

Factors Affecting Profitability (Case of Consumer Products Companies of Thailand)

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Abstract—This study aimed to investigate the impact of liquidity using quick ratio (QR), cash conversion cycle (CCC), inventory conversion period (ICP), receivable conversion period (RCP) and payable deferral period (PDP); capital structure using debt to equity ratio (DTER); sales growth (SG) and tax rate (TR) on profitability proxied by return on equity (ROE) of 40 listed companies in the Consumer Products sector in the Stock Exchange of Thailand from 2008 to 2012. Multiple linear regression analysis was employed to analyze the impacts of independent variables on dependent variable. The results showed that quick ratio and debt to equity ratio have negative impacts while sales growth has positive impact on return on equity.

Keywords—cash conversion cycle, debt to equity ratio, inventory conversion period, payable deferral period, quick ratio, receivable conversion period, return on equity, sales growth, tax rate.

I. INTRODUCTION

After the liquidity crisis of 2008, most of countries around the world fell into depression in 2009 especially to countries which depend much on export as Thailand. However, since 2010 monetary easing improved the liquidity condition and changed the capital structure of those companies. People spent more money helped increase sales. Moreover, after the flood of 2011 Thai government decided to reduce tax rate to encourage the economy. Therefore, within recent 5 years, Thai economy went up and down significantly. As a result, liquidity, capital structure, sales growth and tax rate management was very important for every firm of Thailand to survive and develop.

Liquidity management has been very important in every firm. It is considered as a company's ability to pay its maturing short term debt. To measure the liquidity condition of a firm, cash conversion cycle (CCC) and quick ratio (QR) are used frequently. Cash conversion cycle is computed by 3 parts which are inventory conversion period, receivable conversion period and payable deferral period. It is the period when the company pays for the materials and the time it receives the payment for the sales of goods. Quick ratio shows how well short-term liabilities are covered by liquid current assets.

Capital structure is the way a firm finances its assets through

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debts, equity and securities. Debt to equity ratio (DTER) is the most useful ratio which is used to measure capital structure of a firm. The debt to equity ratio evaluates the safety of the amount of money a firm borrows in a long period of time. A debt to equity ratio of 1 means half the assets of the firm are financed by debt from lenders and half by shareholders.

Sales growth (SG) is the most appropriate indicator to measure growth of a firm because sales can be increased without staff or asset consideration. It equals to current year sales minus previous year's sales and the whole is divided by previous year's sales.

Effective tax rate (TR) is used to measure the impact of taxes on incentives for investment, indicate corporate tax burden and measure corporate tax preferences. Tax has a direct impact on profitability of the firm.

II. LITERATURE REVIEW

There have been many studies on the impacts of quick ratio, cash conversion cycle, debt to equity ratio, sales growth and tax rate on profitability using return on equity, however, every study showed a different result.

References [1], [2] investigated the relationship between working capital management and firms' performance in Sri Lankan manufacturing companies, and found that quick ratio was positively correlated with profitability. However, [3], [4] studied the relationship between liquidity and profitability in India and Saudi Arabia. They found that quick ratio was negatively correlated with profitability.

References [5]-[8] examined the impact of cash conversion cycle (CCC) on the performance firms of different countries such as U.S, Belgium, Japan and Pakistan. All the studies found that CCC was negatively correlated with firms' performance. However, [9] proved that CCC and profitability had a positive and significant correlation when investigating the impact of working capital on profitability in Nigeria.

References [10]-[13] investigated the relationship between capital structure and profitability in Europe, Malaysia, China and Pakistan, respectively. They found that debt to equity ratio was negatively correlated with firm performance. In contrast, [14] studied the relationship between capital structure and profitability in the case of Ghana; and the researcher found that the debt to equity ratio had positive correlation with profitability. However, [15], [16] studied the how firm performance was affected by capital-structure choice in Egypt

and Malaysia. They concluded that capital structure had weak-to-no impact on firm's performance.

References [17]-[19] found that sales growth had positive correlation with the firm's performance when studying the relationship between sales growth and return on equity of the U.S and Eastern Europe firms.

Reference [20] concluded that tax rate had negative correlation with profitability of Switzerland firms. However, [21] concluded that tax rate had positive correlation with firm performance of Pakistan firms.

III. SELECTION OF VARIABLES

Dependent variable

Return on equity (ROE) = Profit for shareholders / Average total shareholders' equity

Independent variables

Quick ratio (QR) = (current assets – inventories) / current liabilities

Cash conversion cycle (CCC) = inventory conversion period + receivable conversion period – payable deferral period

Inventory conversion period (ICP) = inventory / sales per day

Receivable conversion period (RCP) = receivable / (sales/365)

Payable deferral period (PDP) = payable / (cost of goods sold/365)

Debt to equity ratio = Firm's total debt / Shareholder equity

Sales growth = (current year sales - previous year's sales) / previous year's sales

Tax rate = Income tax expense / Pre-tax income

IV. RESEARCH HYPOTHESES

In this study, the researcher used 8 hypotheses to investigate the impact of quick ratio, cash conversion cycle, inventory conversion period, receivable conversion period, payable deferral period, debt to equity ratio, sales growth and tax rate on profitability using return on equity.

H1o: There is no significant relationship between quick ratio and return on equity.

H1a: There is a significant relationship between quick ratio and return on equity.

H2o: There is no significant relationship between cash conversion cycle and return on equity.

H2a: There is a significant relationship between cash conversion cycle and return on equity.

H3o: There is no significant relationship between inventory conversion period and return on equity.

H3a: There is a significant relationship between inventory conversion period and return on equity.

H4o: There is no significant relationship between receivables conversion period and return on equity.

H4a: There is a significant relationship between receivables conversion period and return on equity.

H5o: There is no significant relationship between payables deferral period and return on equity.

H5a: There is a significant relationship between payables deferral period and return on equity.

H6o: There is no significant relationship between debt to equity ratio and return on equity.

H6a: There is a significant relationship between debt to equity ratio and return on equity.

H7o: There is no significant relationship between sales growth and return on equity.

H7a: There is a significant relationship between sales growth and return on equity.

H8o: There is no significant relationship between tax rate and return on equity.

H8a: There is a significant relationship between tax rate and return on equity.

V. DATA COLLECTION

This paper investigated the impact of liquidity using quick ratio (QR), cash conversion cycle (CCC), inventory conversion period (ICP), receivable conversion period (RCP) and payable deferral period (PDP), capital structure using debt to equity ratio (DTER), sales growth (SG) and tax rate (TR) on profitability proxied by return on equity (ROE) of 40 listed companies in the Consumer Products sector. The data used in this study were secondary data which were collected from financial statements of those companies in the Stock Exchange of Thailand from 2008 to 2012.

VI. MODEL

In this study, the researcher employed multiple linear regression analysis to investigate the impact of independent variables on dependent variable. The model was shown as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + e$$

Where:

Y = Profitability in terms of return on equity,

X1 = Liquidity in terms of quick ratio,

X2 = Liquidity in terms of cash conversion cycle,

X3 = Inventory conversion period,

X4 = Receivables conversion period,

X5 = Payables deferral period,

X6 = Capital structure in terms of debt to equity ratio,

X7 = Sales growth,

X8 = Effective tax rate,

β_0 = Y intercept, a constant,

$\beta_1, \beta_2, \beta_3, \beta_4$, $\beta_5, \beta_6, \beta_7, \beta_8$ = Regression coefficient associated with X1, X2, X3, X4,

β_8 = Error term.

R^2 (coefficient of multiple determination) indicates the degree to which the dependent variable is explained by independent variables. However, R^2 can't be used to conclude whether the regression is appropriate to predict the dependent

or not. Therefore, to test whether the regression model is adequate or not, the researcher will use F-test and t-test.

At 0.05 significance level, if the value of F is less than or equal to 1.94, it means that the model can be used to investigate the impact of independent variables on dependent variable.

At 0.05 significance level, if t value of a variable is less than -1.96 or greater than 1.96, that variable can contribute to the model.

The correlation among independent variables can cause incorrect results for the equation of multiple regression. Variance Inflation Factor (VIF) is one of the methods to detect multicollinearity. If VIF is from 5 to 10 or higher, it indicates multicollinearity. The variable(s) which has (have) high multicollinearity will be deleted from the model.

Time series data usually incur autocorrelation problem which is the correlation of a time series with its own past and future values. Durbin-Watson Test is one of the methods to identify the autocorrelation. In this study at 0.05 significance level, if D statistic is greater than 1.757, there is no autocorrelation. If D statistic is lower than 1.592, there is an autocorrelation. If the autocorrelation is found, the researcher must rewrite the regression equation lagging 1 period then recomputed the autocorrelation.

VII. RESULTS

The results showed that debt to equity ratio, sales growth and quick ratio had significant impact on return on equity at 0.05 significance level.

Adjusted R square was 0.631 (63.1%). It indicated that 63.1% of the variation of ROE was accounted by DTER, SG and QR. In other words, DTER, SG and QR could explain 63.1% of ROE. The value of Durbin-Watson test was 1.918 (>1.592). It indicated that there was no autocorrelation.

F value is 114.644 with the significance of 0.000. It meant that the null hypothesis of F test was rejected. Therefore, the regression model could be used to predict the dependent variable ROE.

T value was 10.107 (>1.96) with the significance of 0.000. Therefore, the null hypotheses of t test were rejected. As the result of t test, all the variables which did not contribute to the regression would be deleted. Significance level of 0.000 means that there was a constant in the regression model. The multiple linear regression of return on equity as written as follows:

$$\text{ROE} = 0.182 - 0.410\text{DTER} + 0.150\text{SG} - 0.010\text{QR}$$

The coefficient of DTER, SG, QR and ROE were -0.410, 0.150, and -0.010 respectively. The numbers indicated negative correlations between DTER and ROE, QR and ROE. However, the correlation between SG and ROE was positive. If DTER and QR are lower, ROE will be higher. In contrast, if SG is lower, ROE will also be lower. In other words, if DTER increases 1%, ROE will decrease 41.0% and if QR increases 1%, ROE will decrease 1%. And if SG increases 1%, ROE will also increase 15%.

Moreover, in this study, multicollinearity between cash conversion cycle and inventory conversion period was found. However, both cash conversion cycle and inventory conversion period did not contribute to the model. Therefore, the multicollinearity did not have impact on the model.

VIII. CONCLUSION

QR had negative impact on ROE. Therefore, to decrease QR, companies should reduce its current assets and increase current liabilities. When the firms decrease the amount of cash on hand and account receivable, the level of current assets will reduce. If the firms use cash to acquire fixed assets, pay off long term debt or pay dividends, current assets level will decrease and results in reduce quick ratio. Moreover, if the business finances its current assets by debts rather than equity, the level of current assets will decrease because high debts results in high cost. Therefore, the firm will try to reduce the level of currents assets to reduce cost.

DTER also had negative impact on ROE. Therefore, to increase ROE, the firms have to decrease DTER. To do so, the companies should finance the business relying on the equity from shareholders not from debts because high level of debt leads to high cost of debts. Another way to reduce the level of debt is that reducing cost of operating or restructuring the assets by selling unnecessary assets then converting necessary assets into liabilities. It means that the companies sell those assets to financial companies then lease them back.

SG had positive impact on ROE. It indicates that if the firms want to improve their profitability, they should improve SG by improving products' quality, do market research and having good policies to sales force.

IX. LIMITATION

This study focused on the internal factors regardless external factors such as inflation, substitutes, competition, etc. Companies of Consumer Products sector which had not been listed in the Stock Exchange of Thailand from 2008 to 2012 were not included. And the results of this study were not applicable for other period of time and other sectors.

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