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Russia-associated sanctions and asset's value: determination of yield on investment from the liquidity perspective

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ABSTRACT

In this study, the time-varying pattern of returns with the trading cost is assessed in light of sanctions on the Russia's economy. The analysis is performed on the Moscow Exchange Index (MOEX) using the ordinary least squares (OLS) method, Bayes' Theorem technique, and vector error correction model (VECM). Firstly, the transparency of asset's value in the same trading period was noted to execute the trade with a limited price impact. Thus, the liquidity seems not priced in returns. In addition, the posterior probability of the transparent asset's value stabilized the market at a limited transaction cost. In this case, there is less likelihood of liquidity acting as a risk element in returns during the same trading session. These results correspond to the era without sanctions, as well as economic restrictions period. Before the economic restrictions, the execution of investment occurred on its real or close value due to the market transparency in the following trading period. This implies, that the past trading cost series is not priced in yields on investment. During the Russia-related sanctions, a higher price impact of transaction was noted due to the ambiguity in the future asset's value. Therefore, the past liquidity series is a pricing element in the short run and long run. The analysis suggests a potential inference of trading cost to determine the yield on investment.

KEYWORDS

Economic Sanctions; Asset's value; Trading; Liquidity Risk; Yields

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1. Introduction

Russia has been confronting a list of unparalleled sanctions by the European Union (EU) in relation to its war aggression against Ukraine, which commenced on February 24, 2022, and eventually turned into an invasion. The scope of sanctions not only expands to the individuals' entities, but restricts the economy in a wider dimension. This may limit the financial ability of Russia to facilitate its regime operation.

The sanction on individuals' entities includes the freezing of accounts in banks, and other financial holdings. As part of the export restrictions, Russian entities in certain field are prohibited in the EU and other likeminded economies. Similarly, definite entities are restricted in the Russia due to the import-related sanctions. More than half of Russia's international reserves, which amounted to $643 billion in February 2022, have frozen by the EU and other countries including the US, Canada, and UK. The criteria of banned entities is designed to minimize the Russia' roots to the EU and beyond as a safe haven.

The purview of sanctions against Russia have been investigated by a considerable literature in divergent aspects: financial, political, and economic (Manelli et al., 2024). From this perspective, the time-varying pattern of asset's returns with the liquidity-providing cost is still undiscovered. The present study aims to corroborate, whether the liquidity is priced in yields due to the numerous economic restrictions. The analysis also contributes to the asset pricing literature, where the relationship dynamics between returns and liquidity-facilitating cost is divulged from the perspective of sanctions.

The ease of an asset's redemption with a limited price impact often relates to the market liquidity (Amihud et al., 2015; Guijarro et al., 2019). The liquidity supplier would minimize its risk exposure against the environment of ambiguity in the asset's value (Guijarro et al., 2021). This behavior leads to a higher cost in the trading, i.e., a wider bid-ask spread (Abdi and Ranaldo, 2017). A higher trading cost compensates the liquidity supplier against the uncertainty of future returns on their holdings (Amihud and Mendelson, 2008; Saleemi, 2021).

The scope of liquidity expands to the transparency of asset's value (Easley and O'Hara, 2004; Guijarro et al., 2021), capital cost (Acharya and Pedersen, 2005), corporate's earnings (Amihud and Mendelson, 2008), investment prices (Bao et al., 2011), and asset's returns (Amihud et al., 2015; Saleemi, 2021). A wider size of the spread delineates illiquidity or a conditioning market friction against providing the liquidity (Corwin and Schultz, 2012). The facilitating of liquidity in the uncertain environments is a risk element (Brunnermeier and Pedersen, 2005), and encouraged to be priced (Saleemi, 2023).

Understanding the authoritative role of market liquidity across the financial market, the concept of relationship dynamics between liquidity and returns is required to understand from the sanction's perspective. The work may help to address, whether the relationship between variables appears in relation to the sanctions, or the linkage between variables existed before the uncertainty takes place in the economy. The findings can contain potential implications for traders to assess the risk in light of sanctions.

The article is structured as follows: Section 2 includes the methodology applied in the analysis; the findings are discussed in Section 3; Section 4 highlights the potential aspects of the research.

2. Material and Methods

These is no unified technique to measure the liquidity or its related cost during trading. Thus, the study includes various liquidity proxies, namely the Percent Realized Spread (PRS), Informed Realized Spread (IRS) and Effective Spread (ES), to gain a sophisticated insight of the research topic. These liquidity proxies are derived using the low-frequency data. In this research, the low-frequency data is limited to the high, low, and closing prices.

The PRS estimator is a well-known liquidity proxy, and has previously covered various aspects of the asset pricing studies (Guijarro et al., 2019). This model is not only featured with prices of the same trading day, but it also

includes the next trading session for modelling liquidity. The PRS model is built in Equation (1).

$$PRS_t = \frac{2\left|\left[(h_{t+1}+l_{t+1})\left(\frac{1}{2}\right)\right]-cp_t\right|}{(h_t+l_t)\left(\frac{1}{2}\right)} * 100 \quad (1)$$

where cp_t depicts the closing price of day t; h_t (l_t) delineates the high (low) price of day t; and h_{t+1} (l_{t+1}) presents the high (low) price of following trading session. Recently, the PRS model has been developed in light of the adverse selection issues during trading. This version estimates the liquidity or its related cost against the potential role of asymmetric information in the market (Saleemi, 2022). The construction of IRS model is illustrated, as per Equation (2).

$$IRS_t = \frac{2\left|\left[\varphi(a_{t+1}+b_{t+1})\left(\frac{1}{2}\right)\right]-cp_t\right|}{(h_t+l_t)\left(\frac{1}{2}\right)} \quad (2)$$

where φ stands for probability of informed trader in the incoming sessions. A probable presence for sanguine buyer is taken into conditional, as per Equation (3).

$$a_{t+1} = (h_{t+1})\varphi + \left[(qs_{t+1})\left(\frac{1}{2}\right)\right]\varphi \quad (3)$$

where qs_{t+1} highlights the sum of quoted prices for next trading day. The conditional presence of pessimistic seller is modelled, as per Equation (4).

$$b_{t+1} = (l_{t+1})\varphi + \left[(qs_{t+1})\left(\frac{1}{2}\right)\right]\varphi \quad (4)$$

The ES model is viewed a leading estimator of market liquidity (Guijarro et al., 2019), which is constructed as per Equation (5).

$$ES_t = \frac{2\left|cp_t-\left[(h_t+l_t)\left(\frac{1}{2}\right)\right]\right|}{(h_t+l_t)\left(\frac{1}{2}\right)} \quad (5)$$

The yield on investment is derived using the closing prices of same trading day, as well as the closing prices of past trading session. The asset's return is estimated, as per Equation (6).

$$yi_t = LN\left(\frac{cp_t}{cp_{t-1}}\right) \quad (6)$$

where yi_t is the yield on investment of day t, and cp_{t-1} depicts the closing price of previous trading session. This study applies multivariate techniques in the analysis, and covers the period June 04, 2013 – November 09, 2023. The scope of sanctions towards the relationship dynamics between variables is scrutinized during the period February 24, 2022 - November 09, 2023.

An ordinary least squares (OLS) technique is first applied to understand the linear combination between variables. The construction of OLS model is given in Equation (7).

$$yi_t = \alpha + \gamma_1 col_t + \epsilon_t \quad (7)$$

where col_t indicates the measurement of liquidity cost on day t using Equations (1)-(5).

The Bayes' Theorem further provides understanding into the probability distribution of returns against the

liquidity cost. The normal distribution of Bayesian parameters is estimated, as per Equation (8).

$$p(yi|col) = \frac{p(yi \cap col)}{p(col)} \quad (8)$$

where $p(yi|col)$ explains a probable occurrence of yields in response to the liquidity cost; $p(col)$ highlights the probability of liquidity cost to being true; and $p(yi \cap col)$ suggests the probability of all parameters to being true in the Bayesian model.

The change in yield on trading day is also studied as function of its previous series changes, as well as the past series changes of liquidity cost. This is divulged using the vector error correction model (VECM), as per Equation (9).

$$\Delta yi_t = \beta_0 + \sum_{i=1}^{n} \emptyset_i \Delta yi_{t-i} + \sum_{i=1}^{n} \vartheta_i \Delta col_{t-i} + \varphi ECT_{t-1} + \epsilon_t \quad (9)$$

where Δyi_t (Δyi_{t-i}) exhibits the change in yield of day t ($t-i$); Δcol_{t-i} specifies the past series changes of liquidity cost on day $t-i$; and ECT_{t-1} states the error correction term of day $t-1$. The selection of optimal past series in the VECM is facilitated by the Schwarz Criterion (SC) technique. These lags are demonstrated, as per Equations (10) and (11).

$$\Delta yi_{t-i} = \emptyset_1 \Delta yi_{t-1} + \emptyset_2 \Delta yi_{t-2} + \emptyset_3 \Delta yi_{t-3} \quad (10)$$

$$\Delta col_{t-i} = \vartheta_1 \Delta col_{t-1} + \vartheta_2 \Delta col_{t-2} + \vartheta_3 \Delta col_{t-3} \quad (11)$$

3. Analysis and Discussion

Table 1 exhibits the descriptive statistics of the dataset. A positive skewness is observed for liquidity proxies. This elucidates, that most values are encountered on the right of mean. A negative skewness is noted for yields on investment. Thus, most distribution of returns are concentrated on the left of mean. The dataset is graphically presented in Figure 1, where the fluctuation in variables takes place over time. The variability of dataset encourages us to investigate, whether there is a pattern between liquidity cost and returns in the Russian market. This study predominately understands the time series in light of the Russia-associated sanctions.

Table 1. Summary of descriptive statistics (daily basis).

Variables	Median	Mean	Standard Deviation	Skewness
yi	0.000618	0.0003003	0.0154985	-7.013
IRS	0.0086	0.0122	0.018254	15.771
PRS	0.863	1.222	1.825469	15.771
ES	0.006673	0.008710	0.0093203	4.0122

*Notes: Yield on investment: yi ; Informed realized spread: IRS; Percent realized spread: PRS; Effective Spread: ES; Significance level codes: *** < 0.001; ** < 0.01; * < 0.05.*

Figure 2 demonstrates the linear combination between liquidity proxies. This approach assesses the reliability of applied proxies for estimating the trading cost over time. A strong linear, but positive relationship is reported between percent realized spread and informed realized spread. In addition, the ES model comprises the moderate linear association with other liquidity methods. The significant relationship clarifies, that the liquidity proxies notably respond to any change in the trading cost over time.

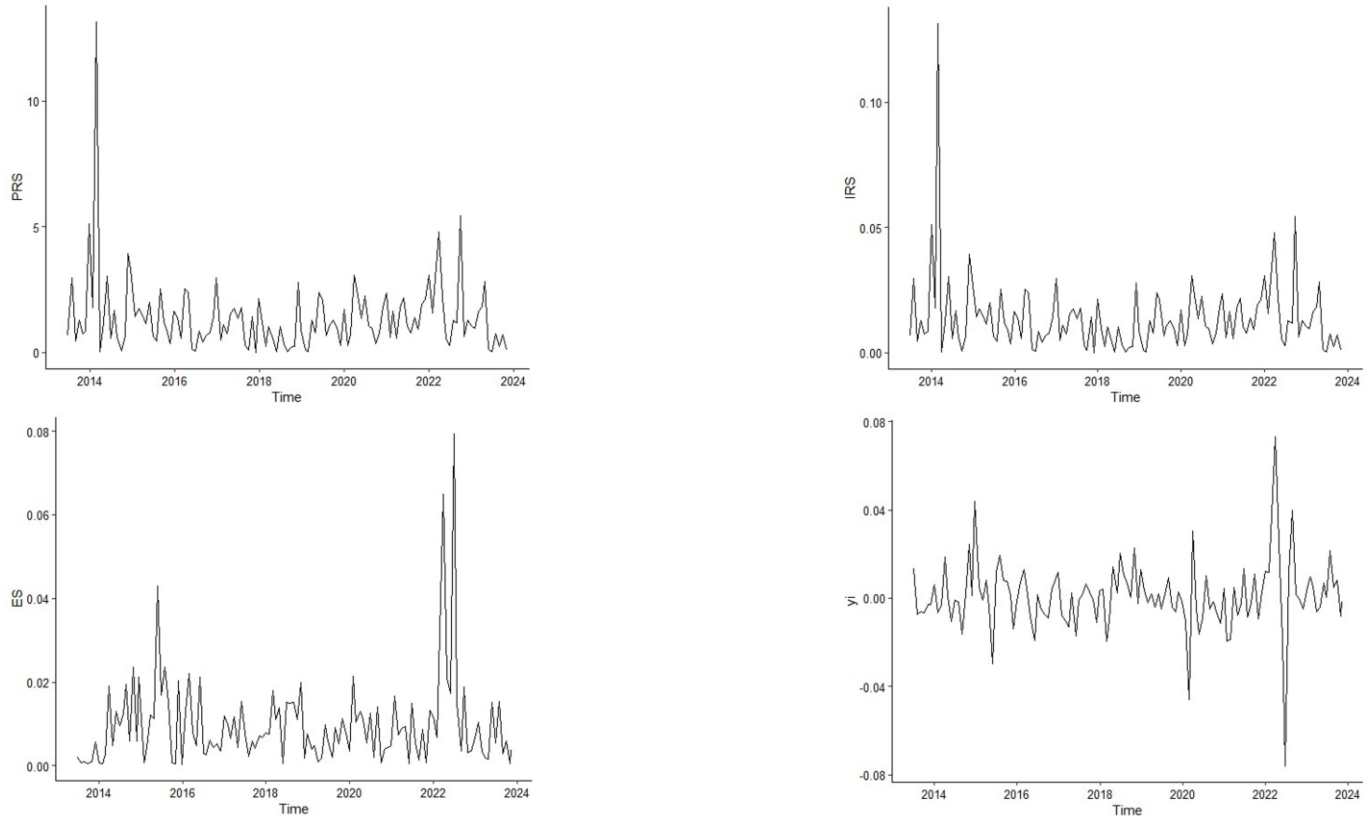

Figure 1. Measurement of variables (Monthly basis).

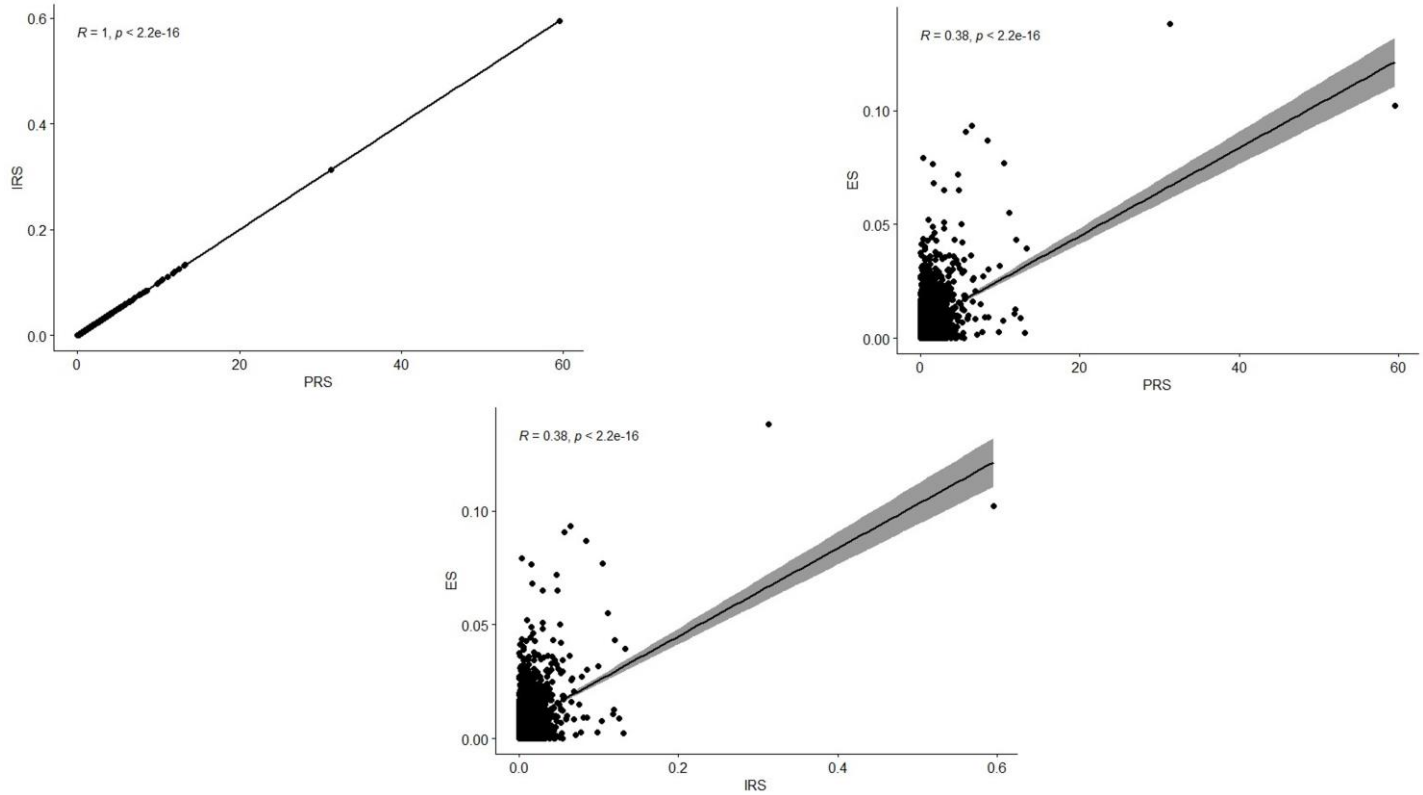

Figure 2. Relationship between liquidity proxies (daily basis).

The summary of OLS regression is given in Table 2. Before sanctions, the yield on investment is significant and negatively linked to the cost against facilitating the liquidity during trading. A negative association between variables indicates, that a decline in the trading cost increases the size of returns. This reports the transparency of assets' value in the Russian market, where the investment takes place on its real or close value. In other words, the lucidity of assets' value lessens the price uncertainty, and succors the liquidity supplier to impose a lower cost, i.e., tighter spread, on the counterparty. A narrow spread not only leads to a stability in the price, but it also enhances the ability of market maker to sustain the liquidity during the same trading sessions. The result reveals, that the liquidity is not priced in returns.

The same trading session is not affected in the era of sanctions. The yield on investment is negatively associated with the liquidity cost. The significant relationship guides, that a lower cost imposed by the liquidity provider would incline the size of yields. The result specifies the translucency of assets' value in terms of identifying a lower risk with the financial holding. A reduction in environments of price uncertainty encourages the investor to act as the liquidity facilitator. Thus, the liquidity provider seems less afraid to lose in the same trading session, and imposes a lower cost on the counterparty. A lower liquidity cost indicates, that the liquidity is not priced in returns, and the investor is more confident of gaining significant yields in its financial position. This is further an indication of market stability in environments of sanctions, where the market maker plays an authoritative role to sustain the order flow at a limited transaction cost.

Table 2. Summary of OLS model (daily basis).

Variables			Estimate	p-value
Before Sanctions				
yi	(a)	Intercept	0.000834	0.008 **
		IRS	-0.0423692	0.005 **
yi	(b)	Intercept	0.0008345	0.008 **
		PRS	-0.0004237	0.005 **
yi	(c)	Intercept	0.0016635	0.000 **
		ES	-0.1632477	0.000 **
After Sanctions				
yi	(d)	Intercept	0.008702	0.000 ***
		IRS	-0.590987	0.000 ***
yi	(e)	Intercept	0.0087019	0.000 ***
		PRS	-0.0059099	0.000 ***
yi	(f)	Intercept	0.009271	0.000 ***
		ES	-0.783986	0.000 ***

Notes: a) Adjusted R-squared: 0.003; F-statistic: 7.834; p-value: 0.005; (b) Adjusted R-squared: 0.003; F-statistic: 7. 834; p-value: 0.005; (c) Adjusted R-squared: 0.0119; F-statistic: 26.71; p-value: 0.000; (d) Adjusted R-squared: 0.2 39; F-statistic: 131.8; p-value: 0.000; (e) Adjusted R-squared: 0.239; F-statistic: 131.8; p-value: 0.000; (f) Adjusted R-squared: 0.1448; F-statistic: 71.27; p-value: 0.000.

The fitting of dataset in the Bayesian model is first assessed in Figure 3. The observed distribution of parameters looks tighter to their corresponding posterior predictive distributions. Thus, there is no issue with the fitting of data sampling in the Bayesian model. The trace plots, presented in Figure 4, evaluates the convergence issues in parameters. The breaks or gigantic spikes are not observed in the trace plots. Thus, the parameters do not suffer from convergence issues. The ESS values greater than 400, given in Table 3, further highlights the Bayesian

parameters without the effect of convergence issues.

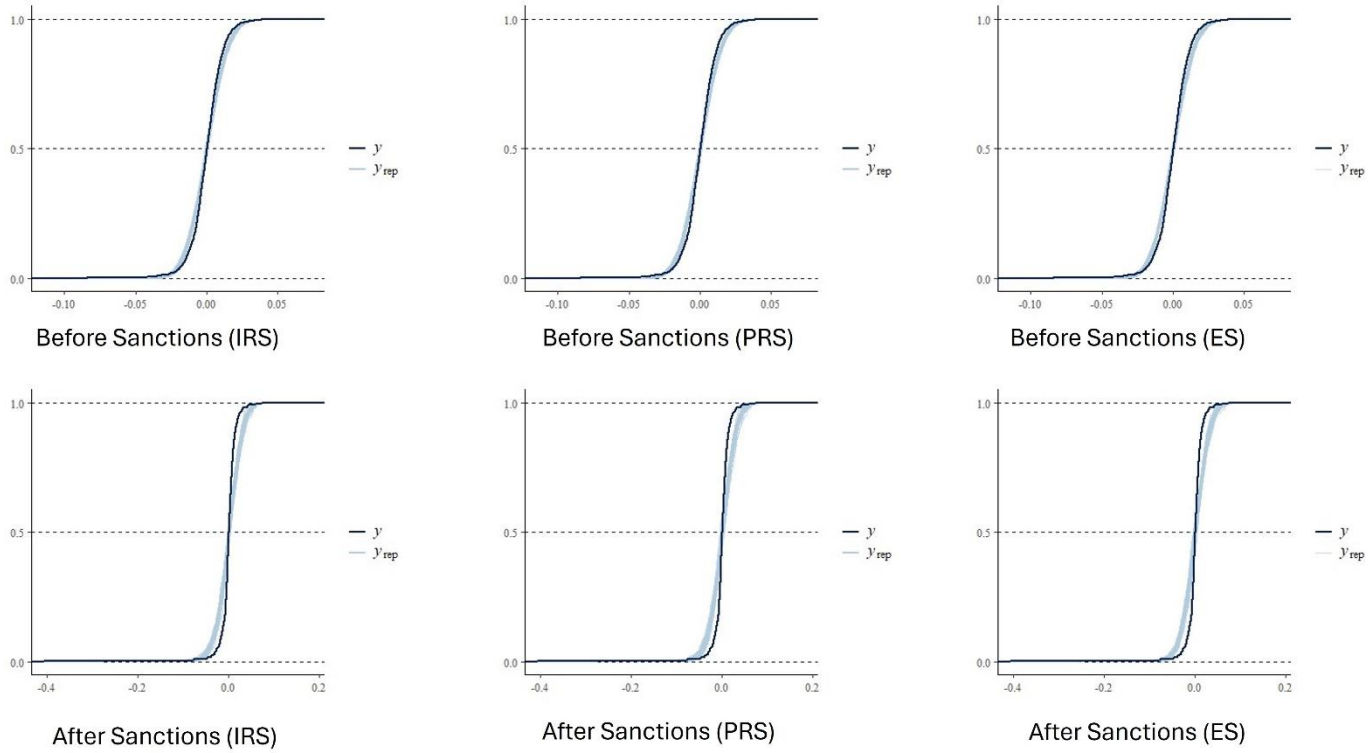

Figure 3. Checking the fitting of dataset in the Bayesian model.

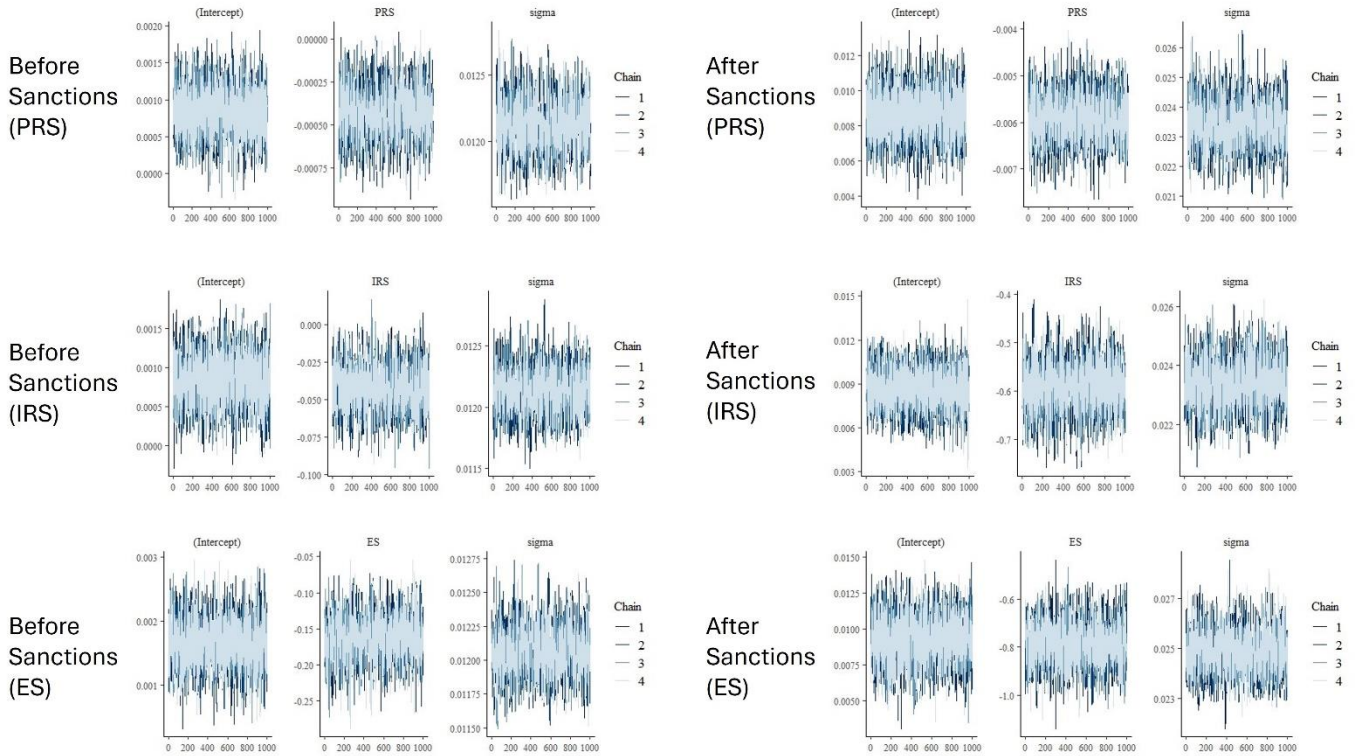

Figure 4. Checking the Convergence issues in the Bayesian model.

Table 3. Quantification of Bayesian model (daily basis).

Variables	Parameters	Median	Probability of Direction (PD)	ESS
Before Sanctions				
yi	Intercept	0.000836	99.52%	3473
	IRS	-0.04	99.83%	1908
yi	Intercept	0.000840	99.55%	2941
	PRS	-0.000427	99.80%	1681
yi	Intercept	0.00166	100%	2494
	ES	-0.16	100%	1576
After Sanctions				
yi	Intercept	0.00872	100%	3799
	IRS	-0.59	100%	2369
yi	Intercept	0.00868	100%	3363
	PRS	-0.00588	100%	2214
yi	Intercept	0.0093	100%	2404
	ES	-0.78	100%	1791

Notes: Effective Sample Size: ESS.

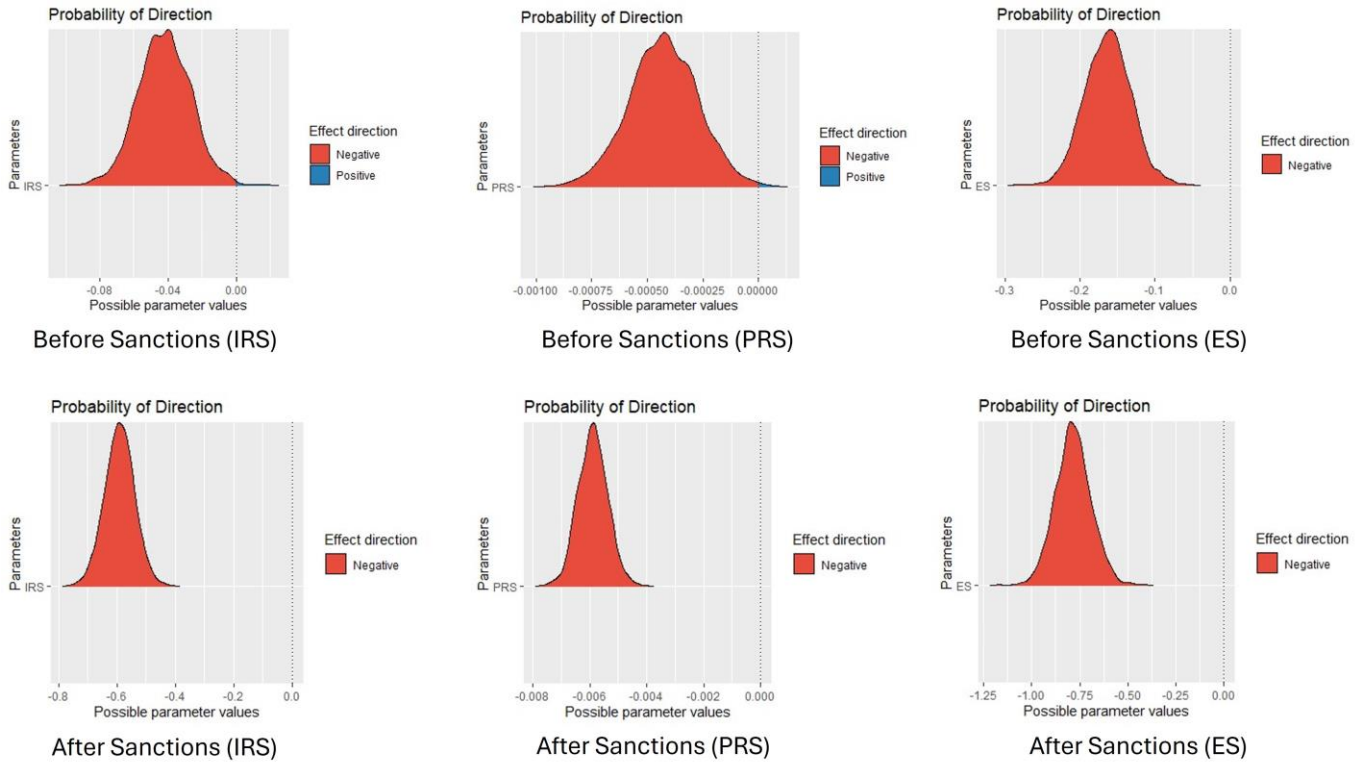

Figure 5. Graphical representation of PD.

Table 3 summarizes the probability conditions for occurrence of returns in response to the liquidity cost. In environments of the economic activities without sanctions, the posterior probability suggests the appearance of returns against the liquidity cost. The probability of distribution reports a 99.83% negative relatedness between yield and informed realized spread. Meantime, the direction of distribution is 99.80% negative between yield and percent realized spread, but it comprises a 100% negative association between returns and effective spread. The relationship guides us, that a higher yield on investment is more probable in relation to the lower spread. A lower

transaction cost can refer to the clarity of future yields that the investor would probably gain at the time of investment redemption. In this case, the trading would likely take place on its actual or close value due to the translucency of assets' value. The price transparency increases the probability of a stable market with the substantial order flow. The market stability in light of the tighter spread suggests, that the liquidity is less probable to be priced in returns.

Table 4. Summary of unit root test.

Variables	ADF Statistics	p-value	1% CV	5% CV	10% CV
Before Sanctions					
yi	-32.577	0.000	-2.58	-1.95	-1.62
IRS	-4.7936	0.000	-2.58	-1.95	-1.62
PRS	-4.7936	0.000	-2.58	-1.95	-1.62
ES	-11.7332	0.000	-2.58	-1.95	-1.62
After Sanctions					
yi	-15.8918	0.000	-2.58	-1.95	-1.62
IRS	-10.4001	0.000	-2.58	-1.95	-1.62
PRS	-10.4001	0.000	-2.58	-1.95	-1.62
ES	-7.4626	0.000	-2.58	-1.95	-1.62

Notes: Augmented Dickey-Fuller: ADF; Critical Value: CV; ADF statistics lower than the critical values indicates stationarity.

Table 5. Checking cointegration in the system using Trace statistics.

Cointegration	Statistics	10% CV	5% CV	1% CV
Before Sanctions				
yi & IRS				
$c > 1$	22.73	7.52	9.24	12.97
$c > 0$	504.46	17.85	19.96	24.60
yi & PRS				
$c > 1$	22.73	7.52	9.24	12.97
$c > 0$	504.46	17.85	19.96	24.60
yi & ES				
$c > 1$	150.35	7.52	9.24	12.97
$c > 0$	594.77	17.85	19.96	24.60
After Sanctions				
yi & IRS				
$c > 1$	49.33	7.52	9.24	12.97
$c > 0$	159.20	17.85	19.96	24.60
yi & PRS				
$c > 1$	49.33	7.52	9.24	12.97
$c > 0$	159.20	17.85	19.96	24.60
yi & ES				
$c > 1$	49.53	7.52	9.24	12.97
$c > 0$	156.34	17.85	19.96	24.60

Notes: Cointegration: c; $c > 0$: One at least cointegrated relationship between series; $c > 1$: Cointegration is greater than one in the system; Trace statistics higher than the critical values indicates cointegration.

In environments of the economic sanctions, the posterior probability depicts a 100% negative relativeness between yield on investment and liquidity cost. The probability of higher returns is linked to the lower size of trading cost. The relationship between Bayesian parameters reports a higher probability for transparency of asset's value in environments of sanctions. This indicates the market stability in terms of a lower investment risk, as well as the authoritative role of market maker to sustain the order flow at a tighter spread. Thus, the financial transaction would probably take place on its real or close value during the same trading periods. In other words, there is a less likelihood of liquidity to be priced in yields.

Table 6. Quantification of VECM.

Δyi_t	Estimates	Δyi_t	Estimates	Δyi_t	Estimates
Before Sanctions					
ECT	-0.9578	ECT	-0.9578	ECT	-0.9365
	(0.0436)***		(0.0436)***		(0.0446)***
Intercept	0.0005	Intercept	0.0005	Intercept	0.0008
	(0.0003)*		(0.0003)*		(0.0003)**
Δyi_{t-1}	-0.0260	Δyi_{t-1}	-0.0260	Δyi_{t-1}	-0.0347
	(0.0378)		(0.0378)		(0.0389)
ΔIRS_{t-1}	-0.1898	ΔPRS_{t-1}	-0.0019	ΔES_{t-1}	0.1449
	(0.0222)***		(0.0002)***		(0.0332)***
Δyi_{t-2}	-0.0407	Δyi_{t-2}	-0.0407	Δyi_{t-2}	-0.0415
	(0.0307)		(0.0307)		(0.0315)
ΔIRS_{t-2}	-0.0563	ΔPRS_{t-2}	-0.0006	ΔES_{t-2}	0.1021
	(0.0266)*		(0.0003)*		(0.0375)**
Δyi_{t-3}	-0.0368	Δyi_{t-3}	-0.0368	Δyi_{t-3}	-0.0407
	(0.0217)		(0.0217)		(0.0223)
ΔIRS_{t-3}	0.0018	ΔPRS_{t-3}	1.8e-05	ΔES_{t-3}	0.0648
	(0.0228)		(0.0002)		(0.0337)
After Sanctions					
ECT	-0.8773	ECT	-0.8773	ECT	-0.8571
	(0.0865)***		(0.0865)***		(0.0862)***
Intercept	0.0056	Intercept	0.0056	Intercept	0.0048
	(0.0009)***		(0.0009)***		(0.0009)***
Δyi_{t-1}	0.0830	Δyi_{t-1}	0.0830	Δyi_{t-1}	0.0666
	(0.0744)		(0.0744)		(0.0739)
ΔIRS_{t-1}	0.1167	ΔPRS_{t-1}	0.1167	ΔES_{t-1}	0.3808
	(0.0506)*		(0.0506)*		(0.0694)***
Δyi_{t-2}	0.0482	Δyi_{t-2}	0.0482	Δyi_{t-2}	0.0173
	(0.0582)		(0.0582)		(0.0585)
ΔIRS_{t-2}	0.2034	ΔPRS_{t-2}	0.2034	ΔES_{t-2}	0.3449
	(0.0482)***		(0.0482)***		(0.0774)***
Δyi_{t-3}	0.0459	Δyi_{t-3}	0.0459	Δyi_{t-3}	0.0251
	(0.0323)		(0.0323)		(0.0313)
ΔIRS_{t-3}	0.0990	ΔPRS_{t-3}	0.0990	ΔES_{t-3}	0.1702
	(0.0398)*		(0.0398)*		(0.0658)*

The direction of probability for Bayesian parameters is graphically presented in Figure 5. Before sanctions, a very small portion of the percent realized spread and informed realized spread is positively linked to yield on investment. Nevertheless, an increased negative relation is noticed between yield on investment and trading cost. This implies, that a lower trading cost increases the probability of higher returns. In other words, the transparency of asset's value would likely derive a limited price impact on the trader. Thus, a higher yield is more probable against the execution of trading on real or close value.

In the period of sanctions, the distribution of liquidity parameter is highly concentrated to the negative side. This guides us, that a higher yield on investment would possibly occur in relation to the lower price impact of trade. Thus, a tighter spread is more probable to appear in response to the transparency of asset's value. In other words, the execution of trading on its actual or close value would likely increase the size of returns.

The VECM approach first starts with the evaluation of stationarity and cointegration in the system. The Augmented Dickey-Fuller (ADF) test, summarized in Table 4, reports the stationarity. The Johansen technique is applied to assess the cointegration. The term c in Table 5 indicates the presence of cointegration in the time series.

The optimal past time series of VECM, derived as per Equations (10) and (11), are numerically summarized in Table 6. Before the Russia-associated sanctions, changes in returns of day t are negatively explained by changes in the previous PRS and IRS series, except lag_{t-3}. This observation explicates, that a decline in the past liquidity cost increases the yield of next trading period. In simple words, the transparency of asset's value in the following trading session encourages the liquidity supplier to accept the financial position on its real or close value. The limited price impact of trading thereby suggests, that the market liquidity is not priced in yield of the next period. However, changes in returns of day t are positively explained by changes in the past ES series, except lag_{t-3}. The liquidity proxies are even though standard, but based on their own certain assumptions. This may open debate to influence the empirical findings. Most importantly, the difference between liquidity proxies in terms of analytical expression or theoretical assumptions is slightly impacting the outcomes.

The findings have changed in the era of economic sanctions. The changes in returns of day t are positively associated with changes in the past liquidity series. This outcome corresponds to each liquidity measure that is applied in this study. The significant association elucidates, that an incline in the previous liquidity cost increases the return of following trading session. In the ambiguity of asset's value, any holding for next trading period encourages the liquidity supplier to reduce its risk exposure with a wider spread. A higher spread aids the market specialist to accept the asset at a lower bid price. Thus, the financial holding below the real value facilitates the liquidity provider to redeem its future position at a higher ask price. This activity can ensure a higher yield in the following trading session. The result illustrates the ambiguous environment in terms of suggesting a higher risk with the future holding of investment. An incline in the future price uncertainty discourages the market specialist to act as the liquidity facilitator at a limited transaction cost. A higher price impact of trading suggests, that the liquidity is priced in the short run and long run.

4. Conclusion

This study performs a multivariate analysis on the MOEX Russia Index, where the liquidity is assessed as a pricing element in returns during the economic sanctions. Firstly, the trading cost was noted to be negatively associated with yield on investment of the same trading session. This relationship explicates, that the liquidity provider is less afraid to lose in the trading and imposes a lower cost, i.e., tighter spread, on the counterparty. The limited price impact of trading indicates, that the liquidity is not a risk factor in returns and the transaction would take place on its actual or close fundamental value. These findings correspond to the era of economy without sanctions and Russia-related sanctions.

The posterior probability between Bayesian parameters was also reported during the same trading session. A higher negative probability of distribution was observed between yield on investment and liquidity cost. This implies, that the trading would probably take place on its actual or close value due to the transparency of asset's value. In other words, the price transparency would stabilize the market with the substantial order flow at a limited market friction. Thus, there is less likelihood of liquidity to act as a risk element in returns. These results correspond to the period of country without sanctions and economic sanctions.

Before the Russia-related sanctions, the past time series of the percent realized spread and informed realized

spread was negatively linked to the yield of following trading session. The VECM analysis suggests, that the liquidity provider accepts the asset on its real or close value due to the transparency of Russian market in the following trading session. The limited price impact of trading reveals, that the liquidity does not act as a pricing factor in returns. In environments of the economic sanctions, the past liquidity-facilitating cost was positively associated with the yield of following trading period. This exhibits the ambiguity in the asset's value, where any holding of next trading period heartens the liquidity provider to reduce its risk exposure. The future price uncertainty discourages the market specialist to act as the liquidity facilitator at a limited market friction. Therefore, the past liquidity series is a pricing element in returns.

This work highlights a potential inference of trading cost to determine returns in the Russian market. A tighter spread suggests the transparency of asset's value, and aids to execute the investment on its real or close value. Conversely, the ambiguity in the value of asset leads to a wider spread, and thus, encourages the liquidity supplier to accept the asset below the real value. In addition, the inclusion of individual market, i.e., MOEX Russia index, may be perceived as a limitation. Thereby, other researchers are encouraged to expand the work both at firm and market levels. This would undoubtedly reveal a significant insight into the implication of economic sanctions on the Russian market.

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Conflict of interest

The author declares that the manuscript is completely original with no conflict of interest.

Author contributions

Conceptualization: Jawad Saleemi; Investigation: Jawad Saleemi; Methodology: Jawad Saleemi; Writing – original draft: Jawad Saleemi; Writing – review & editing: Jawad Saleemi.

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