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050022, Almaty, Kazakhstan.*e-mail: andabayeva.gulmira@kaznu.kz**ESTIMATION OF VOLATILITY OF SHARES OF THE KAZAKHSTAN STOCK MARKET BASED ON GARCH MODELS****Abstract**

Because it is a crucial indicator of investment risk and can signal potential price swings, share volatility is vital. Larger volatility suggests a larger chance of both significant gains and large losses. Because investors utilise it to find trading opportunities and match their assets with their risk tolerance, it is essential for making well-informed decisions, pricing alternatives, and building portfolios. The primary purpose of the article. Forecasting and assessing the volatility of stocks in the securities market of the Republic of Kazakhstan. Research methodology. The article systematically analysed and synthesised scientific information. Analysing various methods in the research of foreign scientists, a generalised autoregressive heteroskedasticity model was used, which assumes that the current variability of the dispersion is influenced by both previous changes in indicators and prior estimates of the dispersion (GARCH model). Research features / value. This article attempts to assess the riskiness of stocks in the securities market of the Republic of Kazakhstan by reviewing existing theories and empirical studies. Research results. A comparison of the risks associated with HSBK, KZTK, and KZTO stocks reveals that an investor should focus primarily on a stock's risk. To do this, you need to identify the stock's high- and low-volatility periods, as well as the distribution of daily price fluctuations. GARCH model results indicate that KZTK stock has a higher risk than other stocks. Empirical research has shown that these financial instruments alternate between periods of high and low volatility. A financial instrument's risk will be overestimated during a period of low volatility by the first data points from an exceptionally high volatility period.

Keywords: share volatility, GARCH model, stock market, risk management, financial econometrics**Introduction**

The stock market has experienced previously unheard-of volatility amid economic globalisation, particularly following the effects of the recent global financial crisis. This volatility hinders the stock market's normal functioning and increases market risk and uncertainty. Accurately measuring the volatility of stock index returns is especially crucial to lowering this uncertainty. At the same time, attention has shifted to the stock market's positive growth due to its significant role in the global economy. Therefore, to quantify the volatility of stock index returns, one must be aware of the theoretical and literary significance of volatility [1]. In finance, volatility prediction is essential. We can assess the likelihood of obtaining a specific outcome by using estimates of volatility and central tendency. The assignment of diversified assets to create effective portfolios with a higher risk to reward ratio is a common difficulty for financial analysts [2]. Stock market volatility, the statistical deviation of prices from their average, is a measure of the magnitude and velocity of price swings over a given period. While low volatility denotes steady, predictable price swings, lower risk, and lower potential profits, high volatility denotes frequent, abrupt changes in value, higher risk, and possibly huge profits. When deciding whether to buy or sell stocks, investors use this metric to assess the risk and potential returns of their holdings. Technological breakthroughs and growing globalisation have expanded the range of information influencing stock markets, coming from a variety of sources. Nevertheless, a thorough analysis of how firm-level and macro factors affect stock market volatility is lacking. Understanding share price volatility enables organisations and investors to make both constructive and corrective decisions to support efficient financial management. Research publications, published reports, pertinent books, and a variety of newspaper stories are examples of secondary sources from which the data for this study was gathered. Along with ARIMA, Wavelet Transformation Models, and Artificial Neural Network

models, which were used as advancements in earlier analyses, the GARCH family of models was mainly used to quantify volatility [4].

Using data from Switzerland, Stulz & Wasserfallen (1995) developed a demand function to explain why shares available to international investors trade at a premium [5]. The findings of Foerster & Karolyi's (1998) investigation of international companies listed in the US provide credence to the theories of investor recognition and market segmentation [6]. Bomfim (2003) examined the impact of news and pre-announcements on the stock market when monetary policy decisions are made public. The findings imply that on the days before regularly planned policy pronouncements, the stock market is typically quiet—conditional volatility is unusually low [7].

Li et al. (2020) investigated the relationship between corporate social responsibility (CSR) and options trading. By encouraging shareholder activism, as seen by a rise in long-term, socially conscious institutional ownership and CSR recommendations, as well as by escalating product market rivalry, which promotes green innovation and CSR activities related to products, we find that options trading can improve corporate social responsibility [8]. The benefits are less noticeable in companies with entrenched management but more evident in well-run businesses). Megaritis et al.'s (2021) empirical study demonstrates that while stock market volatility is comparatively resilient to shocks in observable uncertainty proxies, it is greatly affected by rising macroeconomic unpredictability (9)].

In an increasingly globalised world, Tenkovskaya (2023) conducted research to determine the volatility in the profitability of PJSC "NK Lukoil" shares during economic crises. The study's findings are helpful because they can assist investors in developing trading plans, determining the minimum value of the Russian oil company's securities, and preparing to buy shares of the company following a decline in value and significant volatility in profitability [10]. Ajmi's (2021) research experimentally examines the conditional variance, or volatility, in the daily returns of seven sectoral indices and the Bursa Kuwait market index from May 13, 2012, to March 1, 2018. In addition to being skewed to the left and non-normal, the returns showed signs of ARCH effects and leptokurtosis. The results of the GARCH-M model indicated a negative correlation between risk and returns for the indices, whereas the symmetric GARCH model showed evidence of volatility clustering and persistence [11]. Barkha et al. (2020) conducted a study to determine the degree of dynamic conditional correlation between the Russian and developed stock markets, as well as to identify patterns of profitability volatility. The findings showed that the US and Russian markets had a unidirectional link, whereas the Russian market and the developed European markets had a bidirectional correlation [12].

Materials and methods of research

The financial markets of the Republic of Kazakhstan, specifically the dynamics of financial assets in the stock market, such as shares, are the objects of this research. At the initial stage, during the preparation of materials, the method of literature and data analysis was applied. This approach enabled the collection of necessary primary and secondary information, including statistical data. To ensure a comprehensive study, the comparative method was also employed. Using statistical data from the Investfunds platform, GARCH models were applied to evaluate the dynamics of Kazakhstani stocks.

Results and their discussion

Market risk refers to the possibility of losses due to adverse movements in financial markets. Market risk is of a macroeconomic nature, that is, the sources of market risks are macroeconomic indicators of the economic system - market indices, interest rate curves, etc.

A key concept for assessing and managing market risk is volatility. The idea of volatility is very relevant and widely discussed in financial mathematics. Volatility (i.e. changeability) is defined in various ways, and the term itself is used to name different measures of variability [13].

Volatility is the degree of price change over a specific period of time, i.e. if there are jumps in the quote or index chart, then the curve is "volatile", and if the graph line is more even, then it is not volatile.

The volatility value used in models can be determined in several ways, for example, using a formula of the following type:

$$\sigma_{\varepsilon} = \sqrt{\frac{1}{N-1} \sum_i \varepsilon_i^2} \quad (1)$$

The reasons for the variation in financial indicators can be diverse and cause sharp jumps, price changes. If, after some time, no significant causal effects arise in the economy, financial markets stabilise, and prices in that market are in equilibrium.

Prices change during a sharp jump in supply. A large volume of currencies, stocks, and commodities can cause prices to fall, and conversely, a decrease in this volume can temporarily raise prices. Such events are rare, for example, in the second hypothesis of random walk.

The use of nonlinear models in the study of prices arose from the need and desire to explain some observed phenomena of the $h_n = \ln \frac{S_n}{S_{n-1}}$ "cluster" type, that is, their "dangerous" changes, the fact that most of the data in the distribution of values consists of many small or insignificant events, the observation of long-term memory in prices, and other properties that cannot be estimated within the framework of linear models.

Economic indicators, including financial indices, are volatile, that is, they are subject to change.

Microeconomic indicators that provide an idea of the state of the economy in general and on average, such as the volume of traded shares, their current prices, as well as the volume of investment, the general level of interest rates, production, consumption and other macroeconomic indices, vary from their average values to random deviations, that is, fluctuations. In these cases, fluctuations can be volatile and occur at very high frequencies. Such characteristics are also observed in stochastic and chaotic models, which explains attempts to describe fluctuating evolutions, "catastrophic" changes, the grouping and clustering of values, sharp fluctuations, and other phenomena with such models. In analysing and evaluating such phenomena, researchers using statistical data face the task of choosing and building an effective model.

Modelling the volatility of asset returns can be based on the concept of heteroscedasticity. Heteroscedasticity is a property of the stochastic component of regression, which is expressed in the fact that their dispersion (and, consequently, the spread of error values) is not constant, i.e. the magnitude of the dispersion changes over time.

ARCH, widely recognised in financial statistics and financial mathematics, and GARCH. Let us describe several chaotic and stochastic linear econometric conditional heteroskedastic models.

variable that represents $h = (h_n)_{n \geq 1}$ the values of, for example, a stock price or exchange rate at a time point $n = 0, 1, \dots$. Time can be measured in seconds, minutes, hours, days, months, and years. $S_n = S_n(\omega)$ The following formula is used to describe the evolution of logarithmic returns:

$$h_n = \ln \frac{S_n}{S_{n-1}}, \quad (2)$$

In this paper, the distribution of logarithmic stock returns is described by the ARCH model, which has the following form

$$\sigma_n^2 = \alpha_0 + \sum_{i=1}^p \alpha_i h_{n-1}^2 \quad (3)$$

Based on the residuals, an autoregressive conditional heteroscedasticity (ARCH) model is fitted. Tusindirudin karapaiymdyly ushin sipattalatyn ARCH (p) - autoregressive charty heteroskedastical model p parametrin birge ten dep alamyz.

When p=1

$$\sigma_n^2 = \alpha_0 + \alpha_1 h_{n-1}^2, \tag{4}$$

One of the first generalized forms of the ARCH(p) model is the GARCH(p, q) model, which is characterized by two parameters p, q. In this model, and are also considered σ_n ARCH(p) models, but the following $h_n = \sigma_n \varepsilon_n$ GARCH(p, q) relation is proposed for the formation of "volatility":

$$\sigma_n^2 = \alpha_0 + \sum_{i=1}^p \alpha_i h_{n-i}^2 + \sum_{j=1}^q \beta_j \sigma_{n-j}^2 \tag{5}$$

let's give some simple formulas related to the GARCH(1,1) model, which belongs to a special type of this generalized autoregressive conditional heteroskedastic model:

$$\sigma_n^2 = \alpha_0 + \alpha_1 h_{n-1}^2 + \beta_1 \sigma_{n-1}^2 \tag{6}$$

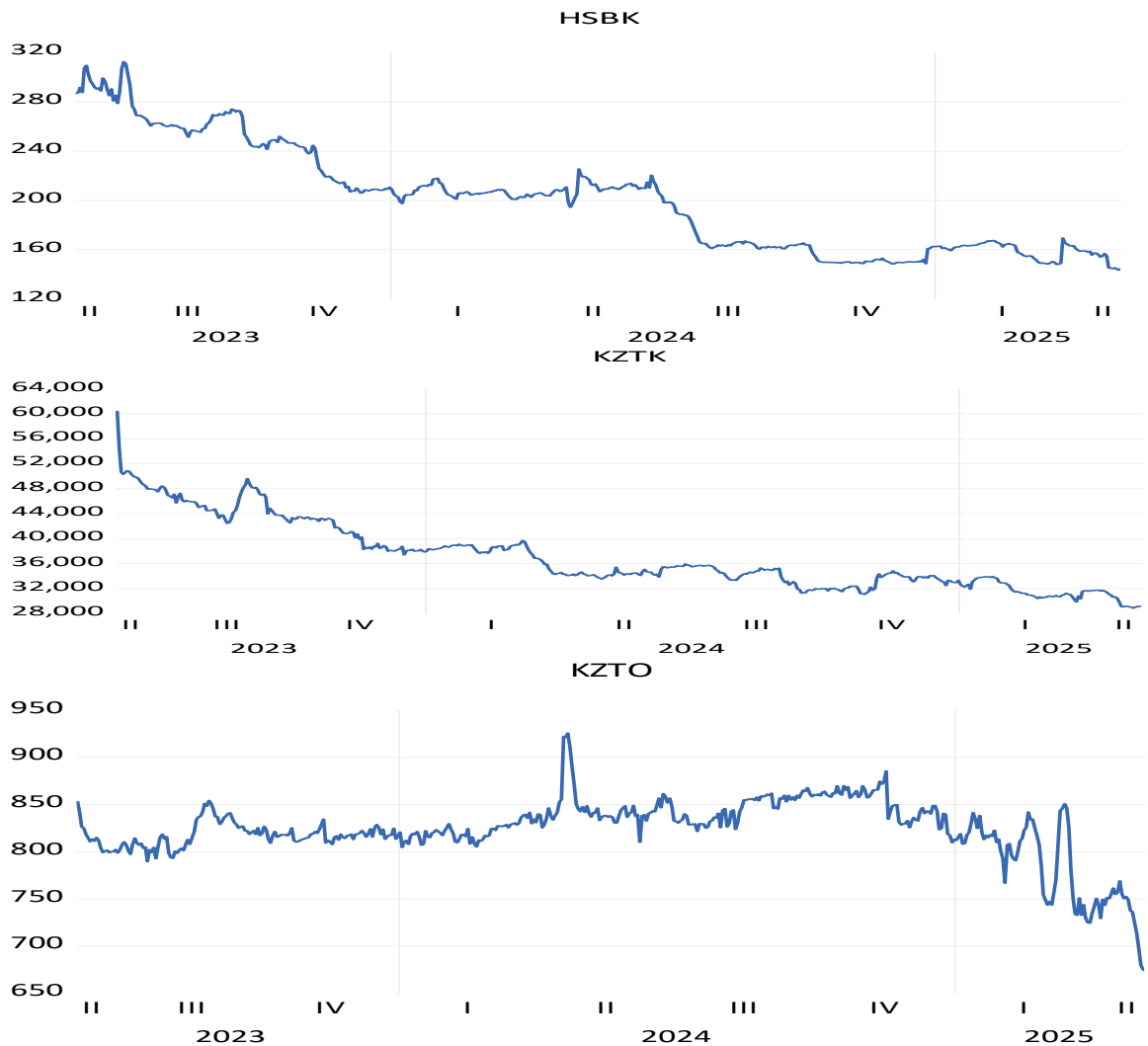
where $\alpha_0 > 0, \alpha_1 \geq 0, \beta_1 \geq 0$.

Due to the lack of liquid financial instruments, many well-known volatility models do not apply to the Kazakhstani stock market. However, for Kazakhstani investors, issues related to determining the ratio of risk and portfolio return often arise. Therefore, as an example, let's consider the most liquid ordinary shares of Kazakhstani issuers, such as the "Pipeline Transport" sector - KazTransOil JSC with the ticker "KZTO", the "Banks" sector - Halyk Bank "HSBK" and the "Communications and Telecommunications" sector - Kazakhtelecom JSC with the ticker "KZTK". Their main characteristics are presented in Table 1.

Table 1 - Characteristics of HSBK, KZTK, and KZTO shares

The action name , ticker	Kazakhtelecom, simple action (KZ0009093241, KZTK)	Halyk Bank, common stock (KZ000A0LE0S4, HSBK)	KazTransOil , ordinary share (KZ1C00000744, KZTO)
Industry	Contact and telecommunications	Bank account	Pipe car
Capitalization	634 922.84 million KZT 1 224.47 million USD	7 194 500.00 million KZT 13 874.80 million USD	328 844.21 million KZT 634.19 million USD
Div. profitability for the 4th quarter	3.54%	8.84%	7.60%
Last monthly price dynamics	+ 23.47%	+ 3.90%	+ 5.69%
Last in the year price dynamics	+74.15%	+29.40%	+1.54%
Price as of 06.05.2025	59 298.00 KZT (+2.16%)	287.78 KZT (-0.08%)	854.95 KZT (+0.21%)
Note: Compiled based on https://investfunds.ru/stocks/Kazakhtelecom/			

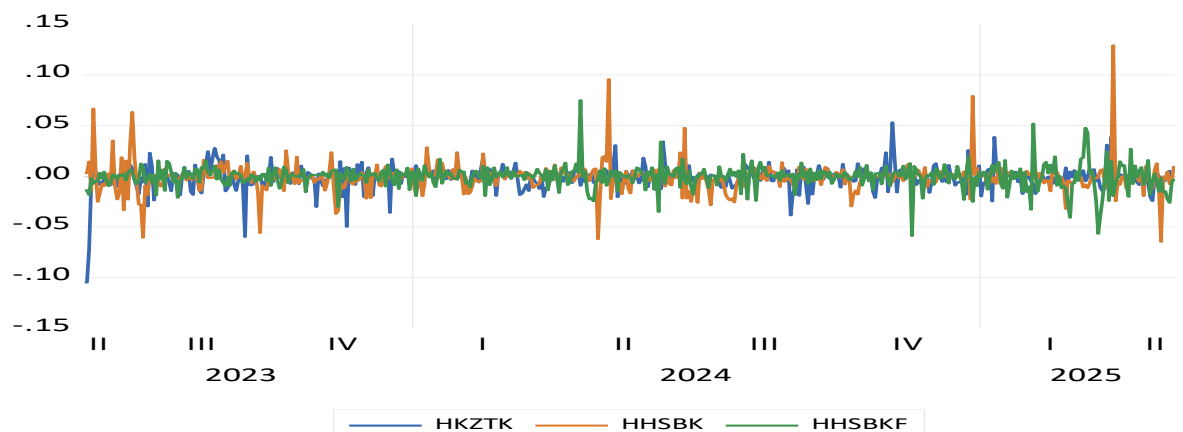
Figure 1 is too selective for research; the dynamics of stock prices are shown taken from the Investfunds website. The stock charts all assessments during the period. It can be seen that the decrease in 2023 was third in the quarter - KazTransOil. The ticker of the Joint Stock Company is "KZTO". There has been a significant increase in the price of the common stock named collapse. It should be noted that Halyk Bank has seen a sharp rise in the second quarter of 2024. Other stocks with tickers HSBK and KZTK have a downward trend from 06.01.2023 to 06.05.2025. The entire graph shows that the prices of the stocks under consideration will be volatile.



Figur 1 - Dynamics of HSBK, KZTK and KZTO stock prices (06.01.2023-06.05.2025)

Note: [Compiled based on https://investfunds.ru/stocks/Kazakhtelecom/](https://investfunds.ru/stocks/Kazakhtelecom/)

Figure 2 shows that the time series of stock market returns alternates between periods of significant errors and periods of minor errors, or high and low volatility, respectively. This is also characteristic of exchange rate time series. After the first quarter of the years under consideration, returns show slight increases, and the volatility of all stocks is also evident, with some quarters showing sharp jumps in returns.



Figur 2 - KZTK , HSBK, and KZTO for stocks subject to the GARCH (1,1) model σ_n " volatility " chain computer to work implementation schedule

Note: [Compiled based on https://investfunds.ru/stocks/Kazakhtelecom/](https://investfunds.ru/stocks/Kazakhtelecom/)

The data studied in Table 2: *Stocks with ticker symbols HSBK, KZTK, and KZTO, descriptive statistics quoted.*

Table 2 - *HSBK, KZTK and KZTO tickers* Statistical characteristics of logarithmic stock returns

	<i>HHSBK</i>	<i>HKZTK</i>	<i>HKZTO</i>
Mean	-0.001653	-0.001347	-0.000497
Median	-0.000761	-0.000789	0.000601
Maximum	0.053113	0.129057	0.074995
Minimum	-0.104878	-0.064801	-0.059061
Std. Dev.	0.012594	0.014270	0.011182
Skewness	-2.531481	2.266542	0.073779
Kurtosis	23.86579	25.77012	11.54674
Jarque-Bera	9681.312	11319.58	1534.439
Probability	0.000000	0.000000	0.000000
Sum	-0.833246	-0.679088	-0.250508
Sum Sq. Dev.	0.079781	0.102424	0.062897
Observations	504	504	504
Note: Compiled based on https://investfunds.ru/stocks/Kazakhtelecom/			

Table 2 shows the descriptive statistical results for each variable used in our model, including sample mean values (more precisely, mean and median) and measures of dispersion (kurtosis, skewness, minimum, maximum, Jarque-Bera statistic, and standard deviation). Descriptive statistics for *HSBK*, *KZTK*, and *KZTO* logarithmic stock price. The corresponding means are -0.001653, -0.001347, -0.000497, and the corresponding medians are -0.000761, -0.000789, 0.000601. And the corresponding standard deviations are 0.012594, 0.014270, 0.011182. The corresponding values of the Jarque-Bera statistic are 9681.312, 11319.58, and 1534.439, and for all indicators the probabilities are zero (i.e., less than 0.05), so we can conclude that the series are not uniformly distributed. In the table, we see that the skewness coefficient for all indicators except *HSBK* is negative, i.e., they have negative skewness.

HHSBK, *HKZTK* and *HKZTO* To model logarithmic stock prices, we start by testing the stationarity of the time series. It is well known that Augmented Dickey-Fuller (ADF) unit root tests are used to determine whether data support stationarity or non-stationarity. In this study, augmented Dickey-Fuller (ADF) unit root tests were used to test the levels or differences of variables that are assumed to be stationary. Some variables can be used at the level $I(0)$, while other variables are stationary at the first difference $I(1)$. Table 3 presents the results of the augmented Dickey-Fuller (ADF) unit root tests for the series at the level and the first difference. ADF tests the null hypothesis of non-stationarity, which is rejected if the ADF is negative or exceeds the absolute critical values of 1%, 5%, and 10%. The results show that all stocks are stationary at the first difference, and their logarithmic returns are stationary at the $I(0)$ condition.

Table 3 - ADF unit root tests

Variables	Level	First diff.	Order of Integration	Variables	Order of Integration
HSBK	0.486 (0.986)	-20.899*** (0.000)	I(1)	HHSBK	I(0)
KZTK	1.240 (0.998)	-23.218*** (0.000)	I(1)	HKZTK	I(0)
KZTO	-2.526 (0.667)	-19.521*** (0.000)	I(1)	HKZTO	I(0)
Notes: 1) *, **, *** denotes statistically significant at the 10%, 5% and 1% levels, respectively p-value is inside brackets					

Conditional heteroscedasticity means that the conditional variance of the error depends on time. All data from 06.01.2023 to 06.05.2025 The GARCH(1,1) model for the return on shares of HSBK, KZTK, KZTO was estimated using the EViews program. Let's determine the corresponding profitability of stocks using the following formulas: $h_n(HSBK) = \ln \frac{HSBK_n}{HSBK_{n-1}}$, $h_n(KZTK) = \ln \frac{KZTK_n}{KZTK_{n-1}}$ және $h_n(KZTO) = \ln \frac{KZTO_n}{KZTO_{n-1}}$ The following tables present the results of estimating the GARCH (1,1) model.

Table 4 - Parameters of the GARCH(1,1) model for HSBK

Yes	Coeff	Std. Error	z - Statistic	Prob .
C	-0.001643 ***	0.000183	-8.966345	0.0000
h n-1	0.074468 ***	0.027539	2.704130	0.0068
Variance Equation				
C	4.75E-05 ***	4.33E-06	10.97064	0.0000
ARCH (1)	2.503417 ***	0.171817	14.57029	0.0000
GARCH (1)	0.009221	0.010638	0.866861	0.3860
Note: compiled by authors. Notes: 1) *, **, *** denotes statistically significant at the 10%, 5% and 1% levels, respectively				

$$h_n(HSBK) = -0.001643 + 0.074468h_{n-1}(HSBK) + u_t$$

$$\sigma_n^2 = 4.75E - 05 + 2.503417\sigma_{n-1}^2 + 2.503417u_{n-1}^2$$

The sensitivity of volatility to past market shocks is statistically significant (0.074468), which in this case means that sharp changes in the stock price affect future fluctuations. The volatility assessment is 2.503417 and is also important, in terms of interpretation, we note that these stocks have a so-called long memory, that is, volatility after a shock change persists for an extended period of time, which means that the market continues to be unstable, which is favorable, for example, for traders . For KZTK and KZTO corresponding to sensitivity to past market shocks are also significant (0.193015 and -0.191916 , respectively), and the corresponding volatility estimates are 0.886200 and 0.338238 .

Table 5 – KZTK Parameters of the GARCH (1,1) model for

Yes	Coeff.	Std . Error	z - Statistic	Prob .
C	-0.000900 ***	0.000272	-3.312714	0.0009
h n-1	0.193015 ***	0.035416	5.449891	0.0000
Variance Equation				
C	3.94E-05 ***	3.62E-06	10.88408	0.0000
ARCH (1)	0.886200 ***	0.090065	9.839590	0.0000
GARCH (1)	0.092057 ***	0.031999	2.876848	0.0040
Note – compiled by authors. Notes: 1) *, **, *** denotes statistically significant at the 10%, 5% and 1% levels, respectively				

$$h_n(KZTK) = -0.000900 + 0.193015h_{n-1}(KZTK) + u_t$$

$$\sigma_n^2 = 3.94E - 05 + 0.886200\sigma_{n-1}^2 + 0.092057u_{n-1}^2$$

KZTK and KZTO is very close to each other, indicating that the volatility shocks are pretty stable, for example, KZTK for the stock 0.886200+0.092057 are close to each other (Table 5). This result is often observed in high-frequency financial data. For HSBK , the sum of the ARCH and GARCH coefficients is much higher.

Table 6 - Parameters of the GARCH (1,1) model for *KZTO*

Yes	Coeff.	Std. Error	z-Statistic	Prob.
C	4.52E-05	0.000358	0.126302	0.8995
hn-1	-0.191916***	0.048145	-3.986234	0.0001
Variance Equation				
C	9.15E-06***	1.91E-06	4.796164	0.0000
ARCH(1)	0.338238***	0.037693	8.973399	0.0000
GARCH (1)	0.669087 ***	0.032321	20.70133	0.0000
Note – compiled by authors.				
Notes: 1) *, **, *** denotes statistically significant at the 10%, 5% and 1% levels, respectively				

$$h_n(GB_KZMS) = 4.52E - 05 - 0.191916h_{n-1}(GB_KZMS) + u_t$$

$$\sigma_n^2 = 9.15E - 06 + 0.338238\sigma_{n-1}^2 + 0.669087u_{n-1}^2$$

In the calculation experiment, it was possible to determine that the above parameters show that the daily changes in stock prices are distributed according to a customary law, and that it is more appropriate to use the GARCH model during periods of high and low volatility. A comparative analysis of the risks of *HSBK*, *KZTK*, *KZTO* stocks shows that an investor should pay special attention to the risk of a particular stock. To do this, it is necessary to determine the distribution of daily price changes and the periods of high and low volatility of the stock. The results of the GARCH models show that the riskiness of *the KZTK* stock is higher than that of others.

Empirical studies show that periods of high volatility and periods of low volatility for these financial instruments alternate one after another. Initial data that appears during periods of extremely high volatility will overstate the risk of a financial instrument during periods of low volatility.

Conclusions

For investors and government authorities, analyzing stock market volatility is crucial, particularly during unstable and financial crisis times. In this sense, selecting instruments and techniques for stock index volatility modeling is a pressing problem. The GARCH model is regarded as one of these techniques in this research. The unique practical capabilities of GARCH models for analyzing stock market activity have been demonstrated through testing. Consequently, some significant practical outcomes were achieved. First, it was discovered during the process of building and choosing the optimal model for each business that the amplitude of the dynamics of the stock quotes of KazakhTransOil, Halyk Bank, and Kazakhtelecom is almost equal for both positive and negative shocks. Forecasts obtained using each parameter for each stock except *KZTO* showed that all models under-predicted returns.

Although its price has dropped by -4.7% in 2024, *KazTransOil* is the only one of the equities we are looking at that is among the top 10 most profitable stocks in the *KASE* index. The *KASE* index contains stocks that give you the opportunity to make significant returns.

However, depending on the security, investing in shares of specific companies from the index list may prove to be both enormously profitable and unprofitable. Investors should therefore keep in mind that they should evaluate market performance, industry trends, and the company's financial performance before purchasing shares. Most significantly, they should diversify their holdings to lower risks.

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ОЦЕНКА ВОЛАТИЛЬНОСТИ АКЦИЙ КАЗАХСТАНСКОГО ФОНДОВОГО РЫНКА НА ОСНОВЕ МОДЕЛЕЙ GARCH

Аннотация

Поскольку волатильность акций является важнейшим показателем инвестиционного риска и отражает возможные ценовые колебания, она играет ключевую роль в финансовом анализе. Более высокая волатильность означает более высокую вероятность как значительных прибылей, так и убытков. Инвесторы используют данный показатель для поиска торговых возможностей и согласования своих активов с уровнем допустимого риска. Таким образом, волатильность необходима для принятия обоснованных решений, оценки стоимости производных инструментов и формирования инвестиционных портфелей. Цель статьи - прогнозирование и оценка волатильности акций на рынке ценных бумаг Республики Казахстан. Методология исследования. В статье проведён системный анализ и обобщение научной информации. На основе анализа различных методов, применяемых зарубежными исследователями, использована обобщённая авторегрессионная модель условной гетероскедастичности (GARCH), предполагающая, что текущая изменчивость дисперсии зависит как от предыдущих изменений показателей, так и от предыдущих оценок дисперсии. Научная новизна / ценность. В работе предпринята попытка оценить рискованность акций на рынке ценных бумаг Казахстана через анализ существующих теорий и эмпирических исследований. Результаты исследования. Сравнение рисков, связанных с акциями HSBK, KZTK и KZTO, показало, что инвестору необходимо уделять особое внимание рисковости каждой отдельной акции. Для этого требуется определить периоды высокой и низкой волатильности, а также распределение ежедневных ценовых колебаний. Результаты моделирования по методу GARCH свидетельствуют о том, что акции KZTK обладают более высоким уровнем риска по сравнению с другими. Эмпирические данные подтверждают, что рассматриваемые финансовые инструменты постоянно чередуются между фазами высокой и низкой волатильности. При этом в периоды низкой волатильности риск инструмента может быть завышен на основании данных, полученных в условиях экстремально высокой волатильности.

Ключевые слова: волатильность акций, модель GARCH, фондовый рынок, управление рисками, финансовая эконометрика.

ҚАЗАҚСТАН ҚОР НАРЫҒЫ АКЦИЯЛАРЫНЫҢ ҚҰБЫЛМАЛЫЛЫҒЫН GARCH МОДЕЛЬДЕРІ НЕГІЗІНДЕ БАҒАЛАУ

Андатпа

Акциялардың құбылмалылығы инвестициялық тәуекелдің маңызды көрсеткіші болып табылады және ықтимал бағалық ауытқуларды сипаттайды. Құбылмалылықтың жоғары болуы ірі пайда алу немесе айтарлықтай шығынға ұшырау ықтималдығының артуын білдіреді. Инвесторлар бұл көрсеткішті сауда мүмкіндіктерін анықтау және өз активтерін тәуекелге төзімділік деңгейімен сәйкестендіру үшін қолданады.

Сондықтан құбылмалылық саналы шешім қабылдау, туынды құралдарды бағалау және инвестициялық портфель қалыптастыруда аса маңызды. Мақаланың мақсаты - Қазақстан Республикасының бағалы қағаздар нарығындағы акциялардың құбылмалылығын болжау және бағалау. Мақалада ғылыми ақпаратқа жүйелі талдау жүргізіліп, қорытындыланып, шетелдік ғалымдардың әдістемелерін зерделеу негізінде ағымдағы дисперсия өзгергіштігінің алдыңғы көрсеткіштер мен дисперсия бағаларына тәуелділігін ескеретін жалпыланған авторегрессиялық шартты гетероскедастикалық модель (GARCH) секілді зерттеу әдіснамасыны қолданылды. Қазақстанның бағалы қағаздар нарығындағы акциялардың тәуекел деңгейін қолданыстағы теориялар мен эмпирикалық зерттеулерді шолу арқылы бағалау әрекеті жасалды. Зерттеу нәтижелері. HSBK, KZTK және KZTO акцияларының тәуекелдерін салыстыру инвестордың әрбір акцияның тәуекеліне ерекше көңіл бөлуі қажет екенін көрсетті. Ол үшін күнделікті бағалық ауытқулардың таралуын және жоғары әрі төмен құбылмалылық кезеңдерін анықтау қажет. GARCH моделінің нәтижелері KZTK акцияларының басқа акцияларға қарағанда тәуекелі жоғары екенін айқындады. Эмпирикалық зерттеулер бұл қаржы құралдарының жоғары және төмен құбылмалылық кезеңдерінің үздіксіз алмасып отыратынын көрсетті. Сонымен қатар төмен құбылмалылық кезеңдерінде тәуекел деңгейі бұрынғы жоғары құбылмалылық жағдайларына сүйене отырып артық бағалануы мүмкін.

Негізгі сөздер: акциялардың құбылмалылығы, GARCH моделі, қор нарығы, тәуекелдерді басқару, қаржылық эконометрика.

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