INVESTIGATION OF THE RELATIONSHIPS BETWEEN A PUBLIC COMPANY'S FINANCIAL FACTORS AND ITS STOCK PRICE: AN EMPIRICAL STUDY

Morsheda Hassan, Grambling State University
Raja Nassar, Louisisa Tech Universtiy
Aaron Witherspoon, Grambling State University

ABSTRACT

This study investigates the relationships between financial factors of a company and its stock price. The financial factors for the study were long-term debt divided by total assets (LTD/TA), total debt divided by total assets (leverage), cash and short-term investments divided by total assets (CI/TA), cash and short-term investments divided by current assets (CI/CA), return on assets (ROA), return on equity per share (ROE-S), and return on equity (ROE).

Results indicated that not many financial factors were related to stock price. The financial factors that related significantly to price, as a percent of the 49 companies analyzed, were the following: LTD/TA (10.2%), ROE (8.2%), ROA (2%), lag of CI/CA (4.1%), leverage (4.1%), CI/CA (6.1%), CI/TA (6.1%), ROE-S (6.1%), lag of LTD/TA (2%), lag of leverage (4.1%), and lag CI/TA (2%). Based on these results, it does not appear that a company's financial factors are influential since they do not relate substantially to the stock price. Investors did not appear to depend substantially on a company's financial data when investing in the company.

INTRODUCTION

Of importance for market investment is to determine which financial data of a company can be used as predictors of the company's stock returns. Public companies are required by the US Securities and Exchange Commission (SEC) to file annually the 10-K report, which documents companies' audited financial data. This information is supposed to be for the benefit of investors so they can make wise decisions about their investments. The 10-K report is complex, and it is not clear how much investors depend on it for their investments. There is evidence showing that individual investors rely more on publicly available signals than on financial data in making their investments (Barber & Odean, 2008; Earl, 1972). Studies in the literature, examining the impact of financial factors on stock returns, have used the so-called panel regression. Data are collected for different companies over time. The regression model includes independent variables (financial factors) observed over companies and time. As such, one does not have information about the significance of an independent variable for any particular company, but only overall companies. Also, the multiple regression analysis does not correct for multi-collinearity or autocorrelation of errors, which is common for time series data. Multi-collinearity is known to give inaccurate estimates of the regression coefficients, and estimates can have the wrong sign. Autocorrelation is known to give spurious regression results where estimates appear significant when, in reality, they are not (Montgomery et al., 2001; Granger & Newbold, 1974).

For investment purposes, an investor would like to know about the financial factors that have an effect on stock returns for a specific company. Therefore, it is more informative to determine the relationship between financial factors and stock returns for each company separately using regression techniques corrected for multi-collinearity and autocorrelation. As such, the final regression model chosen per company will be one where the independent variables are not linearly dependent, and the errors are independent and not correlated. In this analysis, we utilize the above statistical approach to determine which company's financial factors may be related to the stock price of the company. This information can be used to predict the stock price movement of a company based on its financial data.

LITERATURE REVIEW

Ur Rehman and Gul (2017), using panel regression, investigated the effect of certain financial factors on stock returns in the Pakistani equity market. The quarterly data were from June 1999 to December 2007 and from June 2009 to December 2015. An analysis was done on the pre-financial and post-financial crisis periods. The factors investigated were firm size, earnings growth rate, institutional earnings ratio, trading volume, book-to-market ratio, and momentum. The size of a firm was measured as the natural log of market price per share multiplied by the number of common shares outstanding at the end of each quarter. Trading volume was measured as the natural log of the number of common shares traded. Institutional ownership ratio was measured as the number of shares held by investors divided by the total number of common shares outstanding. The earnings growth rate was measured as the ratio of the current quarter's net income to the previous quarter's net income. Momentum was measured as winners' minus losers' firm stock returns. Book value per share was measured as the total assets minus total liabilities and preferred equity divided by the total number of common shares outstanding. Results indicated that momentum and earnings growth affected stock returns in the pre-financial crisis of 2008.

In the post-financial period, the variables that affected stock price were momentum, earnings growth rate, institutional ownership, and trading volume. For the whole sampling period, momentum, earnings growth rate, and size were significantly related to stock returns. The R^2 value was about 0.67 when including all the variables (significant and not significant in the model). The result implied that R^2 was less for the significant variables that were predictors of the stock price. As a result, it was likely that the significant variables were not good predictors of stock returns. The findings indicated there were other variables of importance not included in the data set.

Aras and Yilmaz (2008), using multiple regression analysis, investigated the relationships between stock returns in 12 emerging markets and a price-earnings ratio, dividend yield, and market-to-book ratio for the period 1997-2003. The most important predictors were the market-to-book ratio and the dividend yield. The price to earnings ratio was least significant in its relationship with stock returns and played a minor role in predicting stock returns.

Cordis (2014), using multiple linear regression, reported on the effect of accounting ratios on the monthly stock returns of US firms. Empirical results revealed that the log accounting ratios were predictors of the conditional mean and conditional variance of the log stock returns. The accounting ratios used were book-to-market ratio, dividend-price ratio, and return on equity.

Lai and Kwai-yee (2016) investigated the relationships between stock returns and price-to-sales ratio, market-to-book ratio, earning per share, dividend yield, and firm size. The

independent variables were the five factors, using factor analysis, extracted from 20 financial ratios for 17 firms on the Hong Kong Stock Market. Results from the multiple regression analysis over time showed that the market-to-book ratio, dividend yield, and firm size had significant positive relationships with stock returns. Price-to-sales ratio and earnings per share were not significantly related to stock returns. The authors concluded that their research proved to be inconclusive in the sense that it was not possible to say for certain which ratio was best for predicting stock returns and which was the most useful for investors.

Vedd and Yassinski (2015) empirically studied the effect of financial ratios on stock prices in stock markets in Latin America. The financial data were over the period 2004 to 2013 and included 345 from Brazil, 191 from Chile, 129 from Mexico, and 49 from Colombia. The companies belonged to 10 industry sectors. Using panel multiple regression analysis, the authors found that assets, turnover ratio, and firm size had significant effects on stock prices in companies from Brazil, Chile, and Mexico. In addition, the debt ratio had a significant effect on stock prices in companies from Colombia.

Song (2018) reported on how investor attention to a company's accounting information influenced the pricing of its stock. The focus was on individual retail investors rather than institutional investors. The author used Google Trends Daily Search Volume Index (SVI), over the period 2004 - 2016, to determine investor attention to the firm's accounting information (such as financial reports and earnings) and non- accounting information (such as price trends). Results showed that the three-day stock returns around quarterly earnings announcements were stronger with greater investor attention to accounting information. It was estimated that a one standard deviation increase in investor attention to accounting information was associated with a 31.2% stronger return.

Kheradya et al. (2011) investigated the effects of dividend yield, earnings yield, and book-to-market ratio on stock returns in the Malaysian stock exchange for the period of January 2000- December 2009. Using multiple regression analysis, the authors showed that all three variables were significantly positively related to stock return. The most significant predictor of stock returns was the book-to-market ratio. However, the adjusted R^2 for the model was too low (<.03), indicating that the independent variables did not explain much of the variability in the dependent variable, and other variables of importance were not included in the model.

Hamza and Jaradat (2018) investigated the effect of changes in cash flow statements on stock returns in 13 commercial banks listed on the Amman stock exchange for the period 2009-2015. The dependent variable in the multiple regression analysis was stock returns, and the independent variables were changed in combined activities of cash flows, change in operating cash flow, change in investing cash flow, and change in financing cash flow. The control variables used were bank size, bank performance, and bank financial leverage. Regression analysis results showed that change in operating cash flow and change in cash flows from investing activities had a positive and significant effect on stock returns. Also, the control variables had a significant impact on stock returns.

Enow and Brijlal (2016) examined factors that affected stock returns utilizing 14 companies listed on the Johannesburg stock exchange for the period 2009- 2013. Results of the least-squares multiple regression analysis revealed that dividends per share, earnings per share, and price-earnings ratio explained 57.8% of the variation in stock prices, which meant other important financial factors were not included in the data set. Earnings per share and price-earnings ratio were significantly positively related to stock returns, while dividend per share was not.

In an article by Earl (1972), the author discussed some reasons why stock prices move up or down. He stated that if investors buy more than sell a certain stock, then the stock price would rise. In addition, if they sell more than they buy, then the stock price would fall. To discern the reason for price movement, one has to examine human motivation, not company financial results, nor economic or political situations, which may or may not affect stock returns. Of influence on stock prices are tips that circulate among investors regarding whether a share is going to rise or fall. As a result, price rise or fall tends to be self -reinforcing. The author further asserted that a disparity between share performance and the company's financial results could be explained as being caused by portfolio saturation, given the need to maintain portfolio diversification and balance. The author summarized his argument with the statement: "the facts which determine stock market prices are not just those of the commercial and industrial world but also those of the stock market microcosm, in which elements as disparate as the gambling urge and ideal portfolio distribution combine."

Chughtai et al. (2014) investigated the relationship between financial factors and stock returns, utilizing 99 companies listed on the Karachi **Stock** Exchange for the period 2006-2011. Results of the panel regression analysis showed that stock price was significantly positively related to dividend per share and earning per share.

Using panel regression on 95 companies listed on NSE 100 for the period 2007-2012, Malhotra and Tandon (2013) showed that the firm's book value, earning per share, and price-earnings ratio had a significant positive relationship with firm's stock price. On the other hand, the dividend yield was negatively associated with the stock price. These four independent variables explained 51.6% of the variability in stock price.

Shafana et al. (2013) examined the effect of firm size and book-to-market ratio on stock price in 12 companies (financial and non-financial) listed on the Colombo Stock Exchange in Sri Lanka. The period of the study was from 2005 to 2010. Results of the panel multiple regression analysis showed that firm size had no significant effect on the stock price. In contrast, book-to market-ratio had a significant negative effect on the stock price. These regression results were true for all firms as well as for the financial and non-financial firms. The coefficient of determination (R^2) was less than 36%, which indicated that the model did not have an adequate predictive ability. The low R^2 was an indication that there were other important predictor financial variables that were not included in the model.

Ping-fu and Kwai-yee (2016) investigated the effect of financial ratios on stock returns using 17 firms on the Hong Kong Stock Exchange for the period 2008-2012. Financial ratios used as independent variables in the multiple regression analysis were price-to-sales ratio, market-to-book ratio, earning per share, dividend yield, and firm size. Results of the multiple regression analysis with stock returns as the dependent variable showed that market-to-book ratio, dividend yield, and firm size had significant positive relationships with stock returns.

Ligocká (2019) investigated the effect of selected financial ratios on the stock prices of energy, food, chemical, and metallurgical companies on the Polish Stock Exchange over the period 2006-2015. Results of a panel regression analysis showed that for the energy companies, return on equity, financial leverage, and equity ratio were significantly negatively related to the stock price. The debt ratio was significantly positively related to price. For the food companies, the panel regression revealed that return on assets and financial leverage were significantly negatively related to stock price. Return on equity and L2 (defined as current assets - inventory divided by short- term liabilities) were significantly positively related to price. Results for the metallurgical companies indicated that return on assets and L2 were negatively related to stock

price. Return on equities, financial leverage, and the equity ratio were positively related to price. In the case of the chemical companies, none of the financial ratios was significantly related to stock price.

In a similar study about the Vienna Stock Exchange, Ligocká (2018a) reported results showed no significant relationship between selected financial ratios and stock prices. The data used in the analysis represented five financial institutions over the period 2005-2015. The financial ratios were current assets divided by current liabilities; net income divided by total assets; net income divided by equity capital, and total assets in billion EUR. Possible reasons for the lack of a significant impact of the financial ratios on stock price were given as being due perhaps to investors using other ratios or were basing their decisions on macroeconomic factors. Also, perhaps investors' psychology was playing a more important role in investment decisions than financial information**.**

Berglund and Bergman (2013) investigated the relationship between selected financial ratios and quarterly stock returns of Swedish listed firms over the period 1998-2012. The ratios studied were price-earnings, dividend yield, earnings per share, debt to equity, and market to book. Results of the regression analysis on each firm showed that most firms did not show a significant impact on the financial ratios on stock returns. The most frequent significant ratio was market-to-book with a frequency of 38% of being significant on Large Cap Stocks and 35% on Small Cap stocks.

Pražák (2020) investigated the impact of microeconomic factors on stock prices of 29 selected Swiss companies listed on the Six Swiss Exchange. The dataset was composed of annual data over the period 2006 to 2015. The study utilized a panel regression analysis. The independent variables chosen were debt to equity ratio (DE), the ratio between cash and short-term liabilities, the ratio between the swift current assets and short-term liabilities, and return on assets (ROA). Results showed that all independent variables were significantly related to price. The ratio between cash and short-term liabilities and ROA was positively related to price. On the other hand, DE and the ratio between the swift current assets and short-term liabilities were negatively related to price.

Ligocká (2018b) investigated the relationship between financial ratios and the stock price of selected companies listed on the Polish Stock Exchange and the Prague Stock Exchange. The data set was semi-annual over the period 2006-2017. The financial ratios considered are the return on assets, return on equity, earnings after tax divided by total assets, current assets divided by short-term liabilities, liabilities divided by total assets, own capital divided by total assets, total assets divided by shareholders' equity, and liabilities divided by total assets.

The long-term relationships between stock price and the financial ratios were analyzed using the Johansen co-integration test. The existence of a short-term relationship was determined using the Vector Error Correction Model (VECM). Results indicated that there were only sporadic relationships between stock price and financial ratios at the company level. The conclusion was that investors were not relying on companies' financial information in making their investment decisions.

Stejskalová (2019) reported on the effect of investor attention on stock returns. The author reported a strong link between online searches and stock returns and the Dow Jones Industrial Average. There was also evidence that investors' attention became significant during the financial crisis. Of interest was the finding that not only online searches for companies' names, but also searches for companies' financial indicators were positively associated with changes in stock returns.

Sharma et al. (2012) studied the effect of financial variables on stock returns for 71 companies listed on the CNX 100 stock index in India. The data set was annual for the period 2000 – 2008. The authors used the regression analysis of overall companies. The dependent variable was the ratio of market share price to its book value. The independent variables were returned on the net-worth and cash flow from operations, cash flow from investment, and profit after tax. Results showed that only return on net-worth was significantly related to the dependent variable. The authors concluded that Indian investors do not rely on the fundamental financial information of companies for investment decisions. In a similar study, Shreyes and Gowda (2018) investigated the effects of dividend, book value, and earnings on the share price in 125 companies from BSE 500 on the Indian market for the period 2000-2012. The study utilized regression of overall companies. Results indicated that dividend, book value, and earnings affected share price.

METHODS

DATA

Fifty US companies over the years 1998 to 2017 were selected, based on having complete quarterly financial data, from a Compustat file utilizing the Wharton Research Data Services (WRDS) database. Also, from WRDS, we obtained for each company its quarterly stock price over the same years. From the 50 companies, one company did not have complete data on its stock price.

Statistical analysis

Regression techniques, correcting for autocorrelation and multi-collinearity, were used in the analysis. For each company, we regressed its stock price on financial factors and their first lags as well as the first lag of stock price using multiple regression:

$$P_t = a + b_1P_{t-1} + b_2 X_{1t} + b_3X_{1t-1} + \ldots\ldots + b_{2k}X_{kt} + b_{2k+1} X_{kt-1} + \eta_t \quad (1)$$

Where P_t is the stock price at time t and P_{t-1} its lag at time t-1, The X's are the independent financial factors and their lags, and η_t denotes the residuals. It is advisable to include lags in regression on time series data where the errors usually exhibit the first-order autocorrelation. The financial factors used as independent variables are listed in Table 1. The interest was in determining which factors affected the stock price.

In running a regression analysis, one needs to examine multi-collinearity and serial correlation of error. It is known that multi-collinearity among the independent variables in regression gives inaccurate estimates of the partial regression coefficients and can give estimates with the wrong sign. Also, a serial correlation on time series data can give spurious regression results, where parameter estimates are declared significant when, in reality, they are not (Montgomery et al., 2001; Granger & Newbold, 1974).

Regression with auto-correlated errors

The residuals in regression on non-stationary time series are often positively autocorrelated and can render the F test for model significance invalid, which can give rise to spurious regression (Granger and Newbold (1974)). A Durbin-Watson Statistic of less than 2 indicates positive autocorrelation. The authors' recommendations to address the situation are: to include a lagged dependent variable, to take the first-differences of the variables in the regression, or to model the error term by a first-order autoregressive process.

In this study, price, using the Dickey-Fuller and the Phillips-Perron unit root tests, was non-stationary for 41 companies and stationary for eight companies. The non-stationary price was mainly a random walk. Based on the above recommendations, we included in this analysis a lagged dependent variable and used the auto-regression procedure, which assumes, based on the Durbin-Watson statistic, a first-order stationary autoregressive form for the residuals, AR(1).

Hence, η_t in Equation (1) may be expressed as

$\eta_t = \phi\eta_{t-1} + e$

or

$\eta_t = e / (1- \phi B)$.

Here, B is the backshift operator, and e represents independent random errors

Replacing η_t in Equation (1) with its value above gives a regression equation with lags, where the errors are independent.

In this analysis, when autocorrelation was present, it was positive (Durbin-Watson statistic less than 2). However, the autocorrelation was not substantial since the Durbin-Watson statistic was close to 2, the value for no autocorrelation, and could be attributed to the inclusion of lags in the regression.

Multi-collinearity

Multi-collinearity exists when there are linear dependencies among the independent variables. Multi-collinearity for each independent variable is measured by the variance inflation factor (VIF).

The variance inflation factor for variable X_i is expressed as

$VIF_i = 1/(1-R^2_i)$. (2)

Here R^2_i = the coefficient of determination when X_i is regressed, as a dependent variable, on the other independent variables.

Independent variables that had VIF's equal or larger than five were eliminated from the set of variables. For the remaining subset of independent variables, if the errors showed autocorrelation (using the Durbin-Watson test), we used the autocorrelation procedure in SAS, which estimates the regression coefficients using maximum likelihood when an autoregressive (AR(1)) process models the error term, as indicated above. The backward elimination procedure was used so that only significant independent variables remained in the final regression model. On the other hand, if the errors were not autocorrelated, we used the least-squares estimation with the recommended stepwise procedure. Stepwise is a variable selection procedure where independent variables are entered into the regression model one at a time. An independent variable is entered into the model if it is significant at a certain lever (0.25 was chosen for this analysis). When a new variable enters the model, the variable that was entered a step before

remains in the model only if it is significant at the 5% level. The final model has only significant variables (Montgomery et al. 2001). Table 2 presents the regression models resulting from the regression analyses for each company.

Table 1
List of Independent Variables Used in the Regression Analyses Where a Company's Stock Price is the Dependent Variable

ROE	Return on equity
ROA	Return on assets
ROE-S	Return on equity per share
Lprice	First lag (lag 1) of stock price
LTD/TA	Long term debt divided by total assets
Leverage	Total debt divided by total assets
CI/TA	Cash and short term investment divided by total assets
CI/CA	Cash and short term investment divided by current assets
LROA	First lag (lag 1) of return on assets
LROE-S	First lag (lag1) of return on equity per share
LROE	First lag (Lag 1) of return on equity
Lag- LTD/TA	First lag (Lag 1) of LTD/TA
Lag-Leverage	First lag (Lag 1) of Leverage
Lag-CI/TA	First lag (Lag 1) of CI/TA
Lag-CI/CA	First lag (Lag 1) of CI/CA

Table 2
Regressions of Stock Price on Financial Factors, as Independent Variables, for Different Companies on the US Stock Market

Company	Intercept	Lprice	LTD/TA	Leverage	CI/TA	CI/CA	LTD/ TA lag
1-800-FLOWERS.COM, INC.	0.975	0.879					
Abbott	8.44	0.829					
ABM	1.93	0.868	-14.77				
1st source	1.99	0.929					
Bank of America	1.73	.686					
Bristol-Myers	3.24	.912					
Caterpillar	57.98	.834		-87.04			
Chase	-.621	.944			45.4		
Community health	2.89	.838					
Diamond drilling	5.86	.786					
DTE Energy	-.111	1.02					
Edwards life sciences	8.04	.641			90.0		
Eli Lilli	3.85	.943					
First Energy	15.78	.879					
Fiserv Inc.	6.38	.894					
G&K Services	-.092	1.03					
GAP Inc	3.65	.582					
Hain Celestial	2.44	.928					
Halliburton	8.80	.769					
Harris Corp	1.57	.993					

Hershey	2.76	.926				19.20	
I.D.Systems	3.15	.732					
ICU Medical	-2.19	1.09					
J.B.Hunt	1.69	.982					
J.C. Penny	.199	.818				17.05	
Jewett-Cameron	2.50	.312					
Kellog	2.70	.951					
Kewaunee Scientific	3.22		-92.87				
L.B. Foster	2.12	.908					
Laboratory Corp	9.71	.895					
M.D.C. Holding	21.41	.825		-38.38			
Manpower Group	18.01	.809	-60.36				
Nanometrics	-.002	.316	-55.24		38.1		
Nanophase	1.09	.807					
Ocean Biochemical	.403	.540				7.65	
Oceaneering International	24.01	.647	-55.51				
Panhandle Oil and Gas	9.26	.608					
Par Technology	1.01	.890					
Quacker Chemicals	-1.17	1.07					
Quanta Service	6.21	.635					
Radisys Corp	.946	.866					
Rambus Inc	6.38	.690					-11.86
Salem Media Group Inc.	.448	.933					
Take-Two Interactive Software	2.95	.992					
Tampa Electric	-3.59	.778					
UGI Corp	4.00	.891					
W.R.Grace & CO	-3.44	.955					
Walt Disney	.685	1.01					
WW Grainger Inc.	4.16	.990					

Table 2 (continued)

Company	**Leverage-lag**	**CI/TA lag**	**ROE**	**ROE-S**	**ROA**	**CI/CA lag**	**R^2**
1-800-FLOWERS.COM, INC.							.755
Abbott							.617
ABM		250.7					.915
1st source							.843
Bank of America			.903				.914
Bristol-Myers							.847
Caterpillar							.828
Chase							.959
Community health					.433		.800
Diamond drilling			.353				.875
DTE Energy							.969
Edwards life sciences							.866
Eli Lilli							.809

First Energy	-26.47						.852
Fiserv Inc.							.796
G&K Services							.889
GAP Inc				.249			.762
Hain Celestial							.855
Halliburton							.589
Harris Corp							.920
Hershey							.904
I.D.Systems			.062				.709
ICU Medical							.981
J.B.Hunt							.944
J.C. Penny				.096			.913
Jewett-Cameron							.091
Kellog							.917
Kewaunee Scientific	-59.33					133.6	.478
L.B. Foster							.835
Laboratory Corp							.820
MDC. Holding							.862
Manpower Group							.776
Nanometrics							.713
Nanophase							.59
Ocean Biochemical							.621
Oceaneering International							.778
Panhandle Oil and Gas							.407
Par Technology							.718
Quacker Chemicals							.968
Quanta Service				.516			.713
Radisys Corp							.867
Rambus Inc							.680
Salem Media Group Inc.							.900
Take-Two Interactive Software							.917
Tampa Electric			.760				.740
UGI Corp							.762
W.R.Grace & CO						19.58	.963
Walt Disney							.972
WW Grainger Inc.							.956

RESULTS AND DISCUSSION

For investing purposes, it is important to develop a regression equation for each company, and not overall companies, relating stock price to the independent or predictor variables that are significant. Table 2 presents the regression equation for each of the 49 companies that were investigated. The numbers in each column represent the constants and the partial regression coefficients associated with the independent variables. For instance, the regression equation for the ABM company can be written as:

$$P_t = 1.93 + 0\ .868\ P_{t-1} - 14.77\ (LTD/TA)_t + 250.7\ (CI/TA)_{t-1} + e \quad (3)$$

The R^2 value is 0.915, which means that this regression model explains 91.5% of the total variability in stock price.

It is of interest to note that the first lag of price is present in every regression for all companies. The presence indicates that price at time t-1 significantly positively impacts a company's stock price at time t. What is interesting is that the price lag as an independent variable is the most important predictor of stock price when one considers all the companies. Of the 49 companies, 27 (55%) have the price lag as the only predictor variable in the regression equation.

Of interest is the fact that not many of the financial factors studied had a significant impact on the stock price. It is important to note that where there was a significant impact, it was of the right sign. Long-term debt divided by total assets (LTD/TA) had a significant negative impact on stock price in only 10.2% of the companies. Total debt divided by total assets (leverage) had a significant negative impact on stock price in only 4.1% of the companies. Cash and short time investment divided by total assets (CI/TA) had a positive impact on stock price in only 6.1% of the companies. Also, cash and short term investment divided by the current assets (CI/CA) was significantly positively related to the stock price in 6.1% of the firms. The LTD/TA lag had a negative effect on stock price in only 2% of the companies. Two (4.1%) of the companies showed a significant negative relation between leverage lag and stock price.

The CI/TA lag had a positive impact on stock price in only one company (2%) and the CI/CA lag in only two (4.1%) companies. Returns on equity (ROE), return on equity per share (ROE-S) and return on assets (ROA) had a significant positive impact on stock price in 8.2%, 6.1%, and 2% of the companies, respectively

These results, showing that the company's financial data have little to no substantial impact on its stock price, are in agreement with results reported by Berglund and Bergman (2013) and by Ligocká (2018a, b) for the European stock markets. This lack of significant association between financial data and stock price may mean that investors are not using these financial data in making decisions about investment in stocks. They may be relying instead on macro-financial data in investment decision making or decisions are made, as Earl (1972) points out, based on human motivation and not company financial results nor economic situations. Of influence on stock prices are tips that circulate among investors regarding whether a share is going to rise or fall. As a result, investment in stocks can be psychological and not based on the rational financial determination. It would be of interest to examine the effects of macro-financial variables at the national level to determine if they have more impact on stock prices than the micro-financial data examined in this study.

CONCLUSION

In this study, we investigate the relationship between the stock price of a company and its financial factors. The selected financial factors were long-term debt divided by total assets (LTD/TA), total debt divided by total assets (leverage), cash and short-term investments divided by total assets (CI/TA), cash and short-term investments divided by current assets (CI/CA), return on assets (ROA), return on equity per share (ROE-S), and return on equity (ROE).

Regression techniques, correcting for error autocorrelation and multi-collinearity, were used where the dependent variable was the stock price, and the independent variables were the above financial factors and their first lags as well as the stock price lag.

Results indicated that few financial factors were related to stock price. Out of 49 companies studied, long-term debt divided by total assets (LTD/TA) had a significant negative impact on stock price in 10.2% of the companies. Total debt divided by total assets (leverage) had a significant negative impact on stock price in only 4.1% of the firms. Cash and short time investment divided by total assets (CI/TA) had a positive impact on stock price in only 6.1% of the companies. Also, cash and short term investment divided by the current assets (CI/CA) was significantly positively related to the stock price in only 6.1% of the firms. The LTD/TA lag had a negative effect on stock price in only 2% of the companies. Two (4.1%) of the companies showed a significant negative relationship between the leverage lag and stock price.

The lag of CI/TA had a positive impact on stock price in only 2% of the firms, and the lag of CI/CA had a positive impact on stock price in only 4% of the firms. Returns on equity (ROE), return on equity per share (ROE-S), and return on assets (ROA) had significant positive impacts on stock price in 8.2%, 6.1%, and 2% of the firms, respectively.

The fact that 10% or less of the companies showed any effect of a financial factor on the stock price indicated that investors did not depend substantially on the financial information of a company when investing in the company's stock. These results are in agreement with some studies in the literature; Earl (1972), Berglund and Bergman (2013), and Ligocká (2018a,b). They point out that when making their investments, investors did not rely on the company's financial data. Perhaps they could be relying more on macro-financial factors at the national level. Another reason, as argued by Earl (1972) and Barber and Odean (2008), could be human motivation or public signals. Of influence on stock prices are tips that circulate among investors regarding whether a share is going to rise or fall. The author argued that a disparity between share performance and the company's financial results could be explained as being caused by portfolio saturation, given the need to maintain portfolio diversification and balance.

In summary, the present study shows clearly that a company's financial data do not relate in a significant way to the stock price of the company. This finding is in agreement with similar studies in the literature, conducted on a company basis. The fact that a company's financial information has no substantial effect on its stock price would indicate that financial information, such as that presented in the 10-K annual report, is not being used by investors. Instead, investors seem to rely on other information to make their investment decisions.

REFERENCES

Aras, G., & Yilmaz, M. K. (2008). Price-earnings ratio, dividend yield, and market-to-market ratio to predict return on stock market: Evidence from the emerging markets. *Journal of Global Business and Technology, 4* (1), 18-30.

Barber, B. M., & Odean, T. (2008). All that glitters: The effect of attention and news on the buying behavior of individual and institutional investors. *Review of Financial Studies, 21* (2), 785-818.

Berglund, E., & Bergman, A. (2013). *Financial ratios ability to predict excess returns of Swedish listed firms. (Publication No. 3*814407.[Master's thesis, Lund University]. http://lup.lub.lu.se/student-papers/record/3814407.

Chughtai, A. R., Azeem, A., Amir, A., & Ali, S. (2014). Stock prices in Pakistan: An empirical study. *International Journal of Financial Management,* 4 (1), 74-81.

Cordis, A. S. (2014). Accounting ratios and the cross-section of expected stock returns. *Journal of Business Finance & Accounting, 41*(9 &10), 1157–1192.

Earl, V. (1972). What Makes Shares Move? *Accountancy,*83, 78-80.

Enow, S. T., & Brijlal (2016). Determinants of share prices: The case of listed firms on Johannesburg Stock Exchange. *Journal of Accounting & Management*, *6* (1), 85-92.

Granger, C. W. J., & Newbold, P. (1974). Spurious regressions in econometrics. *Journal of Econometrics, 2,* 111-120.

Hamza, M., & Jaradat, M. M. (2018). The impact of changes in the elements of cash flows statement on stock returns in Jordanian commercial banks listed on Amman stock exchange: An empirical study. *Journal of Accounting, Finance & Management Strategy*, *13* (2), 1-21.

Kheradyar, S., Ibrahim, I., & Mat, F. N. (2011). Stock return predictability with financial ratios. *International Journal of Trade, Economics and Finance*, *2*(5).

Lai, P., & Kwai-yee, C. (2016). Relationships between stock returns and corporate financial ratios based on a statistical analysis of corporate data from the Hong Kong Stock Market. *Public Finance Quarterly*, 110-123.

Ligocká, M. (2019). The effect of financial ratios on the stock prices: Evidence from the Polish stock exchange. *ACTA VŠFS*, *13* (1), 44-60. Retrieved from www.vsfs.cz/acta

Ligocká, M. (2018a). Can financial ratios influence the stock returns of financial sector companies in Austria? *Schváleno k publikování, 14* (3), 25-35.

Ligocká, M. (2018b). The relationship between the stock prices and financial ratios: evidence from the Prague stock exchange and the polish stock exchange. *Acta academica karviniensia*, *18*, 66-78.

Malhotra, N., & Tandon, K. (2013). Determinants of stock prices: Empirical evidence from NSE 100 Companies. *International Journal of Research in Management & Technology, 3* (3), 86-95.

Montgomery, D.C., Peck, E.A., & Vining, G.G. (2001). Introduction to linear regression analysis analysis (3rd ed.). New York, NY: Wiley

Ping-fu, L., & Kwai-yee, C. (2016). Relationships between stock returns and corporate financial ratios based on a statistical analysis of corporate data from the hong kong stock market**.** Public Finance Quarterly, State Audit Office of Hungary, 61, 110-123.

Pražák, T. (2020) (2020). The role of main microeconomic Factors on the stock prices of selected Swiss companies. *Financial Internet Quarterly*, *16* (1), 67-74.

Shafana, A. L., Fathima, R., & Inun, A. M. J. (2013). Relationship between stock returns and firm size, and book-to-market equity: empirical evidence from selected companies listed on Milanka Price Index in Colombo stock exchange. *Journal of Emerging Trends in Economics and Management Sciences*, *4*(2), 217-225.

Sharma, A. K., Kumar, S., & Singh, R. (2012). Value relevance of financial reporting and Its impact on stock prices: Evidence from India. *South Asian Journal of Management, 19,* (2), 60-77.

Shreyes, N. R., & Gowda, K. N. (2018). An empirical study of value relevance of financial reporting in Indian corporate sector. *The IUP Journal of Accounting Research & Audit Practices*, *17* (2), 7-21.

Song, S. (2018). Does investor attention to accounting information matter to the pricing of stocks? (INSEAD Working Paper No 14124), INSEAD. http://ssrn.com/abstract= 3229526

Stejskalová, J. (2019). Behavioral attention to financial indicators: Evidence from Google Trends data. *Czech Journal of Economics & Finance*, *69*(5), 440-462.

Ur Rehman, H., & Gul, F. (2017). Stock return predictability using panel regression: Empirical evidence from Pakistani equity m*arket Journal of Managerial Science*, *11(2)* , 267-284

Vedd, R., &Yassinski, N. (2015). The effect of financial ratios, firm size & operating cash flows on stock price: Evidence from the Latin America industrial sectors. *Journal of Business and Accounting,* 8(1), 15-26.