



Determine the Management Efficiency in A Multinational Corporation (MNC) Based on Return of Capital (ROC)

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Abstract

In this paper the authors attempt to determine the management efficiency of multinational corporation (MNC) based on Return of capital (ROC). Thus, the objective of this study is to present a comprehensive understanding on the relationship among dependent variables to each of its independent variables which are the return on capital (ROC), capital, market-to-book value (MtoB), total asset turnover (TAT), gross profit margin and US gross domestic profit (GDP) and also net operating profit after tax (NOPAT). This paper is examined the correlation and tendency of probability on future events that condition will be occurred or not. Those correlations among variables will be crucial in determining which is management efficiency of Air Freight and Delivery Services of US listed in NASDAQ. This study using quantitative approach and the data obtained from Air Freight and Delivery Services of US listed in NASDAQ for the period from 1988 to 2019. from the Data Stream provided by Thomson Reutres. Furthermore, the findings of this study in more details in conclusion.

I. INTRODUCTION

MNC companies have their main market and concerns not only on their own country but also the other country that they had made direct investment. There are many opportunities that MNC can gain from their investment in other country such as wider choices of investment for their finance and investment activities where it will yield their return on capital higher. Besides that, the attractiveness of developed country can invite high competence of manager to work for them and also will impact their management efficiency and eventually will affect in higher return on capital. Furthermore, the probability of lower cost of labor can lead the MNC to increase their productivity with lower incremental expense and in return will help the company gaining higher return on capital. On contrary, there will be many challenger that have to be faced such differential in culture, language, political, government system and the most important is currency. In this paper, we have more concern on how return on capital will be affected by some elements that is perceived having high level of relation to it (Riyadh, Sukoharsono, & Andayani, 2019)

In many cases, return on capital is indicated by Net Operating Profit after Taxes (NOPAT) divided by capital which is both in debt and equity. This ratio is seemed preferable in measuring management efficiency rather than Return on equity where the ratio depends on earning and total equity. Besides that, ROIC (return on invested capital) is also one of famous indicator have been used by many people. In that ratio, net operating profit (NOA) deducted by adjusted taxed as the numerator and invested capital as its denominator. Moreover, the numerator is not deducted by interest since in invested capital includes the debt capital (Al-Smadi, 2012)

In usual term, MNC have quite low management efficiency on their organization. It can be measured by how big their ROC which is used as indicator that reflect MNC management. MNC that have many subsidiaries spread over the countries, in fact having lower ROC because of some factors. The most important factor is lack of efficiency in managing their asset. Based on prior studies, it showed on U-shaped relationship between return on capital and its size that they have positive correlation but in some certain point it will decrease along with increasing of its size (Wang, and Mathur, 2008)

The issue of MNC return on capital also had taken many concern of many scholars especially international finance. In most of studies, MNC should have high return on capital since they had done natural diversified on their currency by opening subsidiary in different countries. Furthermore, in side of capital structure, MNC should have high leverage ratio since they have more diversified sources and opportunities to settle their obligation. Many theories have been developed in order to find the best way to explain how optimal capital structure should be existed in firms. Agency, bankruptcy and liquidation cost are just example from that's many theories.

In this paper, we try to determine management efficiency of MNC based on their ROC. From prior study also, management efficiency will stipulate how much agency cost and bankruptcy cost will happen for that specific MNC. By determining those cost, MNC can lower their cost of capital in return getting higher value for their companies and increase their expected return and cash flow. In most cases, MNC will have higher opportunity and quality over their competitor at host country and giving them chance to expand more oversea. This advancement can be seen in the relation between expected future growth and realistic achieved growth. There are more variables that affect on the management efficiency such as non debt tax shield and level of probability.

II. LITERATURE REVIEW

Return on capital is playing important role in determining improvement made by company. In some prior studies, return on capital of MNCs was higher if compared to domestic companies since the opportunity and broader choices of their finance and investing activities. On the other

hand, MNCs also faced by other elements that can lead to higher cost on their activities in different countries.

A. Agency costs of debt

Firms with higher agency costs of debt are obviously expected to have lower debt levels. This incorporate monitoring and control costs and which can be represented by a range of variables such as free cash flow. There exists a positive association between free cash flow and debt levels reductions (Liu & Hsueh, 1993). MNCs are expected to have higher agency cost if compare to domestic companies. As the operations of MNCs are geographically discrete, the difficulties associated with gathering and processing information accounts for monitoring (auditing costs, language differences, varying legal and accounting systems) more costly and time consuming.

B. Bankruptcy costs

Firms with higher bankruptcy costs are likely to have lesser debt levels. MNCs are expected to have lower bankruptcy costs than DCs since MCs have ability to diversify across different geographical locations than DCs hence result in less volatility of earnings. This should lower the possibility of bankruptcy and hence lower expected bankruptcy costs for MCs. Moreover, MNCs have operations in various lawful jurisdictions and that creditors in different countries have different information and remedies. These jurisdictional and informational differences were one of the main reasons in the increase of the costs connected with bankruptcy (Stanley, 1981). Therefore, it is not obvious if MCs are estimated to have high or low costs of bankruptcy. Nonetheless, by and large firms with higher probable bankruptcy costs are likely to have lower leverage level. To proxy bankruptcy costs, quite a lot of researchers, have preference to use the standard deviation of the first difference in income before interest and taxes (IT) measured by the mean value of the firm's total assets. Nevertheless, due to potential simultaneous correlation of total assets with other variables, the numerator is scaled by interest expenditure.

C. Non Debt Tax Shield

Taxes and its relationship to return on capital are unambiguously linked to the appropriate tax rule. Under the U.S attribution tax regime the tax deductibility of interest is not expected to stimulate a preference for debt as it does under a conventional tax regime. Liu & Hsueh (1993) study formalized a structure whereby tax deductions that are not associated with debt (NDTS)

act as alternatives for interest deductions. These non-debt tax shields contend with interest as a tax deduction. Though, these non-debt tax shields are only going to compete for interest in a classical tax environment. Therefore, for U.S organizations facing an attribution tax system, interest will not provide the same tax benefit as under a traditional tax arrangement.

D. Profitability

There is more than enough evidence to shows in previous studies that if a firm is Profitable (i.e. higher return on capital) then it is more possible that financing would be from internal sources than external sources; this is expected for the multinational corporations as compare to domestic corporations. The argument is based on costly external sources of capital. More profitable firms are expected to have higher internal finances and hence, will have a propensity to hold less debt, because it is far easier and more cost efficient to finance within the scope of the organization or corporation, therefore this will bring about certain relationship between profitability and debts (Shaked, 1986). In this case there seems exist a negative relationship between profitability and debt. MCs have higher opportunities to earn more profit principally due to their accessibility to more than one source of profits and better opportunities to have favorable business setting in particular countries.

In this paper, we will study on the how Return of capital will affect management efficiency relative to its variables. We conclude a hypothesis that management efficiency is high if all the variables on regression proposed by Wang & Mathur (2008) have significantly correlated with ROC. Here is the regression equation that will be used for the whole paper:

$$ROC_{i,t} = \alpha_0 + \alpha_1 Capital_{i,t} + \alpha_2 CapitalSquare_{i,t} + \alpha_3 GDPAnnualGrowth + \alpha_4 MtoB_{i,t} + \epsilon_{i,t} \quad (1)$$

By using this regression, we hope can find the correlation at appropriate significant level (1%, 5% or 10%) among ROC and its independent variable in order to get how good management efficiency on Air Freight and Delivery Services Companies that we take as sample from NASDAQ.

III. METHODOLOGY

1. Purpose of Study

This paper is focusing on hypothesis studies. In this paper, it will be stated the comprehensive understanding on the relationship among dependent variables to each its independent variables. The influence on their dependent variables will be assessed and evaluated in order to get depth understanding of their relationship (Hosam Alden et al., 2019)

2. Type of Study

This paper is studying the correlation and tendency of probability on future events that condition will be occurred or not. Those correlations among variables will be crucial in determining the objective of this paper which is management efficiency of Air Freight and Delivery Services of US listed in NASDAQ

3. Study Setting

The correlation study on this paper will be set for return on capital retrieved from our data sources of Air Freight and Delivery Services of US listed in NASDAQ toward its independent variables. Furthermore, the study will be conducted for finding those variables that will be explained further later

4. Time Horizon

This study only took Air Freight and Delivery Services of US listed in NASDAQ for the period from 1988 to 2019.

5. Sources of Data

We retrieved the main data almost from the Data Stream provided by Thomson Reutres. The data comprise the period from 1988 until 2019, including the return on capital (ROC), capital, market-to-book value (MtoB), total asset turnover (TAT), gross profit margin and US gross domestic profit (GDP) and also net operating profit after tax (NOPAT). When we get the data from the data stream, we edit the data also to become the panel that we can easily to see the differences among all these companies. The samples that engaging in US air freight and delivery service, and also compare the data from the Worldscope Full Company Report, SEC Full Company Report, Thomson Financial Full Company Report. And then retrieve the corresponding needed data from data stream. If the data for a corporation is not complete for the whole period of 1988-2019, the corporation is deleted from the sample. We finally get a sample used for the observation.

6. Population Frame

In this paper, we are choosing NASDAQ market as the well-established market. The market will take the changes as wholly for any changes of information on public so the result on this paper can be general. Besides that, we focus our study on Air Freight and Delivery Services of US for selected 16 companies. These companies were selected based on random sample we found on the website of NASDAQ. There isn't any single financial measurement restricted for the sample we found.

From 2914 companies listed in NASDAQ, we only occupied 16 selected companies which were taken by random sample.

7. Hypothesis Development

We are using a regression proposed by Wang & Mathur (2008) in order finding the correlation between independent variables and dependent variable. The level of significance of those correlations will determine either management efficiency of Air Freight and Delivery Service of US listed in NASDAQ is good or bad. The regression equation is stated below:

$$ROC_{i,t} = \alpha_0 + \alpha_1 Capital_{i,t} + \alpha_2 CapitalSquare_{i,t} + \alpha_3 GDPAnnualGrowth + \alpha_4 MtoB_{i,t} + \varepsilon_{i,t} \quad (1)$$

A. Return on Capital

Return on capital which is an index for management efficiency and overall rate of return on investment earned from business operations. It is a ratio used in finance, valuation and accounting. The ratio is estimated by dividing the Net Operating After Tax (NOPAT) by the book value of invested capital. Furthermore, it will not change with the mix of debt and equity that a company employs and in the rate of interest it pays on its debts, so we believe it is more closely to prove the management efficiency in the company. So we use this data in our research.

B. Capital

Capital which is an index to measure a firm's size and assets that the firm invested in the operating and equipment activities and so on that to develop the firm at the beginning period. We can calculate with net of accumulated depreciation and amortization.

C. Total Asset Turnover

Total asset turnover is a catch-all efficiency ratio that highlights how effective management is at using both short term and long term assets. All else equal, the higher the total asset turnover, the better. Moreover, it is calculated as total assets turnover equal to revenue divided by the average total assets. Total assets turnover will affect ROC by how effective companies occupy their total asset in order getting net income

D. Gross Profit Margin

Gross profit is simply the difference between a company's sales of goods and services and how much it must pay to provide those goods or services. Gross margin is simply the amount

of each dollar of sales that a company keeps in the form of gross profit and usually stated in percentage terms. The higher the gross profit margin the more of a premium a company charges for its good or services

Combining the regression (1) with the hypothesis below:

H0: Air Freight and Delivery Service of US listed in NASDAQ have good management efficiency

H1: Air Freight and Delivery Service of US listed in NASDAQ have bad management efficiency

IV. RESULT AND FINDING

A. Descriptive Analysis

Table 1 shows descriptive statistics for the MNCs group in air freight and delivery service sector listed in NASDAQ. ROC of this industry for 16 companies is quite distributed far from its mean. Standard deviation on ROC which is 16.02413 describe that the variability of sample distributions value is spread quite far from its mean. The mean for dependent variable is 5.9184, whereas minimum and maximum is respectively -146.79 and 43.47 is the evidence how wide the spread the sample distribution. It also shows that on average, the size of MNCs is much big since the mean values of capital for MNCs 11.23 billion. In addition, MNCs' profit margin is high, which shows that on average MNCs get a larger percentage of gross profit from their sales.

Total Asset turnover (TAT) on contrary is shown difference result for sample distribution. Its standard deviation only shows 0.72312 which is indicated small dispersion among sample distribution. Total asset turnover will affect ROC by how effective companies occupy their total asset in order getting net income. This figure depict that in this industry, air freight and delivery services companies having almost same capabilities in utilizing their asset

For Capital Square, standard deviation is considered very exaggerate since it was square of capital. Standard deviation is very large because every capital which is negative will become positive because the effect of power of two on its capital. This figure indicated that there is very wide spread of simple distribution on capital square. This data is not very persistent because the square is taken in order to find more depth relation between this variable and dependent variable.

Table 1
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ROC	198	-146.79	43.47	5.9184	16.02413
Capital	198	-196.87	75.01	11.2362	20.86800
CapitalSquar	198	.00	38757.80	5.5953E2	2834.90929
Mtob	198	-90.27	48.89	1.8869	8.96890
TAT	198	.37	3.83	1.2502	.72312
GrossProfV	198	-11.02	86.55	36.3158	20.02177
GDP	198	-2.44	4.83	2.3265	1.88654
Nopat	198	-3.51E6	2.02E6	6.7660E4	5.33200E5
Valid N (listwise)	198				

B. Multivariate Analysis

It appears that capital person correlation is good. 0.344 of correlation on dependent variables that is significant at level 1% means that there is quite strong relation between capital and ROC of air freight and delivery service. The association between those two variables can be explained as by determining that capital had positive relation toward ROC. Moreover, capital square only shows positive correlation toward ROC as much 0.180 at 5% significant level.

As shown by the table, furthermore, NOPAT also shows good relation with ROC which is positive 0.4 at 1% significant level. This relation among independent variables toward dependent variable show how much the effect on this variable when occurred some changes on dependent variable at 99% and 95% confidence.

Table 2

Correlations

		ROC	Capital	CapitalSqu ar	Mtob	TAT	GrossProfV	GDP	Nopat
ROC	Pearson Correlation	1	.344**	.180*	-.068	.088	.063	.047	.400**
	Sig. (2-tailed)		.000	.011	.343	.216	.380	.509	.000
	N	198	198	198	198	198	198	198	198
Capital	Pearson Correlation	.344**	1	-.539**	-.084	.244**	.032	.140*	.265**
	Sig. (2-tailed)	.000		.000	.242	.001	.659	.049	.000
	N	198	198	198	198	198	198	198	198
CapitalSqu ar	Pearson Correlation	.180*	-.539**	1	-.117	.217**	.057	-.029	.011
	Sig. (2-tailed)	.011	.000		.100	.002	.425	.690	.883
	N	198	198	198	198	198	198	198	198
Mtob	Pearson Correlation	-.068	-.084	-.117	1	-.122	.058	.009	-.037
	Sig. (2-tailed)	.343	.242	.100		.087	.418	.895	.602
	N	198	198	198	198	198	198	198	198
TAT	Pearson Correlation	.088	.244**	.217**	-.122	1	-.106	.059	.030
	Sig. (2-tailed)	.216	.001	.002	.087		.137	.411	.673
	N	198	198	198	198	198	198	198	198
GrossProf V	Pearson Correlation	.063	.032	.057	.058	-.106	1	.000	.200**
	Sig. (2-tailed)	.380	.659	.425	.418	.137		.996	.005
	N	198	198	198	198	198	198	198	198
GDP	Pearson Correlation	.047	.140*	-.029	.009	.059	.000	1	.207**
	Sig. (2-tailed)	.509	.049	.690	.895	.411	.996		.004
	N	198	198	198	198	198	198	198	198

Nopat	Pearson Correlation	.400**	.265**	.011	-.037	.030	.200**	.207**	1
	Sig. (2-tailed)	.000	.000	.883	.602	.673	.005	.004	
	N	198	198	198	198	198	198	198	198

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Table 3
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.635 ^a	.403	.381	12.60611

a. Predictors: (Constant), Nopat, CapitalSquar, Mtob, GDP, GrossProfV, TAT, Capital

From the above table, it can be seen that the Rsquar value is .403, that means the variance or the variability between the ROC and the other independent variables of the study is good equal **40.3%**

Table 4
ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	20390.602	7	2912.943	18.330	.000 ^a
	Residual	30193.654	190	158.914		
	Total	50584.257	197			

a. Predictors: (Constant), Nopat, CapitalSquar, Mtob, GDP, GrossProfV, TAT, Capital

b. Dependent Variable: ROC

Anova table shows that the P or sig value is equal to $0.000 < 0.05$, that means there is statistically significance relationship between the DV and the IV s, can said that the model of the study is Fit model.

Table 5
Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	6.663	2.817		2.365	.019
Capital	.502	.062	.653	8.147	.000
CapitalSquar	.003	.000	.580	7.522	.000
Mtob	.079	.103	.044	.771	.442
TAT	-4.480	1.445	-.202	-3.100	.002
GrossProfV	-.053	.047	-.066	-1.136	.257
GDP	-.586	.490	-.069	-1.198	.233
Nopat	7.689E-6	.000	.256	4.159	.000

a. Dependent Variable: ROC

From the coefficient table the relationship between the ROC and the IV (Capital, Capital square, TAT, and Nopat) can translated into the following Linear equation:

$$\text{ROC} = 0.502.\text{capital} + 0.003.\text{Capitalsquar} - 4.48.\text{TAT} + 7.689 \cdot 10^{-6}.\text{Nopat}$$

Based on this regression equation there are three variables affect positively on ROC which are capital, capital square, and net operation profit after tax. In contrast, there is one variable affect negatively on ROC which is total assets turn over.

In all of the regression capital, capital square, and Nopat have significantly positive coefficient which demonstrates that ROC in MNCs in flight sector affected by its capital, capital square, and profit margin after tax.

For capital and capital this confirms our hypothesis that returns on capital benefits from increase in firm size at the initial stage of growth, so management efficiency will be very high in this stage.

However, turn over on total assets (TAT) has significantly negative coefficient which demonstrates that ROC in the firms mentioned before affected by TAT negatively, so our hypothesis is rejected.

V. CONCLUSION

Based on the statistics analysis above it can easily to see the MNC's return on capital that means the management efficiency also lower. Because as the above research we see the firm size and assets of a firm not the main factor to affect the management efficiency in MNC. So the problem that we think it is the MNCs have more communication difficulties because of the complex legal and cultural environments in which MNCs operate, which lowers its management efficiency. Moreover, the return on capital includes two factors which are total asset turnover and gross profit margin. The descriptive statistics we done before indicate that MNCs have a lower total asset turnover. While the lower return on capital. This is also a component that causes the lower management efficiency in MNCs.

Furthermore, normally we know firms' management efficiency increases first with firm size, but if the index reach a certain point, it begins to have negative relationship with firm size. There is a U-shape relationship between return on capital and firm size no matter which approach we use-discrete or continuous, no matter which estimate method we use-OLS, firm fixed effect, two-way fixed effect. Thus, the MNC in USA direct investment in the other countries they have more opportunities and also more challenges. Since MNCs operate in broad geographical areas and in various legal, cultural and language environments, their management efficiency might decrease due to the increasing difficulty to communicate efficiently.

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