LIQUIDITY RISK PREFERENCE IN ASSET RETURNS

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Abstract

The study emphasizes on the liquidity risk preference in asset returns on Karachi Stock Exchange. The study uses standard deviation of trading volume (SDTV) and standard deviation of turnover (SDTN) based liquidity proxies of Chordia et al. (2001). The study incorporates monthly basis data of 535 equities from January 2007 to December 2015. Furthermore, the study constructs equally-weighted and value-weighted decile portfolios on the basis of both liquidity risk proxies. The Real-time portfolios are constructed for the first time in Pakistani context to evaluate the liquidity-based portfolio strategy. The study uses system-based estimation in GMM framework with Newey-West procedure to adjust autocorrelation and heteroscedasticity. The liquidity-based portfolio strategy does not work with Capital Asset Pricing Model, Fama-French Three Factor Model and Fama-French Five Factor Model on Karachi Stock Exchange.

Keywords: Asset Pricing, Karachi Stock Exchange, Portfolio Strategy, Standard Deviation, Trading Volume, Turnover.

JEL Classification: G120, G210

Introduction

It is an old debate that liquidity can be priced in Asset Pricing. The two mutually exclusive concepts exist in the seminal work on liquidity-return relationship, where one supports the liquidity premium and the second supports the illiquidity premium. The liquidity basically is the efficiency of a capital market in terms of buying or selling. Amihud and Mendelson (1986) provided the concept that liquidity is a spread between bid-ask prices, a miner spread represents that the market is highly liquid. In this study, the liquidity is captured through the trading volatility proxies of Chordia, Subrahmanyam and Anshuman (2001). Second moment liquidity proxies were also recommended by Jun, Marathe and Shawky (2003) as the efficient proxy for emerging markets. The Karachi Stock Exchange is a

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highly volatile market therefore, we assume that the SDTV and SDTN perform significantly on the Karachi Stock Exchange.

The study emphasizes on liquidity risk in asset returns on Karachi Stock Exchange. Conversely, how much our liquidity-based portfolios explain the risk in asset pricing models. Considered that the liquidity risk took more importance in asset pricing after recent global financial crises (Liang & Wei, 2012). Therefore, the study uses three well known asset pricing models. The portfolio strategy was tested with commonly used model CAPM as well as with Fama-French three-factor and five-factor models. We assume that this is the first study which incorporates five-factor asset pricing model to test the liquidity risk. The study uses portfolio strategy to explain the relationship of liquidity with stock returns[4]. The equally-weighted and value-weighted decile portfolios formation is adopted from the work of Kostakis, Muhammad and Siganos (2012). Furthermore, the study uses time-series regression approach and the results are generated through the system-based estimation. Finally, we studied some surprising evidences on Karachi Stock Exchange.

Origination of the Concept

The concept arisen in 80's that liquidity is a factor which may impact the stock returns. The expected returns are increasing and is a concave function of liquidity (Amihud & Mendelson, 1986). Furthermore, Amihud and Mendelson (1986) realized that the investors demand higher return on the illiquid investments and transaction cost also impacts their investment decisions. Moreover, the work done by Chen and Kan (1989) was also similar to the empirical work of Amihud and Mendelson (1986), the portfolio formation was similar but they used risk-adjusted returns. They did not study any significant relationship between spread and risk-adjusted returns.

Bid-Ask Spread and Further Considerations in the US Markets

In the previous section, two alternative findings were presented on spread-return relationship. Moreover, Eleswarapu and Reinganum (1993) partially supported the spread-return relationship and concluded that the liquidity risk is only priced in the month of January. But later after Dater, Naik and Radcliffe (1998) did not study any seasonality effect in relationship between liquidity and asset returns. According to Brennan and Subrahmanyam (1996), the required rate of return should be higher for the securities that are illiquid. They divided transaction cost into variable and fixed cost. They concluded that the variable cost is a concave function of liquidity premium[5] and fixed cost is a convex function of liquidity premium[6]. Moreover, trading patterns also impact the computations for returns

[4]The study constructs decile portfolios on the basis of SDTV and SDTN on KSE-All index stocks. Previous studies did not follow this approach in Pakistani context.

[5]The variable cost increases the liquidity premium at low level but gradually increase in variable cost will decrease the liquidity premium.

[6]The fixed cost decreases the liquidity premium at low level but gradually increase in fixed cost will increase the liquidity premium.

because on weekends the investors' behavior may be changed which may affect the bid-ask prices (Keim, 1989).

A more comprehensive measure of liquidity can be used instead of spread (Amihud & Mendelson, 1986). Furthermore, Hu (1997) also stated that the quoted bid-ask spread does not completely measure the transaction cost. As an alternative approach Dater et al. (1998) studied the liquidity risk in asset returns by using turnover ratio. After the introduction of new method to capture liquidity, a new test was used by Amihud (2002) to study the impact of illiquidity (ratio of a stock absolute daily return to its daily dollar volume) on excess stock returns. The Amihud (2002) measure of illiquidity was positively related to excess returns. Moreover, he stated that the measure of liquidity (trading volume) is easy to arrange. Avramov, Chordia and Goyal (2006) stated that the liquidity plays an important role in assets pricing and also in understanding of returns pattern. The low turnover stocks have more reversals because the investors are uninformed therefore, they usually rely on volume or turnover of the stock.

Evidence from Asian and Australian Markets

In the last century in Japan, Hu (1997) used turnover ratio to capture the liquidity and the results of the study were consistent with the results of Amihud and Mendelson (1986). He studied the significant impact of turnover on asset returns. Another work done by Chang, Faff and Hwang (2010) on Tokyo Stock Exchange in recent years in which liquidity positively impacted the stock returns and illiquidity negatively impacted the stock returns. Marshall and Young (2003) focused on Australian Stock Exchange in which their findings were consistent with the previous studies and they also interpreted the consistency in beta coefficients. Chan and Faff (2005) studied the favorable evidences of liquidity in Fama-French three-factor model on Australian Stock Exchange and initiated the concept that the liquidity risk can be included as a fourth factor. Lam and Tam (2011) augmented the Fama-French three-factor model and Carhart four-factor model by including liquidity as a risk factor on Hong Kong Stock Exchange. Furthermore, they recommended the four-factor model[7] is best for prediction of portfolio excess returns on Hong Kong Stock Exchange.

Emerging Markets Versus Developed Markets

In the context of emerging and developed equity markets, Rouwenhorst (1999) studied the qualitatively similar return factors in emerging markets. The performance of small stocks is comparatively better than the large stocks, the performance of value stocks is comparatively better than the growth stocks and finally the momentums also impact the returns in emerging markets[8]. In the

[7] The four-factor model is a liquidity augmented form of a Fama-French three-factor model.

[8] Rouwenhorst (1999) incorporate 20 emerging markets. He did not study any significant relationship between turnover and stock returns.

literature, the large findings were discovered by Jun et al. (2003) on 27 emerging equity markets of the world (including Karachi Stock Exchange). They studied significant liquidity-return relationship in Karachi Stock Exchange. Another work on 18 emerging markets including Karachi Stock Exchange was done by Bekaert, Harvey and Lundblad (2007) in which they studied insignificant autocorrelation in returns as well as in liquidity. The recent study of Liang and Wei (2012), in which they incorporated 21 developed equity markets and they studied significance of the liquidity risk in 11 markets. Moreover, they provided the following statement; "*We also find that the pricing premium for local liquidity risk is lower in markets where corporate boards at the country level are more effective and where there are less insider trading activities.*" (Liang & Wei, 2012, p. 3287).

Research Methodology

The study focuses on the relationship between liquidity risk and equity returns in the Karachi Stock Exchange. The unit of analysis is common equity of listed, delisted, suspended, acquired and merged companies traded on KSE-All index. We incorporate data in this study from different data sources (e.g. Thomson Reuters, Bloomberg and SBP). Our final sample size after all data cleaning and sorting is 535 securities[9]. The study incorporates data on monthly basis for the period of nine years from January 2007 to December 2015. The study constructs the different portfolios on the basis of SDTV and SDTN, those will be discussed in detail in later sections. The study incorporated three different asset pricing models to test the significance of liquidity-based portfolio strategies on Karachi Stock Exchange. The methodology of pricing liquidity with asset pricing models was also used by Liu (2006); Lam and Tam (2011) but in this study, we also used five-factor model of Fama and French (2015) which was not used in earlier studies.

Empirical Models and Description

Liquidity Risk

The study uses two proxies to capture the liquidity risk on Karachi Stock Exchange, where one is a SDTV and the another is a SDTN[10]. These methods were initially used by Chordia et al. (2001). They studied the negative significant relationship of these proxies with stock returns on NYSE and AMEX. These proxies were also used by Lam and Tam (2011) to capture liquidity risk on Hong Kong Stock Exchange. The emerging markets are more volatile than developed markets moreover, the highly liquid markets can handle more volume with small fluctuation in prices (Jun et al., 2003; Lesmond, 2005). Therefore, we use these proxies to capture liquidity risk. Finally, we constructed equally-weighted and value-weighted portfolios on the basis of both proxies.

[9] The study utilizes the comprehensive number of companies in Pakistani context.

[10] Turnover is a product of trading volume and number of shares outstanding.

Excess Return on Portfolios

As a dependent variable, the study uses excess return on portfolios. The study uses discrete returns because portfolio returns are calculated on the basis of weighted average of individual returns. In discrete returns, weights can be assigned against each set of the assets but this benefit cannot be availed in continues returns (Campbell, Lo, & MacKinlay, 1997). The study uses six months T-bill rate as a proxy for risk-free rate of return $(R^f_{i,t})$, it was subtracted from the discrete monthly returns $(R_{i,t} - R^f_{i,t})$ to calculate the excess monthly returns and the study constructs the decile portfolios.

Capital Asset Pricing Model with Liquidity

The capital asset pricing model (CAPM) of Sharpe (1964), Lintner (1965) and Mossin (1966) was used in first step of empirical analysis. The study includes excess portfolio returns on the left side of the equation instead of individual asset returns. The regression form of CAPM is as under:

$$(R_t - R_t^f)^p = \alpha_t^{capm} + \beta_t (R_m - R_t^f) + \mu_t \quad \text{.....(1)}$$

Where $(R_t - R_t^f)^p$ is excess return on portfolios, $(R_m - R_t^f)$ is excess return on market, β_t is partial regression coefficient of market risk, α_t^{capm} is Jensen alpha (intercept) and is stochastic disturbance term.

Fama-French Three Factor Model with Liquidity

There are several models arisen by relaxing some assumptions of basic CAPM (Jensen, Black & Scholes, 1972). In the second step of empirical analysis, the study uses three-factor asset pricing model of Fama and French (1993).

$$(R_t - R_t^f)^p = \alpha_t^{3factor} + \beta_t (R_m - R_t^f) + \gamma_t SMB_t + \delta_t HML_t + \mu_t \quad \text{.....(2)}$$

Where, SMB_t is a size risk factor, HML_t is a book-to-market equity risk factor, γ_t and δ_t, in equation (2) , are partial regression coefficients capturing the risk sensitivity of size and book-to-market equity factors.

Fama-French Five Factor Model with Liquidity

The equation was further augmented by Fama and French (2015) by including profitability and investment factors. In the third step of empirical analysis, the study uses following regression model:

$$(R_t - R_t^f)^p = \alpha_t^{5factor} + \beta_t (R_m - R_t^f) + \gamma_t SMB_t + \delta_t HML_t + \theta_t RMW_t + \lambda_t CMA_t + \mu_t \quad \text{.....(3)}$$

Where, θ_t and λ_t are partial regression coefficients capturing the risk sensitivity of profitability and investment factors.

Estimation Methodology

In this section, we discuss the method of transformation and estimation of the parameters. We use system-based estimation in GMM framework with Newey and West's (1987) procedure to adjust the problem of autocorrelation and heteroscedasticity. We use time series procedure in regression analysis and we adopt this strategy from Black et al. (1976) and Kostakis et al. (2012). The study uses GMM because of its accuracy in estimation of financial returns. Usually, the stock returns are not normally distributed (Kostakis et al., 2012). Therefore, we prefer GMM to transform the system. The study constructs the decile portfolios and regresses the following equation:

$$R_{(p,t)}=\alpha_p+\beta_p F_t+\varepsilon_{(i,t)} \qquad p=1,...,N,\ t=1,...,T \quad \text{.....(4)}$$

Where, R is a return on portfolio p in time t, N is the number of portfolios, T is the length of time series, F_t is a time-series factor, α_p is intercept and β_p is risk coefficient of a factor. The equation can also be written in the following vector transformation:

$$R_t=\alpha+\beta f_t+\varepsilon_t \qquad E(\varepsilon_t)=0 \text{ and } cov(f_t,\varepsilon_t) \qquad t=1,...,T \quad \text{.....(5)}$$

Where, $R_t=\begin{bmatrix} R_{1,t} \\ \vdots \\ R_{10,t} \end{bmatrix}$ is 10x1 dimension matrix of excess return decile portfolios, $\alpha=\begin{bmatrix} \alpha_1 \\ \vdots \\ \alpha_{10} \end{bmatrix}$ is 10x1 dimension intercepts of the model, $\beta=\begin{bmatrix} \beta_{1,1} & \cdots & \beta_{1,k} \\ \vdots & \ddots & \vdots \\ \beta_{10,1} & \cdots & \beta_{10,k} \end{bmatrix}$ is 10xk dimension matrix of regression coefficient of risk factors, $f_t=\begin{bmatrix} f_{1,t} \\ \vdots \\ f_{k,t} \end{bmatrix}$ is kx1 dimension matrix of risk factors and $\varepsilon_t=\begin{bmatrix} \varepsilon_{1,t} \\ \vdots \\ \varepsilon_{10,t} \end{bmatrix}$ is 10x1 dimension matrix of stochastic disturbance terms. So, the equation *(5)* can be written as:

$$\begin{bmatrix} R_{1,t} \\ \vdots \\ R_{10,t} \end{bmatrix}=\begin{bmatrix} \alpha_1 \\ \vdots \\ \alpha_{10} \end{bmatrix}+\begin{bmatrix} \beta_{1,1} & \cdots & \beta_{1,k} \\ \vdots & \ddots & \vdots \\ \beta_{10,1} & \cdots & \beta_{10,k} \end{bmatrix}\begin{bmatrix} f_{1,t} \\ \vdots \\ f_{k,t} \end{bmatrix}+\begin{bmatrix} \varepsilon_{1,t} \\ \vdots \\ \varepsilon_{10,t} \end{bmatrix} \quad \text{.....(6)}$$

Where, $E(\varepsilon_t)=0 \text{ and } cov(f_t,\varepsilon_t)$ .....(7)

Let ϕ denote set of the unknown parameters $[\alpha,\beta]$. The GMM estimator of ϕ minimizes the following quadratic form:

$$g(\phi)^T \boldsymbol{W} g(\phi), \text{ where } g(\phi) = \frac{1}{T}\sum_{t=1}^{T} Z_t(\phi) \quad \text{...(8)}$$

Where, $\boldsymbol{W}$ is a consistent estimator of weighting matrix. The GMM moment's conditions are defined at the true values of α and β as:

$$Z_t(\phi) = \begin{bmatrix} (\boldsymbol{R}_t - \alpha - \beta f_t) \\ (\boldsymbol{R}_t - \alpha - \beta f_t) \otimes [f_t] \end{bmatrix} \quad \text{...(9)}$$

Furthermore, the study uses Wald-Test of equivalency of the parameters to inference the equality of intercepts.

Empirical Results

Preliminary Findings

In this section, we present the preliminary descriptive statistics of our decile portfolios. The study constructed equally-weighted and value-weighted portfolios on the basis of both liquidity risk proxies. Our decile portfolios are from P1 to P10. Where, P1 portfolio includes stocks with lowest SDTV and P10 portfolio includes the stocks with highest SDTV. Portfolio with low SDTV is also associated with low portfolio returns and portfolio with high SDTV is also associated with high portfolio returns (see table 1). Therefore, the study uses the spread of P10-P1 and the significance of spread was tested by the equation *(9)* :

$$t - statistic = \frac{\frac{1}{n}\sum_{t=1}^{n}(Spread\ P10 - P1)}{\frac{S.D.(Spread\ P10 - P1)}{\sqrt{n}}} \quad \text{...(10)}$$

The study also presents the preliminary findings of market value and CAPM beta of all decile portfolios. The study uses the following equation for computing CAPM beta:

$$CAPM\ beta = \frac{cov(P_n, R_m)}{var(P_n)} \quad \text{...(11)}$$

Table 1
Performance of Decile Portfolios (On the basis of SDTV)

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P10-P1	t-test
	Sample: January 2007 to December 2015											
Avg. SDTV	226	1258	3407	7554	16337	37012	86713	255254	993504	4399068	4398842	13.901
EW Returns % p.a.	0.36	31.02	25.91	34.35	13.03	15.71	21.01	58.2	9.73	9.57	9.21	0.7483
VW Returns % p.a.	3.29	19.45	14.41	25.85	15.62	13.27	23.1	23.28	24.41	22.96	19.67	1.2895
MV (*million*)	5355.26	2873.66	2733.86	2989.14	3904.89	5184.73	7110.11	11857.59	23963.88	46176.59	40821.33	13.354
CAPM *Beta*	0.59	0.78	0.66	0.73	0.81	0.91	0.82	0.89	1.15	0.97	0.38	16.28

Table 2
Performance of Decile Portfolios (On the basis of SDTN)

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P10-P1	t-test
	Sample: January 2007 to December 2015											
Avg. SDTN	0.02	0.07	0.14	0.26	0.46	0.78	1.41	2.73	6.3	20.12	20.11	14.4409
EW Returns % p.a.	5.17	18.91	27.44	18.42	17.2	23.57	24.78	19.18	50.89	10.54	5.37	0.4716
VW Returns % p.a.	7.27	10.77	20.16	15.88	11.92	23.8	28.84	31.58	17.28	12.56	5.29	0.4127
MV (*million*)	8493.67	5810.89	7052.71	6782.89	8152.78	11126.67	14461.82	15915.8	18198.19	14330.05	5836.38	2.9487
CAPM *Beta*	0.76	0.72	0.86	0.84	0.82	0.89	0.79	0.98	0.99	0.97	0.22	28.52

Where, is excess return on value-weighted decile portfolio and is excess return on market. According to the preliminary evidences, the market risk is highly associated with both liquidity risk proxies (see table 1 & table 2).

The preliminary findings of our second liquidity proxy, SDTN, are also similar with first proxy (see table 2). The study uses P10-P1 spread because the portfolio P1 produces low excess returns than portfolio P10. Furthermore, our equally-weighted and value-weighted annualized returns are insignificant. So, it can be concluded with respect to preliminary findings that SDTV and SDTN does not explain the risk sensitivity in our decile portfolios.

Risk-Adjusted Performance

We discuss the risk adjusted performance of our decile portfolios with the help of alphas (intercepts) of all regression equations on the basis of equally-weighted and value-weighted portfolios

in this section. After the over-all results and findings, the summarized discussion of the results of all regression models is in the favor of rejection of portfolio strategies formulated on the basis of SDTV and SDTN. We studied some significant results but our data, in majority cases, rejects the significance of these portfolio strategies in CAPM, Fama-French three-factor and five-factor models (see tables 3 & table 4).

We studied weak evidence of performance of SDTV based equally-weighted portfolio strategy in CAPM (see table 3). But there was no significant evidence studied in Fama-French three-factor and five-factor model. The value-weighted portfolios constructed on the basis of SDTV did not explain the significance in any of the asset pricing model. The same scenario would be continued with our second liquidity proxy. The results were insignificant in CAPM, Fama-French three-factor and five-factor models. We made equally-weighted and value-weighted portfolios but the strategies were inconsistent with both portfolio formations.

Table 3
Alphas of Decile Portfolios (On the basis of SDTV)

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P1-P10	Chi-sq.
	Sample period from January 2007 to December 2015											
	Alphas of equally-weighted portfolios											
CAPM Alpha	-0.00509	0.01954	0.01502	0.02134	0.00352	0.00528	0.00957	0.03658	-0.00072	-0.0015	-0.00359	18.84
	(-0.71)	(2.65)***	(2.69)***	(3.46)***	(0.57)	(0.86)	(1.51)	(1.13)	(-0.13)	(-0.27)	(-0.35)	(0.03)**
FF 3 Factor Alpha	0.00415	0.03426	0.02254	0.03466	0.01895	0.01269	0.01948	0.06092	0.00028	-0.0018	0.00594	14.26
	(0.31)	(2.82)***	(2.72)***	(3.77)***	(1.96)**	(1.38)	(1.97)**	(1.24)	(0.03)	(-0.16)	(0.28)	(0.11)
FF 5 Factor Alpha	0.00181	0.03337	0.02118	0.03545	0.01714	0.01282	0.01893	0.07221	0.00177	0.00104	0.00076	12.54
	(0.13)	(2.62)***	(2.4)**	(3.59)***	(1.68)*	(1.31)	(1.83)*	(1.36)	(0.18)	(0.1)	(0.03)	(0.18)
	Alphas of value-weighted portfolios											
CAPM Alpha	-0.00282	0.0088	0.00578	0.01463	0.00538	0.00249	0.01145	0.01099	0.00941	0.00999	-0.01281	4.88
	(-0.31)	(1.14)	(0.96)	(2.55)**	(0.94)	(0.44)	(1.84)*	(2.1)**	(1.38)	(1.97)*	(-1.00)	(0.84)
FF 3 Factor Alpha	0.00296	0.0179	0.00341	0.02289	0.00691	0.008	0.01007	0.0121	0.00939	0.00135	0.00161	2.25
	(0.18)	(1.34)	(0.36)	(2.39)	(0.74)	(0.88)	(1.00)	(1.38)	(0.89)	(0.15)	(0.07)	(0.99)
FF 5 Factor Alpha	-0.00105	0.01284	0.00388	0.02249	0.00672	0.0089	0.00875	0.0156	0.01259	0.00588	-0.00693	2.66
	(-0.06)	(0.95)	(0.39)	(2.21)**	(0.68)	(0.91)	(0.81)	(1.69)*	(1.06)	(0.65)	(-0.28)	(0.98)

* Significant at the level of 10%
** Significant at the level of 5%
*** Significant at the level of 1%

Table 4
Alphas of Decile Portfolios (On the basis of SDTN)

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P1-P10	Chi-sq.
	Sample: January 2007 to December 2015											
	Alphas of equally-weighted portfolios											
CAPM Alpha	-0.00193	0.00913	0.01448	0.00901	0.00658	0.01215	0.01246	0.00827	0.03045	0.00102	-0.00296	5.4
	(-0.28)	(1.61)	(2.04)**	(1.70)*	(1.18)	(1.89)*	(1.86)*	(1.21)	(0.92)	(0.14)	(-0.30)	(0.79)
FF 3 Factor Alpha	0.00806	0.01637	0.03108	0.01609	0.01862	0.02119	0.02941	0.01011	0.05635	0.0028	0.00526	5.62
	(0.63)	(1.66)*	(2.64)***	(2.01)**	(2.25)**	(2.18)**	(3.12)***	(0.78)	(1.12)	(0.20)	(0.23)	(0.78)
FF 5 Factor Alpha	0.00545	0.01545	0.03012	0.01706	0.01797	0.02238	0.02806	0.01077	0.06955	0.00373	0.00172	5.42
	(0.41)	(1.48)	(2.42)**	(1.96)*	(2.03)**	(2.13)**	(2.84)***	(0.83)	(1.28)	(0.27)	(0.08)	(0.79)
	Alphas of value-weighted portfolios											
CAPM Alpha	-0.00112	0.00212	0.00862	0.00533	0.0022	0.0114	0.01654	0.017	0.00504	0.00123	-0.00235	8.34
	(-0.16)	(0.4)	(1.61)	(1.14)	(0.48)	(1.78)*	(2.36)**	(2.32)**	(0.86)	(0.2)	(-0.21)	(0.5)
FF 3 Factor Alpha	0.00409	0.00724	0.01076	0.00923	0.00608	0.0104	0.01244	0.00877	0.00305	-0.00926	0.01335	2.25
	(0.31)	(0.82)	(1.16)	(1.2)	(0.8)	(0.99)	(0.99)	(0.67)	(0.27)	(-0.7)	(0.56)	(0.99)
FF 5 Factor Alpha	0.00176	0.00789	0.01113	0.01075	0.0067	0.01061	0.01508	0.01682	0.00873	-0.0077	0.00946	2.66
	(0.13)	(0.84)	(1.13)	(1.3)	(0.84)	(0.9)	(1.13)	(1.33)	(0.76)	(-0.58)	(0.4)	(0.98)

* Significant at the level of 10%
** Significant at the level of 5%
*** Significant at the level of 1%

Most of the investment strategies that yield abnormal return in the short run and against the EMH in the asset pricing literature. The proponent EMH says these strategies are short lived and as the new set of information strikes the market for a financial asset, it immediately reflects in the asset prices. So, there is no characteristic, stale information and variable that yield on average above market returns (Fama & French, 1993).

Conclusion

Liquidity of Stocks must be the main consideration for investors and fund managers unless the investment is for strategic reasons. The investors and strategist are always anxious about the investment strategies. Specially in the construction of portfolios and choosing among the alternative portfolio strategies. There are many factors priced in asset pricing on equity markets and they all have their independent importance. This work is done in same contrast by using liquidity factor and its importance in portfolio selection on Karachi Stock Exchange. The liquidity is priced on the equity exchanges and the liquidity also plays an important role while making portfolio strategies (Amihud & Mandelson, 1986). In this work, we priced liquidity risk with three asset pricing models. The study incorporates two proxies to capture liquidity. Conversely, the study uses two methods of construction

of decile portfolios. The study constructs 40 portfolios by capturing the patterns from KSE-All index for nine years from January 2007 to December 2015. The study uses time-series analysis in GMM moment-based framework.

Both liquidity-based portfolio strategies failed to explain the excess returns on Karachi Stock Exchange. So, it can be concluded from the results that the SDTV and SDTN based proxies cannot capture risk sensitivity on Karachi Stock Exchange. These proxies performed on NYSE and AMEX, the evidence from the work of Chordia et al. (2001). But NYSE and AMEX are the developed stock markets therefore, we cannot generalize their findings in the emerging market like Karachi Stock Exchange. The liquidity risk also depends on whether the country is integrated or segmented as well as pricing the liquidity also depends on local factors (Bekaert et al., 2007). The study helps the strategist and equity analyst in their investment decisions because our study explains the precaution of these two liquidity proxies in portfolio strategy formulation on Karachi Stock Exchange. The insignificant results of our liquidity proxies clearly conclude that the standard deviation-based proxies of liquidity are not suitable in Pakistani context.

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