

Analyzing Factors Effecting Profitability of Non-Financial U.S. Firms

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Abstract

This paper empirically aims to analyze the factors (leverage, liquidity, inventory, growth, size and firm's age) effecting financial performance. Return on assets (ROA) as the ratio of earnings before depreciation, interest and tax (EBIT) to total assets was used as a proxy for financial performance. A sample of 100 top non-financial American firms listed on Fortune 500 for a period of five years from 2009 – 2013 was considered. Secondary data were collected from financial statements which were taken from Mergent online, and were analyzed by a number of basic statistical techniques such as descriptive and inferential statistics. Results from this study showed that multicollinearity did not exist among all independent variables ($VIF < 5$), and multiple regression indicated that 16% was predicted by the independent variables ($R^2 = 0.1623$). Findings also presented that leverage, inventory, growth and age have a negative significant impact on ROA, while liquidity and size in terms of sales have positive significant effect on profitability of the American firms. However, an insignificant negative relationship was found between size in terms of total assets and return on assets. A generalization of the results is limited because of the five-year time period. For future research, the author suggests analyzing the effect of external factors, such as economic, political, cultural, legal, macroeconomic factors, and the existence of rivals in the industry.

Keywords: Financial performance, Leverage, Liquidity, Return on assets, Firm size, Age, Profitability

1. Introduction

In a capitalist system, profit is the most important measure for successful firms. Traditionally, the success of a manufacturing system or company has been evaluated by the use of financial measures. Nowadays, particularly after the financial crisis, stakeholders are increasingly becoming more concerned with the financial performance of their firms. Likewise, decision makers are considered to measure a company's performance, especially its profitability, before decisions or actions are made based on certain performance measurement metrics. So, having information about a firm's performance enables decision makers to substantiate managerial decisions to meet potential changes in the economic resources (Camelia Burja, 2011).

To this end, there are two kinds of performance, financial performance and non-financial performance. Financial performance can be measured by profitability, dividend growth, sales turnover, asset base, and capital employed. Profitability can be used as a proxy for financial performance (Omondi and Muturi, 2013). According to Walker (2001) a firm's performance is evaluated in three dimensions: productivity, profitability, and market premium (Almajali, Alamro, and Al-Soub, 2012, p.268). However, there is still a hectic debate about the best way that should be adopted to measure financial performance of firms and what the best numbers of factors that affect this performance are (Liargovas and Skandalis, 2008).

As previously mentioned, profitability analysis of capitalist firms is of immense significance because American firms have a major contribution in today's global economy, and their performance is highly important for shareholders, creditors, employees, suppliers, governments, and so forth. For this reason, the research objective of this paper is to investigate the factors determining firm profitability in 100 top non-financial American firms listed on Fortune 500 for the five-year period between 2009 – 2013. Several factors play an important role directly or indirectly in determining profitability. In this research, and after going through the literature review, profitability is measured and explained by the internal factors (leverage, liquidity, inventory, growth, size and firm's age). It is hypothesized that these factors have significant impact on return on assets (ROA), which is used as a proxy for financial performance. This study adopted this tool, which relies on traditional accounting report systems, because it is still being utilized nowadays. The rest of the paper is organized as follows: Section two shows some previous empirical studies concerning the factors affecting profitability focused on the variables used in the research. Section three specifies the research method, estimation model, and data used in the study. Section four discusses the empirical results followed by research limitations and suggestions for further research (Section five). The last section summarizes the conclusions reached through this study.

2. Literature Review

This section sheds some light on previous empirical research. These empirical studies attempted to measure firms' financial performance by analyzing the effect of various financial and non-financial factors. The final

results of these studies proved inconsistent in some areas, and consistent in others.

2.1 Performance Measure

Financial performance plays a large role in measuring the success of business firms. Evaluating the firm's performance has three dimensions: the firms' productivity, profitability, and market premium (Omondi & Muturi, 2013, p. 100). To this end, there are a plethora of measures of financial performance; such as return on assets (ROA), return on investment (ROI), return on equity (ROE), and operation profit margin (OPM). ROA, which was developed by Dupont (1919), is the most common measure used as a proxy for financial performance (Liargovas, 2008, p. 8; Mishra, Wilson, and Williams, 2009, p.7). The early contribution to empirical literature about profitability analysis began mainly with Bain (1951) who studied the relationship between profitability and structural variables, such as concentration, growth, economics of scales, and advertising. Bain found that concentration had a positive impact on profitability. Mann (1966) supported Bain's findings when he indicated that there was a positive relationship between concentration and profitability. Additionally, other researchers such as Collins and Perston (1968), Weiss (1974), Porter (1979), Marvel (1980), and Bradburd and Caves (1982) have showed that industry concentration had a positive effect on profitability (Elmendorf, p.62). In the stock market, Ghosh, Nag, and Sirmans (2000) confirmed that ROA is widely used by market analysts as a measure of financial performance, as it measures the efficiency of assets in producing income. In another field, Mishra et al. (2009) indicated that returns on assets (ROA), a measure of financial performance commonly utilized in the farm management literature, is the ratio of net farm income plus interest payment to total assets. Because many researchers adopted and used return on assets to measure the firm's financial performance, the current study also uses ROA as the dependent variable for analysis.

2.2 Economic Variables

2.2.1 Leverage

The modern theory of capital structure was developed by Modigliani and Miller (1958), who pointed out that capital structure had no impact on firm value. In 1963, Modigliani & Miller discussed the impact of tax firms on the valuation of firms. They indicated that because of debt tax shields, leveraged firms had value higher than firms without debt. This result had much subsequent discussion by Stiglitz (1969) who showed that if the rate of debt went up, the value of the firm would decrease, because of the existence of the risk of bankruptcy. On the other hand, it was indicated that an increased level of leverage tends to raise the value of firm because of tax savings (Pathirawasam 2013, p.65). Although the relationship between capital structure and financial performance of a firm can be either negative or positive (Pathirawasam, 2013, p. 65), Umer (2014) confirmed that the majority of empirical studies showed that a capital structure had a negative correlation with profitability. For example, Titman (1988) found that levels of debt had a negative influence of firms' financial performance. This result was supported by Rajan and Zingales (1995) who addressed that profitability was negatively correlated with leverage. However, Gill, Biger, and Mathur (2011) indicated that short-term debt to total assets; long-term debt to total assets; and total debt to total assets had positive impact on profitability. Gill, Biger, and Mathur (2011) presented that the impact of short-term debt to total assets and total debt to assets on ROA was positive in both the service and manufacturing industries, whereas Omondi & Muturi (2013) showed that leverage had a significant negative effect on financial performance. Likewise, by examining the impact of adjustment in capital structure, Bouraoui and Louri (2014) addressed that leverage changes have a negative impact on performance. Although many theories have already been developed to explain the firms' debt structure, there is still no consensus theory that managers can rely on to determine an optimal level of debt (Ben Ayed and Zouari, 2014, p. 96).

2.2.2 Liquidity

Liargovas & Skandalis (2008) addressed that firms utilize their liquidity to finance their investments when external funding is not available. In Lamberg (2009), the adaptation of liquidity strategies had no a significant effect on ROA. Saleem and Rehman (2011), however, found a significant impact of liquid ratio on ROA while insignificant on ROE and ROI. Also, Almajali et al., (2012) showed that liquidity as a financial factor had a positive statistical effect on financial performance. This result was consistent with Pathirawasam (2013), who found a positive impact between liquidity and ROA. In contrast to the above reasoning, Jovanovic's (1982) theoretical model found that the effect of liquidity on firms' financial performance was ambiguous. Therefore, this study hypothesizes that liquidity (LQ) has no significant impact on the performance of a firm (ROA).

2.2.3 Inventory

Investment in inventory is one of the most important parts of a business operation. It is believed that the level of inventory and profit have a direct relationship. The management of inventory requires very sensitive decisions. The shortage of inventory leads to loss in sales, while excess inventory may increase holding costs. In this endeavor, Chhibber and Majumdar (1999), and Barbosa & Louri (2005) found that the inventory negatively impacted on profits, and they suggested that large inventories created a drag on firms' ROA. Padachi (2006) pointed out that high investment in inventories and receivables was associated with lower profitability. Panigrahi (2013) examined the relationship between the inventory conversion period and firms' profitability, finding a

significant negative linear relationship between conversion period length and profitability. Ogbo, Victoria, and Ukpere (2014), who studied the relationship between effective systems of inventory management and firms' performance, found that flexibility in inventory control management was important to enhance the firm's profitability. They also showed a relationship between operational feasibility and utility of inventory control management. These inconsistent results allowed the author to expect either positive or negative sign on profitability of firm.

2.2.4 Size and Sales Growth

Firm size, both in terms of total assets and in terms of total sales, is considered to be a fundamental variable in explaining firm performance (Nunes and Serrasqueiro, 2008, p. 1). The size measures the firm's ability to attain economics of scale and market power (Chhibber and Majumdar, 1997). Despite the fact that the interest of analyzing firm size lies in size's effect on profitability, a hectic debate still exists as to whether large companies have more opportunity than small firms to enhance their profitability by taking advantage of economic scale. As a part of this debate, Fiegenbaum and Karnani (1991) confirmed that the cost structure of small firms was more flexible than that of large ones. Therefore, small companies could vary their output over time to meet the changing market conditions, while the more stable and mature large corporations needed to maintain a relatively constant output level. On the other hand, Goddard, Tavakoli, and Wilson (2005), who analyzed the European manufacturing and services industries, showed evidence that a firm's size had a negative relationship to profitability. Unlike this finding, Nunes & Serrasqueiro (2008) addressed that the size of small and medium firms had a positive and significant correlation with profitability, whereas an insignificant relationship between size and profitability was observed in large Portuguese firms. In order to scrutinize the effect of American firms' size on profitability, Lee (2009) confirmed that for over 7000 US public firms during the period 1987 – 2006, the rate of profit had a positive relationship with firm size. Babalola (2013), who studied the impact of firm size on profitability in manufacturing companies listed in the Nigerian Stock Exchange, found that firm size, both in terms of total assets and in terms of total sales, had a positive influence on return on assets (ROA). Likewise, Omondi & Muturi (2013), studying the effect of various factors on the financial performance of listed companies in Nairobi, found a significant positive correlation between size and financial performance. These previous researchers who targeted the impact of size on financial performance were far from being unequivocal, as their results were contradictory.

2.2.5 Age

Firm age is one of the most important factors used to decompose the forces which affect survival into industry and firm attributes. On average, roughly 5–10 % of the firms in a given market leave that market over the span of a single year (Agarwal and Gort, 2002). By covering the full range of firm sizes and ages, David Evans (1987a, 1987b) and Dunne, Robert, and Samuelon (1988, 1989) both investigated the impact of age as well as size on a firm. They indicated that large firms had lower growth rates, but they were more likely to survive (Sutton, 1997, p. 45-46). To prove that firm survival is associated with its product and the life cycles, Agarwal & Gort (2002) showed that the relation between firm survival and age was not as simple as empirically observed. It can be said that most firms disappeared because they were recycled (taken over) by other firms rather than via financial failure. This result has been confirmed by Loderer, Neusser, and Waelchli (2009), who investigated how the age of a firm affects its life expectancy. They pointed out that once firms get older, they start seeking outside help to function. This could explain why most of them were eventually taken over. This finding apparently was consistent with a corporate life cycle. Making another point, Kumar (2004) confirmed that while older firms obtain experience-based economies of scale based on learning, they were also prone to inertia and rigidities in adaptability, which could lead to lower performance (p.13). However, mature firms possess sophisticated skills, because they have enjoyed the advantage of learning, and are not prone to the liabilities of newness. Hence, they have a superior performance (Liargovas & Skandalis, 2008). Because of contradictory results, this author will not expect either positive or negative sign on the profitability of a firm as measured by its age (see Table 1).

3. Research Method

3.1 Model Specification

This study adopted return on assets (ROA) as a dependent variable for measuring firms' financial performance, while a set of independent variables with difference expected signs were used to measure the effect on firms' financial performances.

Table 1. Variables Definition and Predicted Relationship

Variables	Full name	Measure	Signs*
Dependent			
ROA	Return on Assets	Earnings before depreciation, interest and tax / total assets	
Independent			
LV	Leverage	Total liabilities to total assets	-
LQ	Liquidity	Current assets to total current liabilities	+
IV	Inventory	Inventory investment to total assets	+/-
SG	Sales Growth	Current year to previous year's sales	+
SZ1	Size1	Log of total assets	+
SZ2	Size 2	Log of total sales	+
AG	Age	Number of years since incorporated till the period study	??

*After going through the literature review, the author expected either a positive or negative sign on profitability.

The conceptual framework of this study is shown in Figure 1, which explains the direct effect of each independent variable on the dependent variable.

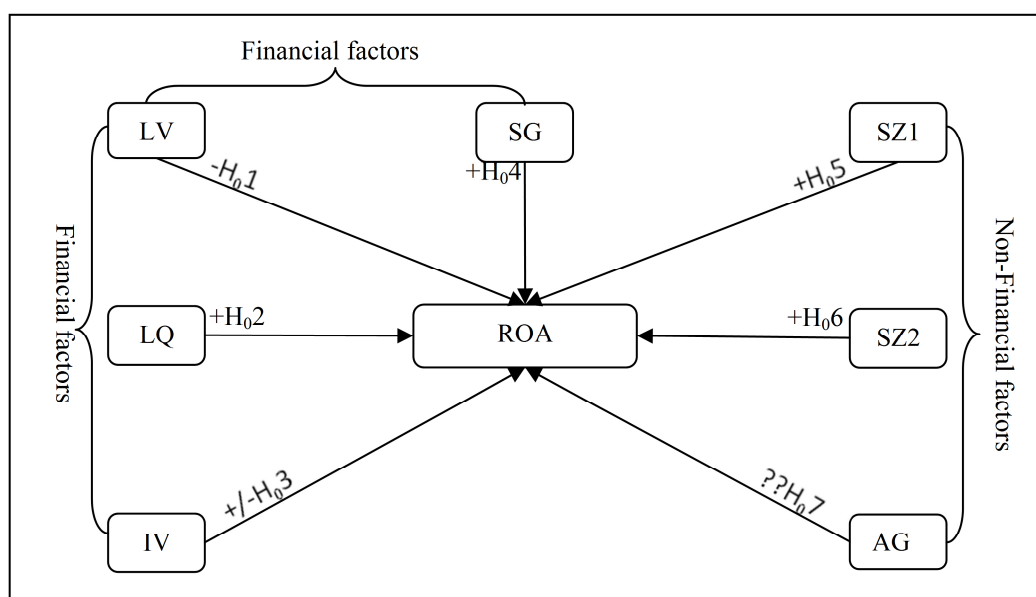


Figure 1. Hypothesized Relations Among Variables

According to this relationship, and consistent with the previous literature and empirical research, the following null hypotheses were developed to test the relationship between a firm's financial performance and the independent variables:

- H₀1: Leverage (LV) has no significant impact on performance of firm ROA.
- H₀2: Liquidity (LQ) has no significant impact on performance of firm ROA.
- H₀3: Inventory management (IV) has no significant impact on performance of firm ROA.
- H₀4: Growth of Sales (GS) has no significant impact on performance of firm ROA.
- H₀5: Company Size (SZ1) has no significant impact on performance of firm ROA.
- H₀6: Company Size (SZ2) has no significant impact on performance of firm ROA.
- H₀7: Company Age (AG) has no significant impact on performance of firm ROA.

In order to test these hypotheses at ($\alpha = 0.05$) level of significance (0.95 confidence level), the econometrics regression model is given as:

$$ROA_{it} = \beta_0 + \beta_1 LV_{it} + \beta_2 LQ_{it} + \beta_3 IV_{it} + \beta_4 SG_{it} + \beta_5 Size1_{it} + \beta_6 Size2_{it} + \beta_7 Age_{it} + \epsilon_{it} \quad (1)$$

Where: ROA_{it} is a financial performance of firm i at time t ; β_0 is regression constant (intercept); $\beta_1, \beta_2, \dots, \beta_7$ are regression coefficients for measuring independent variables; LV_{it} is leverage of firm i at time t ; LQ_{it} is liquidity of firm i at time t ; IV_{it} is inventory investment of firm i at time t ; SG_{it} is sales growth of firm i at time t ; $Size1_{it}$ is logarithm of total assets of firm i at time t ; $Size2_{it}$ is logarithm of total sales of firm i at time t ; Age_{it} is number of years since incorporation until the date of collected data of firm i at time t , while ϵ_{it} is an error term.

3.1 Sample and Data Selection

The empirical goal of this research is to investigate the factors affecting financial performance of American firms. To analyze these factors, the initial research sample consists of 150 U.S. firms which were listed on Fortune 500 for the period from 2009 to 2013. Each of these firms has total assets of more than 1 billion in each

year without missing data on inventory. 50 financial firms, such as banks, insurance, and financial firms were excluded from the search. The justification for this exclusion lies in their different characteristics. Therefore, the final sample, which contains 47 sectors, was 100 firms. 500 data observations between 2009 and 2013 were employed as a sample for this study. The secondary data for this research were collected from annual financial reports which were taken from Mergent online (<http://www.mergentonline.com/login.php>). These data were analyzed by a number of basic statistical techniques such as descriptive statistics (Mean and Standard deviation), and inferential statistics (Pearson correlation and multiple regression).

4. Empirical Results and Discussion

This section gives detailed information on the results of this study, with sophisticated discussion.

4.1 Descriptive Statistics

Table 2 summarizes the descriptive statistics for the explanatory variables utilized in this study. These variables were calculated utilizing financial statements. Therefore, this research adopted the book value instead of market value. The Generally Accepted Accounting Principles (GAAP) require that profitability must be measured based on income book value, not on market value. ROA has a minimum of (-31%) and a maximum value of (35%). This implied that return on assets of American firms increased by (31%) when its fails to generate positive results; maximum rate means when return on assets yields maximum returns, the profitability of sample research will be increased by (35%). The positive ROA means that the firms were on average profitable, although some were operating at a loss, as reflected in the negative minimum observed value of return on assets. It can be seen also that the average of return on assets for the sample as a whole was (Mean = 0.090) with dispersion of approximately (1%; SD = 0.075). This standard deviation indicated a narrow variation in ROA among sample companies.

Table 2: Summary Statistics of the Explanatory Variables, 2009-2013

	Mean	Standard Deviation (SD)	Minimum	Maximum	Observations
ROA	0.090	0.075	-0.310	0.353	500
Leverage	0.654	0.208	0.215	1.500	500
Liquidity	1.505	0.584	0.552	4.223	500
Inventory	0.124	0.107	0.003	0.463	500
Sales Growth	1.095	0.202	0.188	2.115	500
SIZE 1	24.240	0.987	20.775	27.385	500
SIZE 2	24.431	0.726	22.338	26.910	500
Age	63.91	37.094	1	146	500

Note: ROA = return on assets; Leverage = total liabilities to total assets; Liquidity = total current assets to total current liabilities; Inventory = inventory investment to total assets, Sales Growth = current year to previous year's sales; Size 1= log of assets; Size 2=log of sales, and Age = number of years since incorporated till the date of gathering data. Total observations come to (100 firms x 5 years).

From the descriptive statistic, the leverage ranges from a minimum of 21% to 150% as a maximum. The average of leverage as a whole was (65%, Mean = 0.654) with dispersion about (21%, SD = 0.208). This result indicated that, on the average, the top 100 non-financial American firms listed on Fortune 500 were financed by 65% as a long term debt. It can be concluded that the lower return on assets (9%) may be negatively affected by the high firms' leverage rate.

Liquidity as another independent variable has a minimum of 55% and a maximum value of 422%. The average liquidity during the analyzed period was (151%, Mean=1.505) with a variation of (58%, SD = 0.584). Related to the high level of leverage, American firms maintained a high level of liquidity (151%) in order to guarantee safety.

Investment in inventory has an average of (12%, Mean = 0.124) and the standard deviation was (11%, SD = 0.107). This states that investment in inventory plays a modest role in the determination of a firm's performance. In contrast, sales growth has an average value of about (110%; Mean = 1.095, SD = 0.202). This indicates that growth of sales contributed more to U.S firms' performance. Table 2 also shows the firms' size in terms of total assets and total sales has almost (242%, Mean = 24.240) which states that the simple research included very large firms.

4.2 Correlation Matrix

Table 3 shows the correlation of one variable with itself which is always 1, and presents the pair-wise correlations among each variable with another. Sometimes all or several of these pair-wise correlations are quite high which means that it is difficult to tell which of them is influencing the dependent variable (Barrow, 2006, p. 284). A multicollinearity problem exists if consider an absolute correlation coefficient exceeds (70%) for any two of the independent variables (AL-Shwiyat, 2013, p.416). As you can see from Table 2, the coefficients of correlation of Pearson were not so high (less 0.7). So, it can be confirmed that little or no multicollinearity between the independent variables included in model of multiple linear regression in this study.

Table 2: Correlation Matrix of the Explanatory Variables, 2009-2013

	ROA	Leverage	Liquidity	Inventory	Sales Growth	SIZE 1	SIZE 2	Age
ROA	1							
Leverage	-0.355	1						
Liquidity	0.194	-0.436	1					
Inventory	-0.174	0.171	0.006	1				
Sales Growth	-0.012	-0.111	0.096	-0.045	1			
SIZE 1	0.123	-0.103	-0.145	-0.465	-0.127	1		
SIZE 2	0.064	0.029	-0.349	0.045	0.006	0.663	1	
Age	-0.112	0.055	-0.102	-0.075	-0.170	0.305	0.127	1

Note: Number of observations: 500; Number of firms: 100; ROA = return on assets; Leverage = total liabilities to total assets; Liquidity = total current assets to total current liabilities; Inventory = inventory investment to total assets; Sales Growth = current year to previous year's sales; Size 1 = log of assets; Size 2 = log of sales; and Age = number of years since incorporated till the date of gathering data.

Table 2 also showed the correlation between profitability which was measured by return on assets (ROA) and a set of internal factors. It was found that liquidity and the size of a firm have a positive relationship with profitability, while leverage, inventory, sales growth and age have a negative relationship with profitability.

4.3 Multicollinearity

The linear regression model is so fit for the application and can be considered good for the process of estimating the parameters if there is no multicollinearity among the explanatory variables. Multicollinearity can be controlled by using the Variance Inflation Factor (VIF). According to Gujarati(2003, p .351-386), multicollinearity exists among all independent variables if VIF value is higher than 10. Thus, the Variance Inflation Factor (VIF) test was employed to measure the amount of multicollinearity in a set of multiple regression variables. Table 4 presents that multicollinearity did not exist among all independent variables because the VIF values for all independent variables were less than 10.

Table 4. Multicollinearity Test

Explanatory Variables	LV	LQ	IV	SG	SZ1	SZ 2	Age
Variance Inflation Factor (VIF)	1.324	1.534	2.021	1.123	4.003	3.214	1.173

Note: $VIF_i = [S^2_{xi} (n-1) SE^2_{bi}] \div S^2$

Where: S^2_{xi} is Standard deviation; N is sample size; SE is standard error for slop coefficient; and S^2 is the mean square. LV = leverage; LQ = liquidity; IV = Inventory; SG = sales growth, SZ1= log of assets; and SZ2 = log of sales.

4.4 Regression Results and Interpretation

In this section, we examined the factors likely to affect financial performance (ROA). To this end, we performed multivariate analysis using regression models. The regression model with respect to the ROA has an Adjusted R square of 16% ($R^2 = 0.1623$), and F-statistics of ($F = 14.81$; $p = 0.000$). This indicated that about 16% variation in Return on Assets was influenced by independent variables (leverage, liquidity, inventory, sales growth, size1, size 2, and age). Note that the predictor variables did not explain Return on Assets (ROA) very well, because the value of Adjusted R^2 was quite low (16%). Here it can be seen that the remaining 84% can be explained by other variables which were not included in this study.

Table 5. Regression Result of ROA and Explanatory Variables

Independent Variables	Hypothesis	Sign	Path	Coefficients	P-values	T- test	VIF	Result ¹
Intercept				-0.132	0.2690	-1.107		
Leverage	H1	-	LV -> ROA	-0.1041	0.000**	-6.120	1.324	Accept
Liquidity	H2	+	LQ -> ROA	0.0155	0.018**	2.382	1.534	Accept
Inventory	H3	+/-	IV -> ROA	-0.1283	0.002**	-3.130	2.021	Accept
Sales growth	H4	+	SG -> ROA	-0.0348	0.031**	-2.167	1.123	Accept
SIZE 1	H5	+	SZ1 -> ROA	-0.0058	0.352	-0.931	4.003	Reject
SIZE 2	H6	+	SZ2 -> ROA	0.0195	0.011**	2.567	3.214	Accept
Age	H7	??	AGE -> ROA	-0.0002	0.011**	-2.568	1.173	Accept
Multiple R	R Square	Adjusted R Square	Standard Error	F-Statistics	Sig (P-Value)	Observations		
0.42	0.17	0.16	0.07	14.81	0.0000	500		

**significant at ($\alpha = 0.05$), ** $p < 0.05$

¹indicated that null hypothesis was rejected and the alternative was accepted.

Note: ROA = return on assets; leverage = total liabilities to total assets; liquidity = total current assets to total current liabilities; Inventory = inventory investment to total assets, Sales growth = current year to previous year's sales; Size1 = log of assets; Size2 = log of sales, and Age = number of years since incorporated till the date of gathering data

Based on the results demonstrated in the above table, F-statistics indicated the validity of the model, as its value (14.81) was well above its sig value of (0.000). The regression coefficient of leverage at (-0.1041) showed that when the leverage increases by one unit with the assumption that other variables remain constant, then the return on assets (ROA) will decrease by 0.1041. From the regression table, the t-calculated significant value for leverage at 5% was ($T = -6.120, p = 0.000 < 0.05$). So, the null hypothesis that leverage (LV) has no significant impact on performance of firm ROA can be rejected.

Liquidity with positive coefficient (0.0155) was significantly related to profitability. It means that one unit changes in liquidity tends to increase the return on assets by (0.0155). Liquidity has a t-value of against a p-value of ($T = 2.382, p = 0.018 < 0.05$). Thus, we can reject the null hypothesis that liquidity (LQ) has no significant impact on performance of firm ROA.

Investment in inventory has a negative coefficient, and showed a significant relationship with profitability. The coefficient value of (-0.1283) indicated that one unit changes in inventory's investment would bring negative impact on return on assets by (0.1283). Inventory has t-value against p-value ($T = -3.130, p = 0.002 < 0.05$). Therefore, we can reject the null hypothesis that Inventory management (IV) has no significant impact on performance of firm ROA.

Sales growth also has a negative significant relationship to return on assets. The coefficient value was -0.0348, which means one unit changes in sales growth will tend to decline the return on assets by 0.0348. The t-value of sales growth against p-value was significant ($T = -2.167, p = 0.031 < 0.05$). So, the null hypothesis that Growth of sales (SG) has no significant impact on performance of firm ROA can be rejected.

Size in terms of total assets has a negative coefficient, but it was insignificant in relationship to ROA. The coefficient value was (-0.0058), which means if the size of a firm changed by one unit, the return on its assets decreased by 0.0058. Due to the t-value against p-value ($T = -0.931, P = 0.352 > 0.05$), the null hypothesis that the size of a company in terms of total assets (SZ1) has no significant impact on ROA is accepted. However, size of a firm in terms of sales has a positive significant relationship with profitability. A one unit change in size led to an increase in the rate of profitability by (0.0195). The null hypothesis that company size in terms of sales has no significant impact on ROA can be rejected because of a t-value against p-value ($T = 2.567, P = 0.011 < 0.05$).

The age of a firm has a negative significant coefficient with profitability. It was indicated that a one unit change in the age of a firm tends to loss some profit by 0.0002. This coefficient was significant at the 5% level of confidence, ($T = -2.568, P = 0.011 < 0.05$). So, it can be said that the null hypothesis that company age (AG) has no positive significant impact on performance of firm ROA can be rejected.

It can be concluded that the value of R squared which was (Adjusted $R^2 = 0.1623$) explained part of our model by only 16%. It was also proven that six factors (leverage, liquidity, inventory, growth, firm's size in terms of sales and age) were proper explanatory variables for return on assets, while only firm size in term of total assets was not a proper explanatory variable for profitability. Based on these conclusions, the linear multiple regression model identified for the variables studied is as follows:

$$ROA_{it} = -0.132 - 0.104LV + 0.016LQ - 0.131IV - 0.035SG - 0.006Size1 + 0.02Size2 - 0.0002Age \quad (2)$$

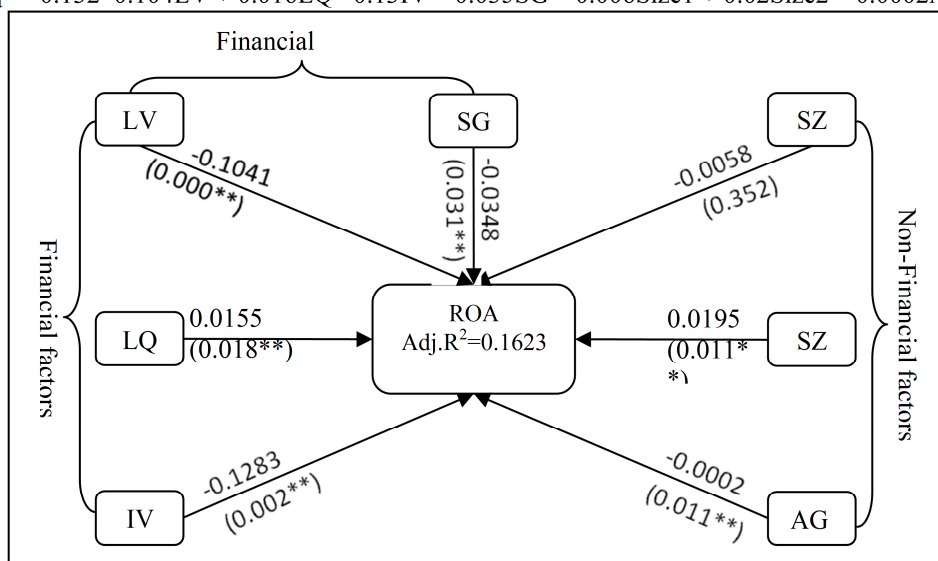


Figure 2. Testing and Relative Influence of Factors on Profitability

**significant at ($\alpha = 0.05$), ** $p < 0.05$

4.5 Discussion of Results and Recommendations

The negative relationship between leverage and financial performance allowed the author to reject the null

hypothesis and summarize the alternative that was accepted. This finding corroborated the arguments of several studies (Titman, 1988; Rajan & Zingales, 1995; and Umer, 2014) that leverage has a negative significant impact on the performance of firms' ROA. This result obligates firms to have a great ability to cope with policy of capital structure. Indicating that the average of leverage was 65% in American environment after financial crisis reminds firms that their financial value has a chance to be decreased and their risk of bankruptcy is very close to be existed. On the other hand, the finding of this research contradicts some previous work, such as Gill et al. (2011) that leverage has a positively correlation with profitability of American firms.

Due to the result of this current study, firms should balance between tax benefit from financial leverage and its default risk. In this endeavor, Pathirawasam (2013) confirmed that when the rate of debt went up, a firm's value might be increased because of tax saving. Table 2 showed that the average long-term debt to total assets ratio was (65%). That is quite high which starts eroding the firm's profitability (Mean of ROA = 0.0900), and benefits of tax savings disappear. The potential problem many firms experience due to high leverage is the loss of their ability to manage and service their debt. Under these circumstances, firms should adopt a good policy to manage and service both their short-term and long-term debt.

The relationship between liquidity of American firms and their profitability was statistically significant. So, the null hypothesis that liquidity has no significant impact on the performance of a firm was not valid in this study. The result obtained in this research supported some previous work (Goddard et al., 2005; Saleem & Ur Rehman, 2011; Almajali, et al., 2012; and Pathirawasam, 2013) that pointed out a positive relationship between liquidity and profitability. Once the average of leverage increases and profitability starts to erode, a firm needs to maintain a high level of liquidity in order to guarantee safety and to enhance profitability, as a result of the lesser risk. But we cannot confirm that American firms can reduce their risk by having an adequate liquidity because this study measured leverage as total debt to total assets. So, we are not sure that the level of liquidity (mean = 151%) enables firms to fulfill both short-term and long term obligations at the same time. It is recommended that American firms should have the ability to use this high liquidity to finance their investment in lieu of utilizing external funding.

The negative significant relationship between the investment of inventory and profitability allowed the author to accept the alternative hypothesis and reject the null hypothesis that Inventory management (IV) has no significant impact on performance of firm ROA. Comparing this result with those obtained by other researchers (Chhibber & Majumdar, 1999; Barbosa & Louri, 2005; Padachi, 2006; and Panigrahi, 2013), we can conclude that these results were similar. This study indicated that the management of inventory is associated with very sensitive decisions, since shortage of inventory leads to loss in sales, while excess inventory may increase holding costs. Actually, having 12% as an average of inventory with very low variation (Mean = 0.124, SD = 0.107) did not show that this average created a drag on firms' ROA, but it showed that it was associated with very low profitability (see Table 2). American firms should have and adopt effective inventory management. It should be noted that inventory has an influence on the profitability in the following year by managing the ending inventory which will be beginning inventory next year. So, it is recommended to investigate whether financial performance in the current year can be affected by the inventory management in the previous year.

The insignificant negative relation that size in terms of total assets has with ROA lets the author accept the null hypothesis that the size of a company in terms of total assets has no significant impact on ROA. This confirmed that the size of a firm was not a proper explanatory variable for profitability. This result advocated the finding of Goddard, et al. (2005). However, the null hypothesis that company size in terms of sales has no significant impact on ROA was rejected. This part of the study provided evidence to support the result of Nunes & Serrasqueiro (2008), and Lee (2009). The result was similar to the argument of Babalola (2013) and Omondi & Muturi (2013). Previous studies presented agreement issues as to whether the large firms can enhance their profitability by enjoying a number of capabilities such as economies of scale. The results of this study did not settle this issue yet.

This study found negative correlation between firms' age and their profitability. This result supported the arguments of David Evans (1987a, 1987b); and Sutton (1997, p. 45-46), who indicated that the age of a firm had a negative relationship with profitability. However, because of limited exploratory variables, this research could not confirm that the sample firms are old enough (Mean of firm's age = 63.91, see Table 1) to use their accumulated experience-based economies of scale to improve their profitability based on learning. It can be indicated that the effect of a firm's age on its financial performance is still unresolved.

5. Research Limitations

It is important to recognize the limitations inherent within this research. First, the source of the secondary data was annual reports 10-k for sample firms. So, the quality of this study and its results are based on the accuracy, reliability, and quality of the source. Second, firm profitability was measured without an adjusted accounting profit for annual effects such as inflation. Third, the research targeted only five years of performance for the large sample of firms listed in Fortune 500. It would be better if another future study took a ten-year-plus sample,

leading to slightly different results.

6. Suggestion for Further Research

The main goal of this study was to analyze some of the internal factors affecting profitability. It should be indicated that financial performance can be affected by other external factors, such as economic, political, cultural, legal, and macroeconomic factors, and the existence of rivals in the industry. Thus, future studies should address these important issues.

7. Conclusion

This research was conducted to investigate the impact of leverage, liquidity, inventory, growth, size and firm's age on financial performance as measured by return on assets (ROA). The main result indicated that leverage, inventory, growth and age have a negative significant impact on ROA, while liquidity and size in terms of sales have a positive significant effect on the profitability of the U.S firms. However, an insignificant negative relationship was found between size in term of total assets and return on assets. These results were inconsistent with previous work in some areas, and consistent with others. It can be deduced that to improve profitability, American firms should be able to manage and service their debts. A generalization of these results is limited because of the five-year time period. It might be instructive to conduct the same or a similar study by analyzing the effect of external factors, such as economic, political, cultural, legal, and macroeconomic factors, and the existence of the rivals in the industry.

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