

Beta, Trading Volume, and Expected Return: A Case Study of the R-LQ45X ETF on the Indonesia Stock Exchange

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ABSTRACT

This study examines the effect of Beta and Trading Volume on the Expected Return of the R-LQ45X Exchange-Traded Fund (ETF), a single index-based ETF listed on the Indonesia Stock Exchange (IDX), over the 2020–2024 period. The study uses secondary data consisting of the monthly closing prices and trading volumes of the R-LQ45X ETF, yielding 60 monthly observations obtained from the official IDX website and Yahoo Finance. The data were analyzed using descriptive statistics and multiple linear regression with SPSS. The results show that Beta has a positive regression coefficient (0.000) but is not statistically significant (t -test $p = 0.815 > 0.05$), indicating that Beta has no statistically significant effect on Expected Return. Trading Volume has a positive regression coefficient ($3.244E-8$) and is statistically significant (t -test $p = 0.001 < 0.05$), indicating a significant positive effect on Expected Return. Jointly, Beta and Trading Volume significantly affect Expected Return ($F = 6.143$; $p = 0.004 < 0.05$). However, the model's explanatory power is low, with an R^2 of 17.7%, meaning that Beta and Trading Volume together explain only a small proportion of the variation in Expected Return, with the remainder attributable to factors outside the model.

Keywords: Capital Asset Pricing Model, Beta, Trading Volume, Expected Return, ETF, LQ45

1. INTRODUCTION

Over the past decade, the popularity of Exchange-Traded Funds (ETFs) has surged in global markets, with record flows into ETFs, making them an essential tool for both retail and institutional investors. This surge in global flows has impacted how markets react to price movements of the instruments they replicate. The phenomenon of capital flows and their role in influencing the returns and volatility of underlying instruments has become a focus of modern financial research (Johnson, 2025). Exchange-Traded Funds (ETFs) have become one of the fastest-growing instruments in global capital markets, combining the diversification of mutual funds with the intraday tradability of stocks (Lettau & Madhavan, 2018; Otoritas Jasa Keuangan, 2024).

In Indonesia, index-based ETFs are still a comparatively young market segment, and the R-LQ45X ETF which tracks the LQ45 index of the 45 most liquid stocks on the Indonesia Stock Exchange (IDX) is among the most established, giving local investors diversified access to the market's blue-chip constituents (Suhada et al., 2024). Between December 2022 and early 2024, the net asset value (NAV) per unit of the R-LQ45X ETF rose from 98.82 to the 105–110

range (Bareksa, 2025). A rising NAV alone, however, does not necessarily indicate stronger investor interest, because it can reflect price appreciation in the underlying LQ45 constituents rather than new capital entering the fund. Genuine changes in investor demand are more accurately captured by fund flows the net creation and redemption of units, which change shares outstanding independently of price movements (Ben-David et al., 2018). This distinction between price-driven and flow-driven changes is itself one reason ETFs warrant study as instruments distinct from individual stocks.

Source: (Bareksa, 2025)

Figure 1. NAV/Unit Chart (ETF Price)



The relationship between risk and return is formalised by the Capital Asset Pricing Model (CAPM), which holds that an asset's expected return increases with its systematic risk, measured by beta (β) (Hasan et al., 2019; Sharpe, 1964). Empirical evidence on beta, however, is mixed. Anwar, (2024) reports a positive and significant effect of beta on the returns of LQ45 constituent stocks, whereas Bowes & Ausloos, (2021), studying smart-beta ETFs in global markets, find that risk factors including beta do not consistently deliver higher risk-adjusted returns. Liquidity is a second potential determinant of returns: trading volume is widely used as a proxy for market liquidity, yet Musthofa & Rakhmayani, (2025) find that trading volume has no significant effect on LQ45 stock returns even where trading frequency does. These inconsistent findings suggest that the effect of both beta and trading volume can vary with the characteristics of the instrument and prevailing market conditions.

Importantly, most existing evidence is based on individual stocks, whereas there are strong theoretical reasons to expect the behavior of beta and trading volume to differ in the context of index ETFs. Unlike individual stocks, an index ETF represents a diversified portfolio that

closely tracks a market index. As a result, firm-specific risk is largely diversified away, leaving systematic risk as the primary source of return variation (Evans & Archer, 1968; Markowitz, 1952). Consequently, an index ETF's beta tends to remain close to one and is further constrained by tracking error, reducing the variation in beta that is typically observed across individual stocks. This limited dispersion may weaken the explanatory power of beta for ETF returns.

In addition, ETF liquidity is supported by a dual-market structure consisting of a secondary market, where ETF shares are traded on the exchange, and a primary market, where authorized participants (APs) create and redeem ETF units to eliminate price deviations from the underlying net asset value (NAV) (Arianto et al., 2021; Ben-David et al., 2018). Through this creation–redemption mechanism, arbitrage activities continuously align the ETF's market price with its NAV. As a consequence, trading volume may influence ETF returns through a mechanism that differs fundamentally from that of individual stocks, which lack such an arbitrage process.

Taken together, these structural characteristics including portfolio diversification, tracking error, NAV premium/discount dynamics, and the creation-redemption mechanism suggest that relationships between beta, trading volume, and returns documented for individual stocks cannot be directly generalized to ETFs. This represents a theoretical gap that extends beyond the contextual observation that empirical evidence on Indonesian index ETFs remains limited.

The 2020–2024 study window is of particular interest because it spans the COVID-19 shock and the subsequent recovery. During the March 2020 sell-off, the ETF arbitrage mechanism itself came under strain, with some funds trading at unusually wide premiums and discounts to NAV before markets normalised (Aramonte & Avalos, 2020). This period therefore offers a useful setting in which to examine how beta and liquidity relate to ETF returns across both stressed and recovering market conditions. Against this background, this study examines the effect of beta and trading volume on the expected return of the R-LQ45X ETF on the IDX over the 2020-2024 period, using 60 monthly observations. It aims to extend the application of CAPM and market-microstructure reasoning from individual stocks to a passively managed index ETF in an emerging market, and to provide empirical evidence for investors and fund managers on the drivers of ETF returns in Indonesia.

2. METHODS

This quantitative study uses an associative approach to analyze the relationship between beta and trading volume on expected returns in LQ45 ETF index mutual funds. The research subjects were LQ45 ETFs listed on the Indonesia Stock Exchange for the 2020–2024 period.

The study population included all ETFs tracking the LQ45 index, while the sample was determined using a purposive sampling technique, with the criteria being that the ETFs were active, consistently tracked the LQ45 index, and had complete data throughout the study period. Based on these criteria, one ETF tracking the LQ45 index, the KIK Premier LQ45 Mutual Fund (code: R-LQ45X), was selected as the sample, with a total of 60 observations (monthly data for 5 years).

The data used were quantitative data in the form of returns, beta, and trading volume, sourced from secondary data from the Indonesia Stock Exchange and Yahoo Finance. Data collection methods were conducted through documentation and literature review.

Data analysis techniques included descriptive statistics, classical assumption tests (normality, multicollinearity, heteroscedasticity, and autocorrelation), correlation analysis, and multiple linear regression. Hypothesis testing was conducted using the t-test (partial) and F-test (simultaneous), as well as the coefficient of determination (R^2). All analyses were conducted using SPSS 25 software.

Table 1. Operational Definition

Variables	Definition	Indicator
Beta (β) (X1)	Beta is a measure of the systematic risk of a security or portfolio, indicating the sensitivity of changes in security returns to changes in market returns (Bodie et al., 2021).	In this study, the beta value is obtained from the calculation of the covariance between the return of the LQ45 ETF mutual fund (R – LQ45X) against the market return (LQ45 benchmark index) divided by the variance of the market index return (LQ45), with monthly data for the period 2020 – 2024 (Sharpe, 1964 in Oseni & Olanrewaju, 2017).
Trading volume (X2)	Trading volume is the number of mutual fund units or shares traded within a specific period. Volume reflects the level of market activity and investor response to information that affects asset prices (Hartono, 2022).	Trading volume is measured directly using the total trading volume of LQ45 ETFs (R – LQ45X) traded per month during the period 2020–2024 (Hartono, 2022).
Expected Return (Y)	Expected Return is the rate of return an investor expects from	Expected Return is measured using the average historical monthly return

Variables	Definition	Indicator
	an asset based on the level of risk assumed (Hartono, 2022).	of LQ45 ETF mutual funds for the period 2020–2024 (Hartono, 2022).

3. RESULTS AND DISCUSSIONS

3.1. Result

This research data is secondary data obtained from the Indonesia Stock Exchange through its official websites <https://www.idx.co.id/id> and <https://finance.yahoo.com>. The data used includes closing prices, trading volume, and the LQ45 market index for the 2020–2024 period.

Table 2. Descriptive Statistics

Variabel	N	Minimum	Maximum	Mean	Std. Deviation
Beta (X1)	60	-3.043	6.3238	0.388	1.272
Trading Volume (X2)	60	13364.285	529612.500	49149.898	71779.888
Expected Return (Y)	60	-0.0111	0.0211	0.0006	0.005
Valid N (listwise)	60	-	-	-	-

Source: Data processed by researchers (2026)

Based on the descriptive statistics obtained from 60 observations in this study:

1. The beta variable has a minimum value of -3.043 and a maximum of 6.324, with an average value of 0.389 and a standard deviation of 1.272. An average beta value below 1 indicates that the LQ45 ETF generally has a lower level of systematic risk than the market. However, the relatively large standard deviation indicates high beta fluctuations during the study period.
2. The trading volume variable has a minimum value of 13.364 and a maximum of 529.612, with an average value of 49.149 and a standard deviation of 71.779. A standard deviation value greater than the average indicates that trading volume experienced high fluctuations during the study period.
3. Meanwhile, the expected return has an average value of 0.00066 or 0.066% per month, with a minimum value of -0.011 and a maximum of 0.021. The standard deviation of 0.0054 indicates that the level of return fluctuation is relatively small, so the return movement tends to be stable.

Table 3. Classical Assumption Test

Test Type	Significance	Conclusion
Normality test:		
1-S Kolmogorov-Smirnov	0.166 ^c	The data is normally distributed

Multicollinearity test:	Tolerance	
Beta (X1)	0.876	No multicollinearity
Trading Volume (X2)	0.876	
Heteroscedasticity test (<i>Spearman's rho</i>):		
Beta (X1)	0.112	No heteroscedasticity
Trading Volume (X2)	0.106	
Autocorrelation Test:		
Runs Test	0.795	No Autocorrelation
Dependent Variable: Expected Return		

Source: Data processed by researchers (2026)

Based on the results of the normality test using the Kolmogorov-Smirnov test, the significance value was 0.166, meaning the significance value was >0.05 . Therefore, the data met the assumption of normality. The multicollinearity test data for each independent variable yielded values of X_1 with a tolerance value of 0.876 and X_2 with a tolerance value of 0.876. Therefore, it was concluded that the tolerance value was >0.10 , indicating that the regression model in this study did not experience multicollinearity.

The data indicated no signs of heteroscedasticity, as seen from the significance values of the independent variables: Beta with a value of 0.112 >0.05 and Trading Volume with a significance value of 0.106 >0.05 . The results of the runs test above indicated that the Asymp. Sig. (2 – tailed) of 0.795 > 0.05 . So the residuals are random and there is no autocorrelation in the regression model.

Table 4. Correlation Test Results

Variable		Beta	Volume	Expected Return
X1 (Beta)	Pearson Correlation	1	-0.352**	-0.121
	Sig.		0.006	0.355
X2 (Volume)	Pearson Correlation	-0.352**	1	0.420**
	Sig.	0.006		0.001
Y (Expected Return)	Pearson Correlation	-0.121	0.420**	1
	Sig.	0.355	0.001	
N = 60				

Source: Data processed by researchers (2026)

Based on the Pearson correlation analysis above, Beta has a negative and insignificant relationship with Expected Return, with a significance value of 0.355 > 0.05 . Meanwhile,

Trading Volume has a positive and significant relationship with Expected Return, with a significance value of $0.001 < 0.05$. Furthermore, Beta and Trading Volume have a significant negative relationship.

Table 5. Multiple Linear Regression Test Results

Variables	t Test			F Test		Coefficient of Determination
	Coefficient	t	Sig.	F	Sig.	
(Constant)	-0.001	-1.132	0.263	6.143	0.004	R square
Beta (X1)	0.000	0.235	0.815			0.177
Trading Volume (X2)	3.244	3.356	0.001			Adj. R square
						0.148
a. Dependent variable: Expected Return (Y)						

Source: Data processed by researchers (2026)

Based on the partial test results in Table 4, the Beta variable has a significance value of $0.815 > 0.05$, indicating that the Beta variable has no significant influence or relationship with Expected Return. The Trading Volume variable has a t-value of 3.356 with a significance value of $0.001 < 0.05$, indicating that Trading Volume has a significant influence or relationship with Expected Return.

The test results in Table 4 show an F-value of 6.143 with a significance value of $0.004 < 0.05$. This indicates that the Beta and Trading Volume variables simultaneously have a significant relationship with Expected Return. Therefore, the regression model used is able to jointly explain variations in Expected Return.

The coefficient of determination test in Table 4 yields an R-square value of 0.177, indicating that the Beta and Trading Volume variables only explain 17.7% of Expected Return, while the remaining 82.3% of the change in Expected Return is explained by factors outside the study. The Adjusted R Square value of 0.148 indicates that after adjustment, the model's ability to explain the dependent variable is 14.8%.

3.2. Discussion

The Effect of Beta on Expected Return

The partial test shows that beta has no statistically significant effect on the expected return of the R-LQ45X ETF (sig. = $0.815 > 0.05$). Consistent with this, the bivariate correlation between beta and expected return is weak and insignificant ($r = -0.121$; sig. = 0.355). This study finds no detectable association between beta and the expected return of the ETF, whether measured bivariately or after controlling for trading volume.

This result departs from the strict prediction of the Capital Asset Pricing Model (CAPM), under which expected return rises with systematic risk (Sharpe, 1964), and from Anwar, (2024), who reports a significant beta effect for individual LQ45 constituent stocks. Because the R-LQ45X ETF holds a diversified basket that replicates the LQ45 index, most firm specific risk is diversified away and the fund's beta is structurally anchored close to one and bounded by tracking error (Lettau & Madhavan, 2018; Markowitz, 1952). The cross-sectional dispersion in beta that helps explain returns across individual stocks is therefore largely compressed within a single index-tracking instrument, which weakens the estimated beta-return relationship. This interpretation is also consistent with Hasan et al., (2019), who note that the beta–return relationship is not always linear or significant, and with (Bowes & Ausloos, 2021), who find that risk factors including beta do not consistently drive ETF returns.

The Effect of Trading Volume on Expected Return

Trading volume is the only individually significant predictor in the model, with a positive and significant effect on expected return ($\text{sig.} = 0.001 < 0.05$), reinforced by a significant positive bivariate correlation ($r = 0.420$; $\text{sig.} = 0.001$). This indicates that months of higher trading activity in the R-LQ45X ETF tend to coincide with higher expected returns.

Karpoff, (1987), in a foundational survey, shows that price changes and trading volume tend to move together because volume reflects the arrival of new information and the intensity of investor participation. For an exchange-traded fund, higher secondary-market volume signals stronger investor demand and tighter liquidity in the exchange-traded layer of the instrument, where units are bought and sold like shares. It is worth distinguishing this time-series, within-instrument relationship from the cross-sectional liquidity-premium literature, in which less liquid assets earn higher returns as compensation for transaction costs (Amihud, 2002; Amihud & Mendelson, 1986).

This finding contrasts with Musthofa & Rakhmayani, (2025), who report that trading volume has no significant effect on individual LQ45 stock returns. The contrast is consistent with the argument developed in the introduction: because an ETF's liquidity is shaped by a two-layer structure secondary-market trading and primary-market creation/redemption by authorized participants (Arianto et al., 2021; Ben-David et al., 2018) trading volume may transmit to ETF returns through channels that differ from those operating for ordinary stocks.

The Effect of Beta and Trading Volume on Expected Return

The simultaneous (F) test is significant ($\text{sig.} = 0.004 < 0.05$), indicating that beta and trading volume together explain a statistically significant share of the variation in expected return. The coefficient of determination is low ($R^2 = 0.177$; adjusted $R^2 = 0.148$), meaning the two variables jointly account for only about 17.7% of the variation in the ETF's expected return, with the remaining share attributable to factors outside the model. This low explanatory power

consistent with expected-return formation being multi-determined: unsystematic risk (Mukarromah et al., 2024) and, plausibly, macroeconomic conditions such as interest rates, inflation, and exchange-rate movements are omitted from the specification and may carry substantial explanatory weight. The near-zero contribution of beta means that a single predictor trading volume carries most of the model's explanatory power, which naturally limits R^2 . The 2020–2024 sample spans the COVID-19 shock and its recovery, a period of elevated volatility during which the ETF arbitrage mechanism itself came under strain and premiums/discounts to NAV widened (Aramonte & Avalos, 2020); such regime shifts can weaken the stability of any linear relationship estimated over the full period.

4. CONCLUSION

This study examined the effects of beta and trading volume on the expected return of the R-LQ45X ETF using 60 monthly observations from 2020–2024. The results show that beta has no significant effect on expected return, suggesting that systematic risk alone does not explain the ETF's returns, consistent with its diversified, index-tracking nature. In contrast, trading volume has a significant positive effect and is the only individually significant predictor. Jointly, beta and trading volume significantly affect expected return, although this result is primarily driven by trading volume. However, the model explains only 17.7% of the variation in expected return ($R^2 = 0.177$), indicating that other factors also play an important role.

The practical implication is that investors and analysts should be cautious about treating beta as a standalone predictor of this ETF's returns, and should weigh liquidity and trading activity, alongside broader market conditions, when forming expectations.

This study has several limitations that provide directions for future research. First, the analysis focuses solely on the R-LQ45X ETF, limiting the generalizability of the findings to other Indonesian ETFs. Second, the model includes only beta and trading volume, leaving potential influences from macroeconomic factors, market sentiment, and unsystematic risk unexplored. Third, the 2020–2024 sample covers the COVID-19 pandemic and recovery, which may have affected the estimated relationships. Finally, the analysis is based on monthly data and standard OLS assumptions, without fully addressing time-series issues such as stationarity and structural breaks. Future research should incorporate additional explanatory variables, apply more robust time-series methods, and examine a broader range of ETFs over longer periods.

5. REFERENCES

- Amihud, Y. (2002). Illiquidity and stock returns: Cross-section and time-series effects. *Journal of Financial Markets*, 5(1), 31–56.
- Amihud, Y., & Mendelson, H. (1986). Asset pricing and the bid–ask spread. *Journal of Financial Economics*, 17(2), 223–249.

- Anwar. (2024). Analisis Beta terhadap Return Saham dalam Indeks LQ 45. *Pajak Dan Manajemen Keuangan*, 1(5), 40–49. <https://doi.org/10.61132/pajamkeu.v1i5.649>
- Aramonte, S., & Avalos, F. (2020). The recent distress in corporate bond markets: cues from ETFs. In *BIS Bulletin* (Issue 6). Bank for International Settlements.
- Arianto, R. F., Supratikno, H., Ugut, G. S. S., & Hulu, E. (2021). Indonesian Exchange Traded Fund Performance. *Budapest International Research and Critics Institute-Journal (BIRCI-Journal)*, 4(3), 4954–4966. <https://doi.org/10.33258/birci.v4i3.2282>
- Bareksa. (2025). *Cipta ETF Indeks LQ45 - Fund Factsheet & NAB/Unit*. PT Bareksa Portal Investasi. <https://www.bareksa.com/id/data>
- Ben-David, I., Franzoni, F., & Moussawi, R. (2018). Do ETFs increase volatility? *The Journal of Finance*, 73(6), 2471–2535.
- Bodie, Z., Kane, A., & Marcus, A. J. (2021). *Investments* (12th ed.). McGraw-Hill Education.
- Bowes, J., & Ausloos, M. (2021). Financial Risk and Better Returns through Smart Beta Exchange-Traded Funds? *Journal of Risk and Financial Management*, 14(7), 1–30. <https://doi.org/10.3390/jrfm14070283>
- Evans, J. L., & Archer, S. H. (1968). Diversification and the reduction of dispersion: An empirical analysis. *The Journal of Finance*, 23(5), 761–767.
- Hartono, J. (2022). *Teori Portofolio dan Analisis Investasi* (2nd ed.). Penerbit ANDI.
- Hasan, N., Pelleng, F. A. O., & Mangindaan, J. V. (2019). Analisis Capital Asset Pricing Model (CAPM) Sebagai Dasar Pengambilan Keputusan Berinvestasi Saham (Studi pada Indeks Bisnis-27 di Bursa Efek Indonesia). *Jurnal Administrasi Bisnis*, 8(1), 36–43. <https://doi.org/10.35797/jab.8.1.2019.23498.36-43>
- Johnson, S. (2025). ETF Flows Obliterate Previous Full-Year Record To Hit \$1.5tn. *Financial Times*. <https://www.ft.com/content/global-etf-market-2024>
- Karpoff, J. M. (1987). The relation between price changes and trading volume: A survey. *Journal of Financial and Quantitative Analysis*, 22(1), 109–126.
- Lettau, M., & Madhavan, A. (2018). Exchange-Traded Funds 101 for economists. *Journal of Economic Perspectives*, 32(1), 135–154.
- Markowitz, H. (1952). Portfolio selection. *The Journal of Finance*, 7(1), 77–91.
- Mukarromah, S., Suryo, I., & Meliana, P. F. (2024). Peningkatan Expected Return Melalui Pengelolaan Systematic Risk dan Unsystematic Risk. *Jurnal Ilmiah Edunomika*, 8(3). <https://doi.org/10.29040/jie.v8i3.13941>
- Musthofa, R. H., & Rakhmayani, A. (2025). Profitability Moderates Trading Frequency, Volume, And LQ45 Stock Returns. *Governors*, 4(1), 147–155. <https://doi.org/10.47709/governors.v4i1.6568>
- Oseni, E., & Olanrewaju, R. O. (2017). A Capital Asset Pricing Model's (CAPM's) Beta

Estimation in the Presence of Normality and Non-normality Assumptions. *International Journal of Finance and Banking Research*, 3(3), 44–52. <https://doi.org/10.11648/j.ijfbr.20170303.12>

Otoritas Jasa Keuangan. (2024). *Laporan Perkembangan Reksa Dana dan ETF di Indonesia Tahun 2024*. Otoritas Jasa Keuangan. <https://www.ojk.go.id/id/kanal/reksa-dana/>

Sharpe, W. F. (1964). Capital Asset Prices: A Theory of Market Equilibrium Under Conditions of Risk. *The Journal of Finance*, 19(3), 425–442. <https://doi.org/10.1111/j.1540-6261.1964.tb02865.x>

Suhada, B., Febriyanto, & Putri, B. S. (2024). Analisis Pembentukan Portofolio Optimal Dengan Menggunakan Model Indeks Tunggal Dalam Mengambil Keputusan Investasi Pada Saham LQ45 yang Terdaftar di BEI periode 2019-2021. *Jurnal Manajemen Diversifikasi*, 4(1), 165–177. <https://doi.org/10.24127/diversifikasi.v4i1.3434>