

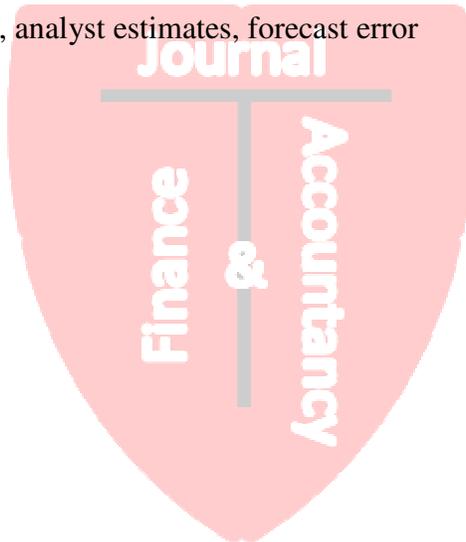
Stock price reaction to analysts' EPS forecast error

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ABSTRACT

This paper presents a study of analysts' earnings forecast errors impact on stock prices by observing the reaction that stock price has to forecast errors of earnings per share (EPS). Simple linear regression is used to extract the firm-specific return of Walmart stock and to test the residuals with earnings forecast errors. The results show a strong significant relationship between forecast errors and subsequent stock price movements. The conclusion is that Walmart's stock price does react to analysts' EPS forecast error thereby supporting the hypothesis that investors incorporate analyst estimates into stock purchase decisions and update their valuations when those forecasts contain error.

Keywords: earnings per share, analyst estimates, forecast error



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INTRODUCTION

In this paper the effect of forecast errors of analysts' earnings estimates on stock prices is discussed. Specifically, an assessment is made as to whether investors incorporate analysts' earnings estimates for Walmart into stock purchase decisions, and to the extent that investors do incorporate analysts' earnings estimates, what effect the forecast error has on stock price. A regression of the non-systematic or idiosyncratic return of Walmart stock and the forecast error of analysts' earnings per share estimates over a ten year period shows a strong relationship between forecast error and subsequent stock price movement.

BACKGROUND

Earnings have been shown to contain valuable information for investors which is incorporated into the stock price (Beaver, 1968). Ball and Brown (1968) found that investors react to earnings announcements and update their perception of stock value when earnings forecasts do not agree with earnings announcements. The result is that stock prices move in relation to these earnings surprises. Hou, Hung, and Gao (2014) studied the effect that analysts' earnings estimate revisions have on stock price, and found that the direction of earnings estimates revisions was significantly positively correlated with the direction in stock price reaction. Stickel (1991) also finds that analysts forecast revisions possess a linear relationship with stock returns.

DATA AND METHODOLOGY

This study addresses the relationship of analysts' earnings estimates to reported earnings, and tests whether informational value is contained in the forecast error. This differs from the previous research that has focused on analysts revisions. Furthermore, a short time frame of one week is used to test for an immediate response. Prior studies have focused on longer response time. The hypothesis is that investors do react to analysts forecast errors. The relationship of earnings estimates to reported earnings and stock price effect in Ball and Brown (1968) and analysts' earnings revisions to stock price in Hou, Hung, and Gao (2014), should be the relationship of analysts' EPS forecast error and stock return. That is, when reported earnings are higher than analysts' estimates the expectation is that the stock price will increase, and when reported earnings are lower than analysts' earnings estimates, stock price will decrease.

Information on stock price was taken from Yahoo! Finance. The adjusted closing price was used to account for dividends and stock splits. Quarterly earnings per share, and analysts' estimates data for Walmart were taken from Fidelity Investments. Fidelity Investments is one of the largest mutual fund and brokerage firms in the United States and provides research services for both institutions and individual investors. There were a total of 40 quarters of complete data for the previous ten year period, 2004-2014, starting with the third quarter of 2004 and ending with the second quarter of 2014.

The difference in quarterly earnings announcements and the corresponding analysts' consensus estimates for ten years was used. The percentage difference between the announcement and the analyst estimate was used. The percentage change, as opposed to the absolute change, is used in order to account for the relative size of earnings per share. A one cent

forecast error in earnings per share is a much different matter when absolute earnings per share is five cents as opposed to one dollar.

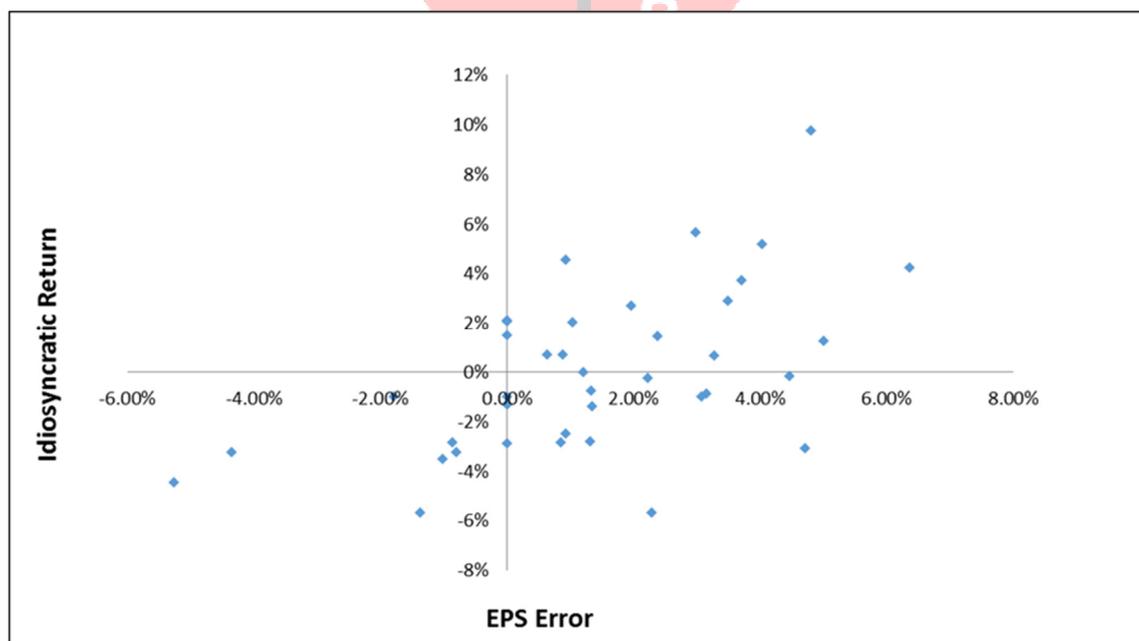
Stock price comparisons were made on the closing price before the earnings announcement, and the closing stock price one week later. In the instance that one week from the closing price before an earnings announcement fell on a non-trading day, the next trading day's closing price is used. Market wide effects on stock price were accounted for utilizing the method of Ball and Brown (1968). A regression analysis on the stock price and the market, measured by the S&P 500 (SPY), produced residuals of the expected value and actual value of the stock, which were used as the idiosyncratic return. It is this return and the percentage difference in analysts forecast and actual earnings per share that are the two relevant data items for comparison. Walmart's idiosyncratic return and the forecast error of analysts' earnings estimates were then regressed.

RESULTS

A regression of the residuals from the Walmart and S&P 500 regression estimates, with the analysts' forecast errors of earnings per share, produced the equation $\hat{Y}_t = -.11 + .77(\epsilon_t)$ where \hat{Y}_t is the estimated value for the idiosyncratic return of Walmart at time t and ϵ_t is the forecast error of the analysts' earnings estimates at time t .

The regression equation is very significant at the 95% confidence level. The significant value for the F-statistic is .00016 and the calculated F-statistic for the equation is 17.66. The adjusted R-square of .30 shows that the equation accounted for 30% of the value of Walmart's idiosyncratic return for the time series tested. The plot of Walmart's idiosyncratic return and EPS forecast error gives an appealing visualization of the relationship. The plot of the idiosyncratic return and forecast error is presented in Figure 1.

Figure 1



CONCLUSION

The forecast error of analysts' estimated earnings per share did contain information value for investors. Over the ten year period studied, stock prices moved in the same direction as forecast errors of analysts' EPS estimates. This extends the prior studies of Beaver (1968), and Ball and Brown (1968) which studied the effect of earnings on stock price, as well as Hou, Hung, and Gao (2014), and Stickel (1991) who studied the effect of analysts EPS estimates revisions but did not address the error between analyst forecast and reported EPS.

LIMITATIONS AND FURTHER RESEARCH

Although this study found a significant relationship between analysts' earnings per share estimate errors and stock price reaction over a ten year period, the results cannot be extended to the broad market without further analysis. Although 40 quarters over a ten year period were analyzed, the external validity is limited because only one company was studied. For the question of whether or not the broad market absorbs information from analysts' EPS estimates and the error of those estimates, this study presents a sample size of one. A larger sample of firms would need to be studied in order to provide the answer to that question.

An extension of this research could focus on the number of analysts that cover a particular company and whether that has any moderating or confounding effects on the results. There is previous research that addresses the effects of the level of forecasting activity on stock price. Beaver (1968) found that earnings information was incorporated into stock price. Anabila (2014) found that the level of forecasting activity affected the speed at which information was incorporated into stock price. In this study the consensus estimates for Walmart were based on an approximate average of 27 analysts. Would the results of this study differed if only 3 or as many as 50 analysts covered Walmart? This question is best asked relative to the results of the more broad application of this study mentioned in the paragraph above.

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