

Firm Financial Performance: A Review on Accounting & Market-Based Approach

Nguyen Xuan Tho¹, Le Thuy Dung², & Ngo Thi Thuong Huyen³

^{1,2,3} NgheAn University of Economics, Vietnam

No. 51, Ly Tu Trong Rd., Ha Huy Tap Ward, Vinh City 431, Nghe An Province, Viet Nam.

¹ Corresponding Author Nguyen: Xuan Tho

ABSTRACT: The researchers around the world have taken into account several measures to evaluate firm financial performance. This study aims to remark the literature review on measuring firm performance based on accounting profitability indicators as well as market-based approach. Theoretically, researchers have generally considered accounting indicators such as Return on Assets (ROA), Return on Sales (ROS), and Return on Equity (ROE), as previous reflecting and short-term financial performance; while market measures, such as Tobin's Q, Price to Earnings (PE), Market to Book (MB), as current reflecting and long-term financial perspective performance of a firm. In this paper, the pros and cons of both measures will be discussed distinctly in order to apply for theoretical and empirical researches in operation management as well as corporate governance in practice.

KEYWORD: Firm performance, Accounting profitability indicators, Market based approach, ROA, ROS, ROE, Tobin's Q, Market to book, Price to earnings, Corporate governance.

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I. INTRODUCTION

As of now, the term of firm performance has been widely considered as a multidimensional construct by researchers, which comprises of various aspects to assess such as the effectiveness of operation, the reputation of corporate, the survival of organization, and the economic goals of firm (Gentry & Shen, 2010; Richard et al., 2009). In which, financial aspect of a firm has gained a great deal of studies around the world to satisfy the economic goals of firm (Barney, 2002; Gentry & Shen, 2010). In deed, in order to evaluate the financial performance of a firm, researchers broadly employ either accounting-based indicators such as return on assets (ROA), return on equity (ROE), and return on sales (ROS), or stock market-based value such as Tobin's Q (Combs et al., 2005; Gentry & Shen, 2010; Hult et al., 2008), price to earnings (Stickney et al., 2007; Ra'ed Masa'deh et al., 2015), and market to book (Alexander & Nobes, 2001; Stickney et al., 2007; Ra'ed Masa'deh et al., 2015). Previously, accounting-based approach had been more primarily used in corporate governance researches (Hoskisson et al., 1999), however recently, researchers have also paid attention to market-based performance and tend to consider both approaches to fulfill the assessment of financial performance of the firm. According to Combs et al. (2005), accounting indicators and market measures both represent for firm's financial performance, however, they are two its distinct dimensions.

For more comprehensive understanding of the topic, this paper aims at deepening the literature review on measuring firm performance based upon both accounting approach as well as market value. The pros and cons of both measures will be discussed distinctly before some theoretically remarkable conclusions will be given.

II. ACCOUNTING MEASURES TO EVALUATE FIRM PERFORMANCE: PROS AND CONS

The justification of using of accounting income indicators to evaluate firm performance is that they are the best available data (Hirschey & Wichern, 1984). Three accounting measures have been widely used for business performance include return on Assets (ROA), return on equity (ROE), and return on sales (ROS).

Return on Assets (ROA): This ratio is a one type of return on investment (ROI) metric that measures the profitability of a business in relation to its total assets. This ratio indicates how well a firm is performing by comparing the profit before interest and tax (also called net income) it's generating to the capital it's invested in assets. Analysts use ROA to assess a firm's operating performance relative to investments made without considering whether the firm used debt or equity capital to finance the investments (Stickney, 1996; Stickney et al., 2007; Ra'ed Masa'deh et al., 2015). The higher the return, the more productive and efficient management is in utilizing economic resources. The ROA formula is:

$ROA = \frac{\text{Net Income}}{\text{Average Assets}} * 100\%$	or	$ROA = \frac{\text{Net Income}}{\text{End of Period Assets}} * 100\%$
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Where: Net Income = Net profit before Interest and Tax

Return on Equity (ROE): Return on equity relates to the return made by a firm for its shareholders with the finance made available to the firm by the shareholders. On other word, it is the measure of a company's annual return (net income) divided by the value of its total shareholders' equity, expressed as a percentage. To put it another way, it measures the profits made for each dollar from shareholders' equity. It indicates the management's success or failure at maximizing the return to stockholders based on their investment in the firm (Alexander & Nobes, 2001). The formula for ROE is:

$ROE = \frac{\text{Net Income (annual)}}{\text{Shareholders' Equity}} * 100\%$
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Return on Equity provides a simple indicator to evaluate investment returns. ROE may also provide insight into how the company management is using financing from equity to grow the business. By comparing a firm's ROE to the industry's average, something may be pinpointed about the firm's competitive advantage.

In deed, a sustainably increasing in ROE over time can show that a firm is good at generating shareholder value, by knowing how to reinvest its earnings wisely, so as to increase productivity and profits. Contrarily, a continuous declining in ROE can interpret that management made poor decisions on reinvesting capital in unproductive projects. However, ROE does not tell the owners if firm is creating shareholders' wealth or destroying it (Duffy, 1995).

Return on Sales (ROS): This ratio measures the operating profit margin of the firm and how the management is working to use the resources to generate the revenue and thus provides an insight into the firm's operations to the creditors and prospective investors. ROS indicates how successful the management is in creating profits from its sales, so it also calle net profit margin. It shows the efficiency of the company in making a profit on the revenue generated. The formula is as follows:

$ROS = \frac{\text{Net income before interest and tax}}{\text{Net sales}} * 100\%$
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In general, although a higher ROS indicates good performance, it ignores balance sheet and cash flow statements, instead of merely looking at the profit and loss account. Therefore, it provides an incomplete view of management performance (Hennell & Warner, 2001).

Accounting measure was considered as apparent measurements that give a better perdictor of firm performance (Ra'ed Masa'deh at al., 2015). The regular availability of accounting numbers regarding firm's profitability facilitates for investors to analyze investement opportunities. Based upon past and currenet profiability, investors can make business decisions with the expectation of achieving some profits in the future.

However, some researchers have agued some limitations of these measures. Miller (1987), Ra'ed Masa'deh at al. (2015), and Hax (2003) stated that accounting numbers could be manipulated by management and owners. Besides, finacial measures are considered to be inefficient to deeply recognize the overall success factors of a firm.

III. MARKET BASED APPROACH: PROS AND CONS

Practically, due to the rising mistrust on accounting data from the firms, it has been suggested that invesrors shoud employ market indicators for decision making (Hax, 2003; Hirschey & Wichern, 1984). In deed, more and more firms nowadays tend to compensate for managers based upon market indicators that maximine sharehoder value. The considerable advantage of market value-base is that it reflects the information of market which regards the firm's further prospects and it can be examined presently (Hax, 2003). Moreover, the data from market-value provide persuasive evidences and significant perspectives on the sources of profitability (Lindenberg & Ross, 1981; Hirschey & Wichern, 1984).

The most widely adopted market value measure of profit is commonly employed the Q ration or Tobin's Q ratio. Tobin'Q is a ratio between a physical asset's market value and its replacement value. The ratio was developed by James Tobin (Tobin, 1978), a Nobel laureate in economics. Tobin suggested a hypothesis that the combined market value of all companies on the stock market should be about equal to their replacement costs. The original formula for the Q Ratio is:

$\text{Tobin's Q} = \frac{\text{Market value of assets}}{\text{Replacement cost of capital}}$	(1a)
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or

$\text{Tobin's } Q = \frac{\text{Total market value of firm}}{\text{Total asset value of firm}}$	(1b)
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The Q ratio is calculated as the market value of a company divided by the replacement value of the firm's assets. If the ratio < 1, it would mean that market value is lesser than the replacement cost which would mean the company is trading undervalued. Contrarily, if the ratio > 1, it would mean that the firm is earning a rate of return larger than the replacement cost of firm. In practice, however, it is very difficult to calculate the exact replacement cost for all assets. In addition, valuation of investments made and amortized on advertisements, R&D and such intangible assets are not effortless to value. Thus, another version of the formula is often used by analysts in which the replacement costs of the assets are replaced with their book values, to estimate Tobin's Q ratio. It is as follows:

$\text{Tobin'Q} = \frac{(\text{Equity market value} + \text{Liabilities market value})}{(\text{Equity book value} + \text{Liabilities book value})}$	(2)
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However, it is often made the assumption that the market value and the book value of a company's liabilities are equivalent. Thus, this version of the Tobin's Q ratio reduces to the following:

$\text{Tobin's } Q = \frac{\text{Equity market value}}{\text{Equity book value}}$	(3)
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Another use for q is to determine the valuation of the whole market in ratio to the aggregate corporate assets. The formula for this is:

$\text{Tobin'Q} = \frac{\text{Value of stock}}{\text{Corporate net worth}}$	(4)
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Practically, market value is a great indicators of firm performance in case the market information is efficient. However, the assumption that the market price reflects at any point of time all available information is not satisfy the assumption of asymmetric information (Hax, 2003), the market is not always efficient in practice. In order to partly overcome this downside of Tobin's Q, it suggests additionally using other indicators as complementarity such as Price to Earnings (PE) and Market to Book (MB).

Price-to-Earnings (PE) Ratio: The Price Earnings Ratio is a measure of market confidence in a company's shares (Ra'ed Masa'deh at al., 2015), which indicates the fraction between a firm's stock price and historical earnings per share (EPS). The PE is a common ratio that gives investors a better insight of the company's value, it displays the expectations of the market and is the price investors must pay per unit of current earnings per share. It shows as part of the daily coverage of stock prices and trading activities (Stickney et al., 2007; Ra'ed Masa'deh at al., 2015). The ratio is computed as the following formula:

$\text{PE} = \text{Market Price per Share} / \text{Earning per Share}$
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Market-to-Book (MB) Ratio: Some researchers have employed MB ratio as a measure of market performance of a firm (Alexander and Nobes, 2001; Stickney et al., 2007; Ra'ed Masa'deh at al., 2015). The Market to Book ratio (also called the Price to Book ratio), is a financial measure used to evaluate a firm's current market price all outstanding shares relative to its book value or its net assets. The book value is the amount that would be left if the company liquidated all of its assets and repaid all of its liabilities which comes from the balance sheet (Stickney et al., 2007)..

The MB ratio is typically employed by investors to denote the market's perception of a particular stock's value, however, it does not work well for companies with mostly intangible assets. This ratio means how much equity investors are paying for each dollar in net assets. The market to book ratio is computed by dividing the current closing price of the stock by the most current quarter's book value per share.

$MB = \frac{\text{Market Capitalization}}{\text{Net Book Value}}$	or	$MB = \frac{\text{Share price}}{\text{Net Book Value per Share}}$
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where, Net Book Value = Total Assets – Total Liabilities

A higher MB ratio (greater than 1) could mean the stock is overvalued, contrarily, a low ratio (MB less than 1) could indicate that the stock is undervalued. The market-to-book ratio helps a company determine whether or not its asset value is comparable to the market price of its stock. It is a great idea for investors to compare MB ratios between companies within the same industry.

The use of market-based measures of firm performance is normally justified that their advantages are over accounting indicators (Hirschey & Wichern, 1984). The great advantage of market-based measures is that it can be observed currently and that it reflects the appraisal of investors in the market as well as their judgement regarding the further prospects of the firm (Hax, 2003).

However, according to Bettis (1983) and Gentry & Shen (2010), a firm's stock price does normally reflect its fundamental value because of information asymmetry between the firm's managers and shareholders (Gentry & Shen, 2010). The true information can be manipulated and chosen to publish by managers. Besides, the high volatility of stock price in the market was argued as the reason to doubt the efficiency of the market's information at least in the short run (Hax, 2003). Thus, the information processing through market cannot reflect a valid result of firm's performance.

IV. CONCLUSION

To conclude, based upon on forementioned pros and cons discussion of both measures that neither accounting nor market approaches are perfect measurements, both of them should be considered when making decision. Theoretically, researchers generally conceptualize accounting measures as reflections of past or short-term financial performance, and market measures as reflections of current and long-term financial performance (Hoskisson et al., 1994; Keats & Hitt, 1988). Indeed, in order to evaluate firm's performance based on historical data, researchers or investors should employ accounting indicators to comprehensively understand what and how companies have done. However, it is suggested to capture both accounting data from balance sheet and objective secondary data from external third parties in order to enhance its trustworthiness (Ra'ed Masa'deh et al., 2015; Ravichandran & Lertwongsatien, 2005). On other hand, market value is also a great indicators of firm performance in present view as well as future perspective, in case the market information is efficient. However, the assumption that the market price reflects at any point of time all available information is not satisfy the assumption of asymmetric information (Hax, 2003), the market is not always efficient in practice. Therefore, a combination between financial indicators and market-based measures is the comprehensive approach for investors to measure of firm financial performance in order to make right decision. Besides, managing accounting data more reliable and the least susceptible to manipulation will enhance the quality of both accounting profit and market indicators.

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