Stock returns indicator: case of Tadawul

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Abstract: The key objective of this research is to identify the most suitable financial variable indicator of future stock returns. Therefore, four financial variables are analysed to determine which variable leads to the highest stock returns; book to market value of equity (BMVE), sales to price (SP), debt equity (DE) and firm size (FS). A sample of 30 listed companies in KSA stock market were randomly selected from five industries. Regression analysis is applied to scrutinise the correlation between stock returns and the selected financial variables. The key finding of this research is that the firm size (size effect) is a useful explanation for stock returns in the KSA stock market. Our conclusion is similar to Garza-Gómez et al.'s (1998) study of Japanese stock market data, Senthilkumar's (2009) study on a selected Indian stock market, Xing Hu et al.'s (2019) investigation of size effect on Chinese stock returns and (Banz, 1981).

Keywords: stock returns; firm size; Tadawul; stock returns indicators; values factors; financial variable.

Biographical notes: Issam Tlemsani has 20 years' international academic experience. He is the co-founder of The Centre of International Business in the UK. He is currently an Editor and member of Editorial Advisory Board for a number of journals and he is a proactive researcher with over 100 international publications.

1　Introduction

Theoretically stock prices play a fundamental role in the growth and development of an economy, acting as one of the primary economic indicators as greater stock prices show a rise in the reduced predicted earnings, giving valuable info about the upcoming economic development in terms of prosperity, stability and confidence. When the economy is undergoing a growth phase then the output increases and most companies experience better profitability (Steindl et al., 2001; Tlemsani and Matthews, 2019). Empirically, the analytical content of stock prices for economic development is, however, less straightforward. The higher profits translate into shares being more attractive to investors as there are greater dividends along with there being capital gains due to growth in stock

prices. An extended phase of economic growth is beneficial to shares. In contrast, if the stock markets predict a recession, then the prices will decline in anticipation of lesser profits.

Tadawul is the sole stock exchange in KSA with a market capitalisation of $500bn in march 2018 and is a major stock exchange amongst the Gulf Cooperation Council (GCC) countries (Seznec, 2018). The stock market was informal throughout the 1970s as only 14 corporations were listed in the exchange. However, in 1984, the government instigated a ministerial committee to aid in the development and regulation of the stock market. In 2003, the Capital Market Authority was created as the primary regulator of Tadawul. The Saudi Stock Exchange was established in 2007 as an exchange that offers equities, Islamic bonds, ETFs, in addition to mutual funds (IMF, 2017). Currently, Tadawul has a listing of 200 companies and TASI is the principal stock market index used in tracking the performance of listed companies listed in Tadawul.

This research investigates the financial measures that stimulates listed firms' stock returns, the focus of this research is the analysis of the impact of one of the internal factors (financial variables) on stock returns. When investing in Tadawul investors use the financial statements analysis as an important component in the process of fundamental analysis process. Hence, one can conclude that the financial variables are suitable indicators for stock returns. But, the financial and non-financial information presented in the financial statements can be perplexing to most investors. The examination of data using ratios aids investors to re-arrange the financial information in a systematic manner that can be readily interpreted to make well-informed decisions. The core question is which ratios are more adequate in making valid buy, sell, or hold decisions.

In this research, four variables are selected; sales to price (SP), debt equity (DE), book to market value of equity (BMVE) and firm size (FS) to establish which variable leads to the highest stock returns. The aim is to explore the relationship between each of the variables and stock returns. The primary objective is to identify which of the four financial variables is the best indicator of stock returns. This research seeks to expand on past research on earnings-based variables, which had minimal explaining power for returns owing to the focus on short-term influences. This research offers insight on fundamental financial variables that have greater explanatory power for stock returns in the long-run.

This paper is structured as follows: Section 1 is a background to the subject and provides the aims, implications and purpose of this research. Section 2 provides the literature review of the correlation between the selected financial variables and stock returns. Section 3 describe the means of data collection and outlines the research methodology which relies extensively on multivariate regression analysis. Section 4 presents the results and critically evaluates the findings, which will guide Tadawul's investors when reviewing the trends of volatility in stock returns. Section 5 contains the research limitations and conclusion.

2   Literature review

The financial institutions are the centre of debt financing whereas the stock markets are the hub of equity financing. Stocks epitomise fractional company ownership, and stock markets allow investors to either buy or sell their ownership of the investible assets.

The stock markets that function efficiently are considered important to fast economic development since the companies have a better ability to access capital from the general public.

Tadawul is the sole stock exchange in KSA and a major stock exchange amongst the GCC countries. There are a number of internal and external factors that have an impact on stock prices and performance. Among the internal factors, the nature of the relationship between financial variables and stock returns is attractive for investors and researchers. To date, numerous studies have been carried out to read out the extent of the link between the financial variables and stock returns. Financial variables are linked with stock returns as they indicate a firms financial standing (Beaver, 2002; Da Fonseca, 2016; Holthausen and Watts, 2001; Kothari, 2001). Firms are driven to leverage the disclosed income and stock returns, particularly when firm's senior managers' compensation is associated to stock option arrangements (Chung et al., 2010; Matsunaga, 1995; Watts and Zimmerman, 1990; Yermack, 1997).

Leledakis et al. (2004) examined the impact of firm size on stock returns in the London Stock Exchange, and they found that the reverse correlation between stock returns and market equity is largely determined by small and highly leveraged companies. A similar study was carried out based on the size of the firm and stock returns in Athens Stock Exchange market by Glezakos et al. (2012), likewise it was discovered that there is little correlation between firm size and stock returns.

Onour (2015) examined the type of connection between stock market return and equity investment in KSA (Tadawul market) using the correlation function and Granger's causality tools, he found that there is a substantial sign of volatility. Moreover, the assessment of risks and stock prices across the stock markets differs considerably since Tadawul was included in the leading emerging market indices, there is a need to review similar studies on the CAPM efficiency and stock returns.

Rahman and Mustafa (2017) studied the financial deepening and stock returns in 30 developing and developed countries between 1988 and 2014 by applying Pedroni panel cointegration methodology and panel vector error-correction models. Their finding is that the stock market turnover has a positive association with stock return in developed countries mainly, with a lesser effect in developing countries.

Abbas and McMillan (2014) investigated the correlation between Pakistan's stock market and monetary variables by extracting monthly data for a period of 20 years using the unrestricted VAR model, they found a significant dynamic relationship. According to Gregoriou (2009), the Chinese stock exchange market demonstrated that investment policy and quality of accounting information both have an impact on financial information captured in the book market value. Gregoriou found that there is a negative relationship between firm size and stock returns as well as a positive correlation between stock returns and book market value. Though, the stocks that were organised according to the book value portfolio showed less consistent behaviour when compared to stock that was sorted according to firm size. Hence, the book value has lesser explanatory power for stock returns as compared to the firm size portfolio.

El Khoury (2015) studied the effect of 15 macroeconomic variables and the market index of S&P 350 on stock market returns, by applying the multi-index model, the dataset involved 9 European automotive companies between 2013 and 2012.The result is that the S&P 350 positively correlates with stock returns while the unemployment negatively correlates with stock returns. The result provides additional power in explaining the

variability of European stock returns in the automobile industry over a single index model using the market index alone.

Senthilkumar (2009) conducted a study on selected Indian firms in five industries: automobile, diversified, cement, pharmaceutical and textile industries. Senthilkumar argued that when portfolios are formed based on firm size, similar behaviour is observed as in the case of developed stock markets, Senthilkumar's main finding revealed that smaller firms in terms of equity value generated higher stock returns than larger firms and that the market-to-book variable has a consistently strong role in the average stock returns while the smaller firms have to a certain degree higher average returns than larger firms.

Rehman et al. (2016) Investigated the relationship between the macroeconomic variables and stock market liquidity in emerging markets between 2000 and 2014. The methodology used is the Granger causality test and the innovative accounting approach (IAA). The result suggests a fragile signal between stock market liquidity and macroeconomic variables.

Banz (1981) postulated that companies with small size in term of equity market value earn higher stock retune than companies with a large size in term of equity market values. Berk (1995, 1997) found a negative correlation between firm proportions of the market value of equity and stock return and stated:

> "since a firm's market value is endogenously determined in equilibrium as the discounted value of expected future cash flows, it depends on the discount rate. For example, if two firms have the same expected cash flow, the one with the larger discount rate will have the lower market value. Consequently, according to this view expected returns will always be negatively correlated with firm market value, ceteris paribus." (Berk, 1995, p.2)

Fonseca (2016) studied the performance causality of 11 European stock markets, through the estimation of market model with betas dependent on the stock indexes levels. Fonseca used the vector autoregressive model and data regression methods to estimate the performance causality between this group of markets, the result of the study is that the long term interest rate variable affects the performance among the 11 European stock markets.

Garza-Gómez et al. (2000) investigated the Japanese stock market, finding a positive correlation between firm size and stock return. Rahmani et al. (2006) researched the relationship between firm size (FS), debt to equity (DE), BMVE, earnings and sale to price (SP) ratios variables and stock returns in Tehran Stock Exchang. Rahmani et al. (2006) found that there is no relationship between debt to equity ratio and stock returns. The relationship between the stock returns and firm size and sales to price were more consistent than other variables.

Xuan Vinh Vo and Thu Bui (2016), investigated the rapport among liquidity and stock returns in Vietnam, they used financial data of listed companies on the Ho Chi Minh City stock exchange between 2007 and 2012. The result of the study that there is a positive correlation among liquidity measures and stock returns and on other hand a negative correlation exists among illiquidity measures and stock returns in the listed companies on the Ho Chi Minh City stock exchange.

Sergi et al.'s (2019), studied the valuation consequences for the shareholders regarding the merger and acquisition of Fox and Disney. They examined how the senior management of Fox and Disney (Rupert Murdock and Robert Iger) succeeded in an impressive value creation of the firm to its shareholder owners by adding $36 billion to

Fox shareholders (from $47.020 to $82.956 billion) in a sequence of events that saw multiple bidders for those Fox assets (control contest) between 2017 and 2018. They also added $15 billion (from $149 to $164 billion) to Disney shareholders. This is a win-win transaction for the selling firm and the purchasing firm. The methodology used to calculate the value changes is a straight comparison of stock prices at the day of announcement and stock prices at the day preceding the announcement (market cap). A merger and acquisition transaction like Fox and Disney would be an example of what to implement in the Tadawul stock exchange in the near future.

Shabib-ul-Hasan et al.'s (2015) examined the correlation between independent financial variables (sales to price, debt equity, BMVE and firm size) and future stock returns in the Pakistan stock market from 2000 to 2009, their major finding is that BMVE and FS have more positive impact on the future stock returns than other financial variables. Xing Hu et al.'s (2019) investigated the size effect on stock returns of 300 stocks listed in Chinese stock returns and they found that stock return is strongly linked to firm size in terms of equity market value and they also confirmed that the performance of small stocks is superior than large stocks.

3 Research methodology

The methodology used in this research is based on two tools; firstly, correlation analysis, which is a method of arithmetical calculation used to study the strength of liaison between two numerically measured continuous variables. This specific type of examination is valuable for our research to establish if there are possible connections between stock returns and the selected financial variables. Secondly, regression analysis was used as it is a powerful statistical method that allows examination of the relationship between two or more variables of interest. This is useful here to examine the nature of the correlation between the companies' stock returns as dependent/explanatory variables and the four independent financial variables {debt to equity (DE), firm size (FS), book: market value of equity (BMVE), and sales: price (SP)}. The variables were each regressed with stock returns. The bivariate regressions used are as below:

$$y_t = \alpha_0 + \alpha_1 y_{t-1} + \cdots + \alpha_l y_{t-l} + \beta_1 x_{t-1} + \ldots + \beta_l x_{-l} + \epsilon_t$$

$$x_t = \alpha_0 + \alpha_1 x_{t-1} + \cdots + \alpha_l x_{t-l} + \beta_1 y_{t-1} + \ldots + \beta_l y_{-l} + \mu_t$$

For all possible pairs of (x, y) series in the group in this research x_t and y_t represent the different financial variable and the stock returns. Regarding the joint hypothesis, in this research the reported F-statistics are the Wald statistics that helps to find out if explanatory variables in our model are significant: $\beta_1 = \beta_2 = \cdots = \beta_l = 0$ for each equation. Through regression analysis we are able to analyse how the metrics move in relation to each other during the snapshot in time presented in our dataset. This observation provides insight on how the selected financial variables interacted during our time of record (2015–2018) and how they will possibly interact in the future with stock returns. The implicit hypothesis of this research is that similar changes in financial variables have a relative impact on stock returns.

3.1   Data collection

This study encompasses companies that are listed in Tadawul from 2015 to 2018. Hence, the data used in the calculation of the stock returns is derived from the Tadawul database and the financial data used in the calculation of the financial ratios is derived from the annual reports of the selected companies for the fiscal periods between 2015–2018.

In addition, the monthly adjusted close stock, dividend data and market capitalisation is obtained from the Tadawul database and search engines where a sample of 30 companies were randomly selected from five industries in the Tadawul stock exchange, these industries are Energy, Materials, Transportation, Consumer Durables and Apparel, Real Estate Management and Development. Six companies were randomly picked from each of the industries.

3.1.1   Returns to shareholders

We will start by reviewing two forms of shareholders' returns to make a comparison among the return on both capital and stocks (see Figure 1). The return on capital is a ratio that is used to measure the profitability while the returns on stock is the summation of dividends issued and increases in the stock price. There is no substantial correlation found between these two returns. In the analysis, we use the returns on stock since the stock price reflects the market's perception of the present financial performance along with future profits. We infer that a relationship exists between the stock returns and financial variables as the financial variables reflect the financial performance in a numerical form.

3.1.2   Sales to price (SP)

The effect of sales revenues on stock prices is examined using the sales to price metric of valuation. If the sales increase and stock prices increases simultaneously, then this is an indication that the investors have lower expectations about the company's sales than actual sales. Contrastingly, if their sales increase, and the stock price remains constant or declines, this is a signal that investors have greater expectations about the firm's sales than actual sales. A rise in sales to price metric is a negative signal as it indicates that the sales increased yet the stock price did not rise as well.

3.1.3   Debt-equity (DE)

This is a financial ratio that includes two constituents, the funds provided by external and internal financiers (see Figure 2). The funds provided by external financiers are the short or long term liabilities while the funds provided by internal financiers include equity shares, preferred share capital reserves as well as revenue reserves. The debt to equity ratio represents an owners' and outsiders claim against the total assets held by the firm. The financial metric denotes the cushion that is available to external financiers if the company is declared bankruptcy. A debt to equity ratio of 1 : 1 is the ideal ratio as it infers that the company's assets are funded equally both internal and external funds sources.

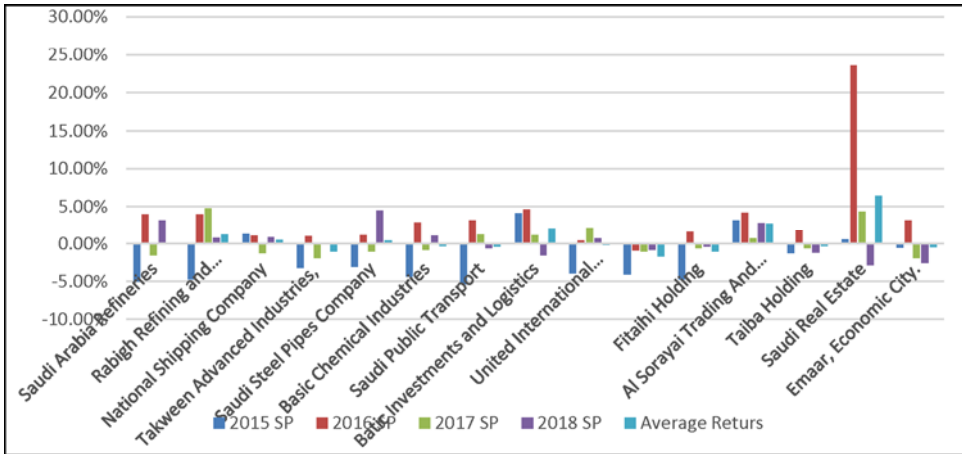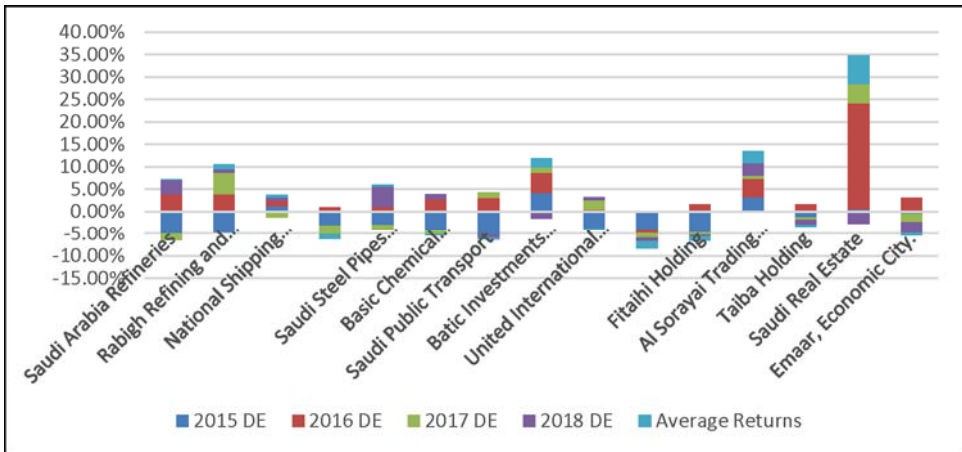**Figure 1** Sales to price vs. stock returns (see online version for colours)

Figure 2 Debt to equity vs. stock returns (see online version for colours)

3.1.4 *Book-market value of equity (BMVE)*

This ratio represents the comparison between the firm's book value, actual value and (see Figure 3). Here, book value is measured using internal accounting data and is obtained in the annual earnings announcements. The market value is measured using market capitalisation by multiplying common shares outstanding and market price. The ratio ascertains whether the company's stock is either under or overvalued. If the ratio is greater than 1, the company is ranked as an undervalued company and investors view the stock as a solid investment opportunity. Conversely, if the ratio is less than 1, the firm is ranked as overvalued and investors should sell the stock.

3.1.5 *Firm size (FS)*

Firm size is the market capitalisation that measures enterprise size that is computed by (see Figure 4). Capitalisation represents the public's opinion on a firm's worth and is a

causal factor in stock valuation. The market capitalisation is a reflection of the market's view of the value of a company taking into consideration future prospects observed by the markets, economic and fiscal policy.

Figure 3   Book market vs. stock returns (see online version for colours)
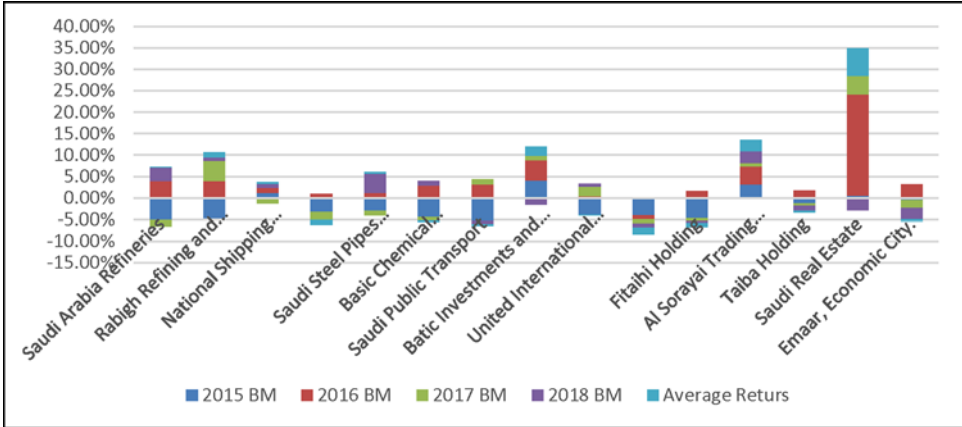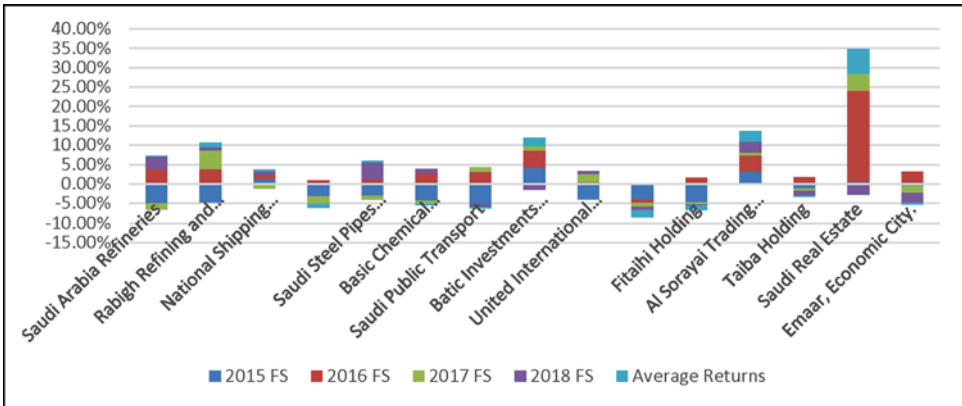

Figure 4   Firm size vs. average returns (see online version for colours)

4   Data analysis and findings

This research finding revealed that firm size (FS) is the optimum indicator of stock returns in the Saudi Arabia Stock Exchange since there is a positive and statistically significant small firm impact at the exchange. Hence, investors seeking to make investments in KSA should consider first the firm size with a focus on the small cap stocks when making valid buy, sell, or hold decisions. Firm size is one of the initial empirically documented traits linked to realising stock returns. Based on this research, firm size is the best measure of expected stock returns since there is the size effect tendency of low market cap stocks 'small cap stocks'[1] to generate higher returns than larger cap stocks.

The firm size is used as a critical factor in primary empirical pricing models, namely the Fama-French model. This is an extension of the capital asset pricing model that describes stock returns through three factors: market risk, the difference between the return on a portfolio of small stocks and the return on a portfolio of large stocks (SMB, small minus big); and the difference between the return on a portfolio of high-book-to-market stocks and the return on a portfolio of low-book-to-market stocks (HML, high minus low). The rationale behind the model is that high value and small-cap companies tend to regularly outperform the overall market. The mathematical representation of the model is:

$$r = r_f + \beta_1 \left(r_m - r_f \right) + \beta_2 \left(SMB \right) + \beta_3 \left(HML \right) + \varepsilon$$

where

r = expected rate of return

r_f = risk-free rate

β = factor's coefficient (sensitivity)

$(r_m - r_f)$ = market risk premium

SMB (small minus big) = Historic excess returns of small-cap companies over large-cap companies

HML (high minus low) = Historic excess returns of value stocks (high book-to-price ratio) over growth stocks (low book-to-price ratio)

ε = Risk

The models institute a de facto industry benchmark for approximating stock returns. The adoption of firm size as a pricing factor and inclusion in various asset pricing models is hinged on the assumption that the firm size proxies for causal risk characteristics.

Appendix 1 displays all the selected financial variables used in this research namely; BMVE, sales to price (SP), debt equity (DE), firm size (FS) and the standard deviation that represents the values of all the four variables vary and N represents the number of observations.

Table 1 provides the average values for the selected financial variables and stock returns of the 30 companies included in this research from 2015 to 2018. The largest and lowest returns were experienced in 2016 and 2015, respectively.

Table 1 The average values of the financial variables from 2015–2018

Financial variables	Average values
Firm size (FS)	2.216702069
Book to market value of equity (BMVE)	0.71901
Debt to equity (DE)	1.08599
Sales to price (SP)	0.754244
Stock Returns	0.0053295

Table 2 shows the correlation and coefficients of stock returns with the selected financial variables used in this research. The correlation represents the relationship between the financial variables, with values ranging from +1 to –1. Table 2 shows that the correlation is below 1 between all financial variables and returns. The firm size and book market have a negative correlation with returns. On the other hand, equity and sales to price have a positive correlation with returns. However, the sales to price has a stronger direct relationship with returns and the firm size has a stronger inverse correlation with returns.

Table 2   Financial variable and stock returns correlation

Correlations	
	Returns
Returns	1
Firm size (FS)	–0.4335943
Book to market value of equity (BMVE)	–0.09015
Debt to equity (DE)	0.017333
Sales to price (SP)	0.148322

Table 3 presents the regression output summary. The summary output of the firm size and stock returns reveal that the multiple R is 0.124494 and the multiple R for book to market is 0.196803, and for debt to equity 0.153523, and for sales to price is 0.1034251. The multiple R is the absolute value of the correlation coefficient of the selected financial variables (FS, DE, SP and BMVE) with stock returns and indicates how close the financial variables and stock returns shift in tandem with each other. The positive R indicates that a positive relationship exists between the independent variables and the dependent stock returns.

Table 3   Regression analysis output summary

Regression Statistics				
	FS	*BMVE*	*DE*	*SP*
Multiple R	0.124494	0.196803	0.153523	0.1034251
R-square	0.015499	0.038732	0.023569	0.01069675
Adjusted R-square	–0.06654	–0.04137	–0.0578	–0.0717452
Standard error	0.021374	0.02112	0.021286	0.02142606
Observations	229	229	229	229

Using the significance values of the regression summary output, one can explore the nature of the relationship between the independent and dependent variables. The significance values are FS = 0.671536, BMVE = 0.500083, DE = 0.60028 and SP = 0.01070. Using this information, we can conclude that the FS is the best indicator of average stock return in comparison to DE, SP and BMVE.

5 Conclusion

The Tadawul is the sole stock exchange in KSA and the major stock exchange amongst the GCC countries. The exchange has a listing of about 200 companies and TASI is the principal stock market index used in tracking the performance of companies that are listed on the exchange. A sample of 30 listed companies were randomly selected from five industries in the stock exchange. The industries are Energy, Materials, Transportation, Consumer Durables and Apparel, Real Estate Management and Development. Six companies were randomly picked in each of the industries. This study encompassed the companies that were listed on Tadawul for the years 2015 to 2018. The Tadawul is affected by internal and external factors which affect its overall performance. The focus of this research was the impact of the internal factor financial variables on stock returns. The four financial variables are used were SP, DE, BMVE and FS are analysed to ascertain which variable leads to the greatest stock returns.

The goal of the study was to evaluate the Tadawul performance and investigate the nature of the relationship between each of the variables and stock returns. Regression analysis was used to determine the nature of relationship between the companies' stock returns and the four financial variables (DE, FS, BMVE and SP). The variables were regressed individually with stock returns. The major finding of this research is that the firm size (size effect) is the optimum measure of stock returns in KSA's stock market, with this conclusion being similar to Garza-Gómez et al. (2000) study of Japanese stock market data, Senthilkumar (2009) study on selected Indian stock market, Hu et al.'s (2019) investigation of size effect on Chinese stock returns and Banz (1981).

The implication of the study is expanding the past research on earnings-based variables, which had minimal explaining power for returns owing to the focus on short-term influences. This research offer insight on firm size that has a greater explanatory power for stock returns in the long-run. The finding will guide investors who should consider firm size when analysing the trends of volatility in stock returns at the Tadawul to grow their investment returns. The major limitation of this research was the use of 30 companies that are listed in the exchange as this only represents a small portion of the companies listed in the Tadawul. In the future, additional research can be conducted to include more industries and companies listed in the stock exchange and short history of Tadawul. Finally, there is a need to examine the external factors such as the macro-economic variables that have an impact on stock returns.

References

Abbas, G. and McMillan, D. (2014) 'Interaction among stock prices and monetary variables in Pakistan', *International Journal of Monetary Economics and Finance*, Vol. 7, No. 1, pp.13–27.

Banz, R. (1981) 'The relationship between return and market value of common stocks', *Journal of Financial Economics*, Vol. 9, No. 1, pp.3–18.

Beaver, W. (2002) 'Perspectives on recent capital market research', *The Accounting Review*, Vol. 77, No. 2, pp.453–474.

Berk, B. (1995) *An Empirical Re-Examination of the Relation between Firm Size and Return*, Working Paper, University of Washington.

Berk, J. (1997) 'Does size really matter?', *Financial Analysts Journal*, Vol. 53, No. 5, pp.12–18.

Chung, S., Chi-Hsiou, H. and Chung-Ying, Y. (2010) 'When does investor sentiment predict stock returns?', *Journal of Empirical Finance*, Vol. 19, No. 2, pp.1–40.

Da Fonseca, J. (2016) 'Euro area stock markets performance comparison and its dependence on macroeconomic variables', *International Journal of Monetary Economics and Finance*, Vol. 9, No. 3, pp.245–266.

El Khoury, R. (2015) 'Do macroeconomic factors matter for stock returns? Evidence from the European automotive industry', *International Journal of Monetary Economics and Finance*, Vol. 8, No. 1, pp.71–84.

Fonseca, J. (2016) 'Euro area stock markets performance comparison and its dependence on macroeconomic variables', *International Journal of Monetary Economics and Finance*, Vol. 9, No. 3, pp.245–266.

Garza-Gómez, X., Hodoshima, J. and Kunimura, M. (1998) 'Does size really matter in Japan?', *Financial Analysts Journal*, Vol. 54, N. 6, pp.22–34.

Garza-Gómez, X., Hodoshima, J. and Kunimura, M. (2000) 'Cross-sectional regression analysis of return and beta in Japan', *Journal of Economics and Business*, Vol. 52, No. 6, pp.515–533, https://doi.org/10.1016/S0148-6195(00)00031-X

Glezakos, M., Mylonakis, J. and Kafouros, C. (2012) 'The impact of accounting information on stock prices: evidence from the Athens Stock Exchange', *International Journal of Economics and Finance*, Vol. 4, No. 2, pp.56–68.

Gregoriou, G. (2009) *Stock Market Volatility*, Taylor & Francis Ltd. London, UK.

Holthausen, R. and Watts, R. (2001) 'The relevance of the value-relevance literature for financial accounting standard setting', *Journal of Accounting and Economics*, Vol. 31, pp.3–75.

Hu, G., Chen, C., Shao, Y. and Wang, J. (2019) 'Fama-French in China: size and value factors in Chinese stock returns', *International Review of Finance*, Vol. 19, No. 1, pp.3–44.

International Monetary Fund (IMF) (2017) *Saudi Arabia: Financial System Stability Assessment*, IMF Country Report, Nos. 17/318.Washington, DC.

Kothari, S. (2001) 'Capital market research in accounting', *Journal of Accounting and Economics*, Vol. 31, pp.105–231.

Leledakis, N., Davidson, R. and Smith, P. (2004) 'Does firm size predict stock returns? Evidence from the London Stock Exchange', *SSRN Electronic Journal*, Retrieved from https://www.researchgate.net/publication/228118922_Does_Firm_Size_Predict_Stock_Returns_Evidence_from_the_London_Stock_Exchange

Matsunaga, S. (1995) 'The effects of financial reporting costs on the use of employee stock options', *The Accounting Review*, Vol. 70, pp.1–26.

Onour, I. (2015) 'Credit for equity investment and stock market volatility: evidence of variance causality', *International Journal of Monetary Economics and Finance*, Vol. 8, No. 3, pp.265–273.

Rahman, M. and Mustafa, M. (2017) 'Financial deepening and stock market returns: panel data analyses for selected developed and developing economies', *International Journal of Monetary Economics and Finance*, Vol. 10, No. 1, pp.96–09.

Rahmani, A., Sheri, S. and Tajvidi, E. (2006) 'Accounting variables, market variables and stock return in emerging markets: case of Iran', *SSRN Electronic Journal*, Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=947288

Rehman, I., Mahdzan, N. and Zainudin, R. (2016) 'Is the relationship between macro-economy and stock market liquidity mutually reinforcing? Evidence from an emerging market', *International Journal of Monetary Economics and Finance*, Vol. 9, No. 3, pp.294–316.

Senthilkumar, G. (2009) 'Behaviour of stock return in size and market-to-book ratio – evidence from selected Indian Industries', *International Research Journal of Finance and Economics*, Vol. 33, pp.1450–2887.

Sergi, B.S., Owers, J. and Alexander, A. (2019) 'Valuation changes associated with the FOX/Disney divestiture transaction', *Economics and Sociology*, Vol. 12, No. 2, pp.36–47.

Seznec, F. (2018) *The financial markets of the Arabian Gulf*, Routledge, London.

Shabib-ul-Hasan, S., Farooq, S. and Muddassir, M. (2015) 'Stock returns indicators: debt to equity, book to market, firm size and sales to price', *Journal of Poverty, Investment and Development*, Vol. 16, pp.25–32.

Steindl, F., Raines, J.P. and Leathers, C.G. (2001) 'Economists and the stock market: speculative theories of stock market fluctuations (Cheltenham, UK and Northampton, MA: Edward Elgar, 2000) pp. xvi, 174', *Journal of the History of Economic Thought*, Vol. 23, No. 3, pp.402–405.

Tlemsani, I. and Matthews, R. (2019) 'Conventional banks risk diversification: a case for Islamic finance', *Theoretical Economics Letters*, Vol. 9, No. 6, pp.1967–1980, Available at: http://www.scirp.org/html/17-1501936_94634.htm

Watts, R. and Zimmerman, J. (1990) 'Positive accounting theory: a ten year perspective', *The Accounting Review*, Vol. 65, No. 1, pp.131–156.

Xing Hu, G., Chen, C., Shao, Y. and Wang, J. (2019) 'Fama–French in China: size and value factors in Chinese stock returns', *International Review of Finance*, Vol. 19, No. 1, pp.3–44.

Xuan Vinh Vo, X. and Thu Bui, H. (2016) 'Liquidity, liquidity risk and stock returns: evidence from Vietnam', *International Journal of Monetary Economics and Finance*, Vol. 9, No. 1, pp.67–89.

Yermack, D. (1997) 'Good timing: CEO stock option awards and company news announcements', *Journal of Finance*, Vol. 52, pp.449–476.

Note

[1]Small cap stocks are generally defined as the stock of publicly traded companies that have a market capitalisation ranging from \$300 million to about \$2 billion. Small cap stock companies often have a high stock price. It is the number of available shares that make them 'small'.

Appendix 1

	2015	*2016*	*2017*	*2018*	*Average*
Observations	229	229	229	229	229
Descriptive statistics firm size					
Mean	1964028206	2508055536	2276197946	2118526588	2216702069
Median	873120000	988320000	1124040000	1152000000	1034370000
Standard deviation	2754536018	3875360645	3133185383	2441067777	3051037456
Sample variance	7.58747E+18	1.50184E+19	9.81685E+18	5.95881E+18	9.59539E+18
Kurtosis	6.17281335	7.518389947	6.21394063	2.057322911	5.49061671
Skewness	2.407151635	2.623364965	2.375749228	1.630347218	2.259153261
Range	10379238640	14778708360	11854734813	8301030000	11328427953
Minimum	7761360	11291640	11265187.5	11970000	10572046.88
Maximum	10387000000	14790000000	11866000000	8313000000	11339000000
Sum	29460423090	37620833041	34142969188	31777898822	33250531035

Appendix 1 (continued)

	2015	*2016*	*2017*	*2018*	*Average*
Observations	229	229	229	229	229
Descriptive statistics book to market					
Mean	0.723660962	0.747338157	0.767307267	0.637761	0.719016872
Standard error	0.118518912	0.142408381	0.154486422	0.105334	0.130186921
Median	0.769527618	0.728288361	0.72898732	0.68065	0.726863409
Standard deviation	0.459021771	0.551545288	0.59832334	0.407957	0.504211777
Sample variance	0.210700987	0.304202205	0.35799082	0.166429	0.259830672
Kurtosis	0.558191069	1.700243778	1.394668633	–0.78076	0.718085429
Skewness	0.139726918	0.842602874	0.867949222	–0.17674	0.418384342
Range	1.724186263	2.128768235	2.252715397	1.28279	1.847114931
Minimum	0.000819938	0.000582202	0.000674795	0.000878	0.000738624
Maximum	1.7250062	2.129350437	2.253390192	1.283667	1.847853555
Sum	10.85491444	11.21007235	11.50960901	9.566417	10.78525308
Descriptive statistics debt to equity					
Mean	1.246885	1.078379	1.000443	1.018261	1.085992
Standard error	0.408693	0.377134	0.334072	0.333931	0.363458
Median	0.850783	0.65837	0.665558	0.805637	0.745087
Standard deviation	1.582863	1.460633	1.293855	1.29331	1.407665
Sample variance	2.505455	2.13345	1.67406	1.672651	1.996404
Kurtosis	3.288041	9.822934	7.658968	7.137401	6.976836
Skewness	2.049636	2.944135	2.570043	2.443564	2.501845
Range	5.101794	5.902679	5.078884	5.055491	5.284712
Minimum	0.045805	0.035843	0.036143	0.024366	0.035539
Maximum	5.147599	5.938522	5.115026	5.079856	5.320251
Sum	18.70328	16.17569	15.00664	15.27391	16.28988
Descriptive statistics sales to price					
Mean	0.89763605	0.7370406	0.76047639	0.621822	0.754244
Standard error	0.27207458	0.23630514	0.26024288	0.174317	0.235735
Median	0.62244608	0.49801759	0.53668303	0.480742	0.534472
Standard deviation	1.05374031	0.91520586	1.00791635	0.675125	0.912997
Sample variance	1.11036864	0.83760177	1.01589538	0.455794	0.854915
Kurtosis	2.68958748	3.95993829	5.73825275	2.015777	3.600889
Skewness	1.84843346	2.01684977	2.31376774	1.526897	1.926487
Range	3.34581391	3.30292458	3.77229301	2.356026	3.194264
Minimum	0.03101258	–0.0012429	0.03036918	0.010081	0.017555
Maximum	3.37682649	3.30168163	3.8026622	2.366107	3.211819
Sum	13.4645407	11.055609	11.4071459	9.327328	11.31366

Appendix 1 (continued)

	2015	*2016*	*2017*	*2018*	*Average*
Observations	229	229	229	229	229
Descriptive statistics average returns					
Mean	–0.0207286	0.0370322	0.0024378	0.0025768	0.0053295
Standard error	0.0080473	0.0147873	0.0054618	0.0053108	0.0084018
Median	–0.0322727	0.0289139	–0.0059731	–0.0003035	–0.0024089
Standard deviation	0.031167	0.057271	0.0211535	0.0205685	0.03254
Sample variance	0.0009714	0.00328	0.0004475	0.0004231	0.0012805
Kurtosis	–0.5355065	12.304094	0.4538345	–0.0878362	3.0336465
Skewness	0.8598663	3.365091	1.1666363	0.5075566	1.4747875
Range	0.0948603	0.2446451	0.0665567	0.073011	0.1197683
Minimum	–0.0535487	–0.0086768	–0.0188639	–0.0282739	–0.0273408
Maximum	0.0413115	0.2359683	0.0476928	0.0447371	0.0924274
Sum	–0.3109287	0.5554831	0.0365665	0.0386513	0.0799431