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Value Risk Premium, Investor Sentiment and Stock Returns in Kenya

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Abstract

This study sought to investigate the role of investor sentiment in the relationship between value risk premium and stock returns in Kenya, controlling for effect of market, size, profitability and asset growth. The variables were anchored on postulations in the Dividend Valuation Model. The study utilized monthly time series data on 60 firms listed at the NSE from 2011-2019. The result of ADF and P-P tests indicated a mix of variables stationary at level and 1st difference. The F-bounds cointegration test revealed long-run relationship among variables thus requiring estimation of both ARDL and VEC models. Results show weak evidence for existence of value risk premium at the NSE using the main effects model. The pricing effect of value risk premium is however enhanced in the interaction model. The interaction though not significant implying that there is no moderating effect of sentiment. Investors can therefore strategically build up their portfolios to allocate more funds to high book-to-market equity stocks and earn relatively high returns regardless of the market condition. The study further recommends a pricing model that incorporates investor sentiment as additional source of systematic risk in cost of capital decisions at the NSE.

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1. Introduction

A number of studies have documented superior performance of value stocks in relation to growth stocks. Stocks with high ratios of fundamentals to market price are referred to as value stocks while stocks with low ratios are referred to as growth stocks. The value effect is the link between a firm's current book-to-market (B/M) ratio and forecasted stock returns (Karp & Vuuren, 2017). Firms judged by markets as having poor prospects will be signaled by low stock prices and high book-to-market equity ratios (Artmann *et al*. 2012). Such firms are considered risky and will tend to have high expected stock returns or high cost of capital. The reverse is true for low B/M ratio firms. Value effect is attributed to expectation errors made by investors which could lead to over or undervaluation of stocks. This argument is supported by Xing (2008) who opines that professional arbitrageurs are risk averse and will tend to avoid stocks with high B/M ratio. Further, non-professional investors, being more sensitive to transaction costs will not trade to take up advantage of this anomaly to earn abnormal profits thereby causing this anomaly to persist.

Analysis of value premium in asset pricing studies has been investigated extensively across global markets over a wide spectrum of sample periods. Whereas some researches in emerging markets show that returns on individual stocks tend to be an increasing function of the B/M ratio (Kubota & Takehara, 2018, Kilsgard and Wittorf, 2011) other studies find a significant negative Book-to-market factor (Shafana, Rimziya & Jariya, 2013). Auret and Sinclair (2006) found a significant value effect in South Africa, similar to Njogo *et al*. (2017) at the Kenyan equity market under the momentum augmented FF5F model. Thus, existing literature in asset pricicng shows lack of convergence in the search for explanation for value effect-return relationship both among the developed and emerging markets.

Baker and Wurgler (2006) describes investor sentiment as the systematic error or bias in investors' belief about future cash flows and investment risks that is not consistent with the fundamental facts. When most investors are optimistic in their irrational beliefs, and think that firms have good prospects for the future, they tend to over-value and invest in the stocks thus increasing the demand. The reverse holds true when investors hold a negative outlook. Berger and Turtle (2012) concluded that investor optimism (or pessimism) may induce mispricings in the stock market thereby drive prices well above or below that warranted by the fundamental value. Thus, it is reasonable to assume that risk-return relationship may be influenced by level of sentiment risk at the NSE.

Some studies find correlation between investor sentiment and stocks with certain characteristics. For instance, Small stocks and stocks with high volatility are more subject to sentiment than others (Baker & Wurgler, 2007); Stocks that are harder to value and arbitrage are expected to be sentiment-prone (Berger & Turtle, 2012); Overall, systematic risk exposure is expected vary between periods of high and low investor sentiment. In this study, investor sentiment was conceptualized as having a moderating effect in the relationship between valuation risk and excess returns on NSE listed stocks.

Different sentiment studies utilize different proxies for measuring investor sentiment. Some scholars use direct opinion surveys (Brown & Cliff, 2005) while others employ market based proxies (Kumar & Lee, 2006, Brown & Cliff, 2005; Dash & Mahakud, 2013). This study however adopted a context specific bull-bear spread as a measure of IS computed by subtracting the proportion of stocks that closed lower from the proportion that closed higher than their previous period's closing prices. A positive (negative) spread implies bullish (bearish) trend in the market while a zero difference is an indicator of market correction (Brown & Cliff, 2005; Dash & Mahakud, 2013).

A section of empirical literature show that firm level fundamental variables may proxy for systematic risk (Karp & Vuuren, 2017) and that market conditions may influence stock returns (Chae & Yang, 2016). There are however, gaps in literature owing to selection of variables and methodology adopted. Tripathi & Aggarwal (2020) maintain that universal applicability of any stock market phenomenon demands its investigation in both the developed and developing capital markets of the world. This is because capital markets differ from each other in terms of numerous aspects such as institutional structures and cultural backgrounds. For that reason, a global version of asset pricing model is not overally convincing. A specific context version might provide better insights regarding relevant factors. It is therefore of essence to explore the debate around asset pricing in the emerging markets owing to their distinctive structure and importance in international portfolio diversification. This study sought to bridge the gap in asset pricing literature by investigating the role of investor sentiment in the relationship between value risk premium and excess stock returns in Kenya, controlling for premium on market, size, profitability and asset growth. The purpose of this study areto investigate the role of investor sentiment in the relationship between value risk premium and stock returns in Kenya, controlling for effect of market, size, profitability and asset growth. The variables were anchored on postulations in the Dividend Valuation Model.

2. Hypothesis Development

Basiewicz and Auret (2010) sought to isolate a suitable measurement for value effect at the Johannesburg Stock Exchange (JSE). The ratios explored were Earnings-to-Price, Cashflow-to-Price and Book-to-Market which have similar economic interpretation. The time series regression analysis revealed high correlation amongst the study variables with the B/M being a strong predictor of returns than earnings-to-price and Cash flow-to-price. In a related study, Auret and Sinclaire (2006) applied FF3F model to test the value effect on the same market. Monthly data for stocks from all sectors of the JSE were assembled from 1990 to 2000. Return data was adjusted for dividends and capital events and a thin trading filter was used to ensure that the trading volume of each share exceeded at least one per period. Univariate and multivariate regression analyses were conducted to test the significance of the predictor variables with respect to estimating excess stock returns. Results showed a significant positive relationship between B/M ratios and expected stock returns.

Kilsgard and Wittorf (2011) examined the adequacy of FF3F model in measurement of the value effect on average stock returns in at the United Kingdom (UK). The independent variables in the model were factors formed on size and book-to-market equity other than the market beta. The study adopted Fama-French (1993) approach for constructing 16 portfolio of stocks using 4x4 annual sorting procedure. The yield on UK T-bill with one

month to maturity was used to proxy risk-free interest rate. The coefficient on HML variable was positive implying that high B/M ratio stocks earn relatively higher returns than low B/M stocks. Strong value effect was similarly noted by Kubota and Takehara (2018) on Tokyo Stock Exchange.

Shafana, Rimziya and Jariya (2013) employing Fama-MacBeth (1973) procedure analyzed the association between expected stock returns and value premium in Srilanka. For a given year, firm value was measured using the ratio of book to market value of equity while stock returns were operationalized as dividend plus changes in stock price divided by beginning stock price. Cross-sectional regression was used to analyze five year data from 2005 to 2010 on a sample of 12 firms. In order to smooth the data, all variables were transformed into natural logarithm prior to empirical analysis. The study observed significant negative value effect, on returns. The results also support the view that the value factor explains highly stock returns of financial firms than when full sample or non-financial firms are considered. These findings, however, differ with the results obtained by Mahawanniarachchi (2006) and Anuradha (2007) who reported a significant positive relationship between B/M and individual stock returns in Srilanka.

Value effect has also been recently investigated by Chen and Zhang (2019) on non-financial firms at the Chinese market. The sample contained 258 months observations spanning 1996 to 2016 so as to obtain adequate number of cross-sectional units for time series data. The study employed time series and Fama-MacBeth tests on 25 portfolios related to size, constructed following the Fama and French (1993) framework. Over the period of study, the HML (High-Minus-Low) factor generated risk adjusted average monthly return of 0.23% (*t*-value = 1.40) which is not statistically different from zero at 1% level. The results of time series regression indicated that value factor does not significantly explain the cross-section of stock returns in China. The result corresponds partly to findings by Hou, Xue and Zhang (2015) and Araujo and Machado (2017) who did not find evidence for existence of value effect in their analyses. The results are however inconsistent with other studies such as Chen et al. (2010) and Cakici et al. (2013) who detect significant value effect.

Odera (2010) analyzed value effect by testing the validity of FF3F model at the NSE They adopted descriptive and correlational research designs. Monthly data of 60 companies were taken over a period of five years from 2008 to 2012. Multivariate regression analysis was applied on nine test portfolios constructed in the framework of Fama and French (1993) on the basis of market value and book-to-market value of equity. The study documented that the value factor is more effective for high B/M stock portfolios. Overall, portfolios containing glamour stocks had higher earnings as compared to value stocks, inconsistent with valuation theory. These findings are however consistent with Hanauer and Linhart (2015) and Njogo (2017).

The exposition of past empirical literature shows that there is no existing current work done in Kenya on risk-return relationship under the FF5F model approach. Most studies on asset pricing are confined to global markets (Hearn & Piesse, 2009). In many African equity markets, the return generating process is not well established making it difficult to identify components for risk premia due to lack of reliable historical data (Girard & Omran, 2007). A study of this nature would therefore bridge an important contextual gap. Past studies have often neglected the role of different states of investor sentiment in explaining risk-adjusted returns (Lind & Sparre, 2016). Thus, the current study adds a new dimension in asset pricing studies by investigating if changes in investor sentiment, proxied by bull-bear spread, would moderate the pricing effect of value risk premium at the Kenyan equity market. Further, a significant contribution of this article is in the use of robust estimation methods in analysis of associations. Upon the analysis of the foregoing empirical literature and the underlying theoretical perspectives, we proposed two hypotheses:

H_1: Risk premium affects stock returns at the NSE
H_2: The effect of value risk premium on stock returns is independent of investor sentiment at the NSE

3. Data and Method

This study was anchored on positivist philosophical foundation whereby the established theoretical linkage between value risk premium and variation in cross-section of excess returns was used to develop hypotheses that were tested and validated against empirical observations. Causal research design was employed out of the need to explain the cause effect relationship between value risk premium and excess stock returns in Kenya. Time series study design was also adopted to analyze changes in patterns as well as identify short-

term and long-term trends in the data. The study utilized secondary data obtained from audited annual company reports, reports and publications of the central bank of Kenya, the Capital Markets Authority. The analysis period from January 2011 to December 2019 was dictated by availability of data on variables. The study population comprised all firms listed at the NSE but the final sample frame comprised 60 firms that met specification of selection criteria commonly used in asset pricing literature.

At the end of December each year, stocks were distributed into two size groups and also independently allocated to two groups of value, asset growth and operating profitability using median breakpoints. The intersection of the independent 2x2 sorting yielded 12 porfolios which formed the dependent variables. The portfolios were ascribed initials relative to their location in the portfolio sorting matrix. For example, a portfolio at the intersection of small size and low B/M ratio (RSL), big size and conservative investment (RBC) and so on. Overall, big market cap stocks were concentrated in robust profitability portfolios while most small stocks were in the weak profitability portfolios possibly due to their low earning capabilities. From the distribution of firms, it was infered that high book-to-market, weak profitability and conservative stocks tend to be small while low book-to-market, robust profitability and aggressive stocks are associated with big firms.

Model Specification

The ARDL short-run Main Effects model

The main effects model was used to check the amount of variation in the outcome variable accounted for by Value risk premium without influence of sentiment.

$$\Delta(R_j - r_f)_t = \alpha_0 + \sum_{i}^{p} \delta_i \Delta(R_j - r_f)_{t-i} + \sum_{i}^{q_1} \beta_i \Delta(MKT)_{t-i} + \sum_{i}^{q_2} h_i \Delta(VALUE)_{t-i} + Controls_{t-i} + e_{1t}$$

The Error Correction Main Effects Model Representation

$$\Delta(R_j - r_f)_t = \alpha_0 + \sum_{i}^{p} \delta_i \Delta(R_j - r_f)_{t-i} + \sum_{i}^{q_1} \beta_i \Delta(MKT)_{t-i} + \sum_{i}^{q_2} h_i \Delta(VALUE)_{t-i} + Controls_{t-i} + \varphi ECT_{t-1} + e_{2t}$$

The ARDL short-run Interaction Model

$$\Delta(R_j - r_f)_t = \alpha_0 + \sum_{i=1}^{n} \delta_i \Delta(R_j - r_f)_{t-i} + \sum_{i=0}^{n} \beta_i \Delta(MKT)_{t-i} + \sum_{i=0}^{n} h_i \Delta(VALUE)_{t-i} + controls_{t-i} + \sum_{i=0}^{n} \xi_i \Delta(SENT)_{t-i} + \sum_{i=0}^{n} \gamma_i \Delta(VALUE * SENT)_{t-i} + e_{3t}$$

The Error Correction Interaction Model Representation

$$\Delta(R_j - r_f)_t = \alpha_0 + \sum_{i=1}^{n} \delta_i \Delta(R_j - r_f)_{t-i} + \sum_{i=0}^{n} \beta_i \Delta(MKT)_{t-i} + \sum_{i=0}^{n} h_i \Delta(VALUE)_{t-i} + controls_{t-i} + \sum_{i=0}^{n} \xi_i \Delta(SENT)_{t-i} + \sum_{i=0}^{n} \gamma_i \Delta(VALUE * SENT)_{t-i} + \varphi ECT_{t-1} + e_{4t}$$

Note: The short-run model terms go with difference operator

Where: $R_j - r_f$: Excess return on portfolio j; α_0 **:** Intercept of the model. If the predictors in a model capture adequately expected returns, α_0 should be indistinguishable from zero; δ_i : The coefficient loading for the lagged value of the dependent variable; β_i: The coefficient loading for the market risk factor (MKT); h_i: The coefficient loading for the Value risk premium (VALUE); ξ_i: The coefficient loading for investor sentiment (SENT); γ_i: The coefficient loading for the interaction of value and sentiment (VALUE*SENT); φ: Speed of adjustment to long-run equilibrium; ECT: Error Correction Term; $e_{j,t}$ **:** The random error term capturing other factors influencing excess portfolio returns besides the explanatory variables. It is assumed to be identically and independently distributed of the dependent variable and normally distributed with zero expectation and constant variance σ^2.; Controls: Include the size risk factor (SIZE), Profitability risk factor (OPROF) and asset growth factor (ASTG).

3. Result

Correlation Analysis

Table 1 displays correlation matrix of main effects predictor variables. The table shows generally low and insignificant correlation among the main effects variables. There was however significant but less than average correlation between MKT and SIZE (r = -0.2318, p<0.05), OPROF and VALUE (r = 0.2446, p<0.05) and OPROF and ASTG (r = -0.2453, p<0.05). The table further shows that market risk premium (MKT) and sentiment (SENT) are is highly positively correlated (r = 0.6582). It implies that investor sentiment variable and market factor have a positive co-movement and variation in sentiment may have an impact on estimation of market beta at the NSE.

Table 1. Correlation Analysis (Pearson Corr. Coef)

	MKT	SIZE	VALUE	PROF	ASTG	SENT
MKT	1.0000					
SIZE	-0.2318**	1.0000				
VALUE	0.0037	-0.1206	1.0000			
OPROF	0.0627	0.1697	0.2446**	1.0000		
ASTG	-0.0942	-0.0431	0.0196	-0.2453**	1.0000	
SENT	0.6582**	-0.0377	-0.0402	-0.0013	-0.0991	1.0000

Value risk premium and Stock Returns

Over the sample period of investigation, the average of monthly excess returns were -0.52% with a maximum of 18.70%, and a minimum of -23.40%. The market factor had the least premium (mean = -0.70%) with an average standard deviation of 4.56%. The average premium on the value risk premium was 0.05% with a standard deviation of 3.26%. The sentiment proxy had a mean value of -6.78% indicating that a bearish sentiment prevailed over the sample period and that market participants gained negative excess returns. Table 2 reports the estimate of results of the time-series regression for main effects model conducted to establish whether value risk premium predicts the monthly equity returns at the NSE. The dependent variables in this regression were the monthly excess rates of return on 12 equity portfolios for the nine year period (2011–2019). The Table illustrates the estimated intercepts, the error correction term and factor loadings. In circumstances where there was at least one lag for an independent variable, a joint F-test of their coefficients was performed to determine their statistical significance.

Table 2. ARDL Error Correction Regression-Main Effects Model

	SIZE-INV		SIZE-B/M		SIZE-OP	
	RBA	RBC	RBH	RBL	RBR	RBW
RET(-1)	0.1158**	0.02415	0.0198	-0.1153	0.0385	0.0440
MKT	0.8340**	0.7808**	0.9485**	0.7775**	0.8524**	0.8149**
VALUE	-0.2064**	-0.0892	0.3859**	-0.3548**	-0.0866	0.2699
Intercept	0.0035	0.0036	-0.0015	0.0058	0.0035	-0.0018
ECT(-1)*	-0.8842**	-0.9802**	-0.9802**	-1.1153**	-0.9615**	-0.9560**
Adj. R^2	0.7515	0.7013	0.7292	0.7950	0.8447	0.6368
SE	0.0259	0.0254	0.0288	0.0204	0.0180	0.0448
F-stat.	41.0634	32.1160	41.7839	46.6811	83.3937	27.5442
Pr(F-stat)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
D-W stat.	2.0817	1.9059	2.0569	2.1077	2.0885	1.7715
	SIZE-INV		SIZE-B/M		SIZE-OP	
	RSA	RSC	RSH	RSL	RSR	RSW
EX-RET(-1)	-0.0251	0.0980	0.0583	0.2173**	0.0414	0.1626**
MKT	0.6085**	0.8577**	0.7549**	0.7234**	0.8023**	0.79601**
VALUE	0.1799	0.0251	0.4266**	-0.3722**	0.2794	-0.1053
Intercept	0.0009	0.0023	0.0029	0.0047	-0.0080	-0.0059
ECT(-1)*	-1.0251**	-0.9020**	-0.9324**	-0.7827**	-0.9586**	-0.8374**
Adj. R^2	0.5647	0.7523	0.7025	0.5861	0.5850	0.8106
SE	0.0317	0.0268	0.0257	0.0337	0.0445	0.0224
F-stat.	20.6428	36.7666	0.0000	13.2718	22.3460	65.8232
Prob(F-stat)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
D-W stat.	2.1249	2.1702	2.0599	1.8885	1.9188	1.7163

Source: Author's own calculations in Eviews 10; **denotes variable is significant at 5% level

Investor Sentiment, Value risk premium and Excess Returns

Table 3 shows summary results of the ARDL time-series regression performed to establish if investor sentiment has additional predictive value to the model testing the effect of value risk premium on stock returns at the NSE. The Table also illustrates the estimated intercepts, the error correction term and adjusted R-square for each portfolio regression. The coefficients of the model without interaction were estimated by running the following ARDL error correction model equation:

$$\Delta\left(R_j - r_f\right)_t = \alpha_0 + \delta_i \Delta\left(R_j - r_f\right)_{t-i} + \beta_i \Delta(MKT)_{t-i} + s_i \Delta(VALUE)_{t-i} + \xi_i \Delta(SENT)_{t-i} + CONTROLS_{t-i} + \varphi ECT_{t-1} + e_t$$

Table 3. ARDL Error Correction Regression-Model without Interaction

	RBA	RBC	RBH	RBL	RBR	RBW
RET (-1)	0.0729**	-0.0237	0.0093	-0.0108	0.0018	0.0308
MKT	0.5432**	0.2994**	0.8102**	0.3405**	0.4850**	0.4572
VALUE	-0.2005	-0.1160	0.3796**	-0.3749**	-0.1039	0.2308
SENT	0.0397**	0.0659**	0.0187	0.0606**	0.0500**	0.0497
Intercept	0.0067**	0.0001	-0.0014	0.0054**	0.0037**	-0.0119**
Adjusted R^2	0.7731	0.7789	0.7341	0.8592	0.8957	0.6488
	RSA	RSC	RSH	RSL	RSR	RSW
RET (-1)	-0.0456	-0.0099	0.0133	0.0594	0.0036	0.1573**
MKT	0.2023	0.3769**	0.2304	0.4912**	0.3732	0.5679**
VALUE	0.1479	-0.0189	0.4038**	-0.4306**	0.2755	-0.0792
SENT	0.0558**	0.0671**	0.0691**	0.0330	0.0574**	0.0287
Intercept	-0.0047	0.0018	0.0043**	-0.0002	-0.0029	0.0083**
Adjusted R^2	0.6161	0.8034	0.7821	0.5779	0.6125	0.8004

** Regression is significant at 5%

Results in Table 3 show that the market factor has positive coefficients, 67% of which are statistically significant, consistent with the results in Table 7.1 of the main effects model. The sentiment variable has positive factor loadings in all test portfolio regressions, 67% of which are significant at 5% level. This implies that a high sentiment market condition would significantly increase stock returns, holding other factors constant. The value risk factor is however not significant in the model that adds sentiment variable in the analysis. The adjusted R-square values increase for all but RSL portfolio regression where there was marginal reduction. This implies that augmenting sentiment variable to a model for testing value effect on excess stock returns adds predictive power to the model.

Investor Sentiment, Value Risk and Stock Returns-Interaction model

Table 4 shows summary results of the ARDL time-series regression performed to establish if investor sentiment would influence the relationship between value risk premium and excess stock returns at the NSE. It was conceptualized that the influence could either be direct or through interaction, controlling for other risk factors in the model. The coefficients of the interaction model-2 were estimated by running the following ARDL error correction model equation:

$$\Delta\left(R_j - r_f\right)_t = \alpha_0 + \delta_i \Delta\left(R_j - r_f\right)_{t-i} + \beta_i \Delta(MKT)_{t-i} + s_i \Delta(VALUE)_{t-i} + \xi_i \Delta(SENT)_{t-i} + \gamma_i \Delta(VALUE * SENT)_{t-i} + CONTROLS_{t-i} + \varphi ECT_{t-1} + e_{4t}$$

The sentiment effect was established by assessing the change in adjusted R^2 and significance of the sentiment variable and its interaction with value risk premium in the interaction model. Table 4 further illustrates the estimated intercepts, the error correction term, factor loadings and their corresponding t-statistics (in square brackets) and *p*-values (in parentheses). Results in Table 4 show that 50% of the regressions had significant coefficients on value risk premium, with a large concentration on portfolio of big stocks. This therefore implies that value risk premium is priced in a model that incorporates the interaction between investor sentiment and value risk premium.

Model Fit

The intercept values represent the abnormal return that cannot be explained by the factors included in the model. The *p*-values of the intercepts in both models are all greater than 5%, suggesting that intercepts of the regressions are not significantly different from zero and hence the regressors are considered to be good proxies for systematic risk. The mean adjusted R-square for the interaction model is 73.08% higher than 70.73% for the main effects model, implying that the added factors are efficient and can explain stock excess returns better. The probability values of F-statistics are very small (less than 5%), suggesting that the model in each portfolio regression is significant. The *ECT* terms

are significant with the expected negative sign in all regressions. This shows evidence of long-run convergence/reversion to equilibrium and that we can infer long-run causal relationship.

Table 4. ARDL Error Correction Regression-Interaction Model

	SIZE-INV		SIZE-B/M		SIZE-OP	
Variable	RBA	RBC	RBH	RBL	RBR	RBW
EX-RET(-1)	0.1046**	0.1629**	0.0157	-0.0911	0.1209	0.0790
MKT	0.7370**	0.6536**	1.0381**	0.5377**	0.7162**	0.8424**
VALUE	-0.2229**	-0.1272**	0.3687**	-0.3560**	-0.0952	-0.8149**
SENT	0.0105	0.0207	-0.0099	0.0323**	0.0189**	-0.0175
VALUE*SENT	0.5922**	0.7191**	0.5780**	0.3221	0.3336**	-0.0039
Intercept	0.0085	0.0044	-0.0033	0.0101	0.0049	0.0040
ECT(-1)*	-0.8947**	-0.8371**	-0.9843**	-1.0911**	-0.8791**	-0.9210**
Adj. R^2	0.7844	0.7604	0.7420	0.8356	0.8659	0.6501
SE	0.0242	0.0227	0.0281	0.0182	0.0167	0.0440
F-stat.	39.2004	34.6448	34.8798	49.9792	69.4330	20.6944
Prob(F-stat)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
D-W stat.	2.0544	1.9482	2.0107	1.9892	2.0854	1.8646

	SIZE-INV		SIZE-B/M		SIZE-OP	
Variable	RSA	RSC	RSH	RSL	RSR	RSW
EX-RET(-1)	-0.0429	0.0646	0.0518	0.1824**	0.0299	0.0478
MKT	0.4942**	0.7283**	0.5272**	0.7507**	0.6171**	0.4726**
VALUE	0.1748	0.0015	0.4457**	0.1584	0.2769	-0.0848
SENT	0.0144	0.0213	0.0280**	-0.0193	0.0227	0.0407**
VALUE*SENT	-0.2566	0.3897**	0.3470	0.0018	0.1951	0.0923
Intercept	0.0040	-0.0002	0.0119	0.0018	-0.0031	0.0020
ECT(-1)*	-1.0429**	-0.9354**	-0.9482**	-0.8176**	-0.9701**	-0.9522**
Adj. R^2	0.5737	0.7827	0.7362	0.5950	0.5902	0.8528
SE	0.0314	0.0251	0.0242	0.0334	0.0443	0.0197
F-stat.	16.8478	32.8160	25.6480	15.1598	17.9598	69.2326
Prob(F-stat)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
D-W stat.	2.0651	1.8844	1.9966	1.8368	1.8670	1.7924

Source: Author's own calculations in Eviews 10 **denotes variable is significant at 5% level

4. Discussion

Value risk premium and Stock Returns

The results showed that the value risk premium has no effect on stock returns in BEJ, controlling for size, operating profitability and asset growth. Value effect refers to higher average returns of value stocks relative to growth stocks required by investors as compensation for exposure to value risk (Fama & French, 2006). Overall, value risk premium is significant in all portfolios that are in the size-B/M sort but not significant in all size-profitability sorted portfolios. The regression coefficients on value risk premium imply that value stocks earn relatively high returns than growth stocks. Additionally, seven (7) out of twelve (12) portfolios have the expected positive loading on the value risk premium, suggesting that a high valuation risk is likely to increase excess stock returns. The value risk premium is however significantly different from zero in only 41.67% of the regressions, which leads to the conclusion that overall, value risk premium does not explain the variation of stock returns in Kenya. The redundancy of value factor at the NSE could be a reflection of low investor confidence in the accounting information from which value risk premium is derived. The existence of imperfect regulatory environment and weak

surveillance systems in the emerging markets may account for problems such as failure by listed firms to make adequate disclosure of relevant information to the investors and insider-dealing. Applying panel data to estimate regression models, Araujo and Machado (2017) observed similar results indicating that B/M ratio has no significant influence on Brazilian stock returns. The current results however are not consistent with Auret and Sinclair (2006) in South Africa, Kilsgard and Wittorf (2011) in UK and Kubota and Takehara (2018) in Japan who observed a positive and significant coefficient on HML factor when studied under the Fama-French (1993) model framework. Contrary results are also reported by Odera (2010) and Shafana *et al.* (2013) whose overall conclusion suggest that portfolios containing glamour stocks have higher earnings and hence appear to be more risky as compared to value stocks.

Investor Sentiment, Value risk premium and Excess Returns

The results show that 50% of the regressions have a significant coefficient on the value risk premium, with a large concentration in a portfolio of large stocks. This therefore implies that value risk premium is priced in a model that incorporates the interaction between investor sentiment and value risk premium. This result suggests that investor sentiment enhances the significance of the valuation risk effect. It was also observed that less than 50% (4 out of 12) of portfolios had significant loading on sentiment variable. Further, only 5 out of 12 portfolios had positive and significant loadings on the interaction term at 5% level. This result imply that the effect of valuation risk on excess returns does not depend on investor sentiment outlook by investors at the NSE. Similarly, the effect of sentiment on excess returns does not depend on the level of value risk premium. It would suffice then to conclude that the value risk premium and investor sentiment variables are independent and that investor sentiment does not moderate the effect of value risk premium on excess stock returns at the NSE.

5. Conclusion and Suggestion

Conclusion

This study sought to establish if valuation risk explains stock returns at the NSE. In the main effects regression, the value risk premium had the expected positive loading in seven (7) out of twelve (12) portfolios suggesting that a high valuation risk would increase excess returns on stocks in line with fundamental based valuation principle. Overall, the value risk premium is not significant in more than half (58.33%) of the time series regressions thereby supporting the null hypothesis of no effect of value risk premium on stock returns in Kenya. The redundancy of value factor at the NSE could be a reflection of low investor confidence in the accounting information from which value risk premium is derived. The low confidence could be attributed to perceived less stringent reporting requirements placed on firms listed at the NSE as compared to those in more developed markets across the world. Further, the study observed significant valuation effect in a model that incorporates investor sentiment therefore suggesting that investor sentiment could enhance the predictability of FF5F pricing model model in Kenya. The study did not however find evidence for moderating effect of investor sentiment in the relationship between value risk premium and stock returns in Kenya. The findings highlight the importance of investor sentiment as a proxy for systematic risk in the investment decisions by market players in Kenya.

Suggestion

The object in this research is still limited to 60 companies. For further research, it can increase the number of companies and also the research period can be extended.

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