Journal of Finance and Investment Analysis, vol. 7, no. 4, 2018, 19-33
ISSN: 2241-0998 (print version), 2241-0996(online)
Scienpress Ltd, 2018

Bid Ask Spread and Fama- French Three Factor Model on Excess Return. An Empirical Evidence at Nairobi Securities Exchange

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Abstract

The main objective of this paper is to examine the effect of Bid Ask spread on excess return of listed companies in Kenya. The research study employed a Quantitative research design to analyses the effect of Bid Ask spread on excess returns in Nairobi Security Exchange (NSE) during the period 2006 to 2015. Secondary data was used for this study. The study utilized descriptive statistics, correlation, unit root test, Heteroscedasticity, and Autocorrelation test as diagnostic tests. The regression results revealed that Market premium and Value premium (HML) are statistically significant in explaining excess return. The size premium (SMB) and Bid Ask spread are statistically insignificant.

JEL classification numbers: G10, G11, G12
Keywords: Bid Ask Spread, SMB, HML, Market Premium and Excess Returns

1 Introduction

An important quality of financial Market is its efficiency in allocating resources from one party to another. This is achieved by the liquidity of the financial market. One of the key measures of liquidity is the bid ask spread. The bid-ask spread, or the difference between the best bid and offer prices, is a commonly used measure

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Article Info: *Received*: July 4, 2018. *Revised* : July 20, 2018
Published online : October 1, 2018

for market liquidity. A market that has very low transaction costs is characterized as liquid. In this sense, the bid-ask spread is a relatively direct measure of market liquidity. Fleming (2001) identifies the bid-ask spread as one of the most appropriate liquidity indicators for the U.S. Treasury market due to its high degree of correlation with other measures, such as price impact and benchmark/non-benchmark yield spreads.

2 Literature Review

Constantinides (1968) regards the bid-ask spread as a transaction cost. Transaction accommodate large transactions cost by drastically reducing the frequency and volume of trade. Demsetz (1968) regards the Bid-Ask spread as a transaction cost to the trade for immediacy and studies the data of NYSE. The presence of the bid ask spread causes equilibrium prices to deviate from transaction prices and theoretical literature identifies three main factors that determine the bid ask spread and these are adverse selection cost, inventory carrying cost, and order processing cost, Stoll (1978).

Amihud and Mendelson (1986) analyze the effect of bid ask spread or illiquidity on asset pricing. They found a positive relationship between bids-ask spread and returns. The focus of the study was to explore the area of market microstructure in order to determine asset returns. Their model predicts that higher spread assets yield higher expected returns, net of trading costs. Investors hold high spread assets for longer holding period because of the clientele effect. Amihud and Mendelson (1980) examined whether adding bid-ask spreads to betas helped better explain differences in returns across stocks in the U.S.26 in their sample of NYSE stocks from 1961-1980, they concluded that every 1% increase in the bid-ask spread (as a percent of the stock price) increased the annual expected return by 0.24-0.26%. Eleswarapu (1997) empirically examines the liquidity premium predicted by the Amihud and Mendelson (1986) model using NASDAQ data over the 1973-90 period. The results support the model and are much stronger and confirmed this finding by showing a positive relationship between returns and spreads for NASDAQ stocks.

Investors all over the world wish to be able to price excess returns in the stock market without any problems. They want a situation where everyone is aware and informed of the effects of various factors on the excess return and how they can increase their expected return. This can be achieved by getting an asset pricing model that can capture all the factors and accurately price excess return. The derivation of an accurate pricing model is what some academics and practitioners have been striving to achieve in financial economics for over a half century (Basiewicz & Auret, 2010). However there is currently no valuation model that has been able to accurately capture the actual behaviour of asset prices in emerging markets and explain excess returns in a complete manner (Riro and Wambugu 2015). In the local front the Nairobi Securities Exchange (NSE) 20-Share Index keeps on fluctuating i.e increased to 3,982 points in the first quarter of 2016 but declined through to the fourth quarter to 3,186 points in December 2016.

It is also not conclusive on how the excess returns are priced in the market and for a longtime several models of asset pricing has been developed to help determine a stock return this includes Sharpes (CAPM 1954) and Fama French 1973 models. Riro and Wambugu (2015) argued that although this models can explain the expected return of an asset with risk to some degree, there is no model that can explain the expected return in a complete manner. Muriu and Achola (2015) argue that it is probable that these models were mainly developed using data from highly efficient stock market like NYSE, AMEX, and NASDAQ and they may not hold in market classified as emerging such as Kenya. An emerging market has unique characteristics like lower market liquidity, inexperienced market participants, shorter history, and domination by institutional investor's especially commercial banks and concentration of trade in a few stocks.

3 Data and Methodology

The research study employed a Quantitative research design to analyses the effect of Bid Ask spread on excess returns in Nairobi Security Exchange (NSE) during the period 2006 to 2015. A census study was conducted for all the listed companies. Secondary data was used to construct the estimates for the function parameters. The data was extracted from the NSE records for ten years from 2006 to 2015. Data from the companies in NSE were collected on daily stock return (dependent variable) and independent variables which include data from the securities that looks at the bid ask spread. The NSE has 64 companies as at December 2016 and out of this 38 companies were used which had consistently listed during this period.

A time-series asset-pricing tests based on individual stock's realized returns was ran. An adjusted Fama and French (1993) three factor model methodology was used to run the time-series asset-pricing tests with Bid Ask price as liquidity measures as indicated in equation. Brennan and Subrahmanyam (1996) use similar time-series asset-pricing test methodology to analyses relation between their liquidity measures and market return based on monthly returns

$$R_{i,t} = \alpha_i + Fama - French\ three\ factor\ model + a_{1,i} Bid\ Ask\ Spread + \varepsilon_{i,t}$$

Fama-French three factor model

To establish the effect of Fama and French three factors (1993) the model below was used.

$$R_{i,t} = \alpha_i + b_{1,i}MKT_t + b_{2,i}SMB_t + b_{3,i}HML_t + \varepsilon_{i,t} \qquad (i)$$

Where: MKT is the Market Premium

SMB_t is Small minus Big. Which is the return at day t on the Fama-French size factors

HML is High minus Low. Which is the return at day t on the Fama-French size factors

$R_{i,t}$ is excess realized return for portfolio i at over time t.

Six portfolios were formed based on Fama-French three factor model (1993) as shown in table 1. The portfolios were formed from the listed companies which were listed from the duration of January 2006 to December 2015. A firm qualified to be in the portfolio on the basis of having continuous listing over the years under study. This is because the effects of market liquidity is a long term study.

Table 1: Portfolio formation

	Size of company (market value of equity)	
	Small companies	Big companies
Ratio of book value of equity to it market value (Book-to–market value of equity)	Small size/Low value companies (S/L) (portfolio one)	Big/ low value (B/L)(portfolio Four)
	Small size/ Medium value (companies)(S/M) (portfolio two)	Big size/ medium value (B/M)(portfolio Five)
	Small size/High value companies (S/H) (portfolio three)	Big size /high value (B/H) (portfolio Six)

To establish the effects of Bid and Ask spread on asset pricing in Nairobi Security Exchange (NSE) in Kenya. Bid and Ask spread is used to measure market tightness and effective spread is used as it gives a better representation according to Bacidore *et al.* (2002)

$$Seff_t = |p_t^A - p_t^m| \qquad (ii)$$

Where: $Seff_t$ is the bid ask spread

p_t^A is the Ask price

p_t^m is the quoted mid point

$$U_t^B = \frac{1}{D_n}\sum_{d=1}^{D_n} RES_{d,t,} \qquad (iii)$$

where $RES_{d,t.}$ is a daily excess relative effective spread, defined as the excess of the absolute value of the difference between each transaction price and the midpoint of the most recent quote. Increasing spreads are associated with decreasing liquidity, therefore the leading negative sign is added so that smaller values of the indicators are associated with lower liquidity, consistent with other measures.

4 Empirical Results

The Summary statistics that encapsulate the measures of central tendency such as the mean, the measures of dispersion such as standard deviation, minimum and maximum observations, measures of distribution such as Skewedness and Kurtosis and Jarque-bera test were used are illustrated in Table 2.

Table 2: Descriptive Statistics

	AVERETURN	MARKETPREM	SMB	HML	AVERSPREAD
Mean	-7.330686	-6.803071	-0.167297	-0.786908	3.442081
Median	-6.854795	-6.905946	-0.556892	-0.990065	3.164282
Maximum	14.48663	8.164636	12.98585	16.79718	11.17468
Minimum	-24.74673	-20.43586	-12.73600	-19.91744	0.809977
Std. Dev.	6.985605	5.347939	4.950712	5.573938	1.737639
Skewness	-0.001304	0.092165	0.246903	0.093278	1.381783
Kurtosis	3.138488	3.225728	2.811885	4.267625	5.743071
Jarque-Bera	0.095928	0.424651	1.396158	8.208386	75.80866
Probability	0.953168	0.808701	0.497540	0.016503	0.000000
Sum	-879.6823	-816.3685	-20.07560	-94.42897	413.0497
Sum Sq. Dev.	5807.043	3403.454	2916.636	3697.185	359.3074
Observations	120	120	120	120	120

The results in Table 2 shows the descriptive statistics included the mean of excess return, market premium, High Minus Low (HML), Small Minus Big (SMB), and Bid-Ask spread variables. The average mean of excess return was -7.33 with a negative skewness. The Market premium, SMB, HML all have a negative mean with positive skewness, while the average spread has a positive spread of 3.44% with a positive skewness of 1.38. An analysis of the standard deviation reveals that excess return and HML has the highest variability while Bid Ask spread has the lowest variability.

The Jarque-Bera test was used to determine whether study variables were normally distributed. The result of normally test were summarized in Table 2. The null hypothesis that sample data is not significant different than a normal population was determined using Jarque-Bera test that ranged from 0.095928 to 75.80866 meaning that some of the variables are not normally distributed.

The skewness and kurtosis test was to find out if the data is normally distributed. The test statistics is a chi-square distribution for skewness and kurtosis. The test is carried out against the null hypothesis of normal distribution. The skewness of excess return, market premium, hml, smb, and bid-ask spread variables were -0.001304, 0.092165, 0.246903, 0.093278 and 1.381783. These values of skewness shows that the variables are not all normally distributed since their value of skewness disperse from zero. The Kurtosi values of excess return, market premium, hml, smb, and bid-ask spread variables were 3.138488, 3.225728, 2.811885, 4.267625, and 5.743071. These values of kurtosis except for smb were away from the expected value of 3 for a normal distribution.

Table 3: Unit Root Test

Group unit root test: Summary
Series: AVERETURN, MARKETRET, SMB, HML, AVERSPREAD
Date: 06/20/18 Time: 20:36
Sample: 2006M01 2015M12
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 3
Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-11.4371	0.0000	5	591
Breitung t-stat	-11.3403	0.0000	5	586
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-14.9330	0.0000	5	591
ADF - Fisher Chi-square	186.318	0.0000	5	591
PP - Fisher Chi-square	252.350	0.0000	5	595

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

To test for unit root this study chose is Im, Pesaran and Shin (IPS), the Fisher-type Augmented Dickey and Fuller (ADF) and the Fisher-type Phillips and Perron (PP) tests with and without time trend. The null hypothesis was that panel data was non-stationarity.

Im, Pesaran and Shin (IPS) proposes a test for the presence of unit roots in panels that combines information from the time series dimension with that from the cross section dimension, such that fewer time observations are required for the test to have power. IPS test has been found to have superior test power by researchers in economics to analyze long-run relationships in panel data. Both the result of ADF and Phillips Perron (PP) are presented for comparison purposes. This is based on the observation by Maddala and Wu (1999) that unlike the ADF test which is parametric, the PP test is non-parametric and hence robust in presence of serial correlation in the error terms without adding lagged difference terms. In addition, the tests played a confirmatory and complementary role to the findings of LLC test.

The results from the unit root test for all the variables in in table 3 above shows that the variables in the group are stationary with P-Values of 0.0000. The interpretation is that a method that is able to combine stationary and non-stationary was required.

Heteroskedasticity Test

The study further embarked on post-estimation test to test for the presence of heteroscedasticity and serial correlation. In particular, autoregressive conditional Heteroscedasticity (ARCH) test was carried out to test for the stability of the variance on the residuals from the model. If the test statistics; F-statistic and Observation R-square are significant the model is said to have heteroscedasticity problem. If the two test statistics are insignificant the model is said to be stable and well identified.

Table 4: Heteroscedasticity Test

Heteroskedasticity Test-statistic	Test:	ARCH	P-Values
F-statistic	0.461420	Prob. F(2,115)	0.6315
Obs*R-squared	0.939377	Prob. Chi-Square(2)	0.6252

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 06/20/18 Time: 20:32
Sample (adjusted): 2006M03 2015M12
Included observations: 118 after adjustments
HAC standard errors & covariance (Bartlett kernel, Newey-West fixed bandwidth = 5.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	22.46543	5.895469	3.810627	0.0002
RESID^2(-1)	0.076735	0.076862	0.998352	0.3202
RESID^2(-2)	-0.051405	0.056131	-0.915798	0.3617

R-squared	0.007961	Mean dependent var	23.03424
Adjusted R-squared	-0.009292	S.D. dependent var	49.53992
S.E. of regression	49.76955	Akaike info criterion	10.67778
Sum squared resid	284856.0	Schwarz criterion	10.74822
Log likelihood	-626.9890	Hannan-Quinn criter.	10.70638
F-statistic	0.461420	Durbin-Watson stat	1.986058
Prob(F-statistic)	0.631550		

The F-statistic and the Chi-square tests rejects the null hypothesis of heteroscedasticity, since the P-values of the two tests are statistically insignificant. The. F-statistic 0.461420, R-squared 0.007961 and the Adjusted R-squared

-0.009292 are very low which means the variables used have no explanatory power on the dependent variable as shown in table 4 above.

Autocorrelation Test

The Breusch-Godfrey Serial Correlation LM Test of autocorrelation was also performed to test for the existence of the serial correlation among the error terms. Two test statistics were used these were; F-statistic, Observations*R-squared. If the statistics are significant, that indicates the presence of autocorrelation. If the test statistics are insignificant that indicate the absence of autocorrelation in the model.

Table 5: Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test:			**P-Values**
F-statistic	2.027440	Prob. F(2,113)	0.1364
Obs*R-squared	4.156901	Prob. Chi-Square(2)	0.1251

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 06/20/18 Time: 20:31
Sample: 2006M01 2015M12
Included observations: 120
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MARKETRET	-0.022201	0.086492	-0.256685	0.7979
SMB	0.018002	0.095644	0.188223	0.8510
HML	0.043156	0.088422	0.488074	0.6264
AVERSPREAD	-0.110198	0.267586	-0.411822	0.6812
C	0.264255	1.184117	0.223167	0.8238
RESID(-1)	0.182757	0.096154	1.900677	0.0599
RESID(-2)	0.048210	0.099520	0.484421	0.6290

R-squared	0.034641	Mean dependent var	5.84E-16
Adjusted R-squared	-0.016617	S.D. dependent var	4.829748
S.E. of regression	4.869711	Akaike info criterion	6.060509
Sum squared resid	2679.692	Schwarz criterion	6.223113
Log likelihood	-356.6305	Hannan-Quinn criter.	6.126543
F-statistic	0.675813	Durbin-Watson stat	1.989601
Prob(F-statistic)	0.669407		

The F-statistic and the Chi-square tests rejects the null hypothesis of heteroscedasticity, since the P-values of the two tests are statistically insignificant. The. F-statistic 0.675813, R-squared 0.034641 and the Adjusted R-squared -0.016617 are very low which means the variables used have no explanatory power on the dependent variable as shown in table 5 above.

Regression Analysis

The value of adjusted R-squared was found to be 0.505359 shows that the independent variables in this portfolio are able to explain about of the variation in returns. The value of F-statistic of 31.39464 was also found to be statistically significant. The value of the Durbin Watson of Durbin-Watson statistic 1.635067is also close to the critical value of 2 which indicate the absence of autocorrelation in the error terms.

Table 6: Regression Analysis

Dependent Variable: Excess Return
Method: Least Squares
Date: 06/20/18 Time: 20:30
Sample: 2006M01 2015M12
Included observations: 120
HAC standard errors & covariance (Bartlett kernel, Newey-West fixed bandwidth = 5.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MARKETRET	0.948785	0.089466	10.60494	0.0000
SMB	-0.009650	0.152818	-0.063150	0.9498
HML	-0.228866	0.084408	-2.711413	0.0077
AVERSPREAD	0.285173	0.246466	1.157050	0.2496
C	-2.039333	1.653620	-1.233253	0.2200

R-squared	0.521986	Mean dependent var	-7.330686
Adjusted R-squared	0.505359	S.D. dependent var	6.985605
S.E. of regression	4.913026	Akaike info criterion	6.062431
Sum squared resid	2775.850	Schwarz criterion	6.178576
Log likelihood	-358.7458	Hannan-Quinn criter.	6.109598
F-statistic	31.39464	Durbin-Watson stat	1.635067
Prob(F-statistic)	0.000000	Wald F-statistic	48.86627
Prob(Wald F-statistic)	0.000000		

Market Premium

There is a positive effect between the market premium and excess return. This is illustrated in table 6 where the coefficient of market premium was found to be 0.948785 meaning that an increase in the market premium by one percent causes the excess return on the portfolio to increase by 0.948785 percent. The coefficient is also statistically significant with a t-statistic value of 10.60494. The P-value was found to be 0.000. The interpretation was that the variation between the excess return of firms in the (small size and low market value portfolio) and the return on the market portfolio was very close to the actual expected value of one. These findings support those of who found that market beta had a significant effect on excess returns. These findings support those of Trimech *et al.* (2009), who's effort while investigating the market-factor effect in Tunisia, revealed that all estimated market coefficients were statistically significant at the 1 per cent level. Hence, they stated that the market risk is a key variable in capturing the cross-section of excess stock returns regardless of the assets forming the portfolios

Estrada (2011), employing regression analysis in the analysis in USA from the year 1977 to 2009 on excess found that the effect of market premium was positive and close to the pre-expected value of one. De Pena, Forner, and López-Espinosa, (2010) while evaluating the relevance of the Fama-French model in Spanish capital market and employing regression analysis found that market premium had a positive relationship with all portfolios in the market. These findings contradict those of Xu, and Zhang (2014), in China who found that the market premium had positive and a statistically significant effect on the stocks return. Vakilifard, and Heirany, (2013), employed linear regression in Iran in an attempt to assess the role of Fama-French in assets pricing in Iran found that the market premium had a positive effect on the return of stocks. In essence the results in this paper support the traditional view that the market premium is key pricing of assets in Kenya context as well as globally.

HML

The value premium (HML) was -0.228866. showing that holding other variables in the model constant, an increase in the value premium by one percent causes the excess return on the portfolio to decrease by -0.228866 percent. The negative effect shows that there is an inverse relationship between the proxy for financial distress HML and excess returns of the firms in the portfolio one

The coefficient was statistically significant with a t-statistic value of -2.711413. The p-value was found to be 0.0077. The interpretation was that the relation between the excess return of firms in Kenya and HML premium was negative. Firms in kenya get higher returns as a result of value premium. These findings contradict those of Estrada (2011), who employing regression analysis in the analysis in USA from the year 1977 to 2009 on excess found that value premium had a positive effect on stock returns. De Pena, Forner, and López-Espinosa

(2010), while evaluating the relevance of the Fama-French model in Spanish capital market and employing regression analysis found that value premium had a positive relationship with some portfolios and a negative value with some other portfolios in the market. They support those of Xu and Zhang (2014), while investigating the relevance of the three factor model in pricing of assets in China found that the value premium had positive and negative effect on some of the portfolios and that the effect was a statistically significant. Vakilifard, and Heirany, (2013), employed linear regression in Iran in an attempt to assess the role of Fama-French in assets pricing in Iran found that the value premium had a negative effect on the return of stocks.

SMB

From the regression results in table 6 the coefficient of SMB was found to be -0.009650. These values shows that holding other variables in the model constant, an increase in the size premium by one percent causes the excess return of the portfolio to decrease by -0.009650%. This shows that there is a negative relationship between the proxy for size and excess returns of the firms.

The coefficient for the current period was the only one which was statistically significant with a t-statistic value of -0.063150 the subsequent periods were statistically insignificant. The p-values were found to be 0.9498. The interpretation was that the variation between the excess return of firms in the (small size and low market value portfolio) and SMB was negative and it shows that in Kenya the returns of firms have a negative correlation with the premium for size.

These findings contradict those of Trimech *et al.* (2009) in Tunisia, who note that the size factor represented by SMB, could have significant positive relationships with the stocks returns. Trimech *et al.* (2009) noted the estimated size effect was more pronounced for small portfolios than for big ones. Adami *et al.*(2014) in UK, also found similar results by revealing that the SMB coefficients were all positive indicating that in a given month the small capitalization stocks outperformed the large cap stocks. The size co-efficient values of all the deciles were found to be similar. De Pena, Forner, and López-Espinosa (2010), while evaluating the relevance of the Fama-French model in spanish capital market and employing regression analysis found that size premium had a positive relationship with small size portfolios and a negative value with big size portfolios in the market. These results Contradicts those of Xu and Zhang (2014), while investigating the relevance of the three factor model in pricing of assets in China found that the size premium had positive and negative effect on some of the portfolios and that the effect was statistically significant. Vakilifard and Heirany (2013), employed linear regression in Iran in an attempt to assess the role of Fama-French in assets pricing in Iran found that the size premium had a positive effect on the return of stocks.

These results support those of Estrada (2011), employing regression analysis in the analysis in USA from the year 1977 to 2009 on excess found that size premium had a negative effect on stock returns.

Market spread

From the regression results in table 6 the coefficient of spread was found to be 0.285173. This value shows that holding other variables in the model constant, an increase in spread by one unit causes the excess return of the portfolio to increase by 0.285173 units. The positive effect shows that there is a positive relationship between the proxy for liquidity (spread) and excess returns of the firms in Kenya.

The coefficient is not just positive but it is also statistically insignificant for portfolio five with a t-statistic value of 1.157050. The P-value was found to be 0.2496. The interpretation was that the variation between the excess return of firms in the (big size and high market value portfolio) and spread was negative and it shows that in Kenya firms which are big size and high market value are likely to have negative correlation with market spread. These findings support those by other researchers. Amihud and Mendelson (1986) in USA (New York Stock Exchange from 1961 to 1980), and Jun, Marathe, and Shawky (2003) (27 emerging markets from 1992 to 1999) show that there is a positive relationship between bid-ask spread and returns. Other studies show a negative relationship between stock returns and liquidity. These include Datar, Narayan, and Radcliffe (1998) (for NYSE from 1962 to 1991) and Dey (2005) (48 stock exchanges between 1995 and 2001). Thus the findings of this research are in line with the existing literature on the possible effect of spread on assets pricing.

Discussions

Most of the research on establishing excess return in asset pricing do not use Market liquidity and its proxies such as Bid Ask spread as a risk factor. Majority of the studies such as Riro and Wambugu (2015), simply use market risk premium such as the one in CAPM, and Fama French factors to determine excess return.

In this study it is established that market liquidity as proxies by Bid Ask spread indeed has effects on the excess return. On average Bid Ask Spread has a negative and statistically insignificant effect on excess return.

5 Conclusion

These paper analyse the effect of Bid Ask spread on excess return in Kenya by augmenting the Fama French in Kenya. Kenya is an emerging country that has growing stock market but is thin with very few stock. Multi linear regression analysis reveals that Market premium and HML are important in explaining excess returns. However SMB and Bid Ask spread were found to have low explanatory power on excess return.

The finding of this study are significant to policy maker to formulate policies that reduces the spread so as to increase the propensity of trade and facilitate more efficiency in trade and encourage more investors to trade and hence increasing the excess return. The policy formulated should be able to reduce the transaction cost such as taxes, brokerage commission and stimulate competition among the dealers and specialists in the market so that the bid ask spread is reduced

References

[1] R. Adami, O. Gough, S. Mukherrjee, and S. Sivaprasad, An empirical analysis of the performance of pension funds: evidence from UK. Studies in Economics and Finance, Vol. 31 Issue: 2, (2014), pp.141-155
[2] Y. Amihud, Illiquidity and stock returns: cross-section and time series effects. Journal of Financial Markets, 5(1), (2002), 31-56.
[3] Y. Amihud, and H. Mendelson, Asset pricing and the bid-ask spread. Journal of Financial Economics, 17, (1986), 223-249.
[4] Y. Amihud, and H. Mendelson, Dealership market: Market-making with inventory. Journal of Financial Economics 8, (1980), 31–53.
[5] J. M. Bacidore, R. Battalio, R. Jennings, and S. Farkas, Changes in order characteristics, displayed liquidity and execution quality on the NYSE around the switch to decimal pricing, NYSE Working paper, (2001).
[6] P. G. Basiewic, and C. J. Auret, Feasibility of the Fama and French three factor model in explaining returns on the JSE. Journal of Investment Analysts 39(71), (2010), 13-25
[7] M. Brennan, and A. Subrahmanyam, Market microstructure and asset pricing: On the compensation for illiquidity in stock returns. Journal of Financial Economics 41, (1996), 441-464.
[8] G. M. Constantinides, Capital market equilibrium with transaction costs. Journal of Political Economy 94, (1986), 842–862.
[9] V. Datar, N. Narayan and R. Robert. Liquidity and stock returns: An alternative test. Journal of Financial Markets 1, (1998), 203–219.
[10] F. J. De Pena, C. Forner, and G. López-Espinosa, Fundamentals and the Origin of Fama-French Factors: The Case of the Spanish Market. Finance a Uver, 60(5), (2010), 426.
[11] H. Demsetz, The cost of transacting. The Quarterly Journal of Economics 82, (1968), 33–53.
[12] M. Dey, Turnover and Return in Global Stock Markets. Emerging Markets Review, 6, (2005), 45-76.

[13] V. Eleswarapu, Cost of Transacting and Expected Returns in the NASDAQ Market. Journal of Finance, vol. 52, issue 5, (1997), 2113-27
[14] J. Estrada,. The Three-Factor Model: A Practitioner's Guide. Journal of Applied Corporate Finance, 23(2), (2011), 77-84.
[15] E. Fama, and J. MacBeth,. Risk, return, and equilibrium: Empirical tests. Journal of Political Economy 71, (1973), 607-636
[16] E. Fama, and K. French, The cross-section of expected stock returns. Journal of Finance 47, (1992), 427-465.
[17] E. Fama, and K. French, Common risk factors in the returns on stocks and bonds. Journal of Financial Economics, 33, (1993), 3-56.
[18] M. Fleming, Measuring Treasury market liquidity. Working paper, Federal Reserve Bank of New York, New York, NY. (2001).
[19] S. Jun, A. Marathe, and H. A. Shawky, Liquidity and stock returns in emerging equity markets. Emerging Markets Review 4 (2003) 1–24
[20] P. W. Muriu, and N. K. Achola, Testing The Three Factor Model Of Fama And French: Evidence From An Emerging Market. European Scientific Journal Vol.12, (2016), No.16.
[21] G. K. Riro, and J. Wambugu, A Test of Asset-Pricing Models at the Nairobi Securities Exchange. Journal of Finance and Accounting, Vol.6, No.2. (2015).
[22] W. Sharpe, Capital Asset Prices: A Theory of Market Equilibrium Under Conditions of Risk. The Journal of Finance, 19(3), (1964), 425-442.
[23] H. Stoll, The pricing of security dealer services: An empirical study of NASDAQ stocks, Journal of Finance, 33, (1978), 1153–1172.
[24] A. Trimech, H. Kortas, S. Benammou, and S. Benammou, Multiscale Fama-French model: application to the French market. The Journal of Risk Finance, Vol. 10 Issue: 2, (2009), 179-192.
[25] H. R. Vakilifard, and F. Heirany, A Comparative Evaluation of the Predictability of Fama-French Three-Factor Model and Chen Model in Explaining the Stock Returns of Tehran Stock Exchange. International Journal of Academic Research in Accounting, Finance and Management Sciences, 3(3), (2013), 118-124.
[26] J. Xu, and S. Zhang., The Fama-French Three Factors in Chinese Stock Market. China accounting and finanace review vol. 16 no.2, (2014).