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THE RELATIONSHIP BETWEEN STOCK MARKET LIQUIDITY AND EQUITY INVESTMENT RETURNS: EVIDENCE FROM UZBEKISTAN

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Abstract. This is a quantitative longitudinal study of the relationship between market liquidity and subsequent equity returns on the Republican Stock Exchange in Uzbekistan. It uses monthly aggregated secondary data from the daily trading records. Returns are measured as adjusted price changes and liquidity is captured by the Amihud illiquidity ratio, turnover and the % of zero trading days. A panel regression is used (with company and month fixed effects and controls for company size, market beta and return volatility) to assess whether illiquidity is associated with a positive or negative return premium as a result of trading frictions and poor price discovery. It is a methodological paper in that it lays out the research protocol and data validation framework prior to the actual extraction of the full dataset. It provides a fully transparent empirical basis for research in this frontier equity market.

Keywords: stock market liquidity; illiquidity; equity returns; Amihud measure; emerging markets; Uzbekistan; panel data.

Introduction.

Liquidity is absolutely fundamental to investment management as it's the key determinant of your ability to get in and out of a position without having a massive impact on the price of the security. A share may be perfectly attractive on the basis of its historical performance but if it's very illiquid you may find it's impossible to sell. The cost of illiquidity is particularly relevant in markets where trading is concentrated in a

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very small number of securities, where the frequency of trading varies enormously from one issuer to another and where price observations can be many months apart.

In asset pricing theory, investors may require a return to compensate them for the cost of holding securities that are hard to trade. Amihud and Mendelson (1986) make the case that expected returns can be a reflection of the cost of illiquidity. Amihud (2002) goes on to develop a very widely used measure of price impact based on the ratio of absolute return to trading value. Pástor and Stambaugh (2003) go on to distinguish a security's own liquidity from its exposure to liquidity risk in the aggregate market. These are related concepts but not the same. A stock can be illiquid and yet have very low exposure to aggregate liquidity risk.

The point is important for an empirical study of Uzbekistan. A simple comparison of average returns and trading volumes would not tell you whether investors are being compensated for the liquidity risk they are taking on. Trading volume alone is not a good measure. A security with very high volume can still have very volatile prices for a given amount of trading and a security with very low volume can have very stable prices. That's why this study uses a number of different indicators, with the Amihud illiquidity ratio as the primary one and turnover and zero trading frequency as the other two.

The study is asking whether stock illiquidity is associated with subsequent equity investment returns on the Uzbekistan listed share market. It has three related objectives: it looks at the cross-company and time variation in liquidity; it tests whether lagged illiquidity is associated with subsequent monthly returns (after controlling for company characteristics and common time effects); and it looks at the robustness of the results to alternative liquidity measures and sample specifications.

The study makes three contributions. It applies standard liquidity measures to a market that has been relatively unexplored in the literature; it uses actual exchange trading data rather than survey data or self-reported investor data; and it makes the critical distinction between the empirical relationship between illiquidity and returns and the more robust claim that illiquidity in fact causes a risk premium. That last distinction

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is of the essence as a number of other factors (market-wide shocks, firm-specific news, trading halts, changes in the investor mix etc.) can affect both liquidity and returns.

The rest of the article is as follows. Section 2: review of the relevant theoretical and empirical literature and development of the hypotheses. Section 3: the sample, data sources, variable construction and the econometric approach. Section 4: the empirical results (following data validation and estimation). Section 5: discussion of the interpretation and limitations of the proposed tests. Section 6: conclusions.

Literature review.

Market liquidity is multi-dimensional. It can be thought of as the ability to trade quickly in large volumes at low transaction cost with minimal price impact. Bid-ask spreads are one measure of transaction cost, turnover is a measure of trading activity relative to the amount of securities available and price-impact measures are designed to capture the extent to which prices are impacted by trading. No single measure will capture all the dimensions of liquidity so much of the empirical work will use more than one proxy.

Amihud and Mendelson (1986) have an asset pricing argument where investors require a higher expected return to hold an asset that has higher transaction costs. Amihud (2002) operationalises illiquidity as the average of the absolute daily stock return divided by daily trading value. It's a very useful measure for markets where you don't have access to the detailed order book or transaction level data, as it can be calculated from daily prices and trading values. The higher the value, the more illiquid the asset is (the greater the price impact of a given amount of trading).

The sign of the relationship between illiquidity and returns that we'd expect is far from clear in the realised data. The sign we'd expect if investors were demanding a premium for holding illiquid shares would be that lagged illiquidity is positively associated with future returns. On the other hand illiquidity could be a reflection of low investor attention, weak information generation, poor price discovery or indeed distress. In that case we'd expect illiquid securities to have lower realised returns. The empirical question should therefore be left entirely open rather than assuming a positive premium.

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Pástor and Stambaugh (2003) show that the sensitivity of a security's return to aggregate liquidity innovations can have an effect on expected returns. This is a systematic dimension which is distinct from the security's average level of illiquidity. The main specification in the current study is the firm level illiquidity as this can be measured from exchange trading data. A separate systematic liquidity risk model would require a very long and reliable market wide liquidity series and is not the primary approach.

This really does narrow the claims that can be made. A positive coefficient on the Amihud would be compatible with an illiquidity premium but would not in itself be evidence that investors are being compensated for systematic liquidity risk. Evidence of a priced systematic factor would require a very different asset pricing setup and a very different set of assumptions.

Liquidity is of particular importance in emerging and frontier markets as trading can be very concentrated in a small number of securities and market participation may be very uneven. Bekaert, Harvey and Lundblad (2007) look at the relationship between liquidity and expected returns across the emerging markets and show the importance of liquidity in markets of differing degrees of integration. Their work lends support to the use of market specific evidence rather than simply assuming that the results from large developed exchanges would be valid in smaller markets.

For Uzbekistan, the exchange publishes trade-level or daily trading-result information that includes security identifiers, trade prices, quantities and trading values. This makes a quantitative study feasible in principle. Nevertheless, data availability must be evaluated security by security. A listed company may have a long listing history but sparse trades, missing dates, corporate actions or changes in security identifiers. The research design therefore treats data validation as a substantive stage rather than a routine clerical exercise.

H1: Higher firm level illiquidity in month t is positively associated with the subsequent monthly return in month t+1 (after controlling for firm and time effects).

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H2: There is a stronger association between illiquidity and subsequent returns for smaller listed companies.

H3: The principal findings are broadly consistent in terms of direction when illiquidity is measured using alternative proxies (turnover and number of zero trading days).

H1 is non-directional in terms of its economic interpretation even though the formal sign is expected to be positive. A statistically insignificant or even negative estimate would not in any way undermine the study, it would simply indicate that the premium which was hypothesised is not supported by the sample.

Methodology.

The study is a quantitative, observational and longitudinal one with the company-month as the unit of analysis. The intended sample is around 20-30 ordinary share issuers listed on the Republican Stock Exchange Toshkent (RSE Toshkent), again subject to the availability and quality of the historical trading data. The initial observation period is from January 2021 to December 2025. A longer period will be used only if we can download and validate historical observations for a sufficient proportion of the sample.

The research is purely based on official secondary data. No questionnaires, no interviews, no investor surveys, no qualitative interviews of any kind have been used. The analysis is based on the transaction data and where appropriate official company disclosures to confirm corporate actions, share counts and issuer characteristics.

The sample population consists of ordinary shares admitted to trading on the Republican Stock Exchange Toshkent over the relevant period. A purposive, data availability based sample will be constructed using clear eligibility criteria. An issuer will be included if: (i) its ordinary shares can be unambiguously identified by its security code or ticker; (ii) there is sufficient daily price and trading value data available for a significant portion of the observation window; (iii) there are sufficient corporate actions to allow for the construction of comparable returns; and (iv) it is not a duplicate listing of the same underlying economic security.

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Preference will be given to non-financial companies to improve comparability. Banks and insurers will be excluded as their balance sheets, regulatory capital and business models are very different from those of the industrial and service companies. Selection will not be on the basis of returns, profitability or apparent liquidity. A sample selection table will set out the final sample size, inclusion dates and reasons for exclusion. If fewer than 20 firms are eligible then the study will use the actual eligible sample and make it clear that this is a limitation.

The source is the official trading results interface of the Republican Stock Exchange Toshkent (UZSE). The trading results published by the UZSE contain the following fields: trading date, security code, issuer, security type, trade price, quantity and trading value. The official Invest Uzbekistan securities page also has historical share price information (closing price, price change, trading volume and trading value). That's the basis for the daily security level dataset.

Issuer disclosures and the official company investor relations website will be used solely to verify share splits, additional issues, changes in nominal value, mergers, delistings and other corporate actions which can distort the raw price returns. The exchange or issuer announcement will be kept as documentary evidence for each adjustment. Where a reliable adjustment cannot be established the relevant observation will be flagged and excluded from the return calculation.

The collection process will be a 6 stage affair. Stage 1: create a candidate list of listed ordinary shares and record the security code, issuer, sector and listing status for each. Stage 2: pull the daily trading data for each of the candidates. Stage 3: check that the data has both a price and a trading value and that duplicates can be properly aggregated. Stage 4: identify the non-trading days and distinguish these from missing data. Stage 5: check for corporate actions and where possible adjust the prices in line with the official data. Stage 6: aggregate the validated daily records into company month observations. A data log will be maintained which will contain the source URL, download date, file name, coverage period, variable definitions and any corrections.

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The main analysis will be based on months with sufficient trading observations to allow the relevant liquidity measure to be calculated. The minimum monthly observation threshold will be defined prior to the estimation and will be reported. A sensitivity analysis will be conducted using a more stringent threshold. Missing trading observations will not be treated as zero returns unless the exchange confirms that the security was eligible for trading and no trade took place. This is a critical distinction in a market where trading may be sporadic.

Monthly stock return (RET) is calculated from adjusted month end prices: RET(i,t) = [P(i,t) − P(i,t−1)] / P(i,t−1). Where both reliable cash dividend and corporate action data is available total returns will be calculated, otherwise the variable will be correctly described as a price return rather than a total return. Prices will be adjusted for splits etc only where the official adjustment factor is known.

The principal liquidity measure is the Amihud illiquidity ratio. For each security and each month ILLIQ(i,t) is the average of |r(i,d)| / VALUE(i,d) over all valid trading days d, where r(i,d) is the daily return and VALUE(i,d) is the value traded on that day. A higher value indicates a greater price impact per unit of value traded. Given that the value traded will vary enormously from security to security the ratio will be scaled appropriately and transformed as its distribution is very skewed. The precise scaling factor will be given in the data appendix.

Turnover is the monthly traded value divided by market cap (market capitalisation being the value at the month end). The zero trading ratio is the number of eligible trading days on which there was no trade divided by the number of exchange trading days in the month. The zero trading measure is used as an alternative liquidity proxy rather than as a substitute for missing observations.

Company size (SIZE) is the natural log of the month end market cap. Market beta (BETA) is the beta calculated from historical returns against an appropriate broad market index (where such an index is available and a reliable series can be obtained). The beta is only calculated where there are sufficient non-zero return observations. Return volatility (VOL) is the standard deviation of the daily returns for the month. It is

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annualised only where the convention is to do so. Any variable which cannot be reliably constructed will be dropped rather than estimated using some other measure.

The main model relates liquidity in month t to the subsequent monthly return in month t+1:

$$RET(i,t+1) = \beta_1 ILLIQ(i,t) + \beta_2 TURNOVER(i,t) + \beta_3 SIZE(i,t) + \beta_4 BETA(i,t) + \beta_5 VOL(i,t) + \mu(i) + \lambda(t) + \varepsilon(i,t)$$

Here $\mu(i)$ is the firm fixed effect, $\lambda(t)$ is the month fixed effect and $\varepsilon(i,t)$ is the error term. The coefficient of interest is β_1. A positive β_1 is consistent with the hypothesis that illiquidity is followed by higher returns. A negative β_1 would be consistent with the proposition that illiquidity is associated with lower subsequent returns. As always, the interpretation of β_1 is as a conditional association rather than a causal effect.

Company fixed effects pick up on time-invariant differences between firms, month fixed effects pick up on shocks that affect all securities in a given month. Standard errors will be clustered by company to account for within-company correlation over time. With the intended number of company clusters being small, standard cluster-robust inference may be unreliable. The analysis will therefore report the number of clusters and where possible with the software and sample structure, will also report results from a wild cluster bootstrap or some other small cluster correction as a sensitivity check.

The H2 interaction model is ILLIQ(i,t) × SMALL(i) with SMALL being firms below the median market cap in the sample. The interaction coefficient is used to test for a difference in the liquidity return relationship by size. The analysis would be treated as exploratory if there are too few firms in either group.

Prior to estimation we'll run a range of diagnostics: descriptive stats, missingness, distributions and correlations. We'll look at the VIFs for multicollinearity. Heteroskedasticity and serial correlation will be checked via the appropriate panel diagnostics. We'll also look at the presence of cross-sectional dependence (i.e. market wide news could be affecting a number of securities at the same time). The fixed effects specification will be reported as an alternative, though the fixed effects model is the one

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we prefer if there is any chance that unobserved company specific characteristics are correlated with the explanatory variables.

Robustness checks will be carried out in the following ways: (i) Amihud illiquidity will be substituted with turnover and the zero trading ratio; (ii) alternative minimum monthly trading day thresholds will be used; (iii) extreme values of the continuous variables will be winsorised at pre-specified tails and the results will be compared to those from the unwinsorised estimates; (iv) firms which were subject to a major corporate action or a long trading suspension will be excluded; and (v) the model will be estimated using quarterly rather than monthly data where the monthly data are too sparse. The study will report the direction, size and confidence intervals of the coefficients rather than just the statistical significance.

The primary constraint is of course the potential for sparse trading. Sparse trading will lead to very stale daily returns and will bias both the volatility and price impact measures. The Amihud ratio is also extremely sensitive to very small trading values and will require special treatment of the days with no trade. The sample of listed Uzbek companies is also likely to be quite small and may not be representative of the broader population of private firms or of all investor portfolios. All of this means that generalisation beyond the sample of securities and the sample period is very limited.

The study makes use of publicly available corporate and market data and involves no human participants or personal data. The data will be stored with the source references and an audit trail. Any restrictions on the redistribution of exchange data will be respected. All calculations and exclusions will be fully documented in order to allow for full reproducibility.

Results.

The empirical results section must be completed only after the official trading records have been collected, checked, and analyzed. This manuscript includes no numerical findings because doing so without the underlying security-level dataset would produce unsupported results. The following reporting sequence is recommended.

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Report the number of candidate issuers screened, the number excluded and the number ultimately retained. Report a table of the company identifiers, sectors, first and last available trading dates, number of valid company month observations and the % of missing observations. Explain any exclusions due to delisting, suspension, corporate restructure or insufficient trading data.

Present the mean, median, std dev, min and max for monthly returns, Amihud illiquidity, turnover, zero trading ratio, size, beta and volatility. Where possible, show the distribution of the liquidity measures across sectors and company size groups. Report the proportion of company months with no trading and distinguish those from the missing.

Provide a correlation matrix and then the fixed effects regression results. The primary table should contain the coefficient estimates, standard errors, confidence intervals, N, number of companies, time effects, company effects and model fit statistics. State whether the estimated coefficient on the lagged Amihud illiquidity is positive, negative or statistically indistinguishable from zero. Don't describe a statistically insignificant coefficient as evidence of no relationship.

Report whether the sign and magnitude of the main coefficient are broadly unchanged when alternative liquidity proxies are used, when different observation thresholds are employed and when various outlier treatments are applied. Any specification which would have a material effect on the result must be considered rather than just ignored. If in fact the main result is sensitive to a small number of illiquid securities then that should be recognised as a very important finding.

Discussion.

The discussion should of course interpret the estimated relationship in the light of the other explanations that have been put forward in the literature. A positive relationship between lagged illiquidity and the subsequent returns would be entirely consistent with the existence of an illiquidity premium (though of course that wouldn't prove that such a premium is actually being demanded by investors). A negative relationship could be consistent with illiquidity being related to a poor information

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environment, a poor price discovery process or firm specific risks which aren't fully picked up by the controls. An insignificant result would of course simply be an indication of a very weak relationship, low statistical power, sparse trading or measurement error.

The role of market structure must be considered. In a market where there are very few transactions, the prices that are observed may not be the result of actual price discovery. A security may be stable simply because it hasn't traded at all and the first trade after that can produce a very large return. That will distort both the dependent variable and the Amihud. The zero trading ratio and alternative monthly aggregation rules are therefore key robustness checks.

The implications of the findings should also be considered in the context of practical investment management. If illiquidity is linked to higher subsequent returns then investors will still have to ask themselves whether the return differential that they've estimated is sufficient to offset transaction costs, execution risk and the risk that you simply can't get out of a position when you want to. If illiquidity is associated with lower returns then it may be the case that low trading activity is a red flag rather than an indication of a bargain. In either case the historical return estimates don't guarantee future performance.

The study's contribution is of course constrained by its data and design. The analysis can provide some evidence as to the association between the observed liquidity and the subsequent returns of the listed shares in the sample. It cannot establish the causal effect of liquidity on returns nor can it quantify the full systematic liquidity risk premium without a far stronger identification strategy or access to investor level transaction data.

Conclusion.

This paper proposes a quantitative approach to the analysis of the relationship between market liquidity and subsequent equity investment returns in Uzbekistan. It makes use of an official data based company month panel of historical exchange prices, trading volumes and trading values. The Amihud illiquidity ratio is the main explanatory

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variable, with turnover and the zero trading ratio as alternative measures. The empirical approach is a fairly standard fixed effects panel model with lagged liquidity variables and both company and month fixed effects.

The study is designed to test rather than assume that illiquid securities are followed by higher returns. The interpretation is to distinguish between a firm level illiquidity return relationship and a systematic liquidity risk premium. The credibility of the findings will obviously be dependent on the completeness of the historical trade data, the way non-trading days and corporate actions are handled, the number of securities that are eligible and the robustness of the estimates.

The empirical paper should set out in full the sample selection process, the data coverage, the descriptive statistics, the regression results and the robustness tests. If the official data don't support a sufficiently complete panel then the sample period and/or number of firms will need to be altered and this must be made clear. The main value of the paper will be a fully replicable assessment of liquidity and equity returns in a market which has not been extensively studied in the literature and there is no intention to try and establish any causal link.

References:

1. Amihud, Y. (2002) 'Illiquidity and stock returns: Cross-section and time-series effects', *Journal of Financial Markets*, 5(1), pp. 31–56. Available at: https://doi.org/10.1016/S1386-4181(01)00024-6.
2. Amihud, Y. and Mendelson, H. (1986) 'Asset pricing and the bid-ask spread', *Journal of Financial Economics*, 17(2), pp. 223–249. Available at: https://doi.org/10.1016/0304-405X(86)90065-6.
3. Bekaert, G., Harvey, C.R. and Lundblad, C. (2007) 'Liquidity and expected returns: Lessons from emerging markets', *The Review of Financial Studies*, 20(6), pp. 1783–1831. Available at: https://doi.org/10.1093/rfs/hhm030.
4. Fama, E.F. and MacBeth, J.D. (1973) 'Risk, return, and equilibrium: Empirical tests', *Journal of Political Economy*, 81(3), pp. 607–636. Available at: https://doi.org/10.1086/260061.

Received: 10 October 2026, Accepted: 30 October 2026, Published: 4 November 2026

5. Invest Uzbekistan (n.d.) *Republican Stock Exchange Toshkent: Historical share trading data*. Available at: https://invest.gov.uz/en/se/isu/STK
6. National Agency of Perspective Projects of the Republic of Uzbekistan (n.d.) *Capital market information*. Available at: https://napp.uz/
7. Newey, W.K. and West, K.D. (1987) 'A simple, positive semi-definite, heteroskedasticity and autocorrelation consistent covariance matrix', *Econometrica*, 55(3), pp. 703–708. Available at: https://doi.org/10.2307/1913610.
8. Pástor, Ľ. and Stambaugh, R.F. (2003) 'Liquidity risk and expected stock returns', *Journal of Political Economy*, 111(3), pp. 642–685. Available at: https://doi.org/10.1086/374184.
9. Republican Stock Exchange Toshkent (n.d.-a) *Official website*. Available at: https://www.uzse.uz/ (Accessed: 1 November 2026).
10. Republican Stock Exchange Toshkent (n.d.-b) *Trading results*. Available at: https://www.uzse.uz/trade_results?locale=en(Accessed: 1 November 2026).