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A COMPARATIVE STUDY OF CAPM AND SEVEN FACTORS RISK ADJUSTED RETURN MODEL *

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ABSTRACT

This study is a comparison and contrast of the predictive powers of two asset pricing models: CAPM and seven factor risk-return adjusted model, to explain the cross section of stock rate of returns in the financial sector listed at Karachi Stock Exchange (KSE). To test the models daily returns from January 2013 to February 2014 have been taken and the excess returns of portfolios are regressed on explanatory variables. The results of the tested models indicate that the models are valid and applicable in the financial market of Pakistan during the period under study, as the intercepts are not significantly different from zero. It is consequently established from the findings that all the explanatory variables explain the stock returns in the financial sector of KSE. In addition, the results of this study show that addition of more explanatory variables to the single factor CAPM results in reasonably high values of R^2. These results provide substantial support to fund managers, investors and financial analysts in making investment decisions.

Key Words: CAPM; Asset Pricing; Momentum; Liquidity Risk; SMB; HML.

INTRODUCTION

This research study is a comparative analysis of two asset pricing models: Capital Asset Pricing Model (CAPM) and seven factor risk-return adjusted model, to explain the cross section of stock rate of returns in the financial sector listed in Karachi stock exchange (KSE).Financial sector plays an important role in the overall growth and development of any

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economy and the very existence of a modern economy cannot be perceived with these of financial institutions (Guisse, 2012).

It is universally accepted “Higher the risk higher will be the return” (Baghdadabad, Tavakoli, Matnor, & Ibrahim, 2012). Following this note, this research study explains the important asset pricing models that have been developed to make this relationship precise, and that how such parameters can be used by investors to evaluate assets. The aim of this study is to test the validity of two asset pricing models (CAPM & Seven Factors model) with market data of the financial sector of Pakistan and to analyze which model is more suitable for measuring the expected returns. It is most important for the investors to identify the determinants of portfolio returns. This research investigates that either these independent factors are good to be considered for developing portfolios. It will help in risk evaluation of portfolios and will make this task easy and precise.

The research problem is that an investor faces a difficulty in selecting a portfolio and in making investment decision as he has to choose from lots of opportunities available in the market. When an individual considers the available opportunities in which he can invest and make different combinations of these stocks, it becomes difficult to make the decision. (Nimalathasan & Gandhi, 2012). Similarly, investors in Pakistan do not know risk adjusted return of the financial sector of Pakistan considering the factors used in seven factors model. Investors, lenders and other such groups need to have this knowledge to make better and secure investment decisions.

The objectives of this study are to evaluate the performance of financial sector of Pakistan on the basis of risk return adjusted parameters and to compare the efficiency of CAPM and seven factor asset pricing models. The research findings reported by this study will help and guide the financial managers in developing the efficient portfolios. This research is the first study to optimize the Seven Factors Risk Adjusted measure for performance evaluation of financial sectors of Pakistan. In this study it is hypothesized that:

- *H1a: CAPM significantly explains excess returns of portfolios of financial sector of Pakistan*

- *H1b: Seven factors model significantly explains excess returns of portfolios of financial sector of Pakistan*
- *H2= There is a significant difference between the returns of CAPM and seven factors model applied on the financial sector of Pakistan*

LITERATURE REVIEW

The last five years research studies are reviewed to establish the findings and conclusions of other researchers. Previously, Random Walk Theory was believed to be true by researchers, which states that it is impossible to forecast the future prices as prices follow a random walk and there are no trends (Sarwar, Hussan, & Malhi, 2013). On the other hand, various studies conducted by numerous researchers provide the evidences against Random Walk Theory and rejected the theory on a number of grounds, i.e. Capital Asset Pricing Model (CAPM), Inter-temporal Capital Asset Pricing Model (ICAPM), Arbitrage Pricing Theory (APT), Three and Four Factor Model (TFM, FFM) to Seven Factor Model. CAPM provided the foundation for upcoming portfolio theories.

Several studies have been conducted to test the validity of CAPM in the stock markets of different countries. Rehman, Gul, Razzaq, Saif, Rehman, and Javed (2013) tested the risk-return relationship and estimated the stock returns of the Pakistani stock market through CAPM; for this purpose a monthly dataset of five years was employed from 2003 to 2007 and the findings of this study show the validity of the CAPM in KSE that it provides better estimates of return to the investors. A research conducted in India provided evidence in support of CAPM and validated the theory that high risk entails high returns when tested on Indian companies listed in National Stock Exchange (NSE) covering a period from 2005 to 2009 (Paul & Asarebea, 2013).

Comparative studies of testing original form of CAMP and the dynamic (conditional) CAPM have been performed by various authors such as Ajlouni, Alrabadi, and Alnader (2013) in Jordan and by Muhammad (2012) in Pakistan. When investigated monthly returns of a sample of 65 industrial companies listed at Amman Stock Exchange for a period of 12 years form 2000 to 2011, results revealed that the estimates of returns predicted by using dynamic CAPM were more accurate (Ajlouni, Alrabadi, & Alnader, 2013). When non standardized form of CAPM was tested on a sample of 20 companies selected from different sectors listed in KSE using daily data for stock returns was collected from 2007 to 2008, it was concluded that the stock market of Pakistan is volatile as the results are mixed from the analysis (Muhammad, 2012).

Another study conducted with an aim to examine the unconditional form of the CAPM in equity market of Pakistan used daily observations of stock returns of 20 companies for 14 months(December 2008-February 2010) rejected the applicability of the model, butthe results do not provide any evidence to support any other model over the CAPM (Yasmeen, Masood, Saghir, & Muhammad, 2012).

Ward and Muller (2013) examined the single beta CAPM in Johannesburg Stock Exchange (JSE) for a period of 26 years, ranging from 1986 to 2011 and noted the significant insufficiencies in model to explain the risk-return relationship that the CAPM prescribes; they concluded that more parameters are required to predict stock risks. The same results were advocated by authors Strugnell, Gilbert, and Kruger (2011) when they tested the validity of CAPM on JSE All Share Index over the period 1994 to 2007, they found that CAPM failed to explain the returns on the JSE and suggested that another multifactor asset pricing model should be employed to generate the valid return estimates. Some other studies provide evidence against CAPM as theory failed to explain the linear risk-return relationship (AlRefai, 2009; Hanif, 2010; Bhatti & Hanif, 2010).

As CAPM failed to explain the variations in the stock prices, enormous studies were conducted on other multifactor models in financial markets. To solve the issues and to overcome the deficiencies of CAPM, different asset pricing models were suggested. Al-Mwalla (2012) and Al-Mwalla and Karasneh (2011) tested the efficacy of asset pricing models on the stocks listed in Amman Stock Exchange (ASE) covering the period from 1999 to 2010;the authors found that firm specific factors in Fama and French TFM can better explain the variations in portfolio returns than the CAPM.

When different multifactor models were tested in ISE for a period ranging from 1992-2011, it was found that three, four and five factor models, including size, value, momentum and liquidity factors significantly explain variations in the stock returns on the ISE (Unlu, 2013). Berzins, Liu, and Trzcinka (2013) used seven factor risk adjusted model to measure the performance of asset under management to check them for their robustness.

THEORETICAL FRAMEWORK

After the development of Modern Portfolio Theory (MPT) by Markowitz (1952), various asset pricing models have been developed to explain the risk-return adjustments and to relate the excess returns over a portfolio with the excess market returns on that portfolio. For this purpose, a most commonly used model is the Capital Asset Pricing Model (CAPM) which was developed by Sharpe (1964) and Lintner (1965). The model measures only one risk factor, which is the excess market portfolio return. In this model, the most significant role is played by the covariance between portfolio return and the market portfolio return in explaining the cross section of excess returns (Eraslan, 2013). The CAPM states linear positive relationship between the expected returns and market risk (also called systematic risk), Beta, this market beta is adequate in explaining the excess market portfolio returns. CAPM illustrates the relationship between risk and return expected on a portfolio, and it is a useful model which serves for pricing the risky securities. The original CAPM equation is:

$$E\,(R_m) = R_{pt} - R_{ft} = \alpha_p + \beta_{p1}\,(R_{mt}\text{-}R_{ft}) + \varepsilon_{pt}$$

Where R_f denotesthe risk free rate and E (R_m) is the expected return of market portfolio in excess of the risk-free rate, also known as equity risk premium. After the development of CAPM, portfolio theory was further expanded by Fama and French in 1993 and 1996 in which they added two additional risk factors to the existing single factor model to explain the variations in expected stock returns. Fama and French (1993, 1996) predicted TFM model in the form of following equation:

$$R_{pt} - R_{ft} = \alpha_p + \beta_{p1}\,(R_{mt}\text{-}R_{ft}) + \beta_{p2}SMB_t + \beta_{p3}HML_t + \varepsilon p_t$$

Where SMB is the “Small Minus Big” risk factor associated with market equity and HML is the “High Minus Low” risk factor associated with value premium. The Four Factor Model (FFM) is another multifactor asset pricing model, which was developed by Carhart (1997) due to fact that TFM could not explain the momentum effect. The FFM equation is:

$$R_{pt} - R_{ft} = \alpha_p + \beta_{p1} (R_{mt} - R_{ft}) + \beta_{p2} SMB_t + \beta_{p3} HML_t + \beta_{p4} MOM_t + \varepsilon p_t$$

The additional factor MOM is the difference between the simple average returns of winner portfolios and simple average returns of loser portfolios.After the Fama and French TFM and FFM, the application of various multifactor asset pricing models was tested and evaluated in the stock markets of different countries (Kim & Kim, 2003; Al Mwalla, 2012; Berzins, Liu, & Trzcinka, 2013; Chae, 2011; Unlu, 2013; Zolotoy, 2011). After these developments the Seven Factors Risk Adjusted Model was developed, which includes three more factors than the FFM:

$$R_{pt} - R_{ft} = \alpha_p + \beta_{p1}(R_{mt} - R_{ft}) + \beta_{p2} SMB_t + \beta_{p3} HML_t + \beta_{p4} MOM_t + \beta_{p5}(LMH) + \beta_{p6}(GBI - R_{ft}) + \beta_{p7}(CI - R_{ft}) + \varepsilon_{pt}$$

Here, (Rm –Rf) is the excess return on the value weighted market, size factor is (SMB), value factor is (HML), the Carhart momentum factor is (MOM), LMH (low minus high) is the ‘liquidity turnover factor, GBI is the Government Bond Index and the CI is the Commodity Index.

RESEARCH METHODOLOGY

In this quantitative research study the secondary time series data for all the variables, is collected from January 1, 2013 to the February 28, 2014.Daily closing prices of the stocks to calculate the daily returns are used, taken from the official website of KSE (Karachi Stock Exchange). Data for the book value of the companies and market equity is collected from the audited annual reports of the respective companies, KSE annual reports and KSE data portal. KSE-100 Index is used as a market portfolio for calculating market return and its data is collected from SCSTRADE (2014). The asset that generates a certain return is risk free security and the rate of return over that asset is called risk free rate of return (Mirza &

Shahid, 2009). However, there is not an entirely risk free security. For this purpose the one-year Treasury bill yield is used as a proxy and the data is obtained from(Investing, 2014).The data for generating the commodity index has been retrieved from PMEX (Pakistan Mercantile Exchange), which was previously known as the National Commodity Exchange Limited (Pakistan Mercantile Exchange, 2014).

Sample Selection and Limitations for Criteria

The sample is selected from all the companies of the financial sector of Pakistan (26 Commercial Banks, 33 Insurance Companies, 40 Financial Services and 39 Equity Investment Instruments) listed in the KSE. Following are some important rules and limitations that have been kept in mind during sampling:

- The selected stock must be a public limited company listed in KSE
- The data of daily closing price, book value, market equity and volume traded must be available for the selected stocks.
- During the sample period, the selected stocks must be traded for more than 90% of trading days.

Following these rules, the author ranked all the companies of the financial sector on the bases of volume traded, from the highest to the lowest and selected the 40 highest most tradable stocks of financial sector listed on KSE. As per Fama and French (1993) methodology, 25 portfolios were constructed and excess returns on these 25 portfolios were used as dependent variables in the time series regression models (CAPM, SFM). The returns of portfolios are the weighted average of returns on individual stocks.

40 stocks were sampled, which were been classified into two categories of size and BE/ME ratio. From the combinations of these groups 25 portfolios were created by a 5×5 matrix. The stocks were been distributed in five size groups (small, 2, 3, 4, Big) where each group contains 20% of the total stocks. In the same way stocks have been divided in five BE/ME groups (Low, 2, 3, 4, High) and each group contains 20% of the stocks.

The returns are calculated from the daily closing prices of stocks by using the formula: $R_{pt} = Ln\ (P_t / P_{t-1})$.Where $P_t$is the closing price of the stock on the current day and P_{t-1} is the closing price of the stock on the previous day. Return on KSE 100 index is the proxy of market return, which is measured as: R_{mt}=Ln ($KSE100_t$ / $KSE100_{t-1}$). Then, the excess portfolio returns (R_p-R_f) and excess market returns (R_m-R_f) are estimated by subtracting the risk free interest rate.

After constructing two size groups and three BE/ME ratio groups, six portfolios have been created; S/L, S/M, S/H, B/L, B/M, B/H. Explanatory variable SMB is formed by taking the difference between the daily average returns of three small portfolios (S/L, S/M, S/H) and the daily average returns of three big portfolios (B/L, B/M, B/H).

$$SMB= (S/L + S/M + S/H)\ 1/3 – (B/L + B/M + B/H)\ 1/3$$

HML is calculated by taking the difference between daily average returns of two portfolios with high BE/ME and daily average returns of two portfolios with low BE/ME.

$$HML= (S/H + B/H)\ 1/2 - (S/L + B/L)\ 1/2$$

WML is the difference between the simple average returns of winner portfolios and loser portfolios.

$$WML= (SW – SLs) + (BW – BLs) \times 1/2$$

LMH is the difference between daily average returns of two portfolios with low turnover ratio and daily average returns of two portfolios with a high turnover ratio.

$$LMH = (S/L_{liq} + B/L_{liq})\ 1/2 - (S/H_{liq} + B/H_{liq})\ 1/2$$

To measure the explanatory effect of government bonds, the author used 5-years Pakistan'sgovernment bonds' yield. Which is calculated as R_t = Ln (P_t / P_{t-1}) and daily return on daily value of commodity index has been calculated as R_{ci}=Ln (CI_t/ CI_{t-1}).

Assumptions of the model were checked i.e. linearity, normality, multicoliearity (by using Variance Inflation Factor) among independent variables, and homoscedasticity and correlation among the error terms and the no problem was found. ADF test was used to check stationarity of data and all variables were found stationary at 1^{st}level.

REGRESSION RESULTS OF CAPM

Table of CAPM results is given below, which shows the outcomes of 25 time series regressions that have been run to calculate the coefficient for the explanatory variable. For CAPM portfolios, the highest value of R^2 is just 5% which is very low. It means market beta only, is not sufficient for explaining the stock returns and there must be some other significant factors that influence the returns over an investment. The beta coefficient is statistically significant for only four portfolios, with significant t-values, that belong to the Low BE/ME quintile.

The coefficient of intercept is significantly zero for five portfolios at 5% level of significance. These results are in line with the CAPM theory, which states that intercept values must not be significantly different from zero because for any asset that has zero risk there should be zero excess returns.

TABLE 1

Time-Series Regressions of Daily Excess Returns Using the CAPM

	$R_{pt} - R_{ft} = \alpha_p + \beta_{p1} (R_{mt}-R_{ft})$									
	BE/ME									
Size	Low	2	3	4	High	Low	2	3	4	High
	α					*F*(statistic)				
Small	0.00*	0.00	0.00	-0.00	-0.00	15.75 (0.00)	0.49 (0.48)	0.67 (0.41)	3.36 (0.06)	0.42 (0.51)
2	0.00*	0.00	0.00	0.00	0.00	15.43 (0.00)	0.50 (0.47)	1.67 (0.19)	1.01 (0.31)	0.74 (0.38)
3	0.00*	-0.00	-0.00	-0.00	0.00	10.82 (0.00)	0.33 (0.56)	0.24 (0.62)	0.51 (0.47)	1.20 (0.27)
4	0.00*	0.00	0.00	-0.00*	0.00	11.44 (0.00)	0.77 (0.38)	1.48 (0.22)	3.27 (0.00)	1.05 (0.30)
Big	0.00	0.00	0.00	0.00	0.00	2.30 (0.13)	2.08 (0.15)	1.74 (0.18)	1.88 (0.17)	1.53 (0.22)
	β					*t* (β)				
Small	0.13*	0.04	0.04	0.08	0.03	3.96	0.70	0.82	1.83	0.65
2	0.12*	0.04	0.06	0.04	-0.04	3.93	0.71	1.29	1.00	-0.86
3	0.11*	0.03	0.02	-0.04	-0.06	3.29	0.57	0.49	-0.72	-1.10
4	0.11*	0.05	0.06	0.07*	0.04	3.39	0.88	1.22	1.80	1.03
Big	0.07	0.06	0.06	0.06	0.05	1.52	1.44	1.32	1.37	1.30
	R^2					*d* (statistic)				
Small	0.05*	0.00	0.00	0.01*	0.01	2.04	2.09	2.04	2.01	2.02
2	0.05*	0.00	0.02	0.00	0.00	2.03	2.01	2.05	2.10	1.98

3	0.04*	0.00	0.01	0.02	0.00	2.05	2.09	2.03	2.03	2.00
4	0.04*	0.00	0.00	0.01*	0.00	2.05	2.08	2.03	2.04	2.02
Big	0.00	0.00	0.00	0.00	0.01	2.04	2.04	2.05	2.04	2.05

Regression Results of Seven Factor Model

Following the model used by Berzins, Liu, and Trzcinka (2013) Table 2 shows the results of 25 time-series regressions of size-BE/ME portfolios. When the findings of 25 seven factor model regressions are analyzed, they revealed a meaningful increase in the values of R^2 comparative to CAPM. R - Square increased from5% to 85%. This implies that the addition of more risk factors to the CAPM have remarkably increased the explanatory power of the model in explaining the average expected returns. The 21 intercepts, out of 25 are significantly indifferent from zero at the 5 % level of confidence which shows that the seven factors risk adjusted model is valid and applicable in KSE for the selected sample period. The coefficient of market premium (β) is statistically significant in 23 portfolios with meaningful t-values, at the 5 % level of confidence, which implies that market beta has ability to explain variation in the excess stock returns of portfolios. Therefore, investors would get a higher premium if they invest in riskier assets.

Table 2 shows that the results for size (S_p) are significant for 23 portfolios and it has been observed that the small sized portfolios have a positive size effect, while large size portfolios have Negative size effect. The values of HML coefficients (h_p) are systematically related to BE/ME from low to highest regardless of their ME and are higher for high BE/ME portfolios especially in the 4^{th} and 5^{th} value quintiles. However, lower values of h_p have been observed for low BE/ME portfolios. This signifies the fact that investing in the stocks with the highest BE/ME ratio would generate higher returns for investors, which is an observation that is consistent with the theory. Most of the coefficients on WML (w_p) are statistically significant at the 5 % level of confidence and the range of momentum coefficients (w_p) is also meaningful with t-values associated with them. It can be seen from the results that the coefficient of liquidity risk factor LMH (l_p) is significant in most of the regressions and meaningfully explain the systematic risk. Although, all the LMH slopes are negative, which shows that LMH factor is not related to the size and BE/ME ratio. The coefficient of government bond index (g_p) is statistically significant at 5%level of confidence, in all the 25 regressions with inspiring t-values. All the GBI coefficients (GP) are positive, which means that greater (lesser) the risk in government bonds greater (lesser) will be the excess return on the portfolio to investors. It is considered an important systematic risk factor in explaining the variation in excess stock returns.

The coefficients of commodity index (c_p) are significant in all the 25 regressions with meaningful t-values and are all positive at 5% level of confidence. This means that an investor would earn high yields if he invests in a portfolio containing the commodity asset in it as well. When the regression results of seven factors model are analyzed it is revealed that the coefficients of (Rm-Rf), SML, HML, WML, LMH, GBI and CI, which constitute non-diversifiable risk factors, are meaningful in almost all the regressions.

TABLE 2

Time-Series Regressions of Daily Excess Returns Using the Seven Factor Model

	$R_{pt} - R_{ft} = \alpha_p + \beta_p (R_{mt}-R_{ft}) + s_pSMB_t + h_pHML_t + w_pWML_t + l_p(LMH) + g_p(GBI-R_{ft}) + c_p(CI-R_{ft})$									
	BE/ME									
Size	Low	2	3	4	High	Low	2	3	4	High
	α					*t* (α)				
Small	0.00*	-0.00*	0.00*	-0.00	0.00*	69.30 (0.00)	236.22 (0.00)	44.32 (0.00)	31.39 (0.00)	84.24 (0.00)
2	0.00*	-0.00*	0.00*	-0.00	0.00*	68.94 (0.00)	231.66 (0.00)	42.90 (0.00)	37.74 (0.00)	93.16 (0.00)
3	0.00*	0.00*	0.00*	0.00*	0.00*	74.27 (0.00)	235.30 (0.00)	54.66 (0.00)	81.70 (0.00)	90.93 (0.00)
4	0.00*	-0.00*	0.00*	-0.00	0.00*	76.09 (0.00)	171.78 (0.00)	51.61 (0.00)	55.96 (0.00)	68.94 (0.00)
Big	0.00*	0.00*	0.00	0.00*	0.00*	87.89 (0.00)	89.25 (0.00)	89.85 (0.00)	88.24 (0.00)	88.92 (0.00)
	β					*t* (β)				
Small	0.86*	0.66*	0.60*	0.50*	0.44*	2.55	2.09	2.03	2.09	2.47
2	0.86*	0.75*	0.60*	-0.72*	0.72*	2.49	2.05	2.06	2.65	2.61
3	0.76*	0.85*	0.00	0.41*	0.81*	2.35	2.12	0.01	2.54	2.34
4	0.85*	0.74*	0.71*	0.61*	0.41*	2.20	2.58	2.35	2.61	2.66
Big	0.70*	0.00	0.80*	0.55*	0.67*	2.28	0.26	2.05	2.13	2.16
	s					*t* (*s*)				

Small	1.72*	1.93*	1.96*	1.30	1.42*	6.21	6.88	5.89	0.43	7.88
2	1.63*	1.89*	0.32	1.38	1.55*	6.11	5.83	-1.81	0.57	8.67
3	1.64*	1.61*	1.79*	1.70*	1.40*	6.06	4.35	6.02	6.58	5.20
4	1.05*	1.15*	1.19*	1.12*	1.94*	7.10	4.39	5.88	5.88	7.59
Big	-0.18*	-0.27*	-0.24*	-0.21*	-0.43*	-5.84	6.03	-5.97	-5.80	-6.19
	h					*t* (*h*)				
Small	1.42*	0.87*	2.08*	3.52	4.43*	4.04	2.19	6.41	0.94	9.87
2	1.40*	0.87*	3.90	4.69	4.71*	4.00	2.21	1.56	1.31	9.19
3	1.29*	0.54	2.77*	3.23	3.17*	3.70	1.39	5.17	0.44	7.14
4	1.72*	1.06*	2.12*	4.93*	4.58*	5.00	2.70	6.06	9.55	6.20
Big	1.45*	1.53*	4.50*	4.47*	4.67*	3.32	3.51	7.47	8.33	8.77
	w					*t* (*w*)				
Small	-0.06*	0.80*	0.31*	0.14*	0.30*	-1.83	22.98	5.88	2.85	7.69
2	-0.05	0.79*	0.32*	0.23*	0.31*	-1.63	22.73	6.31	4.98	6.82
3	-0.05*	0.72*	0.26*	-0.02	0.10*	-1.79	21.21	5.28	-0.46	2.12
4	-0.03*	0.59*	0.21*	-0.01	0.02	-1.03	17.21	4.52	-0.39	0.58
Big	0.31*	0.32*	0.32*	0.33*	0.33*	8.22	8.29	8.45	8.56	8.62
	l					*t* (*l*)				
Small	-0.37*	-0.54*	-0.31	-0.38*	-0.02	-3.57	-4.50	-1.68	-2.34	-0.20
2	-0.37*	-0.53*	-0.34*	-0.35*	-0.62*	-3.54	-4.45	-1.98	-2.24	-4.07
3	-0.58*	-0.81*	-0.65*	-2.10*	-1.65*	-5.56	-6.97	-3.89	-13.37	-10.50
4	-0.37*	-0.55*	-0.37*	-0.49*	-0.58*	-3.62	-4.66	-2.39	-3.88	-4.66
Big	-0.15	-0.16	-0.15	-0.14	-0.16	-1.14	-1.21	-1.17	-1.06	-1.22
	g					*t* (*g*)				
Small	0.27*	0.28*	0.35*	0.30*	0.27*	7.66	7.08	5.88	5.59	6.08
2	0.27*	0.28*	0.35*	0.28*	0.27*	7.68	7.11	6.10	5.55	5.24
3	0.27*	0.27*	0.34*	0.28*	0.28*	7.76	7.23	6.23	5.40	5.48
4	0.27*	0.28*	0.33*	0.28*	0.27*	7.96	7.22	6.47	6.84	6.76
Big	0.30*	0.30*	0.30*	0.30*	0.30*	6.93	7.01	7.00	6.88	6.84
	c					*t* (*c*)				
Small	0.31*	0.32*	0.34*	0.35*	0.30*	9.25	8.32	5.82	6.53	6.97
2	0.31*	0.32*	0.34*	0.34*	0.30*	9.25	8.32	6.08	6.68	6.19
3	0.31*	0.31*	0.33*	0.26*	0.28*	9.18	8.42	6.13	5.16	5.59
4	0.31*	0.32*	0.34*	0.33*	0.32*	9.50	8.60	6.67	8.05	8.04
Big	0.32*	0.32*	0.33*	0.33*	0.32*	7.78	7.77	7.84	7.68	7.66

	R^2					d (statistic)				
Small	0.64*	0.85*	0.53*	0.44*	0.68*	2.02	2.15	2.10	2.11	2.21
2	0.63*	0.85*	0.52*	0.48*	0.70*	2.03	2.16	2.15	2.14	2.20
3	0.65*	0.86*	0.58*	0.67*	0.69*	2.05	2.19	2.11	2.15	2.14
4	0.65*	0.81*	0.56*	0.58*	0.63*	2.04	2.13	2.09	2.07	2.12
Big	0.69*	0.83*	0.69*	0.69*	0.69*	2.16	2.16	2.15	2.16	2.17

CONCLUSIONS

The findings of this study are interesting and contribute to the existing literature. When compared the CAPM with SFM it is established that SFM has superiority in explaining the cross section of stock returns. It is observed that there is a strong size and value effect in the financial sector of KSE over the period under study. Findings revealed that in the entire multifactor asset pricing models, the excess returns of portfolios are negatively correlated with the size of firm and positively correlated with BE/ME ratio. Hence, it is concluded that the portfolios with small market equity and high BE/ME yield additional returns. These findings are in line with the previous researches such as Fama andFrench(1995),Fama and French (1996), Keith, Frank, and Simon (2009), Mirza and Shahid(2009)Al Mwalla (2012),Al-Mwalla and Karasneh(2011), Akgul(2013)and Sharma and Mehta (2013).

When the findings of seven factors model are interpreted it is found that the addition of more risk factors has incredibly increased the R-square value. However, it is determined that all the LMH slopes are negative while some of the slopes of WML are positive and some are negative. It is established that both the WML and LMH are not related with size and value of the firm. The intercept values obtained in all the asset pricing models are equivalent to zero which support the applicability of different multifactor asset pricing models in the financial sector of KSE for the covered period and validate the basic objective of the study.

This study is limitted to the seven risk factors only it is recommended to add more risk factors to capture the variation explained in expected stock returns (such as leverage, E/P ratio, cash flow to price CF/P ratio, dividend yield,). The time framework used in this study is limited so, in future researches can be carried out by increasing the time frame.

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