to indicate financial performance; they are, Operational Performance, Asset-income performance, Owners Return Performance, and Leverage Performance. Different from the traditional dimension, which is profitability, liquidity, solvency, and activity (Lan, 2012; Jun-Ming, Yoon Kee, Bany-Arifin, Brigham, Houston, 2018; Titman, Keown, Martin, 2017; Brigham, Eherthard, 2013). Also different from the three dimensions of financial performances by Brush and Vanderwert (1992), they are growth, profit, and efficiency. Other dimensions by While Murphy, Trailer & Hill (1996) that has eight categories of organizational performance, they are efficiency, growth, profit, liquidity, success/failure, market share, leverage, and others.

As indicated earlier, though there have been several ways of presenting dimensions of financial performance, other dimensions are still needed to accommodate the non-ratio indicators. Some of the non-financial performance, such as customer satisfaction, reputation, nepotism, professionalism, and corporate social responsibility that currently seems not detected by the existing dimension may be detected by other dimensions that will be identified. Our study made used some indicators of the whole amount instead of ratios, such as revenue, and net profit. Many financial analysts avoid the use of the whole amount since they are not indicated true performance. However, the whole number may be used if it is to compare with the previous performance. Few if any of the previous studies make use of the whole amount in their financial indicators. This whole amount of revenue and profit may detect the non-financial performances such as professionalism and nepotism (Lansberg, Rogolsky, and Perrow (1998); and Garcia-Castro and Aguilera, 2014); reputation and customer satisfaction as indicated by Wang et al. (2012); and engaging in corporate social responsibility as indicated by Fisman, Heal, and Nair (2008); Wang and Qin (2010); Cellier and Chollet (2011); Scholtens and Kang (2013). Excellent performance of reputation, customer satisfaction, and corporate social responsibility may appear in revenue, while professionalism and nepotism may appear in net profit as they increase expenses.

Conclusion

It is essential to consider the non-ratio indicators in analyzing the financial performance of a firm. Through this study, we have discovered the dimension of non-ratio indicators that may be used in analyzing corporate financial performances. It is sad to say that the use of non-ratio indicators in the field of financial statement analysis so far has been ignored due to their inability to compare the performance of two or more different companies. Therefore, we suggest the use of this non-ratio financial dimension in analyzing financial statements together with the use of other dimensions that are discovered in this study. However, when using non-ratio indicators, there is no way to directly compare it with other companies without first compare them with past performance. The non-financial ratio dimensions introduced in this study may be used as a new tool in analyzing the financial statements of a firm. It provides a significant contribution to the development of the theory of financial statement analysis. The use of non-financial ratios in analyzing financial statements will enable the analyst to identify some activities that are not directly related to financial performance, such as customer satisfaction, reputation, etc. Whenever there is an increase in revenue, as compared to past performance, there must be some causes. One of them may be that the customers are satisfied with the product or services provided by the firm, or it may be due to the increase in firm reputation, or other activities that cannot directly be related to the financial performances. However, further study still needs to be done to see how much of these non-directly-related activities to the financial indicators contribute to the financial performances of a firm.

This study is not without weaknesses. Some of the weaknesses are the commonality of the Current Ratio is 0.46, which is lower than the required commonality of 0.50. The composite reliability of Leverage Performance is 0.581, which is also lower than the required composite reliability of 0.70. However, the total variance that can be explained by the four factors discovered in this study is 87.57%, which is quite high. As we looked at the weaknesses, further research with a better commonality and composite reliability needs to be done by considering more non-ratio indicators.

References

Anand, A., Chandan, P., Singh, R. (2012). Homestays at Korzok: Supplementing rural livelihoods and supporting green tourism in the Indian Himalayas. *Mt Resource Development*. 32(2), 126-136.

Anderson, R.C., Reeb, D.M. (2003). Founding-family ownership and firm performance, evidence from the SP500. *Journal of Finance*. 58(3), 1301-1328.

Barontini, R., Caprio, L. (2006). The effect of family control on firm value and performance, evidence from continental Europe. *European Financial Management*. 12(5), 689-723.

Brigham, E.F., Ehrhardt, M.C. (2013). *Financial Management: Theory & Practice*, 14th ed. USA: Thomson.

Brush, C.G., Vanderwerf, P.A. (1992). A comparison of methods and sources for obtaining estimates of new venture performance. *Journal of Business Venturing*. 7, 157-170.

Cellier, A., Chollet, P. (2011). *The impact of corporate social responsibility rating announcement on stock price: an event study on European markets*. Paris: Universite Paris-Est.

Chakravarthy, B.S. (1989). Measuring strategic performance. *Strategic Management Journal*. Sept/Oct 1989, 437-458.

Etzioni, A. (1964). *Modern Organization*. New Jersey: Prentice-Hall

Fisman, R., Heal, G., Nair, V.B. (2008). *A model of corporate philanthropy*. Working Paper. New York: Colombia University.

Gottardo, P., Moisello, A.M. (2015). The impact of socioemotional wealth on family firm's financial performance. *Problems and Perspectives in Management*. 13, 67-75.

Harjoto, M., & Jo, H. (2011). Corporate governance and CSR nexus. Journal of Business Ethics 100, 45-67.

Jensen, M. (2002). Value maximization, stakeholder theory, and the corporate objective function. Business Ethics Quarterly, 12, 235–256

Jo, H., & Harjoto, M. (2012). The causal effect of corporate governance on corporate social responsibility. Journal of Business Ethics 106, 53-72.

Jun-Ming, H., Yoon K.K., Bany-Ariffin, A.N., Brigham, E.F., Houston, J.F. (2018). *Essentials of Financial Management*, 4th Ed. USA: Pearson.

Kountur, Ronny (2014). K-Liquidity Ratio as a Solution to the Limitations of Existing Traditional Financial Liquidity Ratios. *International Research Journal of Finance and Economics*. 126, 18-25.

Lan, J. (2012). 16 financial ratios for analysing a company's strength and weaknesses. *AAII Journal*, Sept 2012.

Lansberg, I., Perrow, E.L., Rogolsky, S. (1988). Family business as an emerging field. *Family Business Review*. 1, 1-8.

Miller, D., Minichilli, A., Corbetta, G. (2013). Is family leadership always beneficial? *Strategic Management Journal*. 34(5), 553-571.

Murphy, G.B., Trailer, J.W., Hill, R.C. (1996). Measuring performance in entrepreneurship research. *Journal of Business Research*. 36, 15-23.

Scholtens, B., Kang, F.C. (2013). Corporate social responsibility and earnings management: Evidence from Asian economies. *Corporate Social Responsibility and Environmental Management*. 20, 95-112.

Titman, S., Keown, A.J., Martin, J.D. (2017). *Financial Management: Principles and Applications*, 3rd ed. USA: Pearson.

Venkatraman, N., Ramanujam, V. (1986). Measurement of business performance in strategy research: A comparison of approaches. *Academy of Management Review*. 11, 801-814.

Wang, C., Chen, K., Chen, S. (2012) Total quality management, market orientation and hotel performance: the moderating effects of external environmental factors. *International Journal of Hospitality Management*. 31, 119-129.

Wang, H., & Choi, J. (2013). A new look at the corporate social-financial performance relationship: the moderating role of temporal and interdomain consistency in corporate social performance. Journal of Management, 39, 416-441.

Wang, J., Qin, S. (2010). Problems and prospects of CSR system development in China. *International Journal of Business and Management*. 5(12), 128-134.

Wang, Z., Chen, C. (2013). Survey on minus of Tonglu County in Hangzhou. *Sta. Social Practice*. 12, 44-45.