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WHEN EXCHANGE RATES DISAPPEAR FROM THE STREET: THE EFFECT OF THE FX BOARD BAN ON CASH MARKET DYNAMICS IN UKRAINE

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КОЛИ ВАЛЮТНІ КУРСИ ЗНИКАЮТЬ З ВУЛИЦЬ: ВПЛИВ ЗАБОРОНИ ВАЛЮТНИХ ТАБЛО НА ДИНАМІКУ ГОТІВКОВОГО ВАЛЮТНОГО РИНКУ В УКРАЇНІ

On July 29, 2022, the National Bank of Ukraine prohibited the public display of exchange rate boards. This study examines how this measure affected the dynamics of the cash foreign exchange market. The administrative restriction introduced during the wartime period can be interpreted as a market design intervention that reduces the salience and visibility of exchange rate information and potentially leads to changes in attention-driven demand. In particular, it can weaken salience bias, attention bias, herding behavior, and break the depreciation feedback loop that occurs when individuals observe an increasing exchange rate and rush to buy U.S. dollars further boosting the UAH/USD rate.

Using daily data for 2022 on central bank interventions in the FX market, global indicators (the VIX volatility index and Brent oil prices) as well as an attention indicator such as Google trends searches for "exchange rate", we estimate the effect of the ban on the exchange rate return. The model employed is an exponential GARCH framework that consists of mean and variance equations allowing for volatility clustering and asymmetric reactions to external shocks. To address the problem of data irregularities and outliers, several pulse dummy variables are introduced. The effect of the board ban is split into two parts: the effect on the day of the Resolution adoption and the effect on the subsequent three business days.

The findings indicate a positive correlation between the board ban and exchange rate return on July 29, which can be explained by the fact that the Resolution was published after the trading day closed so that changes largely did not take effect that day. Nevertheless, subsequent estimates for August 1-3 show that the ban resulted in an average daily appreciation of 1.8%, which accumulated over this four-day period to a total return of -3.7%. These results suggest that behavioral, attention-driven policy measures such as the FX board ban may have a real impact on fundamental variables and be an effective tool for monetary policy regulations.

Among other variables, a statistically significant effect on exchange rate return is documented for its lagged values and for the VIX volatility index. Net interventions and the Google trends indicator were either insignificant or only marginally significant in one of the specifications. Finally, exchange rate volatility appears to be highly persistent, reacting to shocks through the magnitude effect but asymmetry is not confirmed. The heavy tails of the underlying Student-t distribution signal the presence of extremely large shocks, which is expected under wartime conditions.

У статті проводиться аналіз впливу заборони на публічне розміщення інформації про обмінний курс, запровадженої Національним банком України 29 липня 2022 року, на динаміку готівкового роздрібного обмінного курсу. Цей адміністративний захід під час воєнного часу можна інтерпретувати як втручання в роботу валютного ринку, що зменшує значущість та видимість інформації про обмінний курс і потенційно призводить до змін у попиті, зумовленому увагою. Зокрема, це може зменшити поведінкові упереджен-

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ня, пов'язані зі значущістю та увагою, стадну поведінку та розірвати петлю девальваційного зворотного зв'язку, яка виникає, коли фізичні особи спостерігають зростання обмінного курсу та поспішають купувати долари США, що ще більше знижує курс гривні.

Використовуючи щоденні дані за 2022 рік про інтервенції центрального банку на валютному ринку, глобальні показники (індекс волатильності VIX та ціни на нафту Brent), а також такий індикатор уваги, як пошукові запити "обмінний курс" у Гугл трендах, ми оцінюємо вплив заборони на дохідність обмінного курсу. Використана економетрична модель є експоненціальною моделлю GARCH, яка складається з рівнянь середнього значення та дисперсії, що дозволяють врахувати кластеризацію волатильності та асиметричні реакції на зовнішні шоки. Для вирішення проблеми з даними, зокрема наявності викидів, введено декілька імпульсних фіктивних змінних. Вплив заборони табло розділяється на дві частини: ефект у день прийняття Постанови та ефект протягом наступних трьох робочих днів.

Результати дослідження вказують на позитивну кореляцію між забороною валютних табло та дохідністю обмінного курсу 29 липня, що можна пояснити тим, що Постанова була опублікована після закриття торгового дня, тому зміни здебільшого ще не набули чинності. Тим не менш, наступні оцінки за 1—3 серпня показують, що заборона призвела до середньодобової ревальвації на 1,8%, яка акумулювалася за цей чотириденний період у загальну дохідність 3,7%. Ці результати свідчать про те, що поведінкові, орієнтовані на увагу політичні заходи, такі як заборона валютних табло, можуть мати реальний вплив на фундаментальні змінні та бути ефективним інструментом регулювання монетарної політики.

Серед інших змінних, статистично значущий вплив на дохідність обмінного курсу задокументовано для його лагових значень та для індексу волатильності VIX. Чисті інтервенції та індикатор Гугл трендів були або незначущими, або лише слабо значущими в одній зі специфікацій. Насамкінець, волатильність обмінного курсу виявилася дуже стійкою, реагуючи на шоки через ефект величини, але без підтвердженої асиметрії. Товсті хвости базового t розподілу Стьюдента сигналізують про наявність надзвичайно великих шоків, що є очікуваним у воєнних умовах.

Key words: exchange rate, board ban, central banking, regulatory intervention, attention shocks, EGARCH model; volatility clustering.

Ключові слова: обмінний курс, заборона табло, центральний банк, регуляторне втручання, інформаційні шоки, модель EGARCH, кластеризація волатильності.

PROBLEM STATEMENT

The ban on publicly displayed exchange rate boards can be interpreted not only as an administrative measure but also as an important element of the behavioral mechanism through which financial agents form their expectations. In traditional finance, financial market players are assumed to process information rationally, maximize their individual utility, and are risk-averse. However, behavioral finance suggests that, especially in turbulent times, people may behave irrationally, be loss-averse, rely on simple rules (heuristics), and exhibit different forms of biases and herding behavior. A similar situation happened with Russia's full-scale aggression, which had a devastating impact on all aspects of Ukrainian social and economic life, including a radical change in the functioning of financial markets.

The National Bank of Ukraine (NBU) has been building institutional mechanisms for full-fledged inflation targeting since 2015. It shifted from a "fixed exchange rate" anchor to a "price stability" anchor. However, as the Russian Federation built up military capacity near Ukrainian borders in late 2021 and early 2022, the NBU had to intervene more actively to stabilize the foreign exchange market. On February 24, 2022, immediate measures were implemented to mitigate potential panic caused by the invasion: the exchange rate was fixed, cash foreign currency could be sold by the public, while purchases were temporarily forbidden. These restrictions were gradually relaxed over the next few months; however, the depreciation pressure on hryvnia periodically re-emerged. Such a situation occurred at the end of July of 2022 when the local currency depreciated by 0.7—2.7% per day for 6 consecutive days. In order to stop or even reverse this trend, the central bank adopted on July 29 Resolution No. 165 of the Board of the NBU that regulated two things for non-banking cash currency exchange offices. First, it became prohibited to display exchange rates on boards inside and outside buildings, except at cashier desks in the form of printed notices. Second, it became mandatory to record video of all transaction operations, including the issuance of receipts from cash registers. Even though two key requirements were introduced, the former became effective from the date of Resolution publication, while for the latter currency exchange offices were given 5 calendar days to organize video recording [1]. Therefore, we assume that the initial impact of the Resolution was primarily transmitted through the ban on exchange rate boards, although we admit that expectations related to video recording requirements may still have played a role. From a psychological perspective, the board ban also had a strong societal impact, including the generation of numerous memes.

Similar exchange rate board prohibitions are relatively rare in the world. One example is the ban introduced in the Russian Federation in 2019. Formally, the Bank of Russia justified the restriction as a consumer-protection measure aimed at suppressing illegal street exchange points. In practice, it also fit into a broader pattern of tightening administrative control in a state that had already been waging aggression against Ukraine since 2014.

Behavioral finance suggests that such outdoor electronic boards may amplify individuals' cognitive and emotional biases, including salience bias, availability bias, and herding behavior, which can intensify the demand for foreign currency and lead to a continuous depreciation loop. In response to this challenge, the NBU introduced the FX board ban; however, it is not clear what its impact was, whether this behavioral feedback mechanism was weakened or whether individuals simply shifted to other sources of information. Understanding this relationship constitutes an important empirical question for both monetary policy and behavioral finance.

LITERATURE REVIEW

There are multiple articles that analyzed different types of interventions on the foreign exchange market. We mostly focus on research that is based on advanced methodological approaches (e.g., from the GARCH family) and that considers both macro and micro events as well as traditional and behavioral channels.

One of the first papers that studied the impact of events on daily exchange rate volatility is Dominguez (1998). The interventions of the U.S., German, and Japanese central banks had a statistically significant impact on the volatility irrespective of whether they were expected or not. However, the more ambiguous the central bank action was, the more volatility increased. The author employed GARCH (1, 1) model with event dummies present both in the mean and volatility equations [2]. Alternative methodological approaches may include a non-parametric sign test for changes in the exchange rate mean and matched-sample tests that capture the impact of central bank interventions on the foreign exchange market (Fatum and Hutchison, 2006). Focusing on the JPY/USD exchange rate, the Bank of Japan (BoJ) and the Federal Reserve (Fed) conducted buy or sell operations that created event windows lasting multiple days leading to successful or unsuccessful interventions. The authors classify an intervention as successful when exchange rate changes coincide with the central bank intention (e.g., BoJ purchase of yen increases its value), or when it helps to smooth fluctuations, or support/reverse the trend. The results show that interventions systematically affect the exchange rate in the short term regardless of whether they are announced, rumored, or secret [3].

In terms of high-frequency data, Andersen et al. (2003) modeled 5-minute spot exchange rates by testing the effect of more granular macroeconomic announcements on return and volatility. Namely, the surprise variables (defined as the difference between standardized actual and expected indicators) had an asymmetric effect on the dependent variables. Interestingly, negative news caused more pronounced shifts in the exchange rate than positive news [4]. At a high level, it was explained by the observation that in "good times", when markets are growing, negative news leads to a much larger reaction (Conrad et al., 2002) [5]. Two hypotheses underpin this fact: one is based on behavioral finance concepts and the other is based on the rational-expectations framework of traditional finance. The former assumes that firm earnings follow a random-walk process (Barberis et al., 1998) [6]. In contrast, investors believe that either a mean-reversion or a trending mechanism is present. Conservatism bias drives a mean-reversion regime when reaction to the news is smaller than necessary since the quote will likely return to the previous value. Representativeness bias supports a trending regime when several consecutive positive changes in the market are used as a prediction of future increases. Investors may update their beliefs thinking that earnings are generated by one regime or the other through a Markov chain process; however, regime switches are infrequent. Such a framework allows to model both over— and underreaction of the market to the news. In particular, consistent positive earnings create a biased positive forecast which, when confronted with the negative news, leads to a large negative surprise and a strong market reaction. One of the drawbacks of this explanation is the fact that it is grounded in stock market analysis rather than exchange rate dynamics. An explanation stemming from traditional finance is more focused on the market as a whole rather than individual investors (Veronesi, 1999) [7]. The economy is characterized by one of two states: recession or expansion. Negative news that arrives in a high state lowers asset prices according to the present-value model. In addition, financial market players are now in greater uncertainty when trying to determine current state and, being risk-averse, require a higher risk-premium, which generates more pressure on asset prices. Consequently, there is a much larger effect of negative news than predicted by present-value models. Besides proving an asymmetric reaction of exchange rate return to macroeconomic fundamental changes, Andersen et al. (2003), using the Flexible Fourier Form method, also modeled 5-minute residual volatility that depends on corresponding daily volatility, macro surprises, and calendar events that are split into daily fluctuations captured with the Fourier component (trigonometric terms) and trading session dummies [4].

One of the first works dedicated to Ukraine that tested the impact of NBU foreign exchange interventions on the exchange rate return and volatility was Kereya (2002). Using GARCH model, the author found that NBU interventions have the opposite effect on the return due to endogeneity bias when regulatory actions were undertaken when the exchange rate was already moving in an undesirable direction. For example, U.S. dollars purchases lead to hryvnia appreciation rather than depreciation. Nevertheless, NBU interventions were effective in terms of decreasing volatility in the market [8].

Abovementioned sources examine the impact of fundamental macroeconomic events on the exchange rate level and volatility. In addition, we can consider behavioral events that can be classified into sentiment-, mood-, and attention-based categories.

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More recent investigations largely analyze the impact of different non-structural information blocks such as communication transparency, sentiment, message complexity, and others. The reason for the surge in this research is the progress in natural language processing and machine learning. Anufriieva and Shapoval (2019) classified NBU verbal interventions into different categories and stated that they influenced the trend and volatility of the exchange rate [9]. Yukhymenko and Sorochan (2023) found a strong negative correlation between the number of popular publications on NBU website and exchange rate volatility. This effect was even more pronounced if the news was related to monetary policy [10]. Ivanytskyi (2022) used an asymmetric exponential EGARCH model to study the impact of NBU news and tweets sentiment as well as their topics on the exchange rate. It was found that their impact is insignificant in general, except the news about international reserves decreased volatility [11].

The source of positive mood can be rather exotic. For example, Demir et al. (2014) confirmed for the Turkish lira that positive mood from a national football team win directly affects the strength of the national currency. This effect is persistent across different specifications of models with GARCH variance. In terms of attention-based models, many articles are dedicated to the analysis of Google trends on the key macroeconomic variables [12]. Cortez (2025) showed for emerging market currencies (Mexican, Brazilian, Chilean, and Colombian) that forecast accuracy based on a k nearest-neighbor model is higher when Google search data is added to fundamental variables. Predictive power is stronger during turbulent times rather than in stable conditions [13].

Prohibition of outdoor exchange rate displays is closely related to an attention-salience intervention. It is a market microstructure change rather than macroeconomic fundamental variable. To the best of our knowledge, there are no scientific papers that have analyzed the impact of FX board bans on exchange rate level and volatility. This gap in literature is addressed by the present study.

OBJECTIVE OF THE PAPER

The goal of the paper is to assess the effect of the FX board ban event on exchange rate returns. Specifically, two hypotheses will be tested:

H1: The FX board ban has a statistically significant effect on the exchange rate return on the day of the Resolution.

H2: The FX board ban has a statistically significant effect on the exchange rate return during three subsequent business days after the event.

DATA DESCRIPTION

The main data source for the U.S. and international indicators is the Federal Reserve Bank of St. Louis data aggregator (fred.stlouisfed.org). The following daily indicators were downloaded: crude oil prices for Brent (Europe — ticker DCOILBRENTEU) provided by the U.S. Energy Information Administration, CBOE Volatility Index VIX (VIXCLS: Chicago Board Options Exchange), and the U.S. dollar to euro spot exchange rate (DEXUSEU) provided by the Board of Governors of the Federal Reserve System. Ukrainian data was obtained from the NBU website (bank.gov.ua/en) and includes FX purchase and sale transactions at the interbank market, average weighted U.S. dollar rates in the cash foreign exchange market of Ukraine calculated based on reporting data from commercial banks and non-bank financial institutions, and NBU interventions in the FX market. We also extracted from the Google trends website (trends.google.com/trends) the index showing search interest in "exchange rate" (a literal translation of the original Ukrainian phrase "курс валют"). The volume of NBU interventions is reported in intervals covering several days. We transformed it into daily data by spreading the values proportionally according to the traded FX volume at the interbank market. Google provides daily historical data only for periods not longer than 90 days; otherwise, data points are automatically aggregated into weeks or months. Regardless of the data granularity and the length of the interval, output is always represented in relative terms ranging from 0 (no search interest) to 100 (the highest level of search interest), with 50 representing half of the peak popularity. The data was extracted in 90-day intervals with overlapping 30-day windows used for recalibration between adjacent periods. The final results were standardized to a 0 100 scale and were used for model estimation.

When analyzing the dynamics of exchange rate daily returns in Figure 1, significant regime shifts can be

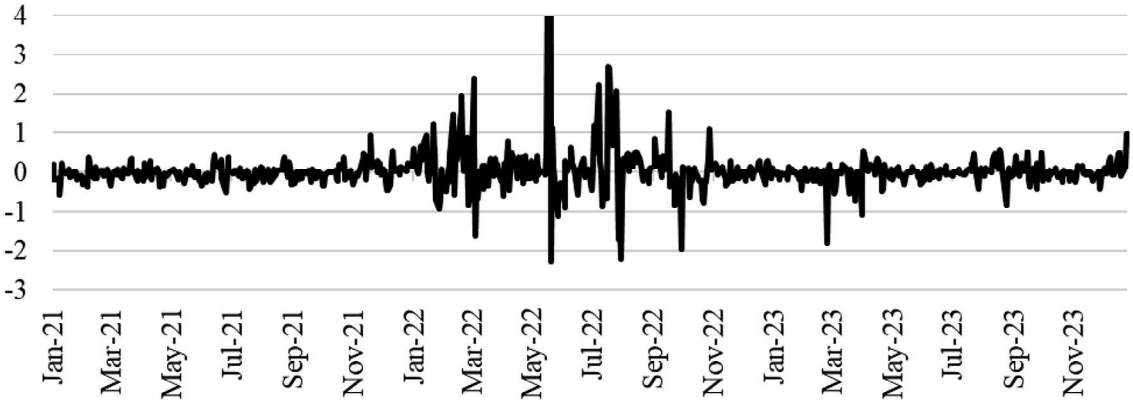

Figure 1. UAH/USD exchange rate daily return, %

Source: calculated by the author.

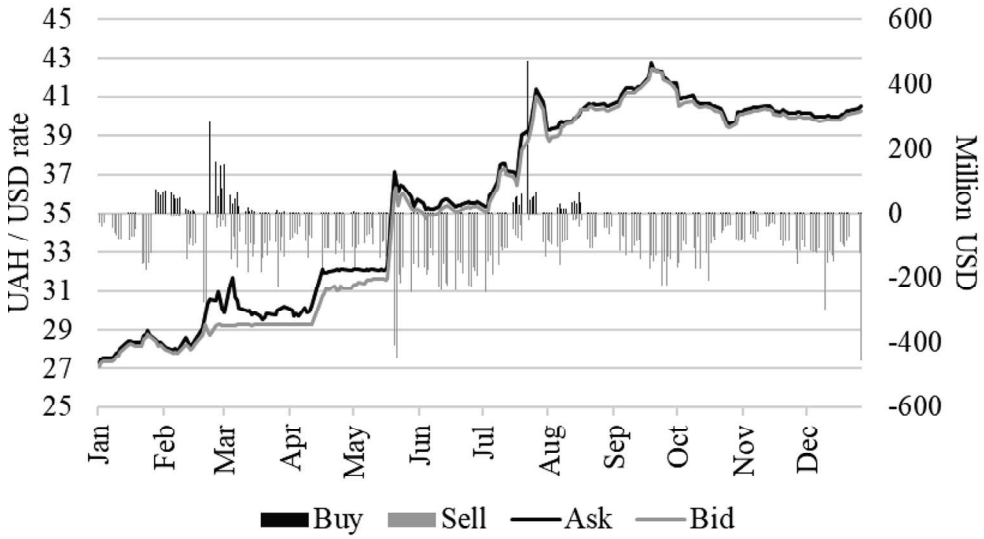

Figure 2. Bid-ask exchange rate (left axis) and NBU interventions (right axis) in 2022

Source: calculated by the author.

observed. The year 2021 was relatively stable, extremely large shocks were observed in 2022, then the situation calmed down to a large extent in 2023. We focus only on 2022 since the goal of the paper is to test the effect on the FX board ban that occurred on July 29, 2022, rather than to model regime changes.

Note: the datapoint for 23.05.2022 has a value of 13.52%, which lies outside the vertical axis range.

Exchange rate increased from 27.2 to 40.4 during 2022 (Figure 2). There were small fluctuations in the bid rate during March-April and in the ask rate during May. The former became unpegged on April 14 when NBU allowed commercial banks to sell cash foreign currency to the public. The latter was pegged to the official exchange rate, allowing the ask rate to deviate by no more than 10%. This restriction was removed on May 20. During the entire year of 2022, the NBU actively participated in the FX market buying 3.3 billion USD and selling 25.9 billion USD to support the local currency under large wartime shocks.

Exchange rate was affected by multiple war-related, regulatory policy, and international financing shocks. Table 1 contains major events dummies with their

Table 1. Key shocks in 2022 impacting the exchange rate

Effective date	ER_{t-1}	ER_t	ER_{t+1}	Shock type	Description
24.01	-0.09	0.06	1.25	War	U.S. put forces on high alert amid fears of Russian invasion. U.S. began to evacuate family members of the embassy in Kyiv the previous day (on Sunday).
24.02	1.96	0.60	0.01	FX policy / war	Start of the full-scale Russia's invasion. The NBU fixed the exchange rate and introduced strict regulations in the FX market.
01.03	0.65	0.88	-0.84	FX policy	The NBU lifted some restrictions on FX transactions; for example, capped withdrawals from cash accounts were allowed.
10.03	-1.59	-0.27	-0.66	Financing	The IMF approved 1.4 billion USD under the emergency Rapid Financing Instrument.
23.05	0.57	13.52	-0.17	FX policy	The NBU allowed authorized institutions to sell cash FX at rates deviating by more than 10% from the official exchange rate.
21.07	-0.66	2.70	2.65	FX policy	The NBU devalued the official U.S. dollar exchange rate by 25%.
29.07	0.98	2.11	-1.69	FX policy	The NBU banned exchange rate boards and made it mandatory to record exchange rate operations using video cameras.
10.10	0.04	0.16	0.11	War	The Russian Federation launched the first massive missile and drone attack on civilian infrastructure – the electricity grid.

Source: compiled by the author.

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Table 2. Summary statistics

Statistics	Bid	Ask	Midpoint	Brent, USD	VIX	Google trends	Buy, million USD	Sell, million USD
Average	35.3	35.7	35.5	101.1	25.7	35.7	13.9	107.7
St. Dev	5.1	4.9	5.0	13.3	4.2	13.2	41.7	70.5
Min	27.1	27.3	27.2	76.0	16.9	15.7	0.0	0.0
25th percentile	29.3	30.2	29.7	91.1	22.3	27.2	1.2	67.9
50th percentile	35.8	36.3	36.0	99.1	25.6	32.5	1.8	96.2
75th percentile	40.1	40.3	40.2	112.0	29.0	41.2	5.2	141.4
Max	42.5	42.8	42.6	133.2	36.5	100.0	472.6	454.7

Source: calculated by the author.

effective date. Event-day "one-hot" pulse dummies are constructed, with the board ban equal to 1 on Friday, 29.07. Exchange rate returns are reported for the dummy date, as well as for the day before and the day after the event.

From the summary statistics in Table 2, we can see that other fundamental variables such as Brent oil prices were on average 101.1 USD, the volatility index VIX fluctuated between 16.9 and 36.5, and the adjusted Google trends index varied from 15.7 to 100.0. The large difference between the average and median (50th percentile) values for buying transactions was caused by huge trading events such as the one on July 25, when 0.47 billion USD was bought.

METHODOLOGY

To model exchange rate dynamics, we assume that it depends on key fundamental factors, attention-based events including the exchange rate board ban, and selected dummy variables describing the largest shocks and accommodating the problem of outliers. Typical fundamental factors are Brent oil prices impacting mostly the value of the U.S. dollar, market volatility (VIX index), and net sales of foreign currency by the NBU. Since the U.S. market closes 7 hours (New York) later than the Ukrainian market, we use lagged variables to avoid look-ahead bias. Attention-based events are the number of Google searches for "exchange rate" and the board ban dummies.

Exchange rate is calculated as the midpoint between bid and ask quotes. Next, returns are defined as log-differences for price-like series. Index-like data is modelled in first differences.

The FX market is characterized by volatility clustering and persistence (long-term memory). In order to properly model these features, auto-regressive conditional heteroskedasticity (ARCH) and generalized ARCH components are used in the volatility equation of the regression model. Moreover, there can be asymmetric exchange rate reactions to negative and positive news, especially during the wartime period, when negative events can have a tremendous effect on FX dynamics. This effect is captured using the exponential GARCH (EGARCH) model (Nelson, 1991) [14]. In particular, the mean return and variance equations are defined under EGARCH (1, 1) as follows:

$$r_t = \theta_0 + \theta_1 r_{t-1} + \theta_2 NI_t + \theta_3 \Delta VIX_{t-1} + \theta_4 B_{t-1} + \\ + \theta_5 \Delta \ln(GT_t) + \theta_6 D_t^B + \theta_7 D_t^{BP} + \theta_8 D_t^C + \varepsilon_t \quad (1),$$

$$\ln \sigma_t^2 = \omega + \beta \ln \sigma_{t-1}^2 + \alpha |z_{t-1}| + \gamma z_{t-1} \quad (2),$$

where r_t is the exchange rate return, θ_i denotes the parameter *i* from the mean equation, NI_t represents net NBU interventions, ΔVIX_{t-1} is the lagged change in the VIX volatility index, B_{t-1} is the lagged return of Brent oil prices, $\Delta \ln(GT_t)$ is the change in logarithm of the Google trends index. D_t^B is the board ban dummy taking the value 1 on July 29. We also added a short-term window dummy D_t^{BP} that equals 1 during three consecutive days Monday-Wednesday (01.08-03.08). It captures the delayed reaction of the market. In terms of other dummies from Table 1, we included the dummy for May 23 D_t^C to model the largest jump in the daily exchange rate of 13.52% and to address the outlier problem. Exchange rate changes for other dummies are much smaller, and they were not included in the model since they create strong collinearity problems and degenerate calculation of standard errors when estimating the model.

Residuals are defined as $\varepsilon_t = \sigma_t z_t$, where z_t follows Student-t distribution $z_t \sim t(\nu)$ with ν degrees of freedom, σ_t^2 is the conditional GARCH variance, and ω, α, and γ are parameters from the variance equation. Coefficient β measures the persistence of variance with $\beta < 1$ guaranteeing convergence. Parameter α captures magnitude effect when $|z_{t-1}|$ increases volatility. Parameter γ models asymmetry (shock sign effect). For example, if it is negative $\gamma < 0$ and the shock is also negative $z_{t-1} < 0$, volatility increases more than when the shock is positive $z_{t-1} > 0$.

Student-t distribution is used because it has heavier tails than the Normal distribution and better describes financial data subject to extreme positive or negative shocks. Coefficient covariance is computed using two methods for robustness check: the ordinary method with the observed Hessian and the Huber-White (HW) covariance method using quasi-maximum likelihood (QML) sandwich estimator with the observed Hessian to address potential misspecification of the underlying distribution.

Other variables such as changes in the U.S. Fed and NBU policy rates, the S&P 500 stock market index, and the day of the week dummies did not improve the model and were therefore omitted.

Table 3. Model adequacy tests

Test Name	Null Hypothesis	Statistics	p-values
ARCH LM Heteroskedasticity Test	Homoskedasticity	F-statistic	0.680
Normality Test	Residuals are Normally distributed	Jarque-Bera	0.000
Engle-Ng Sign-Bias Test	No remaining sign-asymmetry in standardized residuals	Sign-Bias	0.212

Source: calculated by the author.

RESULTS ANALYSIS AND DISCUSSION

Model adequacy tests are presented in Table 3. The resulting residuals are homoskedastic, not Normally distributed, which is expected because they are modelled using Student-t distribution, and exhibit no remaining sign asymmetry. Based on the correlograms, residual autocorrelation is absent both in the mean and variance equations.

As expected, estimated coefficients in the case of HW and ordinary standard errors are the same but the corresponding significance levels are different (Table 4). The ban on July 29 is associated with a 1.546% depreciation of the hryvnia, and this result is statistically significant across both specifications. This type of relationship can be explained by the late publication of the Resolution on the NBU website at 18:41 local time, which is after the trading day closed, and exchange rate boards were not effectively removed on that day. Notwithstanding this fact, during the next three days the average daily appreciation constituted 1.766%. Actual cumulative appreciation over the tested board ban period was 2.97%, while the effect attributed to board ban dummies equals 3.74%. Since the exchange rate was increasing during 2022, the respective lagged coefficient is positive and significant and is equal to 0.181. NBU net interventions are marginally significant only in the ordinary specification. Positive sign may indicate the presence of endogeneity, when interventions are made when depreciation has already started to satisfy increasing market demand for the U.S. dollar. Similar results were reported by Kereya (2002) [8]. The increase in the volatility index leads to hryvnia depreciation since in such situation the U.S. dollar may be treated as a safe haven and investors increase their demand for this currency. Brent oil prices appeared insignificant. Finally, an increase in Google searches for "exchange rate" has a significant impact only in ordinary specification. For example, if the trend index doubles, for instance from 20 to 40, the daily exchange rate will move approximately by 0.41%.

Table 4. Regression results

Coefficient	HW	Ordinary
Mean equation		
Intercept	0.129	0.129**
r_{t-1}	0.181**	0.181***
NI_t	0.002	0.002*
ΔVIX_{t-1}	0.0003**	0.0003**
B_{t-1}	0.005	0.005
$\Delta \ln(GT)_t$	0.596	0.596**
D^B_t	1.546***	1.546***
D^{BP}_t	-1.766***	-1.766***
D^C_t	13.299***	13.299***
Variance equation		
Intercept	-0.628***	-0.628***
α	0.751***	0.751***
γ	-0.064	-0.064
β	0.850***	0.850***
Degrees of Freedom	2.834***	2.834***

Source: estimated by the author

Note: *** denotes significant coefficients at 99% confidence level, ** — at 95%, and * — at 90% confidence level.

The variance magnitude effect of 0.751 indicates that yesterday's shock has a significant impact on today's variance. The variance persistence coefficient is 0.85 which is relatively high indicating that volatility propagates into the future. The log-variance deviation from its long-term value vanishes by half within approximately 4—5 days. Given that it is less than 1, variance will eventually converge to its long-term value if no further disturbances occur. The data does not provide strong evidence of asymmetric volatility since the respective coefficient is not statistically significant. The new impact curve shown in Figure 3 has a

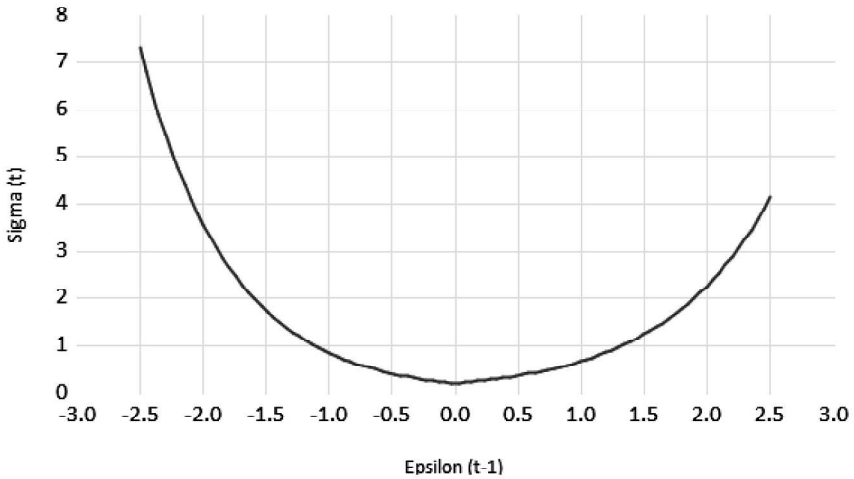

Figure 3. News impact curve

Source: built by the author.

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U-shape indicating that the larger absolute value of the shock , the larger the variance in the next period. There is weak asymmetry with negative (appreciation) shocks increasing the variance more strongly; however, as already stated, this effect is not statistically significant.

Finally, the estimated degrees of freedom of the Student-t distribution of the error term equal 2.834. Values in the [2;4] interval strongly indicate the presence of extremely heavy tails compared to the Normal distribution. This can be explained by the large shocks observed during the wartime period in 2022.

CONCLUSIONS

In this paper, we tested the effect of the FX board ban event on the UAH/USD exchange rate. This event occurred on July 29, 2022 and was imposed by the NBU through an official Resolution to tackle potential volatility and rapid depreciation of the local currency. EGARCH (1, 1) model with exogenous variables was used to measure the effect. First, it was found that the board ban effect was positively correlated with depreciation on the day of implementation (likely due to the publication of the Resolution after the trading day had closed). Notwithstanding this fact, during the next three business days (August 1-3), the effect was negative and persistent, which helped central bank to reduce exchange rate level by 2.97%. The net board ban effect is even larger by absolute value and equals -3.74%. Second, NBU interventions, Brent crude oil prices, and Google search trends for "exchange rate" appeared to be insignificant or marginally significant. On the contrary, past exchange rate return and volatility index increases lead to further depreciation. Third, there are important war-related, policy, and financial events that may affect the exchange rate, and the key outlier was captured using an additional dummy variable. Finally, variance equation indicates strong variance persistence, with shocks from the previous period having a large in magnitude effect on the current volatility. Asymmetric effects were not significant, while abnormally high shocks are captured by the heavy tails of the Student-t distribution of the error term.

From this research, we can see that behavioral aspects of financial markets can have a tangible impact on real variables, in a similar way as fundamental macroeconomic factors. Such attention-based events as the board ban appear to be an effective regulatory tool in the FX market for the NBU. However, there is still room for improvement. In future research, it would be useful to analyze events that are better isolated in time to have pure effect of such interventions, and to consider similar behavioral regulatory measures to better understand their impact on real economic variables.

Література:

1. Про особливості регулювання та нагляду за здійсненням діяльності з торгівлі валютними цінностями в готівковій формі в період дії воєнного стану та внесення змін до постанови Правління Національного банку України від 06 березня 2022 року № 39: постанова Правління Національного банку України від 29.07.2022 № 165. URL: https://bank.gov.ua/ua/legislation/Resolution_29072022_165 (дата звернення: 25.02.2026).

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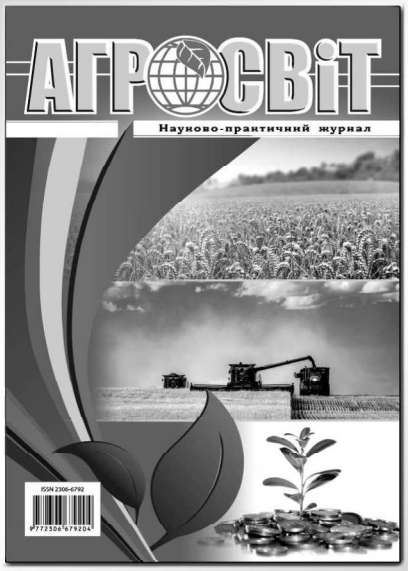

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