

**FINANCIAL RATIOS AND STOCK PRICES: EVIDENCE FROM  
THE AGRICULTURE FIRMS LISTED ON THE STOCK  
EXCHANGE OF THAILAND**

by

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## Abstract

The objective of this study is to examine the effect of financial ratios on the agriculture firms' stock prices. The samples are 4 companies listed on the Stock Exchange of Thailand in the agribusiness sector with the complete monthly data of current ratio, debt to equity ratio, net profit margin ratio, total assets turnover ratio and stock prices from June 2005 to June 2015. This study also uses agriculture production index as a control variable. The companies studied include Sri Trang Agro-Industry Public Company Limited (STA), Thai Rubber Latex Corporation (Thailand) Public Company Limited (TRUBB), United Palm Oil Industry Public Company Limited (UPOIC) and Univanich Palm Oil Public Company Limited (UVAN). After applying the multiple regression analysis, the results show that current ratio, net profit margin ratio and total assets turnover ratio positively affect stock prices at the statistical significance level of 0.01. However, debt to equity ratio negatively affects stock prices at the statistical significance level of 0.01.

**Keywords:** Agriculture firms, Stock prices, Financial ratios, the Stock Exchange of Thailand

## 1. Introduction

The agriculture sector has been essential to the economics of Thailand because of many reasons. Firstly, Thai agriculture produces and supplies food not only to Thai people but to the world. Secondly, Thai agriculture is one of the major sources of raw materials, such as rubber, to fulfill the needs of both domestic and foreign manufacturers. Lastly, Thai agriculture brings in foreign currencies, which is very important for developing countries like Thailand, from exporting to the world.

Apart from the growing agriculture sector, investments in the Stock Exchange of Thailand are also important. The market capitalization has been increasing from 11.8 million Baht in 2012 to 12.3 million Baht in 2015 (source: the Stock Exchange of Thailand, 2015). Therefore, the Stock Exchange of Thailand is very attractive to both investors as a channel of investment and companies as a source of raising capital.

However, there are many factors affecting stock prices, including internal factors such as firms' financial ratios as well as external factors such as political stability and economic conditions. As a result, it is difficult for investors to analyze the determinants of stock prices. Therefore, the objective of this study is to examine the effect of financial ratios of the agriculture firms on their stock prices. The findings will be beneficial to investors who are interested in investing in the agriculture firms listed on the Stock Exchange of Thailand.

## 2. Hypothesis

H<sub>0</sub>: None of the variables examined, namely current ratio, debt to equity ratio, net profit margin ratio, total assets turnover ratio and agriculture production index statistically significantly affects stock prices of agriculture firms listed on the Stock Exchange of Thailand.

H<sub>1</sub>: At least one of the variables examined, namely current ratio, debt to equity ratio, net profit margin ratio, total assets turnover ratio and agriculture production index statistically significantly affects stock prices of agriculture firms listed on the Stock Exchange of Thailand.

## 3. Literature Review

There are many research papers worldwide studying the relationship between financial ratios and stock prices. Recently, there are some papers studying firms in the Middle East. For example, Mohammad Reza Kohansal, et.al (2013) study the relationship between financial ratios and stock prices of the food industry firms in Stock Exchange of Iran. They use the financial variables including current ratio, asset turnover ratio, return on assets ratio, return on equity ratio, debt ratio and equity prices of companies listed on the Stock Exchange of food during the period from 1992 to 2010. The results indicate a positive and significant response in food stock prices due to the current ratio, return on asset ratio and return on equity ratio.

Moreover, Amir Dadrasmoghadam and Seyed MohammadReza Akbari (2015) study the relationship between financial ratios in the stock prices of agriculture-related companies listed on the Stock Exchange of Iran. They use the financial variables including current ratio, asset turnover ratio, return on assets ratio, return on equity ratio, debt ratio and equity prices of the selected companies from 1999 to 2009. The results show that debt ratio, current ratio and return on assets ratio have significant effect on stock prices.

Additionally, there are some studies in Latin America. For instance, Rishma Vedd and Nataliya Yassinski (2015) study the effect of financial ratios, firm size and operating cash flows on stock price of firms listed in the Latin America industrial sector. They study the period from 2004 to 2013. They examine 717 firms listed on the biggest stock exchange markets in Latin America such as the Bolsa Mexicana de Valores in Mexico, Bolsa de Valores de Colombia in Colombia, Rio de Janeiro Stock Exchange in Brazil and the Santiago Stock Exchange in Chile. The results exhibit the significant effect of assets turnover ratio and firm size on stock prices of firms in Brazil, Chile and Mexico. Additionally, the results show the important effect of debt ratio on stock prices of firms in Colombia.

Also, some studies are found in Hong Kong. For example, Lai Ping-fu and Cho Kwai-ye (2016) study the relationships between stock returns and corporate financial ratios based on a statistical analysis of corporate data from the Hong Kong Stock Market. They use a multiple regression technique to analyze the financial ratios of 17 firms selected from 50 HSI constituent stocks in Hong Kong Stock Exchange. They compare the effectiveness of price-to-sales, market-to-book, earnings per share, dividend yield and market capitalization against stock returns. According to the findings, it is impossible to conclude which financial ratios are the most effective in forecasting stock returns. However, they find the close alignment between a regression line and financial ratio data, indicating the appropriateness of multiple regression technique in analyzing financial data.

In Thailand, Kaewmanee Utirum (2013) examines the relationship between financial ratios and expected returns of 10 companies listed on the Stock Exchange of Thailand in technology industry group. Descriptive statistics, pearson correlation analysis and multiple regression analysis are executed to analyze the data. The findings show that all of the financial ratios examined significantly affect expected returns besides the total assets turnover ratio and the operating profit margin ratio. Thus, investors who are interested in investing in firms in technology industry group can use financial ratios to assist in making investment decision.

In addition, there are some studies in Thailand using agriculture firms. For instance, Wanchai Aimlaor (2009) studies factors affecting stock prices in food and agriculture industry group. The monthly data are collected from January 2004 to June 2009. The multiple regression analysis is used to analyze the data. The findings indicate that the exchange rate between Thai Baht and US Dollar, the food and agriculture industry group index and the 3-month fixed deposit interest rate positively relate to stock prices. On the other hand, the consumer price index has a negative association with stock prices.

Furthermore, Sukanya Chanprechachai (2010) examines factors affecting rates of return of securities listed on the Stock Exchange of Thailand in agribusiness sector. The sample firms are Sri Trang Agro-Industry Public Company Limited and Thai Rubber Latex Corporation (Thailand) Public Company Limited. The monthly data are collected from January 2005 to December 2009. The multiple linear regression with ordinary least square method is employed to analyze the data. The results show that only the percentage change in the numbers of natural rubber ribbed smoked sheet no.3 futures contracts and the percentage change in the agriculture sector index positively correlate to rates of return of securities in agriculture sector.

Therefore, the findings of this study “financial ratios and stock prices: evidence from the agriculture firms Listed on the Stock Exchange of Thailand” are not only important to fulfill the literature in this area but also essential for other researchers as a reference.

#### 4. Methodology

Even though there are 12 companies listed on the Stock Exchange of Thailand in the agribusiness sector, the samples in this study include only 4 companies with the complete monthly data of relevant financial ratios and stock prices from June 2005 to June 2015. The data of financial ratios and stock prices are from the Stock Exchange of Thailand, while the data of agriculture production index are from the Office of Agricultural Economics. The followings are the companies examined.

1. Sri Trang Agro-Industry Public Company Limited (STA)
2. Thai Rubber Latex Corporation (Thailand) Public Company Limited (TRUBB)
3. United Palm Oil Industry Public Company Limited (UPOIC)
4. Univanich Palm Oil Public Company Limited (UVAN)

Moreover, multiple regression analysis is employed for each firm. The equations (eq.1-4) are as follows.

$$STA_t = a + b_1CR_t + b_2DER_t + b_3NPM_t + b_4TAT_t + b_5API_t + e_t \quad \text{-----(eq.1)}$$

$$TRUBB_t = a + b_1CR_t + b_2DER_t + b_3NPM_t + b_4TAT_t + b_5API_t + e_t \quad \text{-----(eq.2)}$$

$$UPOIC_t = a + b_1CR_t + b_2DER_t + b_3NPM_t + b_4TAT_t + b_5API_t + e_t \quad \text{-----(eq.3)}$$

$$UVAN_t = a + b_1CR_t + b_2DER_t + b_3NPM_t + b_4TAT_t + b_5API_t + e_t \quad \text{-----(eq.4)}$$

where:  $CR_t$  = Current Ratio at time t  
 $DER_t$  = Debt to Equity Ratio at time t  
 $NPM_t$  = Net Profit Margin Ratio at time t  
 $TAT_t$  = Total Assets Turnover Ratio at time t  
 $API_t$  = Agriculture Production Index at time t  
t = monthly period starting from 1 (June 2005) to 121 (June 2015)

Since this study uses time-series data, the problems of multicollinearity, heteroscedasticity and autocorrelation are tested and solved before obtaining the final equation for each firm.

## 5. Results

### 5.1 Descriptive Statistics

During the study period (June 2005-June 2015), Agriculture Production Index (API) has a mean of 117.63 points with the maximum of 288.17 points, the minimum of 77.67 points and the standard deviation of 41.35 points.

STA has an average share price of 17.55 Baht with the maximum price of 87.25 Baht, the minimum price of 8.05 Baht and the standard deviation of 10.12 Baht. Current ratio has a mean of 1.25 times with the maximum of 1.67 times, the minimum of 0.92 times and the standard deviation of 0.26 times. Debt to equity ratio has a mean of 1.80 times with the maximum of 3.91 times, the minimum of 0.78 times and the standard deviation of 0.78 times. Net profit margin ratio has a mean of 1.66% with the maximum of 7.16%, the minimum of -3.93% and the standard deviation of 2.19%. Total assets turnover ratio has a mean of 2.78 times with the maximum of 3.64 times, the minimum of 1.70 times and the standard deviation of 0.47 times.

TRUBB has an average share price of 10.14 Baht with the maximum price of 64.50 Baht, the minimum price of 1.63 Baht and the standard deviation of 9.21 Baht. Current ratio has a mean of 0.79 times with the maximum of 0.98 times, the minimum of 0.51 times and the standard deviation of 0.13 times. Debt to equity ratio has a mean of 3.80 times with the maximum of 5.71 times, the minimum of 2.78 times and the standard deviation of 0.66 times. Net profit margin ratio has a mean of -0.25% with the maximum of 9.14%, the minimum of -8.38% and the standard deviation of 2.85%. Total assets turnover ratio has a mean of 2.18 times with the maximum of 3.24 times, the minimum of 1.49 times and the standard deviation of 0.36 times.

UPOIC has an average share price of 24.16 Baht with the maximum price of 89.50 Baht, the minimum price of 6.10 Baht and the standard deviation of 21.71 Baht. Current ratio has a mean of 4.31 times with the maximum of 10.67 times, the minimum of 0.77 times and the standard deviation of 2.27 times. Debt to equity ratio has a mean of 0.15 times with the maximum of 0.52 times, the minimum of 0.05 times and the standard deviation of 0.10 times. Net profit margin ratio has a mean of 9.60% with the maximum of 48.11%, the minimum of -244.88% and the standard deviation of 38.43%. Total assets turnover ratio has a mean of 0.91 times with the maximum of 1.43 times, the minimum of 0.49 times and the standard deviation of 0.26 times.

UVAN has an average share price of 54.93 Baht with the maximum price of 124.00 Baht, the minimum price of 10.10 Baht and the standard deviation of 32.10 Baht. Current ratio has a mean of 6.82 times with the maximum of 11.60 times, the minimum of 3.03 times and the standard deviation of 2.09 times. Debt to equity ratio has a mean of 0.13 times with the maximum of 0.23 times, the minimum of 0.08 times and the standard deviation of 0.03 times. Net profit margin ratio has a mean of 13.41% with the maximum of 24.41%, the minimum of 4.66% and the standard deviation of 4.47%. Total assets turnover ratio has a mean of 2.15 times with the maximum of 3.76 times, the minimum of 1.01 times and the standard deviation of 0.59 times.

## 5.2 Multiple regression analysis

Since none of the absolute of correlations among independent variables (comprising of CR, DER, NPM, TAT and API) is greater than 0.80, there is no multicollinearity problem. All five independent variables are eligible to be used in the multiple regression analysis. However, both heteroskedasticity and autocorrelation problems are found in every firm. Therefore, before obtaining the final equation for each firm, the Newey-West HAC standard errors and covariance method is employed to remedy those problems. The final equations (eq.5-eq.8) are exhibited below.

### Eq. 5:

$$STA_t = -41.3119 + 19.7890CR_t + 2.6813DER_t + 2.6676NPM_t + 8.5591TAT_t + 0.0093API_t$$

$$(-3.3395) \quad (3.2978)** \quad (1.5203) \quad (2.9146)** \quad (2.8777)** \quad (0.6362)$$

$$F\text{-Statistic} = 18.8559$$

$$\text{Prob.}(F\text{-Stat}) = 0.0000$$

$$\text{Adjusted } R^2 = 0.4266$$

\*\* = statistical significance at the 0.01 level

From equation 5, Prob. (F-Stat) is statistically significant at the 0.01 level indicating that at least one of the independent variables examined affects STA stock price significantly. All the five independent variables help explain the change in STA stock price 42.66%. According to the statistical significance of the coefficients of the independent variables, current ratio, net profit margin ratio and total assets turnover ratio positively affect STA stock price at the 0.01 level.

### Eq. 6:

$$TRUBB_t = -14.0402 + 43.8774CR_t - 0.1858DER_t - 0.1437NPM_t - 4.1871TAT_t - 0.0031API_t$$

$$(-1.0478) \quad (3.5433)** \quad (-0.0938) \quad (-0.3535) \quad (-0.9933) \quad (-0.2434)$$

$$F\text{-Statistic} = 31.3705$$

$$\text{Prob.}(F\text{-Stat}) = 0.0000$$

$$\text{Adjusted } R^2 = 0.6090$$

\*\* = statistical significance at the 0.01 level

From equation 6, Prob.(F-Stat) is statistically significant at the 0.01 level indicating that at least one of the independent variables examined affects TRUBB stock price significantly. All the five independent variables help explain the change in TRUBB stock price 60.90%. According to the statistical significance of the coefficients of the independent variables, only current ratio positively affects TRUBB stock price at the 0.01 level.

**Eq. 7:**

$$\text{UPOIC}_t = 36.0503 + 2.7658\text{CR}_t - 16.1621\text{DER}_t + 0.1238\text{NPM}_t - 24.0697\text{TAT}_t - 0.0072\text{API}_t$$

(1.4813) (1.2804) (-0.4336) (2.1158)\* (-1.9712) (-0.1521)

F-Statistic = 6.4180

Prob.(F-Stat) = 0.0000

Adjusted R<sup>2</sup> = 0.1842

\* = statistical significance at the 0.05 level

From equation 7, Prob.(F-Stat) is statistically significant at the 0.01 level indicating that at least one of the independent variables examined affects UPOIC stock price significantly. All the five independent variables help explain the change in UPOIC stock price 18.42%. According to the statistical significance of the coefficients of the independent variables, only net profit margin ratio positively affects UPOIC stock price at the 0.05 level.

**Eq. 8:**

$$\text{UVAN}_t = 24.1638 + 1.6245\text{CR}_t - 450.0484\text{DER}_t + 3.0135\text{NPM}_t + 12.4102\text{TAT}_t + 0.0923\text{API}_t$$

(0.8379) (0.7481) (-3.2279)\*\* (3.2949)\*\* (1.6701) (1.5264)

F-Statistic = 19.4359

Prob.(F-Stat) = 0.0000

Adjusted R<sup>2</sup> = 0.4344

\*\* = statistical significance at the 0.01 level

From equation 8, Prob.(F-Stat) is statistically significant at the 0.01 level indicating that at least one of the independent variables examined affects UVAN stock price significantly. All the five independent variables help explain the change in UVAN stock price 43.44%. According to the statistical significance of the coefficients of the independent variables, debt to equity ratio negatively affects UVAN stock price at the 0.01 level, and net profit margin ratio positively affects UVAN stock price at the 0.01 level.

**6. Conclusions and Discussions****Table 1:** Summary of the statistical significance of the overall results

	STA	TRUBB	UPOIC	UVAN
Current ratio (CR)	+	+		
Debt to equity ratio (DER)				-
Net profit margin ratio (NPM)	+		+	+
Total assets turnover ratio (TAT)	+			
Agriculture production index (API)				

Table 1 shows the summary of the overall results. All of the four financial ratios, including current ratio, debt to equity ratio, net profit margin ratio and total assets turnover ratio, statistically significantly affect stock prices of the agriculture firms examined. However, agriculture production index has no effect on stock prices.

Current ratio has a positive correlation to stock price, which is consistent with Mohammad Reza Kohansal, et.al (2013) and Amir Dadrasmoghadam and Seyed Mohammad Reza Akbari (2015). The higher the current ratio, the better is the liquidity of the firm, resulting in the superior firm performance. Thus, the stock price increases.



Debt to equity ratio has a negative correlation to stock price, which is consistent with Amir Dadrasmoghadam and Seyed MohammadReza Akbari (2015) and Rishma Vedd and Nataliya Yassinski (2015). The higher the debt to equity ratio, the higher debt financing the firm uses, resulting in the higher risk perceptions of investors. Thus, stock price decreases.

Net profit margin ratio has a positive correlation to stock price, which is consistent with Wanchai Aimlaor (2009). The higher the net profit margin ratio, the better is the profitability of the firm, resulting in the superior firm performance. Thus, the stock price increases.

Total assets turnover ratio has a positive correlation to stock price, which is consistent with Rishma Vedd and Nataliya Yassinski (2015). The higher the total assets turnover ratio, the better is the asset utilization of the firm, resulting in the superior firm performance. Thus, the stock price increases.

To conclude, agriculture firms with high current ratio, low debt to equity ratio, high net profit margin ratio and high total assets turnover ratio have high stock prices. Thus, basing on these findings, investors can select agriculture firms listed on the Stock Exchange of Thailand to invest in order to maximize their wealth. Additionally, to overcome the limitation of this study, the next research should increase the number of agriculture firms listed on the Stock Exchange of Thailand by reducing the period of study.

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