

Management Efficiency and Profitability: An Empirical Study on the Manufacturing Companies Listed in Colombo Stock Exchange

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Abstract: Management efficiency is an integral part of the overall corporate strategy to create shareholder value and for the survival of a business as it has direct impact of firm's profitability. This study investigates the relationship between the management efficiency and profitability for a sample of 20 manufacturing companies listed on the Colombo Stock Exchange for the period of 5 years from 2007 to 2011. Descriptive and simple linear regression analyses were used to study the relationship between management efficiency and profitability. The results of the statistical test of the hypothesis indicated that the relationship between Fixed Assets Turnover has significant impact on Return on Assets and it is positive. And also the relationship between Fixed Assets Turnover and Net Profit is positive but it is insignificant. The relationship between Total Assets Turnover and Return on assets is positive and significant while the relationship between Total Assets Turnover and Net Profit is positive and insignificant while Working capital turnover is insignificant in the study. The implication of this study can be used by the managers to improve their financial performance and formulate policies that will promote effective assets management system.

Keywords: Management Efficiency, Profitability, Manufacturing Sector

Introduction

All companies are living in an era of ever changing world which is uncertain, complex and unpredictable. Globalization of markets, increase in

competition and constant changes in technological advancement has put huge pressure on organizations to continuously develop and be adaptable to face the challenges of a rapidly changing environment. Most organizations are struggling to survive and are concentrating on developing efficiency at all levels of the organization. In such case performance evaluation of the company is very much important. Performance evaluation of a company is usually related to how well a company can use its assets, shareholder equity and liability, revenue and expenses.

In the asset management process firms' investment decisions take place very important role which is very essential guideline to indicate the management efficiency in investment in long term and short term assets. Investment in short term assets is called current assets. These assets are expected to be converted to cash in the short term, is popularly termed as working capital management. Investment in the long term assets called noncurrent assets, popularly known in financial literature as capital budgeting. Short term decisions are easier than long term decisions but they are not less important. However it is very essential to efficient management decision for both current and noncurrent assets and liabilities. Therefore, in financial accounting there are such ratios to measure the efficiency and as called efficiency ratio. The efficiency with which the assets are used would be reflected in the speed and rapidity converted into sales or they measure the efficiency of the asset management, both noncurrent and current.

According to the Jamali and Asadi (2012), management efficiency is an important component of corporate financial management because it directly affects the profitability of the firms. And also Ehrhardt and Brigham (2007) indicated that in terms of corporate financial perspective management efficiency deal with the effective utilization of assets (both non-current and current) for the purpose of profit maximization on the other hand that indicate the efficiency of usage of the entity's assets in producing revenue and profit. Every business is most concerned with its profitability. Profitability is the ability to make profit from all the business activities of an organization, company, firm, or an enterprise. It shows how efficiently the management can make profit by using all the resources available in the market. Profit is ensuring the long term survival of the firm.

Jamali and Asadi (2012) explored the relationship between management efficiency and profitability considering the importance of profitability for the survival of a business and the role of efficient management to achieve this aim. Therefore efficient management can ensure the success and the sustainability of the firm while its inefficient management may lead the firm into a pitfall. The central conclusion of the study was that the profitability and management efficiency are highly correlated to each other.

The objective of this study is to investigate the relationship between the management efficiency and the firm's profitability for manufacturing sector listed on the Colombo Stock Exchange and to make a judgment of how well the these companies are in efficiency at various manners such as working capital management, fixed asset management and total asset management.

Literature Review

Ghosh and Maji (2003) attempted to examine the efficiency of working capital management of the Indian Cement Companies during the period 1992 to 2002. For measuring the efficiency of working capital management, performance, utilization, and overall efficiency indices were calculated instead of using some

common working capital management ratios and asset management ratios. Setting industry norms as target-efficiency levels of the individual firms, this article also tested the speed of achieving that target level of efficiency by an individual firm during the period of study. The findings of the study indicated that the Indian Cement Industry as a whole did not perform remarkably well during this period.

Lazaridis and Tryfonidis (2004) investigate the relationship of corporate profitability and working capital management. They used a sample of 131 companies listed on the Athens Stock Exchange for the period of 2001-2004. The purpose of their study was to prove statistically significant relationship between working capital and profitability, the cash conversion cycle and its components for listed firms in the ASE. The results of their research showed that there is statistical significance between profitability, measured through gross operating profit, and the cash conversion cycle. Moreover managers can create profits for their companies by handling correctly the working capital components.

Yijie and Jing (2005) in their research discussed that meaning of management efficiency and how to measure it which is a subject that isn't resolved scientifically in the world of academia. The authors of the paper, started with researching quantity of management, thought that management efficiency is the quantity of information communicating finished by a manager in a unit time and on the basis of which put forth a corresponding method of measuring management efficiency with quantitative indicators of management efficiency delimitate.

Padachi (2006) used a set of 58 small manufacturing firms in Mauritius with 340 firm-year observations from 1998 to 2003. The study confirmed that firms with more receivables and higher levels of inventory are less profitable. The author conducts a comparative analysis of five major industry groups, and asserts that working capital has a negative correlation with Return on assets. The study concluded that the efficient management of working capital increases profitability.

Shah and Sana (2006) also investigated the relationship, using financial data on oil and gas companies in Pakistan for the period 2001 to 2005. Their findings suggested that it is possible for financial managers to maximize shareholders' wealth by efficiently managing working capital. They reported that profit margins move in a significantly opposite direction to Working Capital Management and the Profitability 31 of the Textile Sector. Receivables, cash cycles, sales growth, and inventory conversion periods. Further, they examine the causal relationship that confirms that the efficient management of working capital moves positively with profitability.

Christopher and Kamalavalli (2007) studied the efficient management of working capital. The dependent variable return on assets is used to measure the profitability and the relation between working capital management corporate profitability is investigated for a sample of 14 corporate hospital in India using panel data analysis for the period of 1997-1997 to 2005-2006. Correlation analysis revealed that eight variables are Current ratio, Quick ratio, Inventory turnover ratio, Debtor turnover ratio, Comprehensive liquidity index, Net liquidity balance, Size and Leverage and Working capital turnover Ratio, Ratio of current assets to total assets, Ratio of current assets to operating income. The study concludes that all ratios are significantly associated with Return on assets.

Prabath and Lakshan (2007) emphasized in his article "Efficient working capital management is an integral part of the overall corporate strategy to create shareholder value". He investigated the relation between the company's working capital, cost structure and their profitability. This relationship is examined using correlation and regression analysis. In this research, have selected a sample of 65 Sri Lankan companies listed on Colombo Stock Exchange for a period of 5 years from 2003-2007, have studied the effect of different variables of working capital management and cost structure on the profitability of Sri Lankan Companies including the Debtors turnover in days, Inventory turnover in days, Creditors payable in days, and working capital cycle representing the working capital and Administrative, Selling and Finance expenses representing the cost structure. The results suggested that managers can increase corporate

profitability by reducing the number of inventory turnover days and increasing the creditors payable days in order to minimize the length of the working capital cycle. Increase in creditors payable days would give opportunities to the company for further investments. Also it suggested that the spending on selling and distribution would not increase the profitability and more finance cost would hinder the profits of the companies.

Mathuva (2009) analyzed the correlation between financial ratios, including liquidity ratio (Current ratio), profitability ratio (Return on Investment), activity ratio (Total Assets Turnover), and solvability ratio (Debt to equity), and both capital gain (loss) and dividend in 135 manufacturing companies listed on the Jakarta Stock Exchange. This research discovers that all ratios have positive correlation with capital gain (loss). However, only current ratio which is statistically significant ($\alpha=5\%$). Furthermore, for correlation with dividend yield, only total asset turnover that is proved significant. ($\alpha=10\%$).

Clausen (2009) stated that the Profitability Ratio Analysis of Income Statement and Balance Sheet are used to measure company profit performance. The income statement and balance sheet are two important reports that show the profit and net worth of the company. It analyses showed how well the company is doing in terms of profits compared to sales. He also showed how well the assets are performing in terms of generating revenue. He defined the income statement shows the net profit of the company by subtracting expenses from gross profit. Furthermore, the balance sheet lists the value of the assets, as well as liabilities. In simple terms, the main function of the balance sheet is to show the company's net worth by subtracting liabilities from assets. He said that the balance sheet does not report profits, there's an important relationship between assets and profit. The business owner normally has a lot of investment in the company's assets.

Danuletiu (2010) did a research to analyze the efficiency of working capital management of companies from Alba County. The relation between the efficiency of the working capital management and profitability is examined using Pearson correlation

analyses and using a sample of 20 annual financial statements of companies covering period 2004-2008. The conclusion of the study was that there is a weak negative linear correlation between working capital management indicators and profitability rates.

Hossan and Habib (2010) in their study attempted to evaluate the performance of pharmaceutical company in .It means how well the companies perform efficiently in the market. The study conducted from 2007 to 2008 based on the data collection from the annual financial reports. Different financial ratio is evaluated such liquidity ratios, asset management ratios, profitability ratios, market value ratios, debt management ratios and finally measure the best performance between two companies. The graphical analysis and comparisons are applied between two companies for measurement of all types of financial ratio analysis. They emphasized in their article that liquidity ratio is conveying the ability to repay short-term creditors and it total cash. It determines perform of short term creditor under the three categories such as current ratio, quick ratio and cash ratio. The asset management ratio is a measurement how to effectively a company to use and controls its assets. It's also quantify into seven categories such as account receivable turnover, average collection period, inventory turnover, account payable turnover , account payable turnover in days ,fixed asset turnover , total asset turnover. Profitability ratio is evaluating how well a company is performing by analyzing and how the profit was earned relative to sales, total assets and net worth. Debt coverage ratio is performing that the property insufficient to collect their mortgage and market value has performed the stockholder to analysis their future market value of the stock market.

Jamali and Asadi (2012) found the very big relationship between the management efficiency and the firm's profitability for a sample of 13 auto manufacturing companies listed on the Bombay Stock Exchange, located in Pune for the period of 5 years from 2006 to 2010.They denoted that "Management efficiency is an important component of corporate financial management and it directly affects the profitability of the firms". The analysis is carried out using Minitab 14 and conducting Pearson Coefficient

correlation test on variables of the study including Gross Profit Ratio (GPR) and Assets Turnover Ratio (ATR).The central conclusion of the study is that profitability and management efficiency are highly correlated to each other and based on the results of the study recommendations for improving the management efficiency and profitability in this industry are suggested.

Alipour (2011) made a research on Working capital management and profitability. The main objective of this research was studying the relationship between working capital management and profitability. The time realm of the research was 2001-2006 and the studied companies have been the ones accepted in Tehran stock exchange. Multiple regressions and Pearson's correlation were used to test the hypothesis. The results of the statistical test of the hypothesis indicated that there is a significant negative relation between number of day accounts receivable and profitability, a negative significant relation between Inventory turnover in days and profitability, a direct significant relation between number of days accounts payables and profitability. The results of the research show that in the studied companies, there is a significant relation between working capital management and profitability and working capital management has a great effect on the profitability of the companies.

Alam et al. (2011) did a study to find out impact of working capital management on the profitability of the firm without compromising for the liquidity of the firm. Furthermore they also tried to explore the impact of efficient working capital management, proxy for financial performance, on the market value of the firm. In this study they used secondary data, of sixty five companies randomly selected from Karachi Stock Exchange. The five years panel data, from 2005 to 2009, are extracted from publicly available sources, financial statements and other web sources, is used. Because of differences in the nature of operations, financial and service sector firms are not included in the analysis. Tobins Q; proxy used for determining the market value of the firm. Whereas return on assets & return on invested capital; were used to measure financial performance of the firm. Five financial ratios, Cash Conversion Cycle; Current Ratio; Current asset to total

asset ratio; Current liabilities to total asset ratio and Debt to asset ratio, were used as variables against which changes in dependent variables measured by applying correlation and multiple regression Technique using SPSS. They found significant correlations exist between Working Capital with and the firm's profitability.

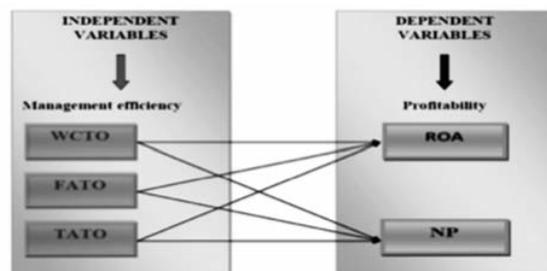
Conceptualization and Hypotheses

Based on the research objective and the literature survey conceptual model and hypotheses have been constructed for this study. This model of management efficiency in manufacturing sector introduces new constructs and uniquely combines them in specifying that the profitability is a function of working capital turnover, fixed assets turnover and total assets turnover.

Hypotheses

The following hypotheses were formulated for the study.

- H1: There is a significant relationship between working capital turnover and return on assets.
- H2: There is a significant relationship between fixed asset turnover and return on assets.
- H3: There is a significant relationship between total asset turnover and return on assets.
- H4: There is a significant relationship between working capital turnover and net profit.
- H5: There is a significant relationship between fixed assets turnover and net profit.
- H6: There is a significant relationship between total assets turnover and net profit.



Methodology

Data Collection

The present study used secondary data for the analysis. The data were collected from the annual reports of the selected companies from 2007 to 2011. The financial statements which are made up of income statements and balance sheets of the sample companies were the main sources of data for this study. These were obtained from the web sites of the respective companies.

Sampling Design

The population of this study is based on listed companies in the Colombo Stock Exchange (CSE). The CSE has 287 companies representing 20 business sectors as at 31st December 2012, with a Market Capitalization of Rs. 2,167.5 Bn. The sample of this study composed of twenty companies listed in the manufacturing industries where there are 39 companies listed in the manufacturing sector. The sample period was five years from 2007 to 2011. From this sector the following twenty listed Sri Lankan manufacturing companies were selected to carry out the research;

1. Laxapana Batteries PLC
2. Kelani Cables PLC
3. Royal Ceramic Lanka PLC
4. Sierra Cables PLC
5. Lanka Ceramic PLC
6. Ceylon Grain Elevators PLC
7. Dipped Product PLC
8. Tokyo Cement Company Lanka PLC
9. ACME Printing & Packaging PLC
10. Chevron Lubricants Lanka PLC
11. Print Care PLC
12. Lanka Aluminum Industries PLC
13. Lanka Wall tiles PLC
14. ACL Cables PLC
15. Abans Electricals PLC
16. ACL Plastics PLC
17. Central Industries PLC
18. Singer Industries (Ceylon) PLC
19. Samson International PLC
20. Pellawtte Sugar Industries

The sample represents 51% of the companies listed under the manufacturing sector. Other companies listed under the different sectors are not taken into consideration in this analysis in order to arrive at a generalized conclusion about the listed manufacturing companies in Sri Lanka.

Mode of Analysis

As this research is based on the secondary and numerical data quantitative research approach had been used. According to Leavy (2004), “statistical analyses are used to describe an account for the observed variability in the data”. This involves the process of analyzing the data that has been collected. Thus the purpose of statistics is to summarize and answer questions that were obtained in the research. The upper level of statistical significance for hypotheses testing was set at 5%. Statistical analysis involves both descriptive and inferential statistics. Descriptive statistics are used to describe and summarize the behavior of the variables in a study. They refer to the ways in which a large number of observations are reduced to interpretable numbers such as averages and percentages. Inferential statistics are used to draw conclusions about the reliability and generalizability of the findings (Leary, 2004). In order to test the research hypotheses; the inferential tests used include the Regression Analysis.

Research Model

Regression analysis was carried out to test the impact of management efficiency on profitability. Here management efficiency is the independent variable and profitability is the dependent variable. From these independent and dependent variables, the following relationships are formulated.

Profitability of the companies is dependent upon the management efficiency. It is represented as follows;

$$P = f (ME)$$

Which shows profitability is the function of management efficiency.

Where;

P = Profit

ME = Management Efficiency

Here, profitability is measured with the help of two ratios namely Net profit, Return on Assets. Management Efficiency is measured through working capital turnover, fixed assets turnover and total assets turnover ratio. Therefore, the regression model will be formulated in the following manner;

Where;

$$\left. \begin{aligned} NP &= \hat{a}_0 + \hat{a}_1x_1 \dots\dots\dots \\ NP &= \hat{a}_0 + \hat{a}_1x_2 \dots\dots\dots \\ NP &= \hat{a}_0 + \hat{a}_1x_3 \dots\dots\dots \end{aligned} \right\} \text{Model - 1}$$

$$\left. \begin{aligned} ROA &= \hat{a}_0 + \hat{a}_1x_1 \dots\dots\dots \\ ROA &= \hat{a}_0 + \hat{a}_1x_2 \dots\dots\dots \\ ROA &= \hat{a}_0 + \hat{a}_1x_3 \dots\dots\dots \end{aligned} \right\} \text{Model - 2}$$

Where;

X1 = Working Capital Turnover Ratio

X2= Fixed Assets Turnover Ratio

X3= Total Assets Turnover Ratio

NP = Net profit

\hat{a}_0 = Constant

ROA = Return on Assets

Descriptive Analysis

The descriptive statistics show that over the period under study, the profitability ratios measured by return on assets and net profit averaged 0.08%, and 0.04% respectively. The working capital turnover ratio stood at 4.9% and fixed assets turnover averaged 4.6% and total assets turnover ratio averaged at 1.2%.

Results and Analysis

Table 1: Results of Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Std. deviation
ROA	100	-0.28	1.94	0.08	0.21
NP	100	-0.58	0.25	0.04	0.09
WCTO	100	-18.02	25.04	4.93	7.52
FATO	100	0.04	40.48	4.55	6.47
TATO	100	0.44	3.01	1.24	0.57
Valid N (list wise)	100				

Regression Analysis

Table 2: Working Capital Turnover Ratio on profitability

Model	Dependent Variable	R ²	F	Significant	Standardized Coefficients
1	NP	0.021	0.133	0.716	0.037
2	ROA	0.066	0.628	0.430	0.080

* Correlation is significant at the 0.05 level.

The R² values of 0.021 and 0.066 which are in the above mentioned table denotes that 2.1%, and 6.6% of the observed variability in NP, and ROA is explained by the variability in the independent variable of Working Capital Turnover ratio. These R² values indicate that there may be number of variables which can have impact on profitability other than the Working Capital turnover ratio. Hence this area indicated as a scope for future research. Further, the results did not show any significant relationship between working capital turnover ratio and profitability indicators.

and return on assets of the listed manufacturing companies in Sri Lanka. However, F-statistics reported that FATR was significantly related to ROA, with F-statistics 10.391 ($p = 0.002 < 0.05$), and NP with F-statistics 5.432 ($p = 0.022 < 0.05$) during the study period. It reflects that the F value is significant at the 0.05 significant level.

Therefore at 5% significance level, it can be statistically concluded that the model fits to analyze the relation between FATR and Profitability.

Table 3: Fixed Assets Turnover Ratio on Profitability

Model	Dependent Variable	R ²	F	Significant	Standardized Coefficients
1	NP	0.053	5.432	0.022	0.229*
2	ROA	0.096	10.391	0.002	0.310*

* Correlation is significant at the 0.05 level.

The above mentioned table shows that fixed assets turnover ratio is having the impact of 5.3% and 9.6% on net profit and return on assets respectively. This indicates that fixed assets turnover ratio composition is a minor determining factor of net profit

The hypotheses H2 and H5 were accepted at the 0.05 significant level and it was concluded that there is a significant relationship between fixed assets turnover ratio and profitability.

Table 4: Total Assets Turnover Ratio on Profitability

Model	Dependent Variable	R ²	F	Significant	Standardized Coefficients
1	NP	0.033	3.312	0.072	0.181
2	ROA	0.122	13.566	0.000	0.349*

* Correlation is significant at the 0.05 level.

The above mentioned table shows that total assets turnover ratio is having the impact of 3.3% and 12% on net profit and return on assets respectively. This indicates that total assets turnover ratio composition is the minor determining factor of Net profit and return on assets of the listed manufacturing companies in Sri Lanka. The major portion of the profitability is influenced by factors other than total assets turnover ratio. However, according to the F-statistics total assets turnover ratio was significantly related to ROA, with F-statistics 13.566 ($p = 0.000 < 0.05$) during the period

of study. Therefore at 5% significance level, it can be statistically concluded that the model fits to analyze the relation between FATR and ROA. Therefore, it can be concluded that total assets turnover ratio has statistically significant impact on ROA and the hypotheses H₃ was accepted while rejecting H₆.

Further, it is crystal clear that positive association was found between all the independent and dependent variables.

Hypotheses Testing

No.	Hypotheses	Results	Tools
H ₁	There is a relationship between working capital turnover and return on assets.	Reject	Regression
H ₂	There is a relationship between fixed asset turnover and return on assets.	Accept	Regression
H ₃	There is a relationship between total asset turnover and return on assets.	Accept	Regression
H ₄	There is a relationship between working capital turnover and net profit.	Reject	Regression
H ₅	There is a relationship between fixed assets turnover and net profit	Accept	Regression
H ₆	There is a relationship between total assets turnover and net profit.	Reject	Regression

Conclusion and Recommendations

This study examined the impact of management efficiency on profitability in Sri Lankan listed manufacturing companies. The study covered 20 listed manufacturing companies over the period of five years from 2007 to 2011 and the major findings of the study are summarized below:

Total fixed assets turnover ratio was found to be significant in determining return on assets in the manufacturing industry of Sri Lanka. The mean values of fixed assets turnover ratio 4.55% and total assets turnover ratio was 1.24% while the mean value of the working capital turnover ratio was 4.93%.

In this research working capital turnover, fixed assets turnover and total assets turnover, are taken as a comprehensive components of management efficiency, by using these variables the efficiency of both current and noncurrent assets management can

easily be checked. The results show that there is a positive relationship of working capital turnover with Return on assets and Net profit. This result confirms with previous studies, Padachi (2006); Lazaridis & Tryfonidis (2004); Shah and Sana (2006) and Christopher & Kamalavalli (2007), who found that positive relationship between working capital management and profitability. Therefore Firms can easily increase value for the shareholders by keeping the component of working capital optimal level. This result goes against the previous study of Raheman & Nasr (2007), they conducted strong negative relationship between working capital management and profitability.

Fixed assets turnover has proved statistically significant and has positive impact on both Return on assets and Net profit. This means that firms which maintain sufficiently high fixed assets levels it will be a cause to increase the profitability. This result consists with discussion of Munya (2010).

In this research Total assets turnover has proved statistically significant positive relationship with Return on assets and positive relationship with Net profit. Same result was concluded by Jamali and Asadi (2011) for the study auto manufacturing companies listed on the Bombay Stock Exchange. Therefore management team of each organization can be achieve to more profit through more efficient management by maintaining sufficiently high total assets turnover.

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