

Predictability of Stock Return using Financial Ratios: Evidence from CSE FMCG sector

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Abstract

Purpose – This study aims to check the suitability of using financial ratios to predict the stock returns of FMCG sector in the Colombo Stock Exchange, Sri Lanka.

Design/Methodology/Approach – The study uses four financial ratios from multiple areas naming profitability, liquidity, solvency, and market valuation with a sample of 30 listed FMCG companies for a period of six years from 2014 to 2019. The data were analyzed using multiple regression model to understand the predictability of the stock return.

Findings – The results indicate profitability, liquidity and market valuation ratios can predict the stock return in the short term and the long term. The return on assets, current ratio and price earnings ratio had significant predictability on stock returns, while debt to equity ratio did not show any significant results owing to the companies being in the mature stage of their product lifecycle.

Conclusion – Investors can adopt a financial ratio model including profitability, liquidity and market-based ratios as a primary model to predict their stock returns before moving on to sophisticated fundamental analysis models.

Keywords- *Financial ratios, stock returns, multiple regression model, FMCG, predictability.*

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1. Introduction

The Securities Exchange takes a significant place in deciding the state of an economy (Panji Anogara, 2008). Organizations use financial exchange to raise funds to increase liquidity at a lower cost. The funds raised by the financial exchange are funded into different industry group sectors of the economy including construction, finance, hotels, etc. The investors use it to invest in companies with desirable characteristics to earn dividend and profits from trading securities. The stakeholders must be knowledgeable about the stock prices to optimize their decisions. Mishkin and Eakins (2003) point out that a stock is a security that speaks to a portion of possession on the profit and resources of the enterprise. Investors earn profits by means of capital appreciation and dividend yield. Investors must be provided with sufficient returns in exchange for their funds. The Greatest corporate worth will result in increasing benefit for investors (Husnan, 2012). Gitman and Zutter (2012) characterizes stock return as: "The complete increase or loss from a stock trading over a given timeframe". Investors must be skilled to recognize potential investment companies. The ways to identify these companies include technical analysis, market analysis, ratio analysis, etc. In the present study the main focus will be given to the ratio analysis. The company ratios will be evaluated based on solvency, liquidity, profitability, activity, and market valuation.

Schrempf (2010) indicated that economy generally improved after models were created to predict the stock returns. Farkhan and Ika (2013) emphasized that liquidity, solvency, efficiency affects the stock return. Various empirical examinations had been led on the advanced economies like the UK and USA, yet the investigations done

in Sri Lankan setting are immeasurably lower than the desires. The effects of liquidity, profitability, solvency hadn't been investigated enough in the Sri Lankan context. Many studies were conducted by Samarakoon (1998), Perera and Thrikawala (2010) noting that investment decisions were enhanced by evaluations conducted on financial ratio analysis. Wijesundera et al (2015) investigated Predictability of Stock Returns Utilizing Financial Ratios: Empirical Evidence from Colombo Stock Exchange. The results explain that ROE, EPS, MV/BV had shown positive relationship with stock returns. The present study aims to predict stock returns using financial ratios for the companies listed in the FMCG sector in the Colombo Stock Exchange (CSE).

Accordingly, the study aims to examine the effects of financial ratios for the prediction of stock returns in the FMCG sector in Colombo Stock Exchange by employing financial ratios in profitability, liquidity, solvency, and market valuation.

2. Literature Review

As the competition increases and with dynamic environmental changes satisfying the shareholders had been an increasingly difficult challenge for the organizations. In this background, a lot of emphasis had been given to the stock market return in financial literacy. In investor's point of view, they should be able to give themselves the best chance to get an appropriate return. This could be done through the assessment of the firm performance of the

company. This is accomplished with accounting methods. Lewellen (2004) noted that it could be used to appraise the stock returns.

The most important concepts that need to be addressed in the study are financial ratios and stock returns. The empirical study of the stock prices dates to 1950s by the Markowitz (1952,1959). It paves the way for recent researchers like (Davis, 2001) to conduct business and finance research. Dugalic (2008) noted that investment decisions are enhanced when companies past data like balance sheet, industry outlook, dividend declaration are used.

Lev and Thigarajan (1993) depict four fundamental factors commonly influencing the estimation of basic stocks: venture quality; winning force; present and future possibilities; profits; and capitalization rates or multipliers, or discount rates. Abarbanell and Bushee (1998) find noteworthy connections between indicators of accounting fundamentals, future winning chances, and anomalous returns. Based on the research conducted by Ritchie (1996, p 223-224) the steps involved in the fundamental analysis include assessing the impact of the macroeconomic factors such as inflation rates, exchange rates, money supply, and economic growth. The fundamental analysis determines whether the stock prices are overpriced or underpriced. Wang, (2007) Tian, (2018) Li, (2009), Tamimia, (2011) proved that financial ratios are capable of predicting stock returns.

The introduction of the financial ratios dated back to the 1900s. Horrigan (1965) noted that the financial ratios are a mere product of advancement of the accounting techniques in the US (Delen, 2013). Ratios can be categorized into profitability, debt, liquidity, and valuation based on the proxies in them.

Firm performance is routinely appraised using ratio analysis. It may also cause an information redundancy problem because two similar ratios are assessed. It leaves to choosing the ratios on a subjective basis to review the firm performance of the company (Malhotra and Malhotra, 2008). A Financial ratio is interpreted as both the elements of the fraction which are numerator and denominator taken from the financial statements of the organization according to (Horrigan, 1968). Financial ratios show the financial elements with fractions to each other.

Farkhan and Ika (2013) noted the relevance of the debt, profitability, market ratio on stock return in the Indonesian food and beverage industry. The results of this study were that ROA and PE had significant results with stock return and CR, total asset turnover, and debt to equity ratio did not show any significant association with the stock return. A similar study conducted by Hermawan (2012), noted the significance of the debt, market, and profitability towards the stock return in the Indonesian banking industry. The study conducted by Reynald (2006) noted that EPS showed significant results with stock return.

Gibson (1987) acknowledged that Chartered Financial Analysts were more interested in financial ratios of the basic elements of the financial statements. Financial ratios help in break down and decipher the financial statements of

non-benefit establishments of advanced education (Woelfel, 1987), dispatching organizations (Wang and Lee, 2010), Airline industry (Tekere, Tekere, and Güner, 2016), Hospitality industry (PetroskaAngelovska and Ackovska, 2016), Municipal government (Drew Joseph and Dollery Brian, 2016), IT organizations (Dulababu, 2017), FMCG organizations (Bansal and Singh, 2017), Electricity industry (Sueyoshi, 2005) and some more.

Lucey (1998) noted that financial ratios act as an indicator of future trends of the organization, and they are presented for implementation of plans and policies. Kane (1997) emphasized that there is a significant relationship between the financial ratios and stock return in times of economic recession. Matsumoto et al. (1995) and Gibson (1987) as found out that valuation, productivity, and leverage proportions are the most utilized classes by research analysts following equities listed on the Mexican stock trade. Lewellen (2004) researched on the relationship between financial ratios and stock returns.

The considered study used Price to Earnings Ratio, Debt to Equity Ratio, Dividend Per Share and Net Profit Ratio to assess the impact to stock return on 30 companies listed in the FMCG sector of the Colombo Stock Exchange from 2014-2019.

Beaver and Morse (1978) scholars measured the correlation among beta, accounting plans, beta, and PE. The results confirmed companies with lower earnings growth potential had high PE. This is an indicator showing that the investor speculates current profitability as a short-term trend.

A similar study conducted by the Nikbakht and Polat (1998) confirmed the relationship between the PE and expected growth potential of profitability. Enow & Brijlal (2016) conducted the research based on Johannesburg Stock Exchange from 2009-2013. The results concluded that dividend per share, price-earnings ratio and earning per share significantly determines the share price movements. Kothari & Shanken (1997) investigated the US market for the association between the stock return and financial ratios. The results confirmed that dividend yield and book value to market value had significant association with stock returns. Christos, et al., (2005) choose Greek financial exchange for the investigation and the results confirmed that GARCH model displayed those correlations between the variables were significant.

According to Constand, Freitas & Sullivan, (1991), the PE ratio is considered as a measurement scale to gauge the company's performance. The research conducted by Qayum (2019) found out that PE did not show any resemblance to the stock returns.

Yongyoot (2008) examined the relationship between 12 financial ratios and the stock return in Thailand considering the PE ratio as an investment ratio. The considered study uses PE as an investment performance measurement scale. Srinivasan (2012) investigated the determinants of stock prices in Indian Stock Exchange. The results were concluded that earnings per share and price-earnings ratio are significantly determining share prices.

Trevino & Robertson (2002) emphasized the relationship between the PE ratio and the stock market return is significant for the long-term relationship but in the short-term the relationship is insignificant. Some studies brought opposing results illustrating that the relationship is insignificant such as a study of Ahmed (2003) who used regression analysis for the S&P 500 Index to study the correlation coefficient between the variables. Asri (2002a, 2002b) acknowledged the low PE effects in the Indonesian stock market.

Anup & Suman (2010) conducted the study to examine the relationship between the capital structure and the firm value and the results proved that there is a positive relationship between the variables. Abor (2007) concluded that the long term and debt ratio negatively impacted the firm performance through the study of using microfinance institution.

According to the research conducted by Utari Dewi, Purwanti Ari (2014) liquidity is the obligation of fulfilling responsibility when it's due. This task could be achieved if the current assets are far more than the debts the company had incurred. Liquidity makes the sales of the stocks far easier with smooth and low-cost access to the liquid assets of the venture. Yongyoot (2008) had categorized the current ratio as a liquidity ratio in the study of Predictive power of financial ratios to stock return in Thailand. Tehrani and Tehrani (2015) investigated using 10 financial ratios as the independent variables, explaining a positive relationship between the current ratio and the stock return. Conversely, the research conducted by Jussi (2020) had stated that there is no significant relationship between the liquidity ratios and the stock return.

Delen et al. (2013) studied the impact of liquidity ratios to predict the relationship with the stock return. Öztürk & Karabulut (2018) took the current ratio, net margin, and earnings per price to measure the statistical relationship. The research conducted by Roen (2013) showed that the current ratio showed a significant association with stock returns. A similar study conducted by Nailul (2019) showed that the current ratio had a negative impact on stock returns.

Lakshan et al (2013) developed a model to predict corporate failures in Sri Lanka. The results indicated an estimated level of accuracy of corporate failures is 77.86% before one year of corporate failure. Another similar study carried out by Vijitha (2014) concluded that the accounting information is constituent of value thus it had significant impact on the share price.

Wijesundera (2015) conducted the study of the ability of past accounting data in the creation of a resilient value portfolio using variables such as ROE, EPS, MV/BV. The results showed those variables resemble a positive relationship with the stock return.

3. Methodology

Ramazan (2000) noted that financial data are considered over accounting data because they are more resistant to inflation and can withstand moderating variables like firm size. The present study uses descriptive and causal research design to conduct the research. The reason for using descriptive design is to study the relationships

between the variables. Furthermore, it also collects data from the annual reports of listed companies in Colombo Stock Exchange. Quantitative research methods are used for the data analysis and interpretation.

3.1. Conceptual Framework

The stock return is determined by the current ratio, return on assets, debt to equity, and price-earnings ratio. The conceptual framework as described by Wijerathna (2015) is adopted in this study.

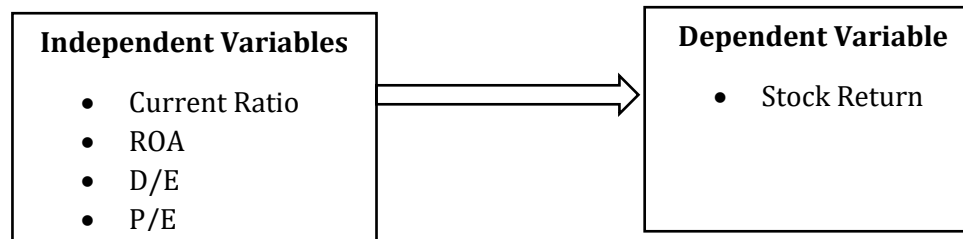


Figure 1: Conceptual Framework

Source – Authors Compiled

3.2. Population and Sample

The population consists of 289 listed companies over 20 industry group sectors in Colombo Stock Exchange (CSE). The sample data is collected from 30 highest capitalized FMCG sectoral listed companies as given by LMD 100 2018/19.

Purposive sampling method is being used in this study. The considered sector is selected as the FMCG sector of the CSE which includes 52 companies. The 30 companies are selected by the researcher based on the below-mentioned criteria.

1. The top 30 companies based on the market capitalization
2. The considered company must not be delisted from the CSE.
3. The company must be listed before 01.01.2010

The considered financial ratios are extracted from the company annual reports.

Different countries use different methods to analyze the collected data. The data are analyzed using descriptive statistics, multiple regression and correlation matrix to find the predictability of the financial variables has on the stock returns. The Stata package is used as the econometric software to analyze the data.

The multiple regression model is assumed to test the predictability between the variables. Wijesundera (2015) noted that the abovementioned process is adopted to increase the predictive power of the financial ratios. The model adopted is as follows:

$$SR_{it} = \beta_0 + \beta_1 PE_{it} + \beta_2 ROA_{it} + \beta_3 CR_{it} + \beta_4 DE_{it} + \epsilon_{it} \quad (1)$$

Whereas,

SR_{it} = in time period t , the return of i th stock,

β_0 = the estimated constant,

β_1 = for PE the i th stock predictable coefficient,

β_2 = for ROA the i th stock predictable coefficient,

β_3 = for CR the i th stock predictable coefficient,

β_4 = for DE the i th stock predictable coefficient,

PE_{it} = is i th stock PE factor in period of time $t-1$,

ROA_{it} = ROE factor of i th stock in period of time $t-1$,

CR_{it} = CR factor of i th stock in $t-1$ -time period,

DE_{it} = DY factor of i th stock in $t-1$ -time period

ϵ_{it} = error terms.

The individual regression model for the hypothesis testing is drafted from Lewellen's (2004) regression model which was used comparably for financial ratios and stock returns. This was disagreed by Omran and Ragab (2004) that the initial model can be devised into measuring multiple independent variables, hence multiple regression.

The focused study appraised the consistency of the ROA, PE, CR, DE against the stock returns the modified regression model is as follows:

$$SR_{it} = \beta_0 + \beta_1 PE_{it} + \beta_2 ROA_{it} + \beta_3 CR_{it} + \beta_4 DE_{it} + \varepsilon_{it}$$

Statistical testing was carried out to examine whether the model had violated classical model assumptions namely: Multicollinearity, Heteroscedasticity, Autocorrelation and Stationarity. All the assumptions were satisfied based on the analysis findings.

4. Findings and Discussion

4.1. Descriptive Statistics

The Stock Return had a mean or average of -0.6683 thus corresponding to the negative returns earned in the last few years. The standard deviation is the highest recorded which is 1.2441. the observations of ROA are comparatively more spread out than the rest of the variables. the Jaq – Bera test which gained a coefficient of 0.2660, confirming ROA is normally distributed. Based on the Jaq – Bera test readings, the conclusion can be made that ROA and PE are normally distributed and the remainder of the variables are not normally distributed.

4.2. Regression Analysis

The predictability of the variables is compared using p-values against 5% significance level. The p-values of DE were higher than 5% (0.067), showing that it does not predict stock returns. Furthermore, other remaining variables of ROA, PE, CR significantly predicts stock returns. PE and DE had a negative relationship against the stock returns, while CR and ROA had a positive relationship with stock returns. Omran and Ragab (2004) found out that DE had a negative coefficient against stock returns. Hakki (2017) and Farkhan (2016) further confirmed the significant negative relationship with stock returns. The positive significance of the CR is affirmed by IG Ulupui Train (2009) which may have occurred due to differences in the data set. ROA significance is supported by previous literature including Hakki (2017), Nurah et al. (2016), Al Khalayleh (2001), Farkhan Ikka (2016), etc. The coefficient value proves this conclusion. The table displayed R- Squared at R-squared at 0.1222 which designated that the dependent variables explain 12% of the variation in the stock returns. A similar study conducted by Roen (2013) achieved R squared value of 35%. The scholar further noted that the low level of explanation of the stock return is due to excluding the size variable in the model. Ferson and Harvey (1994) noted that stock return is highly impacted by the country's interest rate and GDP growth rate.

Based on the data output the final multiple regression equation can be developed as follows:

$$SR = -0.564517 - 0.1343118PE + 0.0884439ROA + 0.2382235CR - 0.1251931DE + e_{it} \quad (2)$$

The significance of the following coefficients are as follows:

- The value of constant at -0.564517 states if the dependent variables CR, PE, DE, and ROA increase by 1 point the Stock Return decreases by 0.56, keeping all the other variables constant.
- The PE coefficient of -0.134 states that if the PE changes by 1 point, the stock return plummets by 0.134.
- CR coefficient of 0.2382235 asserted that the 1-point increase in the CR increases the stock return by 0.23.
- DE coefficient of -0.1251931 declared that the stock return lessens by 0.12 in the case of 1-point elevation of the DE.
- ROA and stock return had a positive relationship with stock return varying by 0.08 in the case of 1 point upward trend in the ROA.

The first research question is answered as return on assets has a significant relationship with the stock returns. This conclusion aligned with studies conducted by Nurah (2016), Martikainen (1993), Wijaya (2015), etc. The underlying reason behind this judgment is that when a company's earning capacity increases, it simultaneously grows the efficiency at which assets are turnover, which ultimately resulted in the increasing firm value. The conclusion made from the association of the DE and Stock return is there is no significant correspondence among the variables. This is further approved by the studies conducted by Farkhan Ikka (2016), Nurah (2016), etc.

Furthermore, the companies in related are in the mature stage of their lifecycle. The investors know that the companies can withstand solvency issues in the long term because they had survived for a long time in the market.

The PE showed significant predictability on stock returns. Emamgholipour et al. (2013) displayed that PE ratio had a significant positive relationship towards stock return. Shen (2009) deciphered that when the PE is higher, the resultant stock returns tend to be negative in short and the long term. The final research question is solved by concluding that there is significant predictability by the current ratio on stock return. This statement is upheld by the studies conducted by Nadya et al. (2017), Alexakis et al. (2010), etc. Kalayci and Karatas (2005) showed that liquidity ratios had a significant positive relationship with stock returns deciding that the ability of the company to pay off the short-term obligations increases the future profitability and desirability of the stocks.

Although the PE, CR, and ROA had a significant relationship with stock returns other financial ratios could be exercised to predict the variation of the stock returns, including the Book to market ratio (Chan, Hamao, and Lakonishok, 1995), dividend yield (Lewellen 2004), etc.

5. Conclusion

The present study had concluded that the DE, CR, ROA had significant predictability in deciding the fate of stock returns in the food and beverage sector in the Colombo Stock Exchange. Muhammad (2018) noted that investors tend to invest in stocks that have par or above ROA against the industry's average. The remainder of the ratio which

is DE had an insignificant negative linkage towards the stock return. The multiple regression model pointed out that the abovementioned ratios can predict the stock return variation up to 12%. This value is arguably lower for a prediction model in which the reasons may be assigned to the sample selection, macroeconomic factors, etc. When making an investment decision, investors must consider other financial ratios such as book value to market value, earnings per share, profit margin, etc. Furthermore, they should consider the external factors, including inflation rate, exchange rate, political stability when providing funds to the companies.

Kheradyar et al. (2011) noted that the combination of the financial ratios is a contributing factor in predicting the stock returns. It further enhances the predictability of the stock returns. So, the selection of the financial ratios is crucial in increasing the probability of predicting stock returns.

The main findings of the present study were that CR, ROA, and PE significantly predict the stock return in the food and beverage sector in the Colombo stock exchange. The preceding ratios could predict 12% of the variation of the stock return. This finding can be further exploited by the adoption of more variables to the model, contributing more noticeable results.

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