

Financial ratios and efficiency in Malaysian listed companies

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Abstract

Purpose – This paper examines the financial ratios that may have a significant effect on the efficiency in Malaysian listed companies. Nine financial ratios measure seven variables which are firm visibility, tangibility, working capital, leverage, liquidity, productivity and profitability.

Design/methodology/approach – Data are collected from 108 public listed companies in Malaysia. The data extracted from companies' annual reports for three years 2012–2014. STATA software analysis is used to examine these relationships.

Findings – The results show each of tangibility and liquidity have negative relationships with efficiency ratio. In against of that, profitability, working capital and productively positively link to efficiency. Leverage which is measured by two ratios – Debt ratio and Debt equity ratio – shows mix results. Debt ratio shows a positive but not significant relationship with efficiency ratio and Debt equity ratio shows a negative significant relationship with efficiency ratio.

Practical implications – The results benefit companies, investors, economists and governments regulators in Malaysia-to understand the efficiency determinants, so help to make the right decision to enhance the efficiency level in companies which leads to enhance the amount of investments which in turn, enhance the country's economy in general.

Originality/value – This study differs than previous studies number of aspects: first the study covers a three years' period between 2012 and 2014, this period presents the movement of Malaysian current into depreciation with more than 45 percent of its value. Second, in the Malaysia context, this study examines new variables such as firm visibility, tangibility, and productivity. Third, the results of this study will help managers, shareholders, investors, regulators and other parties to make right decisions that will enhance the level of firm efficiency which enhances the investments and the economy of Malaysia.

Keywords Firm size, Tangibility, Working capital, Leverage, Liquidity, Productivity, Profitability, Efficiency, Malaysia

Paper type Research paper

1. Introduction

Over the last period, number of studies give more consideration to efficiency in companies and its relationship with other financial ratios that measure several variables such as firm size (Halkos and Tzeremes, 2007); leverage (Margaritis and Psillaki, 2007; Popova *et al.*, 2017); asset pricing implications (Callice *et al.*, 2019); corporate governance (Lin *et al.*, 2009); profitability (Santosuosso, 2014; Attfehah and Polytechnic, 2016; Sunjoko and Arilyn, 2016;



Azad *et al.*, 2018); stock prices (Rafet and Seyfettin, 2015; Aktaş and Ünal, 2015); capital Structure (Margaritis and Psillaki, 2007); operational cash flow (Santosoosso, 2014) and effective decision-making (Theogene *et al.*, 2017). Some studies are targeting different sectors such as manufacturing (Alam and Sickles, 1998; Becchetti and Sierra, 2003), insurance (Tana *et al.*, 2009; Greene and Segal, 2004; Cummins and Xie, 2013), agriculture (Selamat and Nasir, 2013) and banking (Rafet and Seyfettin, 2015; Sufian *et al.*, 2016; Theogene *et al.*, 2017). Practically, financial ratios add valuable information that enhance the capability to assess the financial situation of a firm. Different analyses are used to analyze firm's financial position such as cross-sectional analysis and comparative analysis. Academic studies found a positive connection between efficiency and other financial ratio such as profitability (Barr *et al.*, 2002); stock market performance (Aktaş and Ünal, 2015); firm size (Halkos and Tzeremes, 2007); service quality (Talluri *et al.*, 2013); managerial ability (Demerjian *et al.*, 2013) and operational cash flow (Santosoosso, 2014). Margaritis and Psillaki (2007) found that the efficiency in New Zealand firms has a positive effect on leverage at low to mid-leverage levels and a negative effect at high leverage ratios.

In Malaysia, after recovering from the global economic crisis and showing a strong sign of recovery in 2010 (Datamonitor, 2010), Malaysian companies continuously straggling to effectively compete in the emerging markets. Currently, stability and sustainability are the main challenges that face companies in Malaysia. This is a fundamental since companies should have more knowledge about internal and external environment within which the company operates. Achieving efficiency in company operating is the current aim of Malaysian companies which depends on the ability of managers to identify the status of efficiency such as related financial ratios as indicators. These indicators are important for Malaysian companies especially with the current depreciation of Malaysian currency which dropped to almost 50 percent of its value at the end of 2013 before it stabilized to 45 percent in 2020. In such situation, this unprecedented depression may cause over the long term to lower productivity due to a decrease in incentives and inflation (Todorović and Veličković, 2010). This creates more pressure over the managers to reach efficiency status in operating companies in Malaysia.

Therefore, the purpose of this study is to figure out what are the relationships between seven variables and efficiency ratio in Malaysian companies. These variables are firm visibility – measured by number of shareholders; tangibility – measured by fixed asset over total asset; working capital – measured by Log working capital; leverage – measured by debt ratio and debt equity ratio; liquidity – measured by current asset ratio; productivity – measured by fixed asset turnover ratio and profitability – measured by gross profit and return on equity ratio. In short, this study aims to attain these objectives:

- (1) To examine the association between firm visibility and firm efficiency.
- (2) To examine the association between tangibility and firm efficiency.
- (3) To examine the association between working capital and firm efficiency.
- (4) To examine the association between leverage and firm efficiency.
- (5) To examine the association between firm liquidity and firm efficiency.
- (6) To examine the association between firm productivity and firm efficiency.
- (7) To examine the association between firm profitability and firm efficiency.

It is expected that the results of this paper will help the managers to identify the efficiency status in different companies including their companies which lead them to be more clarity about their current status and thus improve their operation process to effectively compete in

the market. This remaining of this paper is organized as follows: [Section 2](#) presents concisely previous studies. [Section 3](#) presents research methodology and developing the hypotheses under investigation. The findings of the analysis are presented in [Section 4](#). Finally, [Section 5](#) explains the study conclusion.

2. Literature review

2.1 Previous empirical studies

Efficiency, in a more general sense, is defined as the quality of being able to do a task successfully, without wasting time, space or energy ([Wilson et al., 2018](#)). In other words, efficiency describes the extent to which resources are well used for the intended task or purpose. Nowadays the effort to make things more efficient has become increasingly more relevant. Similarly, it becomes an essential for companies to seek efficiency in their operation if they would achieve sustainability and competitive advantages in the market, especially with an enormous growth in population in the world with limited resources. According to resource based theory, organizations' resources are valuable, difficult to imitate, rare and cannot be substituted, thus organization should efficiently use them to achieve competitive advantage ([Barney, 1991](#)). Therefore, efficiency is very important for firms to enhance its market performance, stay competitive ([Nguyen and Swanson, 2009](#)), and be less vulnerable to outside competition ([Callice et al., 2019](#)). [Hermalin and Wallace \(1994\)](#) concluded that firms with low operating efficiency tend to face higher failure rates. [Peltzman \(1977\)](#) stated that when firms efficiently operate their business, they may have larger market shares as well as higher profits due to their low costs of production, therefore, the required rate of return is lower in the efficiently operating firms. Efficiency has many ratios that can be used as measurement however, many academic studies agrees that total asset turnover refers to the efficiency which presents how extent companies use their assets to generate sales ([Horne and Wachowicz, 1992](#); [Florenz, 2012](#); [Gitman, 2015](#); [Al_Arussi and Alhadary, 2018](#)). [Weston and Copeland \(1992\)](#) stated that total assets turnover ratio presents the calculation of the management efficiency in utilizing individual asset items, and higher number of this ratio indicates that firm managed its assets more efficiently to generate revenue ([Donald et al., 2001](#)). Total asset turnover ratio considers all assets including fixed and current assets. It has been argued that agency costs and total asset turnover ratio have an inverse relationship ([Ang et al., 2000](#)), so managers, due to exert insufficient effort, may make unwise investment decision that leads to poor return. Very few studies have empirically examined and discussed the characteristics of firm's efficiency and its relationships with other factors. However, increasing the efficiency in companies has been the greatest concern in academic studies. [Kumbhakar et al. \(2012\)](#) examined the association between relationship between corporate research and development (R&D) and firm efficiency, the findings showed a positive relationship between these variables. [Lin et al. \(2009\)](#) empirically examined the association between corporate governance and firm's efficiency, the data included the 461 listed manufacturing companies in China for the period between 1999 and 2002. The findings showed that state ownership and firm's efficiency have a negative relationship however, public and employees' share ownership and board independence are positively associated to firm's efficiency. They concluded that corporate governance reforms enhance firm's efficiency. Other study done by [Ang et al. \(2000\)](#) found a significant positive relationship between total asset turnover (efficiency ratio) and boards' compensation. This result is supported by the study done by ([Farrell and Winters, 2008](#)). On the other hand, financial ratio analysis is one of the best tools of performance evaluation of any company by looking at liquidity, solvency, leverage and profitability. Several studies examine the association between efficiency measurement ratio and different financial ratios.

Mihaiu (2010) examines the impact of efficiency on economically utilizing resources to achieve firm objectives that lead to sustainable development of national economies. Sunjoko and Arilyn (2016) found efficiency ratio has a positive and significant association with profitability when they examined a sample of pharmaceutical companies in Indonesia between 2007 and 2013. Santosuosso (2014) examines the connection between efficiency, firm profitability, stock market value and operational cash flow. By analyzing the data of 215 Italian companies for 10 years between 2004 and 2013. He found a positive correlation between efficiency ratios and each of profitability and operational cash flow, but not with stock market indicators. Avramov *et al.* (2006) found that liquidity facilitates efficiency, in the sense that the market's capacity to accommodate order flow is larger during periods when the market is more liquid. Popova *et al.* (2017) found a significant correlation between efficiency ratio (asset turnover) and Russian companies' debt levels. Other study by Kalaivani and Jothi (2017) conclude that the efficiency of working capital management is influenced by the Debtor Turnover Ratio, Inventory Turnover Ratio and Current Asset Turnover Ratio. Different theories used to explain the relationship between efficiency in operation and financial ratios that measure different indicators such as firm visibility, liquidity, tangibility, leverage and profitability. These theories are the agency theory (Jensen and Meckling, 1976); the trade-off theory (Kraus and Litzenger, 1973) and the resource-based theory (Barney, 1991).

In the Malaysian context, a very few studies have considered efficiency. For example, Shazali and Alias (2010) argue that the future growth of the life insurance industry depend on its ability to achieve the efficiency in its operation. Zulridah Mohd Noor and Siang (2014) reported that efficiency level increases among small and medium-sized enterprises with more investment in technological capabilities and workforce. However, efficiency level decreases with unskilled labor. They concluded that in Malaysia, SMEs are technically more efficient than large firms. However, Md. Rus *et al.* (2014) studied 40 Malaysian SMEs and found that most SMEs are not efficient in managing their assets to make sales. Tahir *et al.* (2009) found that local banks are relatively more efficient than foreign banks when they examined the data of Malaysian commercial banks during the period 2000–2006. In contrast, similar study is done by Sufian *et al.* (2016) in Malaysian banking sector. Using the data during the period between 1999 and 2008, they reported that although the Malaysian banking sector has showed increase in efficiency over study period, the banks at Asian countries showed higher efficiency compared to foreign and local banks. Selamat and Nasir (2013) used the data of agriculture firms in Malaysia to examine the connection between efficiency and productivity level. They reported that agriculture firms can increase their efficient level by either reducing their inputs (resources) they consume to generate current outputs or use the current inputs to generate more outputs. Tana *et al.* (2009) found a significant connection between efficiency in insurance companies and the expenditure on life insurance. In particular, they found that the numbers of children in the households, the ages of the consumers and their income level significantly affect the expenditure on life insurance which therefore, affect the level of efficiency in insurance companies. This paper, however, is concerned with the efficiency of companies in Malaysia and chooses the most common financial ratios in order to check whether there are significant associations between these financial ratios and efficiency in Malaysian companies. The results of the study will be useful for related parties, including management, shareholders, financial analysts and investors.

2.2 Selection of variables and formulation of hypotheses

Efficiency presents how well companies utilize their assets to generate income. Efficiency ratio is used by management to improve the company; it is also the concern of outside

investors and creditors looking at the operations and profitability of the company. In other words, a higher ratio is always more favorable because it indicates the company is using its assets more efficiently. Lower ratio indicates that the company is not using its assets efficiently and most likely has management or production problems. Different studies found a strong correlation between efficiency and other financial ratios such as debt level (Popova *et al.*, 2017); liquidity (Avramov *et al.*, 2006); and profitability (Santosuosso, 2014; Sunjoko and Arilyn, 2016; Al arussi and Alhaderi, 2018). This study examines the relationship between company efficiency (measured by asset turnover ratio) and firm visibility (measured by Number of Shareholders), tangibility (measured by fixed asset over total asset), working capital (measured by Log working capital), leverage (measured by debt ratio and debt equity ratio), liquidity (measured by current asset ratio), productivity (measured by fixed asset turnover ratio) and profitability (measured by gross profit and return on equity ratio).

2.2.1. Firm visibility Visibility has been referred to how a firm is regarded by investors. It has been argued that the firm visibility is increased if the shareholders keen to acquire firm shares. Firm visibility, as a variable, has been included in a number of studies (e.g. Becker *et al.*, 2003; Bushee and Miller, 2012). Wang (2016) examines the impact of firm visibility on the level of environmental when he examines the data of natural gas industry. He argued that as the firm becomes more visible to the society and people, the firm is more likely to obey by the environmental disclosure rules, and based on this, the results show a positive relationship between firm visibility and level of environmental disclosure. Leheavy and Sloan (2005) argue that firm visibility impacts on price even more than firm fundamentals. Abbas *et al.* (2013) found a positive and significant relationship between large shareholders and firm performance. Isik and Soykan (2013) using data for the period 2003–2010 of 164 industrial firms listed on Istanbul Stock Exchange (BIST-Borsa Istanbul), the study examines the association between large number of shareholders and firm performance (measured by ROA and Tobin's *Q*). Empirical findings show that large shareholders have a significantly positive effect on the performance of the firms. At the same time, in the case when share ownership of the large shareholder exceeds a certain level, once again, the findings show a significant positive relation between large shareholders and firm performance in Japan. DYL's (1988) study in the US, found that the level of executive directors' compensation is generally related to the number of shareholders. It has been argued that as the number of shareholders gets larger, different individuals' interests surface, which lead to higher agency cost (Hope, 2013). This leads to increase burden on directors who will then claim for more compensation. Amihud *et al.* (1999) examined the relationship between number of shareholders and stock price, and found a positive and significant relationship between them. Mukherji *et al.*'s (1997) study in the US found a positive relationship between number of shareholders and stock splits. In Malaysia, Al_Arussi *et al.* (2009) found a positive relationship between number of shareholders and voluntary financial and environmental disclosure. Firm visibility is measured in the previous studies by different measurements such as news coverage of the individual firms, number of articles and transcripts (Wang, 2016). However, this study uses number of shareholders as a measurement of firm visibility, consistent with other study measurements, such as Baker *et al.* (2002) and Santos and Winton (2008). This study intends to examine the association between the firm visibility (measured by number of shareholders) and firm efficiency (measured by Asset turnover) in Malaysian companies. Thus, based on the aforementioned discussion, the first hypothesis is:

H1. There is a positive relationship between firm visibility and firm efficiency.

2.2.2. Firm tangibility Tangibility refers to the physical assets or property, which have physical existence and can be seen and touch such as equipment, machines and buildings, owned by a company and used them to produce its product and service. In this study firm tangibility is presented by the ratio of fixed assets to total assets of company. The tangible assets are very important for organization's going concern. It has been argued that firms that have more tangible assets are likely to rely more on debt finance as they can get lower finance cost (Charalambakis and Psychoyios, 2012) as well as lower financial distress (Shleifer and Vishny, 1992). Having a high proportion of strategic tangible assets could also lower the agency problem between managers and shareholders as managers do not have the same excess of free cash to use on wasteful opportunity (Almeida and Campello, 2007), which in turn enhance firm's efficiency. Based on resource-based theory, firms with internal resources tend to achieve competitive advantage though efficiently use their strategic resources, which can provide the foundation to develop firm capabilities that can lead to superior performance over time (Barney, 1991). In other words, if firm has more fixed asset, this leads to generate more return if they have been used efficiently. Thus based on the above discussion, the second hypothesis is as follows:

H2. There is a positive relationship between firm tangibility and firm efficiency

2.2.3. Working capital Working capital has been defined as the difference between current assets and current liabilities in a firm's financial position, and every company has to wisely manage day-to-day expenditure to increase its return. Therefore, increase the efficiency ratio. It has been argued that firms have working capitals that ensure the effective and efficient utilization of the business's investment in fixed assets (Paulo, 1992). Working capital has been found amongst those factors that play a significant role in different aspects; earlier study by Sagan (1955) found a significant role of working capital on determining a firm's operational efficiency, similar results found by (Tully, 1994). Grinyer and McKiernan (1991) found a positive relationship between working capital and profitability. These results are supported by the results found by Chowdhury and Amin (2007) and Al_Arussi and Alhadery (2018). In addition, based on the agency theory, if the working capital is large, it will lead to more conflict between management and shareholders, which then leads to higher agency cost (Hall, 1998; Al_Arussi et al., 2009; Al_Arussi et al., 2013; Boshkoska, 2015). However, if the management wisely uses larger working capital as an internal resource, this leads to reduce the agency cost, increase the profitability and the efficiency ratio in the firm. This study intends to examine the association between working capital and the firm efficiency. Thus, based on the above discussion, the third hypothesis is as follows:

H3. There is a positive relationship between working capital and firm efficiency.

2.2.4. Leverage Financial leverage refers to the amount of debt that firm uses to finance its asset. It is part of the firm capital structure (Al_Arussi et al., 2009), as in most of the cases, the internal resources of a business organization are often insufficient to meet the business needs and growth, therefore, managers have to look for other options for funds (Gupta and Sharma, 2005). The choice between debt and equity is not an easy decision as it somehow suggests a trade-off between business and financial risk. Based on the trade-off theory, firms seek to optimal debt size based on a comparison between the tax shield benefits and the insolvency losses (Myers, 1984). Yazdanafar (2013) stated that some firms prefer more borrowing to finance their need as they do not want to affect their ownerships. Financial leverage is an important role player in many aspects and many studies have included to discover its association (e.g. Boadi et al., 2015). Agiomirgianakis et al. (2012) examine the

association between leverage and profitability; [Lewellen \(2006\)](#) and [Coles *et al.* \(2006\)](#) found a positive association between leverage and board compensation. [Kenn-Ndubuisi *et al.* \(2018\)](#) examine the association between financial leverage and asset growth of 80 nonfinancial firms in Nigeria for the period between 2000 and 2015. The results showed a significant relationship between financial leverage and asset growth. This study intends to examine the association between financial leverage and the efficiency ratio in Malaysian listed companies. The financial leverage will be measured by two measurements: debt ratio and debt to equity ratio. Debt ratio is the ratio of total debt to total assets which measures the percentage total funds provided by creditors ([Brigham and Houston, 2009](#)). Debt to equity is the debt to equity ratio which measures the level of riskiness in firm's capital ([Fraser and Ormiston, 2004](#)). Thus, based on the aforementioned discussion, the fourth hypothesis is as follows:

H4. There is a negative relationship between Leverage and firm efficiency.

2.2.5. Liquidity Liquidity has been defined as the ability of a firm to pay-off its short-term debts ([Al_Arussi and Alhaderi, 2018](#)). Other defined liquidity as the ability of a firm to convert current asset to cash. It has been argued that for any business to survive, a firm should have a certain degree of liquidity which is neither excessive nor inadequate ([Bhunia, 2010](#)). Different studies examine the impact of liquidity on other aspects such as cash dividends ([Watson and Head, 2007](#)), performance ([Charmier *et al.*, 2018a, b](#)), profitability ([Al_Arussi and Alhaderi, 2018](#)), financial disclosure ([Belkaoui-Riahi, 1978](#)), capital structure ([Šarlija and Harc, 2012](#)), cash compensation ([Mehran, 1995](#)) and business fixed investment ([Du *et al.*, 2015](#)). All these studies agreed that liquidity is an important for a firm to run its business and it is a significant player in management decisions. [Nazmoon \(2018\)](#) examined the impact of liquidity and profitability on the operational efficiency of scheduled commercial banks of Bangladesh over the period from 2011 to 2016. The findings showed a strong positive relationship and liquidity and profitability combined explain about 66.23% of the bank's operational efficiency. It has been argued that little liquidity may put a firm in a risk of bankruptcy however, too excessive cash in a firm may result in poor resource utilization and the business may not earn a satisfactory return on assets ([Dierks and Patel, 1997](#); [Peel and Wilson, 1996](#)). This study intends to examine the impact of liquidity on the firm efficiency. Liquidity is measured, in this study, by current ratio which presents the ability of firm to meet its short-term responsibilities ([Gitman, 2015](#)). Thus, based on the aforementioned discussion, the fifth hypothesis is as follows:

H5. There is a positive relationship between liquidity and firm efficiency.

2.2.6. Productivity Productivity is defined as the ability of an organization to use fixed asset to make more sales, thus leads to more returns. Fixed asset turnover ratio is one of the productivity measurement ratios, it determines the effectiveness in generating net sales revenue from investments in net property, plant and equipment back into the company evaluates only the investments ([Brigham and Gapenski, 1994](#)). Resource-based theory proposes that firms have a fixed asset may use their strategic resources to enhance their return and increase firm capabilities. The ratio of fixed asset turnover presents how well a company is using its fixed assets to generate revenues ([Hillier, 2013](#)). In other words, if this ratio is high, it means that a company spent less money in fixed assets for each dollar of sales revenue. Whereas, lower of this ratio means that a company has over-invested in fixed assets. Thus, based on the above discussion, the sixth hypothesis is as follows:

H6. There is a positive relationship between fixed asset turnover and firm efficiency.

2.2.7. Profitability Profitability is defined as the ability of a business to generate profit from its economic activity, by using its resources (Al_Arussi and Alhadiry, 2018). Many studies linked profitability to firm's characteristics such as firm size (Lazar, 2016); capital structure (Mohd Zaid *et al.*, 2014; San and Heng, 2011); share market (Grinyer and McKiernan, 1991; Narware, 2010); liquidity (Sunjoko and Arilyn, 2016; Myšková and Hájek, 2017); financial performance (Salim Yadav, 2012) and efficiency of the firm operations (Nazmoon, 2018). This study examines the relationship between profitability and firm's efficiency. It has been argued that if the profitability is higher in a firm it will reduce the agency cost and this motivates management to exert sufficient effort to enhance efficiency by wisely use firm's asset to making revenue. Nazmoon (2018) stated that profitable firms are more efficient due to their lower costs. Profitability is measured in this study by using two measurements which are gross profit and return on equity. Gross profit margin refers to measurement of the percentage of each sales dollar remaining after the firm has paid its goods (Gitman, 2015), and it presents satisfactory bottom-line of profitability (Weston and Copeland, 1992). Return of equity (ROE) presents the total net income divided by the number of ordinary shares. Choosing these measurements is on line with previous studies (Wiwattanakantang, 1999; Arbabiyan and Safari, 2009; Mohd Zaid *et al.*, 2014). Thus, based on this discussion, the seventh hypothesis is as follows:

H7. There is a positive relationship between profitability and firm efficiency.

3. The data, sample and model specifications

3.1 Data description

The data for this study is secondary data in nature and is collected from 108 non-financial companies extracted from the annual reports on Bursa Malaysia (www.bursamalaysia.com) for the period between 2012 and 2014. However, the total valid observations are 291 which present the data of 97 companies. The study is chosen this period as it is the period that the currency of Malaysia dropped to almost 50 percent of its value at the end of 2013 before it stabilized to 40 percent in 2019. The sample size is considered chosen based on systematic random sampling. The study has chosen financial ratios that theoretically play a role in determining firm's efficiency by surveying previous studies. However, some of variables are new in the Malaysian context, i.e., firm tangibility (fixed asset to total asset), productivity (fixed asset turnover); company efficiency (asset turnover ratio) and firm visibility (measured by number of shareholders). The variables and their measurements used in this study are listed in Table 1.

Pooled ordinary least regression (OLS) was used to analyze the data to find the results of the analysis; the model of the study that explains firm's efficiency as follows:

$$\begin{aligned} \text{ASTROVR} = & \alpha + \beta_1 \text{NOSHRHDR} + \beta_2 \text{FXDTOASTRTO} + \beta_3 \text{LGWC} + \beta_4 \text{LVGRTO} \\ & + \beta_5 \text{DBTEQUTRTO} + \beta_6 \text{CRTRTO} + \beta_7 \text{FXDASTRTO} \\ & + \beta_8 \text{GRSPRFT} + \beta_9 \text{ROE} + \varepsilon. \end{aligned}$$

where:

the dependent variable is Asset Turnover (ASTROVR); α and β_1 – β_9 are coefficients; Number of shareholders (NOSHRHDR); Fixed Asset to Total Asset (FXDTOASTRTO); Log

Table 1
Variables’
measurements

No	Variable	Measurements	Supported studies
1	Company efficiency	Asset turnover ratio	Florenz (2012) , Gitman (2015) , Al_Arussi and Alhadary (2018)
2	Firm visibility	No. of shareholders	Baker <i>et al.</i> (2002)
3	Firm tangibility	Fixed asset/total assets	Campello and Giambona (2013)
4	Working capital	Current asset-current liabilities	Abuzayed (2012)
5	Leverage	Total debt ratio	Wiwattanakantang (1999)
6	Liquidity	Current ratio	Al_Arussi and Alhadary (2018)
7	Productivity	Fixed asset turnover	Azad <i>et al.</i> (2018)
8	Profitability	Gross profit	Novy-Marx (2013)
		Return on equity	DeWet and Toit (2007)

Variable	Median	Mean	Minimum	Maximum	SD
ASTROVR	0.5805559	0.7023656	0.0168192	3.863519	0.5555606
NOSHRHDR	3850.5	7847.293	506	62483	10456.66
FXDTOASTRTO	0.4932434	0.4960578	0.0129908	0.9433008	0.1964769
LGWC	18.8	18.70689	12.56	23.83	1.728315
LVGRTO	0.3894299	0.4194288	0.0054159	1.894307	0.2484599
DBTEQUTRTO	0.6256003	0.8906132	-2.449831	5.670907	0.9810097
CRTRTO	1.860952	3.367726	-2.204296	64.15189	6.795115
FXDASTRTO	1.22627	4.081877	0.0185868	297.4051	22.92697
GRSPRFT	2.69e+08	1.54e+09	-1.21e+07	2.18e+10	3.63e+09
ROE	6.975	7.057315	-40.3	66.32	12.49214

Table 2
Descriptive statistics

Working Capital (LGWC); Leverage (LVGRTO); Debt to Equity Ratio (DBTEQUTRTO); Current ratio (CRTRTO); Fixed Asset Turnover (FXDASTRTO); Gross Profit (GRSPRFT) and Return on Equity (ROE).

Table 2 shows the descriptive statistics for the sample. The mean (median) of absolute value for Asset Turnover ASTROVR is 0.7023656 (0.5805559), Number of shareholders NOSHRHDR is 7847.293 (3850.5), Fixed Asset to Total Asset FXDTOASTRTO is 0.4960578 (0.4932434) Log Working Capital LGWC is 18.70689 (18.8), respectively. In addition, Leverage LVGRTO is 0.4194288 (0.3894299); In terms of Debt to Equity Ratio DBTEQUTRTO, the mean (median) is 0.8906132 (0.6256003), respectively. The mean (median) of Current ratio CURRITO is 3.367726 (1.860952); for Fixed Asset Turnover FXDASTRTO, the mean (median) is 4.081877 (1.22627); the mean (median) of Gross Profit GRSPRFT is 1.54e+09 (2.69e+08), and lastly the mean (median) of Return on Equity ROE respectively however, the minimum value for is negative 40.3, which is very high loss.

Table 3 shows the correlation between the independent variables (IVs) and dependent variable (DV). It shows that NOSHRHDR, FXDASTRTO, LGWC and ROE are positively significant to ASTROVR. However, FXDTOASTRTO, GRSPRFT and CRTRTO are negatively and significantly correlated with ASTROVR. Before proceeding with regression analysis, it is important to treat with any econometric problem related to serial correlation such as multicollinearity and heteroscedasticity. According to researchers, panel data should be controlled for individual heterogeneity and multicollinearity ([Kyereboah-Coleman, 2007](#)), for this purpose, Table 3 showed that the maximum correlation is 0.6496, which is between GRSPRFT and LGWC, which is less than 9, in other words, multicollinearity is not

Variable	ASTROVR	NOSHRHDR	FXDTOASTRTO	LGWC	LVGRTO	DBTEQUSTRTO	CRTRTO	FXDASTRTO	GRSPRFT
ASTROVR	1.0000								
NOSHRHDR	0.2498***	1.0000							
FXDTOASTRTO	-0.4341***	0.2385***	1.0000						
LGWC	0.1091**	0.3888***	0.0071	1.0000					
LVGRTO	0.0336	0.0742*	-0.0290	0.0741	1.0000				
DBTEQUSTRTO	0.0229	0.0967**	-0.1044*	0.0261	0.4902***	1.0000			
CRTRTO	-0.1826***	-0.0503*	0.0446*	0.0594*	-0.3705***	-0.2270***	1.0000		
FXDASTRTO	0.5923***	-0.0756*	-0.2945***	0.0143	0.0227	0.0207	-0.0280	1.0000	
GRSPRFT	-0.0364	0.4889***	0.1737***	0.6496***	0.1107**	0.0754*	-0.0844*	-0.0148	1.0000
ROE	0.2666***	-0.0280	-0.1289**	0.3248 ***	-0.0804*	-0.1422***	-0.0749*	0.0716*	0.1532***

Note(s): *, **, *** significant in less than 10%, 5% and 1%, respectively; Asset Turnover (ASTROVR); Number of shareholders (NOSHRHDR); Fixed Asset to Total Asset (FXDTOASTRTO); Log Working Capital (LGWC); Leverage (LVGRTO); Debt to Equity Ratio (DBTEQUSTRTO); Current ratio (CRTRTO); Fixed Asset Turnover (FXDASTRTO); Gross Profit (GRSPRFT) and Return on Equity (ROE)

Table 3
Correlation between DV and IVs

an issue in this study. Variance Inflation Factor (VIF) is another issue if its value is greater than 10 (Myers, 1990). Accordingly, the VIF values are well below 10, at 2.07. Therefore, multicollinearity is not a problematic issue or concern for this study. Furthermore, the data in this study is a panel data and the fair of heteroscedasticity still exists, so a test for homoscedasticity was also conducted using the Breush–Pagan/Cook–Weiberg test for heteroscedasticity (Table 4 results of the analysis). After ensuring that data and model are free from heteroscedasticity, the study used pooled OLS Regression to analyze the data. Many studies recommended Pooled OLS Regression for panel studies because it generates unbiased and consistent estimates of parameters even when time-constant attributes are present (Zhang, 2013). In addition, pooled OLS regression is preferred for data that does not have dummy variables, which is the case in this study. However, this study also runs random-effects model and fixed-effects model in order to obtain robust results. Lazar (2016) argued that using the fixed-effects estimator has advantages; and the major advantage is to controls any unobservable firm characteristics which are likely to be correlated with the regression, thus allowing a limited form of endogeneity.

Table 4 shows the results of Pooled OLS Regression Model, Random-effect model and Fixed-effect model which are mostly identical to in terms of significant factors. Table 4 shows each of firm visibility (NOSHRHDR), Working capital (LGWC), firm productivity (FXDASTRTO), profitability (GRSPRFT and ROE), have positive and significant relationships with firm efficiency (ASTROVR); However, Leverage (DBTEQUSTRTO), Liquidity (CRTRTO) and firm tangibility (FXDASTRTO) have negative relationships with firm efficiency (ASTROVR); thus showing a strong relationship. NOSHR has a significant positive association with ASTROVR (as the coefficient is $5.12e-06$ and a significant at the 5% level). This result shows the importance of number of shareholders to Management in Malaysian companies. In other words, as the firm's visibility expands this motivates management to work harder and more efficient to meet the shareholders' expectations which reduce the agency cost and problem. LGWC has a significant positive association with ASTROVR, the coefficient is 0.0943908 and a significant at the 1% level. These results show the important of having positive working capital to achieve higher efficiency. Managers with a higher working capital face a higher agency problem due to the capital paid by shareholders. This is pushing managers to efficiently usage available working capital in order to reduce the agency cost. Firm productivity (FXDASTRTO) is another significant variable that positively related to firm efficiency (ASTROVR); the coefficient is 0.0118594 at the 1% significant level. This result confirms the idea that more fixed Assets lead to higher return thus higher efficiency in a firm if it wisely used them. Profitability (measured by GRSPRFT and ROE) shows a positive relationship with firm efficiency. The coefficients are $3.49e-11$ and 0.0120908 respectively at the 1% significant. The results show the strong connection between profitability and firm efficiency, and the more profit that a firm achieved the more motivation to management to enhance the efficiency in their firms. However, Table 4 shows that Liquidity (CRTRTO) is negatively associated with firm efficiency (ASTROVR); the coefficient is -0.0082139 at the 1% significant level. The results confirm the logic concept that more liquidity in a firm refers to lower efficiency. The R^2 is 0.5961 and the Adj- R^2 is 0.5831, which are very good that explains almost 58 percent of the efficiency level in Malaysian firms. The results of this analysis will be explained in details in the following section.

4. Discussion of results

This study empirically the association between seven independent variables: firm visibility – measured by number of shareholders; tangibility – measured by fixed asset over total

Variable	Expected sign	PLS		Random-effect model		Fixed-effect <i>t</i> -statistics	
		Model Coefficient	<i>t</i> -statistics	Model Coefficient	<i>t</i> -statistics	Model Coefficient	<i>t</i> -statistics
NOSHRDR	+	5.12e-06	2.05 **	9.94e-06	2.75 ***	4.79e-06	0.82
FXDITOASTRTO	+	-0.8283301	-6.50 ***	-0.4223623	-4.53 ***	-0.2390575	-2.52 **
LGWC	+	0.0943908	5.32 ***	0.0422098	2.66 ***	0.0225042	1.33
LVGRTO	-	0.2061959	0.93	0.2686703	1.93 **	0.2932641	2.13 **
DBTEQUITRTO	-	-0.1265057	-2.02 **	-0.1171801	-2.23 **	-0.118079	-2.13 **
CRTRTO	+	-0.0082139	-2.40 ***	-0.0067653	-1.82 *	-0.0027035	-0.63
FXDASTRTO	+	0.0118594	12.77 ***	0.0047284	5.10 ***	0.0009926	0.99
GRSPRFT	+	3.49e-11	4.09 ***	3.41e-11	2.99 ***	6.98e-11	3.45 ***
ROE	+	0.0120908	6.21 ***	0.0048148	5.21 ***	0.0043201	4.98 ***
Cons		2.740924	8.18 ***	1.656897	5.41 ***	1.112221	3.40 ***
<i>F</i> (8, 291)	46.07					<i>F</i> (8, 291)	3.91
<i>Prob</i> > <i>F</i>	0.0000						0.0000
<i>R</i> ²	0.5961						
Adj- <i>R</i> ²	0.5831						
<i>N</i>	291						
Main VIF	2.07						
Heteroscedasticity test							
Breusch-Pagan	$\chi^2(1) = 104.81$						
Cook-Weisberg	$\text{Prob} > \chi^2 = 0.00$						
				overall	0.5237	overall	0.0948

Note(s): *, **, *** Significant in less than 10, 5 and 1 percent, respectively

Table 4
The analysis of PLS,
REM and FEM
between DV and IVs

asset; working capital – measured by log working capital; leverage – measured by debt ratio and debt equity ratio; liquidity – measured by current asset ratio; productivity – measured by fixed asset turnover ratio; profitability – measured by gross profit and return on equity ratio, and firm efficiency as dependent variable – measured by Asset turnover in Malaysian listed companies.

The results are explained on as follows:

4.1 Independent variables

4.1.1. Firm visibility This study attempts to examine whether or not there is a relationship between firm visibility (measured by number of shareholders) and firm efficiency (measured by asset turnover). It is expected that when a firm becomes more visible and number of shareholders acquired firm's shares. This pushes management to wisely use the asset in a firm to generate more return thus increases firm efficiency and vice versa. In other words, as the number of shareholders increases in a firm, the agency cost also increases between management and shareholders. This in turn leads managers to work harder and efficiently use the firm's asset in order to generate more return. In addition, enhancing the level of efficiency in a firm will attract more new shareholders due to the higher stock return. In this study, the results show, as expected, a positive and significant association between firm visibility and firm efficiency, the coefficient t -value = 5.12e-06 and $p < 0.05$. However, fixed-effects model shows a positive but insignificant relationship between the two variables. Generally, this result supports that when the visibility of the firm expands, and the firm gets more shareholders, managers will do their best to increase the efficiency level by wisely utilize firm asset to generate more revenue. Hence, the first hypothesis cannot be rejected.

4.1.2. Firm tangibility The study examines the association between firm tangibility (measured by fixed Asset/total Asset ratio) and firm efficiency (measured by Asset turnover ratio). Surprisingly, the results of this study show a negative and significant relationship between firm tangibility and firm efficiency. The coefficient t -value = -0.8283301 and $p < 0.001$. The explanation of this negative relationship is that nowadays firms do not heavily depend on fixed asset to generate returns due to several factors such as modern business, e-commerce and Internet technology. So if a firm has more fixed assets, they will be burden if they are not used effectively; however, in the real business environment, firms may not find the suitable investment to use their fixed assets and thus became a burden and lower firm's efficiency. Hence, the second hypothesis cannot be rejected.

4.1.3. Working capital The results show that there is a positive and significant relationship between working capital (measured by Log working capital) and firm's efficiency. The coefficient t -value = 0.0943908 and $p < 0.001$, indicating this positive and significant relationship. This strong positive relationship can be explained as every firm has to wisely manage day-to-day expenditure to increase its yield. Therefore, increase the efficiency ratio. The results support the agency cost as if the working capital is large, it will lead to more conflict between management and shareholders, which then leads to higher agency cost, and managers, in order to reduce this cost, use the available more wisely and generate more profit. Similar results are found by [Sagan \(1955\)](#), [Grinyer and McKiernan \(1991\)](#), [Chowdhury and Amin \(2007\)](#) and [Al_Arussi and Alhadery \(2018\)](#). Hence, the third hypothesis cannot be rejected.

4.1.4. Leverage In this study, financial leverage has been measured by total debts and debt to equity ratio. [Table 4](#) shows a negative and significant relationship between leverage (debt/equity ratio). The coefficient t -value = -0.1265057 and $p < 0.05$. This strong negative relationship can be explained that the more borrowings is proof that the company faces

higher risk due to unwise use of its asset to make sales. This supports the argument that choosing between debt and equity, push, to some extent, companies to trade-off between business and financial risk, and when companies choose more borrowings to finance their needs, they do not affect corporate ownership but definitely affect the level of financial risk (Yazdanfar, 2013). Hence, the fourth hypothesis cannot be rejected.

4.1.5. Liquidity. Liquidity is the fifth variable, and in this study, liquidity (measured by current ratio) has been examined its association with firm's efficiency. In contrary to expectation, the results show a negative and significant relationship between the two variables. The coefficient t -value = -0.0082139 and $p < 0.001$. This strong negative relationship can be explained that although liquidity is important to pay off a firm's short liabilities, having so much liquidity does affect efficiency in the firm as firm loss the value of that money if it does not properly use it. Hence, the fifth hypothesis cannot be rejected.

4.1.6. Firm productivity In this study, firm productivity is measured by fixed asset turnover ratio. This ratio shows how extend that firm uses its fixed asset to generate revenue. It is expected that the relationship between productivity and efficiency is positive, and according to the results presented in Table 4, there is a positive and significant relationship between the two variables. The coefficient t -value = 0.0118594 and $p < 0.001$. This strong positive relationship can be explained that fixed asset is part of firm asset and if the firm successfully manages its fixed asset to generate more return. It will therefore enhance the level of efficiency in the firm and vice versa. Hence, the fourth hypothesis cannot be rejected.

4.2 Profitability

This study empirically examines the association between profitability (measured by Gross Profit and Return on Equity) and firm's efficiency (measured by Asset turnover ratio). Table 4 shows a positive and significant relationship between the two measurements (ratios) and firm efficiency. The coefficient t -values for Gross profit and Return on Equity are $3.49e-11$ and 0.0120908 respectively and $p < 0.001$. This very strong positive relationship shows how important each variable on enhancing firm efficiency. Firm's managers motivate to increase efficiency if they see the results of their effort and generate more profit. In addition, it is also true that one supports the other one; in other words, once the level of efficiency increases in any firm that leads to lower costs, it therefore increases firm's profitability. Similar results are found by previous studies, such as those by Nulla (2013) and Sheikh and Wang (2013). Hence, the seventh hypothesis cannot be rejected.

5. Conclusion, limitations and application

This paper examines the financial ratios that may have a significant effect on the level of efficiency in Malaysian listed companies. Nine financial ratios measure seven variables: firm visibility – measured by number of shareholders; tangibility – measured by fixed asset over total asset; working capital – measured by log working capital; leverage – measured by debt ratio and debt equity ratio; liquidity – measured by current asset ratio; productivity – measured by fixed asset turnover ratio; and profitability – measured by gross profit and return on equity ratio. Data of 108 companies listed on Bursa Malaysia, covering the period from 2012 to 2014, were extracted from companies' annual reports and STATA software analysis is used to examine these relationships (pooled OLS regression was used to analyze the data). The results of Pooled OLS are supported by running random-effects model and fixed-effects model. The results show each of tangibility and liquidity have negative

relationships with efficiency ratio. In against of that, profitability, working capital and productively positively link to efficiency. Leverage which is measured by two ratios: debt ratio and debt equity ratio-shows mix results. Debt ratio shows a positive but not significant relationship with efficiency ratio and debt equity ratio shows a negative significant relationship with efficiency ratio. The study uses both agency theory and resource based theory to support hypotheses development. This study, as with other studies, has its own limitations; first the sample size is relatively small only 108 companies with only three years' coverage (2012–2014). Nevertheless, the results of this study benefit management as they can be aware of the financial indicators that connected to their firms' efficiency, especially after the depreciation of the Malaysian currency. The findings help other related parties such as investors to make the right decisions for their investment. Moreover, this study provides empirically supports to the agency theory and resource based theory. Last but not least, the current study recommends that future studies may include more variables or be a comparative study that include different companies from different countries to explore whether firm's efficiency has the same determinants in different business environments.

References

- Abbas, A., Naqvi, H. and Mirza, H., H. (2013), "Impact of large ownership on firm performance: a case of non financial listed companies of Pakistan", *World Applied Sciences Journal*, Vol. 21 No. 8, pp. 1141-1152, ISSN 1818-4952.
- Abuzayed, A. (2012), "Working capital management and firms' performance in emerging markets: the case of Jordan", *International Journal of Managerial Finance*, Vol. 8 No. 2, pp. 155-179, doi: [10.1108/17439131211216620](https://doi.org/10.1108/17439131211216620).
- Agiomirgianakis, G.M., Magoutas, A.I. and Sfakianakis, G. (2012), "Determinants of profitability and the decision-making process of firms in the tourism sector: the case of Greece", *International Journal Decision Sciences, Risk and Management*, Vol. 4 Nos. 3-4, pp. 294-299, doi: [10.2307/3594990](https://doi.org/10.2307/3594990).
- Aktaş, R. and Ünal, S. (2015), "The relationship between financial efficiency ratios and stock prices: an empirical investigation on insurance companies listed in Borsa Istanbul", *Finansal Araştırmalar ve Çalışmalar Dergisi*, Vol. 7 No. 12, pp. 1-16, Ocak 2015, ISSN 1309-1123.
- Al_Arussi, A.S. and Alhaderi, S.M. (2018), "Factors affecting profitability in Malaysia", *Journal of Economic Studies*, Vol. 45 No. 3, pp. 442-458, doi: [10.1108/JES-05-2017-0124](https://doi.org/10.1108/JES-05-2017-0124).
- Al_Arussi, A.S., Selamat, M.H. and Mohd Hanefah, M. (2009), "Determinants of financial and environmental disclosures through the internet by Malaysian companies", *Asian Review of Accounting*, Vol. 17 No. 1, pp. 59-76.
- Al_arussi, A.S., Selamat, M.H. and Hanifah, H.M. (2013), "The association between environmental disclosure and financial disclosure on the Internet by Malaysian listed companies", *International Journal of Critical Accounting*, Vol. 5 No. 2, pp. 156-172.
- Alam, I.M.S. and Sickles, R.C. (1998), "The relationship between stock market returns and technical efficiency innovations: evidence from the US airline industry", *JPA*, Vol. 9 No. 1, pp. 35-51.
- Almeida, H. and Campello, M. (2007), "Financial constraints, asset tangibility, and corporate investment", *Review of Financial Studies*, Vol. 20 No. 5, pp. 1429-1460.
- Amihud, Y., Mendelson, H. and Uno, J. (1999), "Number of shareholders and stock prices: evidence from Japan", *The Journal of Finance*, Vol. 54 No. 3, pp. 1169-1184, Retrieved December 9, 2020, available at: <http://www.jstor.org/stable/222439>.
- Ang, J.S., Cole, R.A. and Lin, J.W. (2000), "Agency costs and ownership structure. the", *Journal of Finance*, Vol. 55 No. 1, pp. 81-106.

- Arbabian, A.A. and Safari, M. (2009), "The effects of capital structure and profitability in the listed firms in Tehran stock exchange", *Journal of Management Perspectives*, Vol. 33, pp. 159-175.
- Attefah, E.K. and Polytechnic, K. (2016), "Financial ratios approach to evaluating financial performance of Cal Bank Ghana from 2010 to 2014", *International Journal of Academic Research in Business and Social Sciences*, Vol. 6 No. 6, pp. 150-176.
- Avramov, D., Chordia, T. and Goyal, A. (2006), "Liquidity and autocorrelations in individual stock returns", *The Journal of Finance*, Vol. 61 No. 5, pp. 2365-2394.
- Azad, A.M.S., Raza, A. and Zaidi, S.S.Z. (2018), "Empirical relationship between operational efficiency and profitability (evidence from Pakistan exploration sector)", *Journal of Accounting, Business and Finance Research*, Vol. 2 No. 1, pp. 7-11.
- Baker, H., Nofsinger, J. and Weaver, D. (2002), "International cross-listing and visibility", *The Journal of Financial and Quantitative Analysis*, Vol. 37 No. 3, pp. 495-521, doi: [10.2307/3594990](https://doi.org/10.2307/3594990).
- Barney, J.B. (1991), "Firm resources and sustained competitive advantage", *Journal of Management*, Vol. 17, pp. 99-120.
- Barr, R.S., Killgo, K.A., Siems, T.F. and Zimmel, S. (2002), "Evaluating the productive efficiency and performance of US commercial banks", *Managerial Finance*, Vol. 28 No. 8, pp. 3-25, doi: [10.1108/03074350210767988](https://doi.org/10.1108/03074350210767988).
- Becchetti, L. and Sierra, J.H. (2003), *Bankruptcy Risk and Productive Efficiency in Manufacturing Firms*, available at: <https://ssrn.com/abstract=428545>.
- Becker, J.R., Blease and Paul, D.L. (2003), "Does index inclusion improve firm visibility and transparency?", Working Paper Babson College.
- Belkaoui-Riahi, A. and Kahl, A. (1978), *Corporate Financial Disclosure in Canada*, Research Monograph of the Canadian Certified General Accountants Association, Vancouver.
- Bhunia, A. (2010), "A trend analysis of liquidity management efficiency in selected private sector Indian steel industry", *International Journal of Research in Commerce and Management*, Vol. 1 No. 5, p. 213.
- Boadi, E.K. and Li, Y. (2015), "An empirical analysis of leverage and financial performance of listed non-financial firms in Ghana", *International Journal of Economics and Finance*, Vol. 7 No. 9, doi: [10.5539/ijef.v7n9p120](https://doi.org/10.5539/ijef.v7n9p120).
- Boshkoska, M. (2015), "The agency problem: measures for its overcoming", *International Journal of Business and Management*, Vol. 10 No. 1, pp. 204-209.
- Brigham, E.F. and Gapenski, L.C. (1994), *Financial Management: Theory and Practice*, 7th ed., The Dryden Press, pp. 697-701.
- Brigham, E.F. and Houston, J.F. (2009), *Fundamentals of Financial Management*, 12th ed., Mason: South-Western Cengage Learning, pp. 1-755.
- Bushee, B., J. and Miller, G., S. (2012), "Investor relations, firm visibility, and investor following", *The Accounting Review*, Vol. 87 No. 3, pp. 867-897.
- Callice, G., Kutlu, L. and Zeng, K. (2019), "Understanding US firm efficiency and its asset pricing implications", *Empirical Economics*, pp. 1-37, doi: [10.1007/s00181-019-01775-5](https://doi.org/10.1007/s00181-019-01775-5).
- Campello, M. and Giambona, E. (2013), "Real assets and capital structure", *Journal of Financial and Quantitative Analysis*, Vol. 48, pp. 1333-1370.
- Charalambakis, E.C. and Psychoyios, D. (2012), "What do we know about capital structure? Revisiting the impact of debt ratios on some firm-specific factors", *Applied Financial Economics*, Vol. 22 No. 20, pp. 1727-1742.
- Charmier, R., Musah, H., Akomeah, E. and Gakpetor, E.D. (2018a), "The impact of liquidity on performance of commercial banks in Ghana", *Academic Journal of Economic Studies, Faculty of Finance, Banking and Accountancy Bucharest, "Dimitrie Cantemir"*, Christian University Bucharest, Vol. 4 No. 4, pp. 78-90.

- Charmier, R., Musah, A., Evans, A. and Gakpetor, E.D. (2018b), "The impact of liquidity on performance of commercial banks in Ghana", *Academic Journal of Economic Studies*, "Dimitrie Cantemir", Christian University Bucharest, Vol. 4 No. 4, pp. 78-90.
- Chowdhury, A. and Amin, M.M. (2007), "Working capital management practiced in pharmaceutical companies listed in Dhaka stock exchange", *BRAC University Journal*, Vol. IV No. 2, pp. 75-86.
- Coles, J., Daniel, N. and Naveen, L. (2006), "Managerial incentives and risk-taking", *Journal of Finance Economics*, Vol. 79, pp. 431-468.
- Cummins, J.D. and Xie, X. (2013), "Efficiency, productivity, and scale economies in the US property-liability insurance industry", *Journal of Productivity Analysis*, Vol. 39 No. 2, pp. 141-164.
- Datamonitor (2010), "Malaysia: country analysis report-in-depth PESTLE insights", *Datamonitor*.
- Demerjian, P.R., Western, M., Lev, B. and Sarah, M. (2013), "Managerial ability and earnings quality", *The Accounting Review*, Vol. 88 No. 2, doi: [10.2139/ssrn.1650309](https://doi.org/10.2139/ssrn.1650309).
- DeWet, J.H. and Toit, E. (2007), "Return on equity: a popular, but flawed measure of corporate financial Performance", *South Africa Journal of Business Management*, Vol. 38 No. 1, pp. 59-69.
- Dierks, P.A. and Patel, A. (1997), "What is EVA, and how can it help your company?", *Management Accounting*, November, pp. 52-58.
- Donald, E.K., Weygandt, J.J., Terry, D. and Wiley, W. (2001), *Intermediate Accounting*, Business and Economics, p. 1460.
- Du, J., Li, C. and Wang, Y. (2015), "Shadow banking activities in non-financial firms: evidence from China", Working Paper.
- DYL, E.A. (1988), "Corporate control and management compensation: evidence on the agency problem", *Managerial and Decision Economics*, Vol. 9, pp. 21-25.
- Farrell, K.A. and Winters, D.B. (2008), "An analysis of executive compensation in small businesses", *Journal of Entrepreneurial Finance and Business Ventures*, Vol. 12 No. 3, pp. 1-21, available at: <https://digitalcommons.pepperdine.edu/jef/vol12/iss3/2>.
- Florenz, C. (2012), "A comparative analysis of the financial ratios of listed firms belonging to the education subsector in the Philippines for the years 2009-2011", *International Journal of Business and Social Science*, Vol. 3 No. 21, pp. 173-190.
- Frase, L. and Ormiston, A. (2004), *Understanding Financial Statements*, Pearson Prentice Hall, New Jersey.
- Gitman, L.J. (2015), *Principles of Managerial Finance*, Pearson Education International, Boston.
- Greene, W.H. and Segal, D. (2004), "Profitability and efficiency in the US life insurance industry", *Journal of Productivity Analysis*, Vol. 21 No. 3, pp. 229-247.
- Grinyer, H.P. and McKiernan, P. (1991), "The determinants of corporate profitability in the UK electrical engineering industry", *British Journal of Management*, Vol. 2 No. 1, pp. 17-32.
- Gupta, K.S. and Sharma, R.K. (2005), *Management Accounting-Principles and Practice*, 10th ed., Kalyani Publishers, New Delhi, Vol. 2005, pp. 23-6.
- Halkos, G.E. and Tzeremes, N.G. (2007), "Productivity efficiency and firm size: an empirical analysis of foreign owned companies", *International Business Review*, Elsevier, Vol. 16 No. 6, pp. 713-731.
- Hall, J.H. (1998), "The agency problem, agency cost and proposed solutions thereto: a South African perspective", *Meditari Accountancy Research*, Vol. 6, pp. 145-161.
- Hermalin, B.E. and Wallace, N.E. (1994), "The determinants of efficiency and solvency in savings and loans", *RAND Journal of Economics*, Vol. 2, pp. 361-381.
- Hillier, M. (2013), "Designing unpaced production lines to optimize throughput and work-in-process inventory", *IIE Trans*, Vol. 45, pp. 516-527, doi: [10.1080/0740817X.2012.706733](https://doi.org/10.1080/0740817X.2012.706733).
- Hope, O.-K. (2013), "Large shareholders and accounting research", *China Journal of Accounting Research*, Vol. 6 No. 1, pp. 3-20.

- Horne, J.C.V. and Wachowicz, J.M. Jr (1992), *Fundamentals of Financial Management*, Prentice-Hall, New Jersey.
- Isik, O. and Soykan, M.E. (2013), "Large shareholders and firm performance: evidence from Turkey", *European Scientific Journal*, September 2013 edition, Vol. 9 No. 25, ISSN: 1857 – 7881 (Print) e - ISSN 1857- 7431.
- Jensen, M. and Meckling, W. (1976), "Theory of the firm: managerial behavior, agency costs and ownership structure", *Journal of Financial Economics*, Vol. 3, pp. 305-360.
- Kalaivani, P. and Jothi, K. (2017), "Impact of working capital management on profitability of the select car manufacturing companies in India", *International Journal of Pure and Applied Mathematics*, Vol. 116 No. 24, pp. 13-21.
- Kenn-Ndubuisi, J.I. and Onyema, J.I. (2018), "Financial leverage and asset growth: evidence from non-financial firms in Nigeria", *Journal of Finance and Marketing*, Vol. 2 No. 4, pp. 10-15.
- Kraus and Litzenberger, R.H. (1973), "A state-preference model of optimal financial leverage", *Journal of Finance*, Vol. 28 No. 4, pp. 911-922.
- Kumbhakar, S.C., Ortega-Argilés, R., Potters, L., Vivarelli, M. and Voigt, P. (2012), "Corporate R&D and firm efficiency: evidence from Europe's top R&D investors", *Journal of Productivity Analysis*, Vol. 37, pp. 125-140.
- Kyereboah-Coleman, A. (2007), "The impact of capital structure on the performance of microfinance institutions", *The Journal of Risk Finance*, Vol. 8 No. 1, pp. 56-71.
- Lazar, S. (2016), "Determinants of firm performance: evidence from Romanian listed companies", *Review of Economic and Business Studies*, Vol. 9 No. 1, pp. 53-69.
- Lehavy, R. and Sloan, G. (2005), "Investor recognition and stock returns", *Review of Accounting Studies*, Vol. 13 No. 2, pp. 327-361, doi: [10.1007/s11142-007-9063-y](https://doi.org/10.1007/s11142-007-9063-y).
- Lewellen, K. (2006), "Financing decisions when managers are risk averse", *Journal of Financial Economics*, Vol. 82 No. 3, pp. 551-589.
- Lin, C., Ma, Y. and Su, D. (2009), "Corporate governance and firm efficiency: evidence from China's publicly listed firms", *Managerial and Decision Economics*, Vol. 30 No. 3, pp. 193-209.
- Margaritis, D. and Psillaki, M. (2007), "Capital structure and firm efficiency", *Journal of Business Finance and Accounting*, Vol. 34 Nos 9/10, pp. 1447-1469, doi: [10.1111/j.1468-5957.2007.02056](https://doi.org/10.1111/j.1468-5957.2007.02056).
- Md Rus, R., Zainudin, N., Abdullah, N.A.H. and Ahmad, A.H. (2014), "Efficiency in SME: Malaysian evidence", *International SME Conference (ISMEC 2014)*, 18 to 19 August 2014, Kuala Lumpur.
- Mehran, H. (1995), "Executive compensation structure, ownership, and firm performance", *Journal of Financial Economics*, Vol. 38, pp. 163-184.
- Mihaiu, D.M., Opreana, A. and Cristescu, M.P. (2010), "Efficiency, effectiveness and performance of the public sector", *Romanian Journal of Economic Forecasting*, Vol. 4, pp. 133-147.
- Mohd Zaid, N.A., Wan Ibrahim, W.M.F. and Zulqernain, N.S. (2014), "The determinants of profitability: evidence from Malaysian construction companies", *Paper Presented at the Proceedings of 5th Asia-Pacific Business Research Conference*, February 17-18, Kuala Lumpur, pp. 1-13.
- Mukherji, S., Kim, Y.H. and Walker, M.C. (1997), "The effect of stock splits on the ownership structure of firms", *Journal of Corporate Finance, Contracting, Governance and Organization*, Vol. 3, pp. 167-188.
- Myers, S.C. (1984), "The capital structure puzzle", *The Journal of Finance*, Vol. 39 No. 3, doi: [10.1111/j.1540-6261.1984.tb03646](https://doi.org/10.1111/j.1540-6261.1984.tb03646).
- Myers, R.H. (1990), *Classical and Modern Regression with Applications*, PWS-Kent Publishing, Boston.
- Myšková, R. and Hájek, P. (2017), "Comprehensive assessment of firm financial performance using financial ratios and linguistic analysis of annual reports", *Journal of International Studies*, Vol. 10 No. 4, pp. 96-108.

- Narware, P.C. (2010), "Working capital management: the effect of market valuation and profitability in Malaysia", *International Journal of Business and Management*, Vol. 5, p. 11.
- Nazmoon, A. (2018), "The impact of liquidity and profitability on operational efficiency of selected commercial banks in Bangladesh: a panel data study", *Global Journal of Management and Business Research: A Administration and Management*, Vol. 18 No. 7, Version 1.0.
- Nguyen, G.X. and Swanson, P.E. (2009), "Firm characteristics, relative efficiency, and equity returns", *Journal of Financial and Qualitative Analysis*, Vol. 44, pp. 213-236.
- Novy-Marx, R. (2013), "The other side of value: the gross profitability premium", *Journal of Financial Economics*, Vol. 108 No. 1, pp. 1-28.
- Nulla, Y. (2013), "CEO age and top executive officer compensation: an empirical study on Canadian companies (February 1, 2013)", *International Journal of Scientific and Engineering Research*, Vol. 4 No. 2, available at: <https://ssrn.com/abstract=2284344>
- Paulo, S.P. (1992), "The weighted average cost of capital: a Caveat", *The Engineering Economist*, Vol. 37 No. 2, Winter, pp. 179-180.
- Peel, M.L. and Wilson, N. (1996), "Working capital and financial management practices in small firm sector", *International Small and Business Journal*, Vol. 14 No. 2, pp. 52-68.
- Peltzman, S. (1977), "The gains and losses from industrial concentration", *The Journal of Law and Economics*, Vol. 20 No. 2, pp. 229-263, Retrieved December 9, 2020, available at: www.jstor.org/stable/725192.
- Popova, S., Kartova, N., Ponomarenko, A. and Deryugina, E. (2017), "Analysis of the debt burden in Russian economy sectors", *Russian Journal of Economics*, Vol. 3, pp. 379-410.
- Rafet, A. and Seyfettin, Ü. (2015), "The relationship between financial efficiency ratios and stock prices: an empirical investigation on insurance companies listed in Borsa Istanbul", *Financial Research and Studies Journal*, Vol. 7 No. 12, pp. 1-16, January 2015, ISSN 1309-1123, doi: [10.14784/jfrs.53994](https://doi.org/10.14784/jfrs.53994).
- Sagan, J. (1955), "Toward a theory of working capital management", *The Journal of Finance*, Vol. 10 No. 2, pp. 121-129.
- Salim, M. and Yadav, R. (2012), "Capital structure and firm performance: evidence from Malaysian listed companies", *Procedia Social and Behavioral Sciences*, Vol. 66 No. 1, pp. 156-166.
- San, O.T. and Heng, T.B. (2011), "Capital structure and corporate performance of Malaysian construction sector", *International Journal of Humanities and Social Science*, Vol. 1 No. 2, pp. 28-36.
- Santos, J.A.C. and Winton, A. (2008), "Bank loans, bonds, and information Monopolies across the business cycle", *Journal of Finance*, Vol. 63 No. 3, pp. 1325-1359.
- Santosuosso, P. (2014), "Do efficiency ratios help investors to explore firm performances? Evidence from Italian listed firms", *International Business Research*, Vol. 7 No. 12, pp. 111-119.
- Sarlija, N. and Harc, M. (2012), "The impact of liquidity on the capital structure: a case study of Croatian firms", *Business Systems Research*, Vol. 3 No. 1, pp. 30-36.
- Selamat, Z. and Nasir, A.M. (2013), "Efficiency measurement of Malaysian agriculture firms", *International Journal of Trade, Economics and Finance*, Vol. 4 No. 2, pp. 79-85.
- Shazali, A.M. and Alias, R. (2010), "Productivity and efficiency performance of the Malaysian life insurance industry", *Journal Economy Malaysia*, Vol. 34, pp. 93-105.
- Sheikh, A.N. and Wang, Z. (2013), "The impact of capital structure on performance", *International Journal of Commerce and Management*, Vol. 23 No. 4, pp. 354-368.
- Shleifer, A. and Vishny, R. (1992), "Liquidation values and debt capacity: a market equilibrium approach", *The Journal of Finance*, Vol. 47 No. 4, pp. 1343-1366, doi: [10.2307/2328943](https://doi.org/10.2307/2328943).
- Sufian, F., Kamarudin, F. and Nassir, A. (2016), "Determinants of efficiency in the Malaysian banking sector: does bank origins matter?", *Intellectual Economics*, Vol. 10, pp. 38-54.

- Sunjoko, M. and Arilyn, E.J. (2016), "Effects of inventory turnover, total asset turnover, fixed asset turnover, current ratio and average collection period on profitability", *Journal Business and Accountancy*, Vol. 18 No. 1, pp. 79-83.
- Tahir, I.M., Abu Bakar, N. and Haron, S. (2009), "Evaluating efficiency of Malaysian banks using data envelopment analysis", *International Journal of Business and Management*, Vol. 4 No. 8, pp. 96-106.
- Talluri, K. and Schoenherr (2013), "The relationship between operating efficiency and service quality: are they compatible?", *International Journal of Production Research*, Vol. 51 No. 8, pp. 2548-2567.
- Tana, H., Wongb, M. and Lawc, S. (2009), "The effect of consumer factors and firm efficiency on Malaysian life insurance expenditure", *International Journal of Business and Society*, Vol. 10 No. 1, 2009, pp. 59-73.
- Theogene, H., Mulegi, T. and Hosee, N. (2017), "The contribution of financial ratios analysis on effective decision making in commercial banks", *International Journal of Management and Applied Science*, Vol. 3 No. 6, pp. 33-40, ISSN: 2394-7926.
- Todorović, M. and Veličković, M. (2010), "The impact of exchange rate depreciation on business conditions in Serbia", *Economics and Organization*, Vol. 7 No. 3, pp. 263-270.
- Tully, J. (1994), "America's best wealth creators", *Fortune*, Vol. 31, November, p. 143.
- Wang, Z. (2016), "Firm visibility and voluntary environmental behavior evidence from hydraulic fracturing", Discussion paper Washington, DC 20036.
- Watson, D. and Head, A. (2007), *Corporate Finance: Principles and Practice*, Harlow, FT/Pearson Education, New York.
- Weston, J.F. and Copeland, T.E. (1992), *In Managerial Finance*, The Dryden Press International Edition.
- Wilson, M., Wnuk, K., Silvander, J. and Gorschek, T. (2018), "A literature review on the effectiveness and efficiency of business modeling", *E-Informatica Software Engineering Journal*, Vol. 12 No. 1, pp. 265-302.
- Wiwattanakantang, Y. (1999), "An empirical study on the determinants of the capital structure of Thai firms", *Pacific-Basin Finance Journal*, Vol. 7 Nos 3-4, pp. 371-4.
- Yazdanfar (2013), "Profitability determinants among micro firms: evidence from Swedish data", *The International Journal of Managerial Finance*, Vol. 9 No. 2, pp. 150-160.
- Zhang, L. (2013), *The Impact of Ownership Structure on Capital Structure: Evidence from Listed Firms in China*, University of Twente, Enschede.
- Zulridah Mohd Noor and Siang, L.C. (2014), "Technical efficiency of Malaysian manufacturing small and medium enterprises", *Prosiding Perkem Ke-9*, pp. 676-688, ISSN: 2231-962X.

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