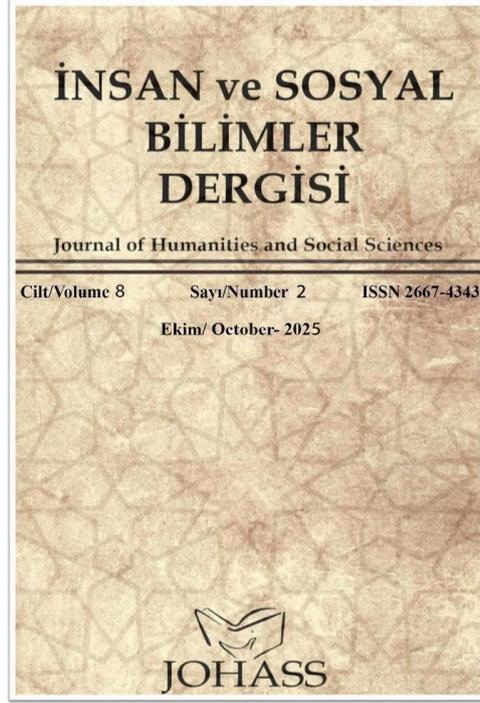


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Using Technical Analysis and Settlement Analysis Together in Stocks

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Abstract

Research Article

The purpose of this study is to predict the future direction of asset prices in the stock market using historical data and to determine the timing of market entry and exit using technical analysis data. The study covers 10 liquid non-bank stocks listed on the Istanbul Stock Exchange (BIST). The methods used for price predictions for these stocks are technical analysis and settlement analysis. Exchange analysis will be used to identify which stocks buyers are focusing on in the stock market, and technical indicators will be used on the stocks to determine the most appropriate entry and exit times. Thus, stock returns will be evaluated using technical data to predict the future direction of stock prices. In this context, it will be easy to see whether stocks are in a buy, sell, or hold position. In particular, the settlement analysis provides insights into whether there is demand for stocks from existing holders and new investors, as well as the future direction of stock prices. In this study, the connection between technical analysis signals and returns will be explored by considering changes in the settlement shares of the top five brokerage firms in stocks. In the settlement analysis, exchange data from July 2024 to August 2025 will be considered on a monthly basis. The exchange shares will be displayed for the top five brokerage firms, while the sum of the exchange shares of the dozens of brokerage firms outside this group will be shown as the "OTHERS" group. The EMA (Exponential Moving Average) was used as the technical indicator. The time periods used were the 5-day and 22-day averages. As a result, it is assumed that when technical and settlement analysis data are used together, stock returns increase for investors, thus contributing to a more robust investment strategy.

Keywords: BIST, Technical analysis, Settlement analysis, stock, exchange

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Introduction

The stock market is a significant turning point in every growing and developing economy (Nti et al., 2020, p. 3007). Emerging markets have become attractive alternatives for investors seeking portfolio diversification by attracting large capital investments from other countries. The investment opportunities offered by these markets continue to attract the attention of global investors. However, emerging markets generally carry high risk as well as high expected returns (Chang et al., 2004, p. 295). The goal for every investment made in the stock market is to maximize profit and minimize the associated risk. Maximizing profit requires a great deal of information about the direction of stocks. In particular, it is necessary to spread risk and make accurate price predictions. Predicting the future prices of assets in the stock market is a very difficult and complex process because prices are formed based on changes in the world, the country's current situation, sector-specific conditions, political events, stock-related news, balance sheets, and many other micro and macroeconomic variables (Nazario et al., 2017, p. 115). These factors, combined with the non-linear and non-stationary characteristics of the stock market, make it even more complex to reliably predict stock prices (Bisoi and Dash, 2014, p. 41) and, especially for individual investors, turn it into an impossible task. Numerous studies on this subject have concluded that predicting returns from the stock market is a very difficult task (Teixeira and De Oliveira, 2010). Despite the Random Walk Model (Fama, 1995; Fama, et al., 1969) and the Efficient Market Hypothesis (Fama, 1965), which argue that stock prices are determined solely by new and unpredictable information. However, subsequent research has shown that the market is partially predictable in light of socio-economic and behavioral factors (Chong et al., 2017; Oliveira et al., 2017).

Globally, billions of dollars are traded on stock exchanges every day. Despite this difficult endeavor, stock market forecasting has become an attractive field of research for researchers, investors, and financial analysts (Zhou, 2018). For this reason, many analysts have developed various types of technical analysis to track trends in the stock markets and, based on these, aim to increase their returns through price forecasts for the underlying asset.

The stock exchange in Türkiye was established in 1986. Recently, the number of investors in the stock market has increased significantly along with rising inflation. As of July 31, 2025, the BIST100 index, which represents the market value of the 100 most valuable companies, stands at 10,075,059,036,307 TL. The number of investors is 4,808,701. Looking at the sectoral distribution: Banks account for 17%, Holding and Investment companies 13.5%,

Transportation and Storage 10.1%, Retail and Trade 9.2%, Chemical/Pharmaceutical/Petroleum/Rubber Products 8.3%, Defense 6.5%, and other sectors account for 29%. The average trading volume on August 14, 2025, was 108,173,472,579 TL (BIST, 2025a). With the increasing number of individual investors on BIST every day, it is necessary to manage portfolios by emphasizing risk management, discipline, and patience rather than the ability to predict prices. It is also important for investors to increase their experience in the stock market and to be able to perform technical and fundamental analysis evaluations themselves.

This study will utilize technical analysis and exchange analysis data for the period between July 2024 and July 2025 for the BIST Non-Banking Liquid 10 Stocks (Public Information Platform-PIP, 2025) traded on the BIST Participation Index. The aim of the study is to determine the direction and price of the stock using technical analysis and settlement analysis data. Thus, stock returns will be evaluated using technical data, and an attempt will be made to predict the future price formation of the stock. For technical analysis, “Moving Averages,” one of the most widely used and fundamental indicators to date, will be employed. In the settlement analysis, the top five best buyer data will be used, while the remaining ones will be categorized as “OTHERS.” This will determine the percentage of buying/selling activity on the stock and the individual and institutional intensity on the stock. Trading intensity and technical buy/sell/hold data will be analyzed together. In this context, individual investors investing on the Istanbul Stock Exchange will be provided with information on how investors' technical and trading data is handled in the short, medium, and long term. There are many studies in the literature on technical analysis and fundamental analysis, but there is a lack of research on settlement analysis.

The impact of investor behavior, particularly changes in the positions of institutional and individual investors, on stock prices has become increasingly significant. In Türkiye, the daily and monthly trading data shared on the BIST provides insight into which brokerage firms stocks are concentrated through and which investor groups (individual/institutional/foreign) are buying and selling. This study aims to test whether the data obtained by analyzing the percentage differences in the monthly changes in the clearing data of stocks included in the BIST 10 index carries a signal about the future movements of stock prices. The objective of this study is to test the effect of settlement data on stock returns and the success of the technical strategy based on the 5/22-day moving average crossover, and to evaluate whether settlement changes coincide with technical analysis signals.

Domestic studies conducted using technical analysis: Akdoğan (2025), Güneş and Kaya (2025), Karadaş et al. (2025), Alaylı and Kurt (2025), Akan and Özbayoğlu (2025), Saltık (2024), Bilen and Bahar (2023), Büberkökü (2022), Tek (2022), Tek et al. (2022), Sümer (2022), Çankan et al. (2021), Uyar et al. (2020), Tekin et al. (2019), Sakınç (2018), Öztürk (2016), Özarı et al. (2016), Ilarslan (2014), Birgili and Esen (2013), Çetinyokuş and Gökçen (2013) are included in the literature. Studies on technical analysis used in stocks have been particularly noteworthy in recent years.

International studies on technical analysis; Ardiansyah et al. (2025), Ardiansyah et al. (2025), Sharma and Bhalla (2025), Ayala et al. (2021), Barroso et al. (2021), Pramudya and Ichsani (2020), Ijegwa et al. (2014), Metghalchi et al. (2012), Blume et al. (1994), Marshall and Cahan (2005), Wong et al. (2003), Ausloos and Ivanova (2002), Brock et al. (1992), Fama (1995), Fama (1965) are included in the literature.

The literature on settlement analysis is quite limited. One of the rare studies addressing settlement analysis in this context is the work conducted by Saltık (2024). This study examined the effects of asymmetric information, trading strategies, and speculative price movements on markets using the share prices and settlement data of 448 companies traded on BIST ALL between 2021 and 2024. The study researched the effects of isolated and centralized brokerage firms on market dynamics and concluded that isolated brokerage firms tend toward speculative gains, while centralized firms tend toward stable and low-risk strategies.

This study will analyze the impact of settlement analysis on BIST10 stock prices. This study will attempt to identify the potential impacts on stock prices arising from increases, decreases, or stagnation in the settlement margins of brokerage firms trading in these stocks. In addition, the relationship between technical signals generated by technical indicator indicators and changes in the settlement share will be evaluated and the interaction between the direction and impact level of this relationship on share prices will be tried to be revealed.

Types of Analysis Used in Stocks

Individuals and institutions primarily rely on technical analysis and fundamental analysis when making investment decisions in the stock market. Fundamental analysis seeks to determine the true value of stocks by examining companies' financial statements, industry conditions, and macroeconomic indicators (Graham and Dodd, 2009, p. 697). This approach is frequently preferred in long-term investment strategies. On the other hand, technical analysis aims to predict future price movements by utilizing price and trading volume data. The literature

emphasizes that technical analysis is used particularly in short-term trading because it reflects market psychology and investor behavior. Academic studies show that investors generally use these two methods in a complementary manner (Park and Irwin, 2007, p. 786).

In addition to the technical and fundamental analysis used by investors, settlement analysis is one of the main topics that investors need to consider. Settlement analysis is actually part of technical analysis. However, the inflows and outflows of money that drive stock charts and generate buy and sell signals can be tracked in greater detail with this specific data. Trading data provides important insights into the positions taken by institutional investors on stocks.

The amount of assets managed by institutional investors has increased significantly in recent years (Grinblatt et al., 1995, p. 1088). Having information about institutional and individual trading provides investors with guidance on which assets to purchase. Trading data, in particular, reveals which investor group (individual/institutional) is concentrated in which securities, providing micro-level information about market structure (Barber and Odean, 2008). From this perspective, trading data provides information about the concentration of holdings, indicating whether there is demand for a security or during which periods demand arises.

Analysis

The process of settling stock purchase and sale transactions on the Istanbul Stock Exchange through mutual agreement between the buyer and seller, carried out by Istanbul Settlement and Depository Bank Inc. (Takasbank), is defined as “settlement.” The clearing process is completed on T+2 (the second business day following the transaction) (BIST, 2025b). When an investor sells X shares, these shares are transferred to the buyer's account, and the sale proceeds are transferred to the seller's account on the T+2 transaction date. In the settlement analysis, investors and analysts can examine settlement data and brokerage firm distributions as of specific dates, revealing the direction of transfer movements and which institutions executed the buy and sell transactions. In most cases, an increase in the share of the institution with the highest share in the settlement is interpreted as a positive signal; in addition, changes in the settlement shares of brokerage firms through which foreign investors trade, as well as investment funds and pension funds, are among the key indicators taken into account (Fintables-FINTAB, 2025).

This study will attempt to reveal the connection between technical analysis signals and returns by considering changes in the trading volume of the top five brokerage firms in stocks. The trading volume of dozens of brokerage firms outside the top five distribution will be shown

as the “OTHERS” group. The trading concentrations of the ten largest companies in the sector and market included in the BIST 10 index on the Istanbul Stock Exchange will be examined. In this context, monthly trading changes will be examined by obtaining changes in the companies' trading data from the Matriks IQ data terminal, and it will be determined in which stocks individual and institutional investors are concentrated. Taking into account the timing of technical buy and sell signals based on trading data, stock price changes and returns will be examined in detail.

When performing technical analysis, accurately interpreting price movements and determining the trend direction is critical for investors. One of the indicators used in these analyses is the EMA (Exponential Moving Average). This average will be used as a technical analysis indicator based on the “5” day and “22” day averages. Based on daily closing prices, when the 5-day average crosses above the 22-day average, it will be used as a BUY signal, and when it crosses below, it will be used as a SELL signal.

Table 1

BIST Non-Banking Liquid10 Stocks

Stock Exchange Trading Code	Company Name	Share Quantity in Actual Circulation	Share Rate in Actual Circulation (%)	Market Value (TL)	Current price (TL)
ASELS	Aselsan Electronics Industry and Trade Inc.	1,175,501,158	25.77	932,064,000,000	204.40
BIMAS	Bim United Stores Inc.	404,314,392	67.38	319,200,000,000	532
EKGYO	Emlak Konut Real Estate Investment Trust Inc.	1,837,456,777	48.35	77,140,000,000	20.30
EREGL	Ereğli Iron and Steel Works Inc.	3,307,454,473	47.24	202,580,000,000	28.94
SAHOL	Hacı Omer Sabancı Holding Inc.	1,118,038,798	53.23	196,175,115,521	93.40
KCHOL	Koç Holding Inc.	668,914,858	26.37	465,337,292,175	183.50
SASA	Sasa Polyester Industry Inc.	11,513,535,444	26.27	178,329,554,518	4.07
TCELL	Turkcell Communication Services Inc.	1,186,810,085	53.94	213,400,000,000	97
TUPRS	Tüpraş- Türkiye Petroleum Refineries Inc.	895,898,831	46.49	375,725,141,610	195
THYAO	Turkish Airlines Inc.	692,616,620	50.18	438,495,000,000	319.75

Note: Stock prices are listed in the table and market values are calculated based on current prices in Turkish Lira (TL).

Source: Matriks IQ data terminal (September 19, 2025)

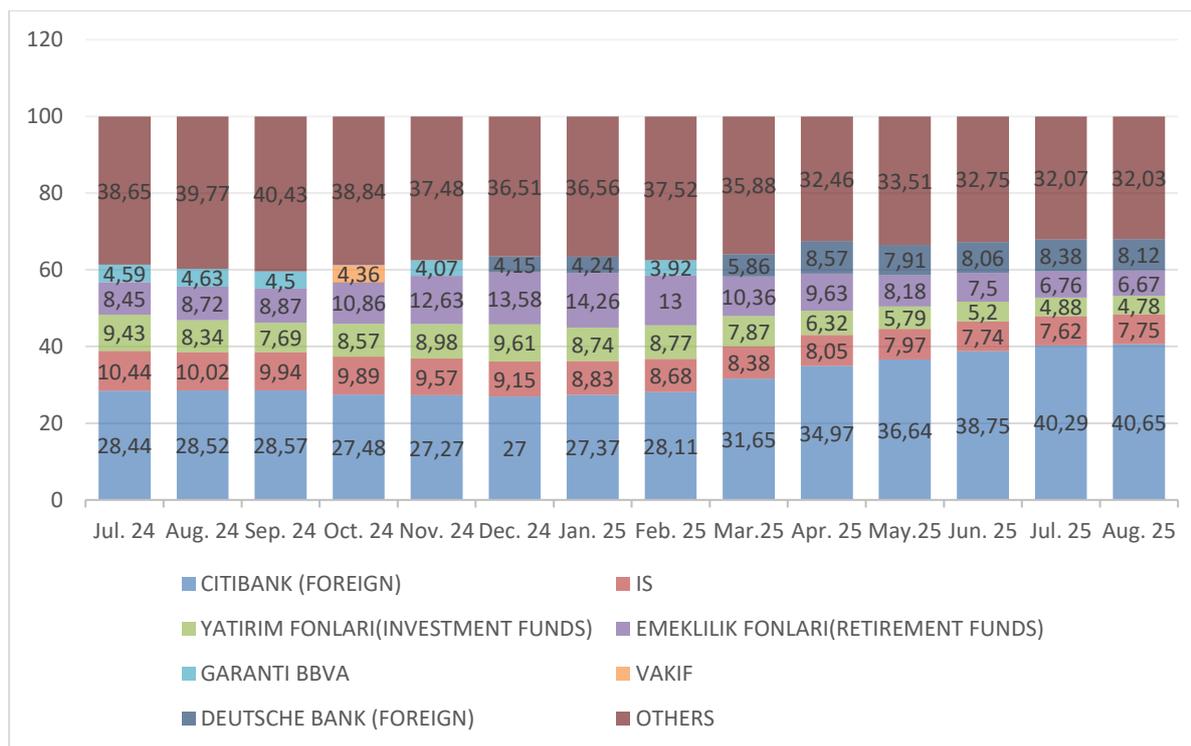


Figure 1. ASELS July 2024-August 2025 Monthly top five brokerage firms distribution

Source: Matriks IQ data terminal

Looking at the settlement distribution of Aselsan shares, CITIBANK (Foreign) had a settlement percentage ranging between 27% and 28% in share settlements as of 2024, but rapidly increased its settlement share in the stock as of March 2025. As of August 2025, its trading share in the stock is around 40%, representing a very high position. Deutsche Bank (Foreign), on the other hand, started with a trading share of around 4% in January 2025 and has continuously increased its share among the top five brokerage firms, rising to become the brokerage firm with the second-highest share as of August 2025. Both brokerage firms are foreign banks, and therefore the number of foreign investors and their interest has increased despite the continuously rising share price. The total settlement shares of CITIBANK and Deutsche Bank account for approximately 48-49% of the top five brokerage firms. This settlement share has been maintained and increased. Furthermore, as long as the settlement shares are maintained without disruption, the increases in the share continue. Finally, stock prices are maintaining their closing prices at high levels in TL terms.

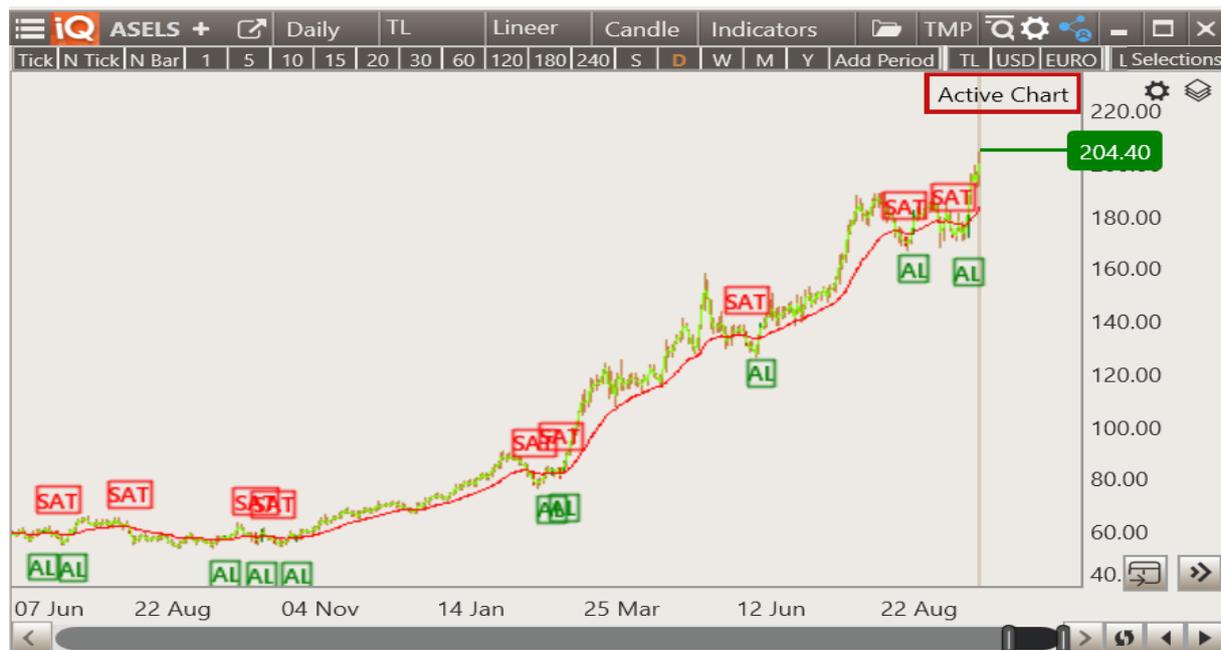


Figure 2. ASELS Daily Chart

Source: Matriks IQ data terminal (September 19, 2025)

As shown in Figure 2, looking at the 5/22 EMA crossover technically, the most recent BUY signal on the daily chart came on 05.06.2025 at 139.70 TL. The stock reached a high of 188.50 TL in August and closed the month at 178.50 TL. The stock is technically in a HOLD position. On the day the stock last generated a BUY signal, CITIBANK purchased 5,492,967 lots, Bank of America (BOFA) purchased 3,007,882 lots, and Deutsche Bank purchased 1,009,289 net lots. Therefore, in the purchases made after the technical buy signal was generated, CITIBANK increased its share from approximately 38.75% to 40.65%, increasing its trading share by approximately 1.9%. The return was around 35% at the highest price of 188.50 TL. As of the monthly closing, the return is maintained at around 27-28%.

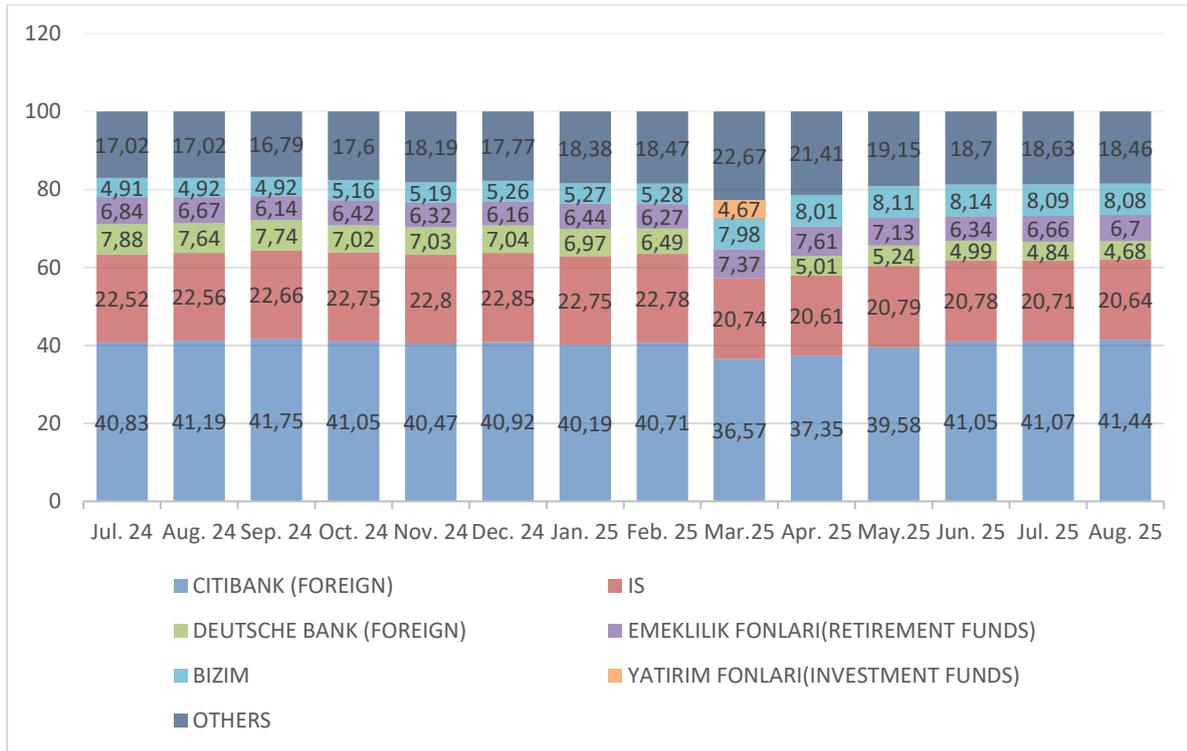


Figure 3. BIMAS July 2024-August 2025 monthly distribution of the top five brokerage firms

Source: Matriks IQ data terminal

Figure 3 presents the settlement data for BİM. Looking at the settlement distribution of the share, CITIBANK maintains a settlement ratio of 40-41.83% between July 2024 and August 2025. IS Bank, which is among the top five institutions, maintains a stable settlement share of between 20% and 22%.

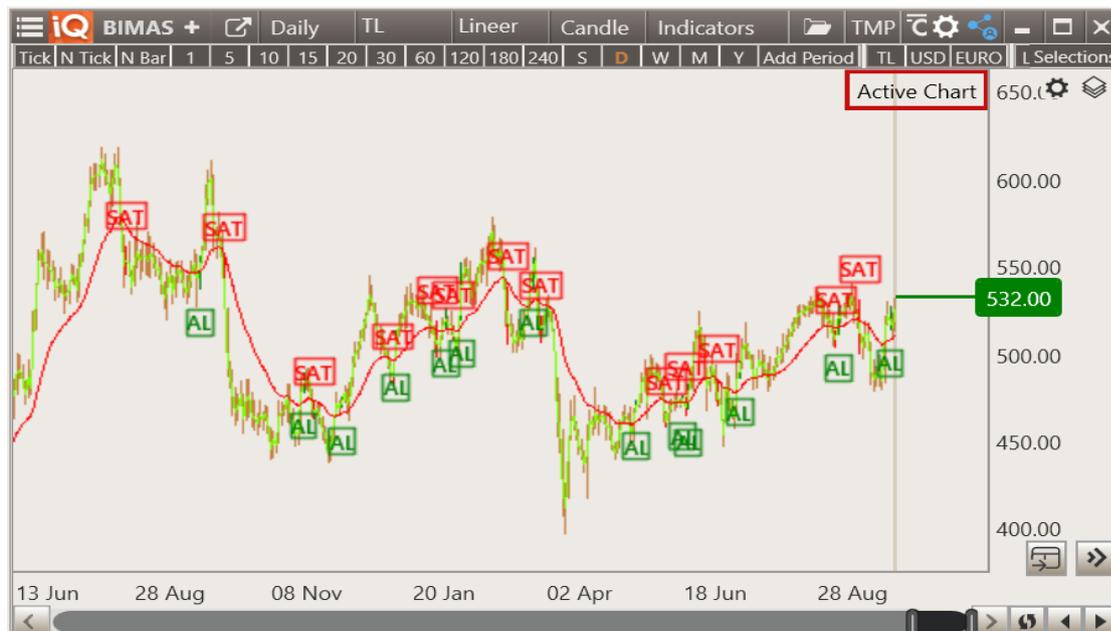


Figure 4. BIMAS Daily Chart

Source: Matriks IQ data terminal (September 19, 2025)

Figure 4 clearly shows that the BIMAS share price has been in a consolidation phase over the past year. After reaching a historic high of 618.66 TL in July 2024, the share price retreated to 413.47 TL levels, with the latest price standing at 532 TL. From a technical perspective, the share price has been cutting through the 5/22 EMA continuously in both upward and downward directions, generating short-term BUY and SELL signals. However, as long as the settlement distribution remains stable, these BUY or SELL signals remain temporary. Even if prices rise in the share, they remain merely price movements because the settlement distribution does not change.

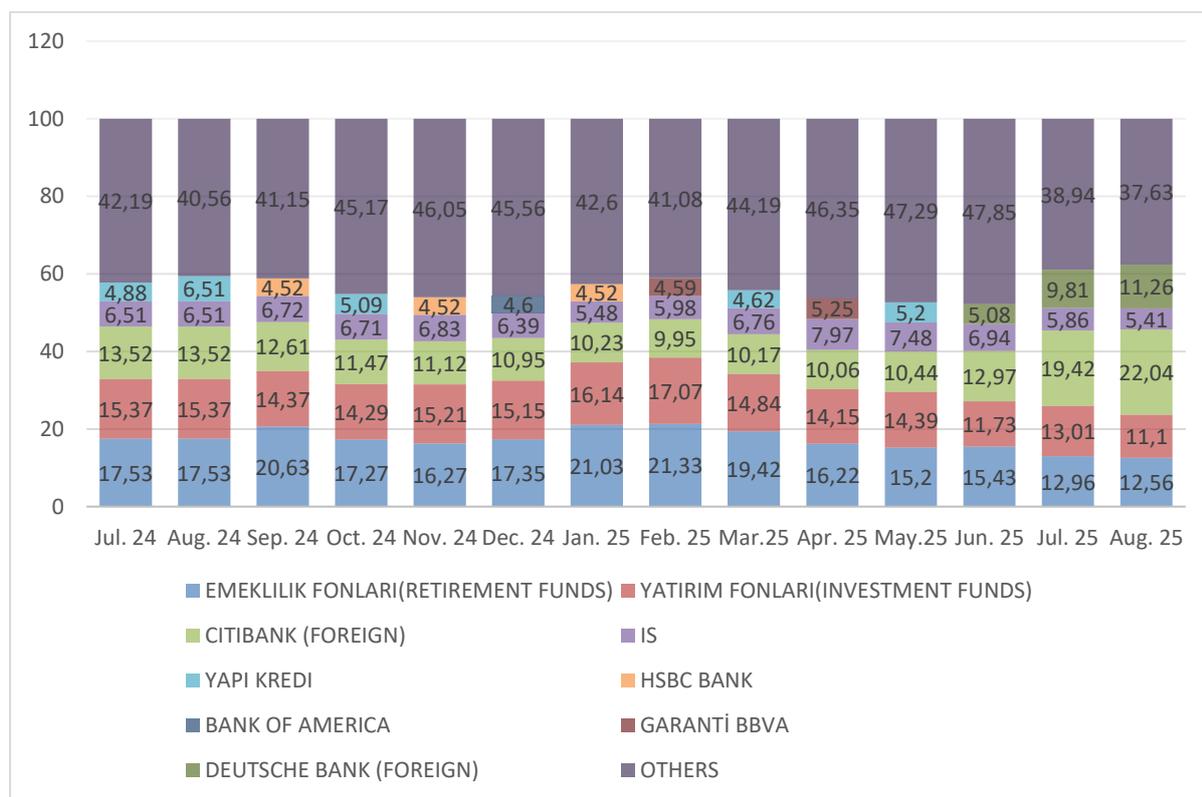


Figure 5. EKGYO July 2024-August 2025 Monthly top five brokerage firms distribution

Source: Matriks IQ data terminal

Figure 5 shows the settlement distribution for Emlak Konut. The top three companies in the settlement distribution as of July 2024 are Retirement Funds (17.53%), Investment Funds (15.37%), and CITIBANK (13.52%). In the distribution of the top five brokerage firms after July 2024, it is seen that IS Bank has maintained its position in fourth place throughout the year, making small changes in its settlement share. In fifth place in the brokerage firm distribution, competition is seen between Yapı Kredi, HSBC, BOFA, and Deutsche Bank. Significant increases in the settlement share of foreign investors are observed in June 2025, July 2025, and August 2025. CITIBANK increased its settlement share from 10% to 22%, while Deutsche

Bank increased its settlement share from 5% to 11.26%. CITIBANK dominated the highest settlement share position in July 2025 and August 2025.

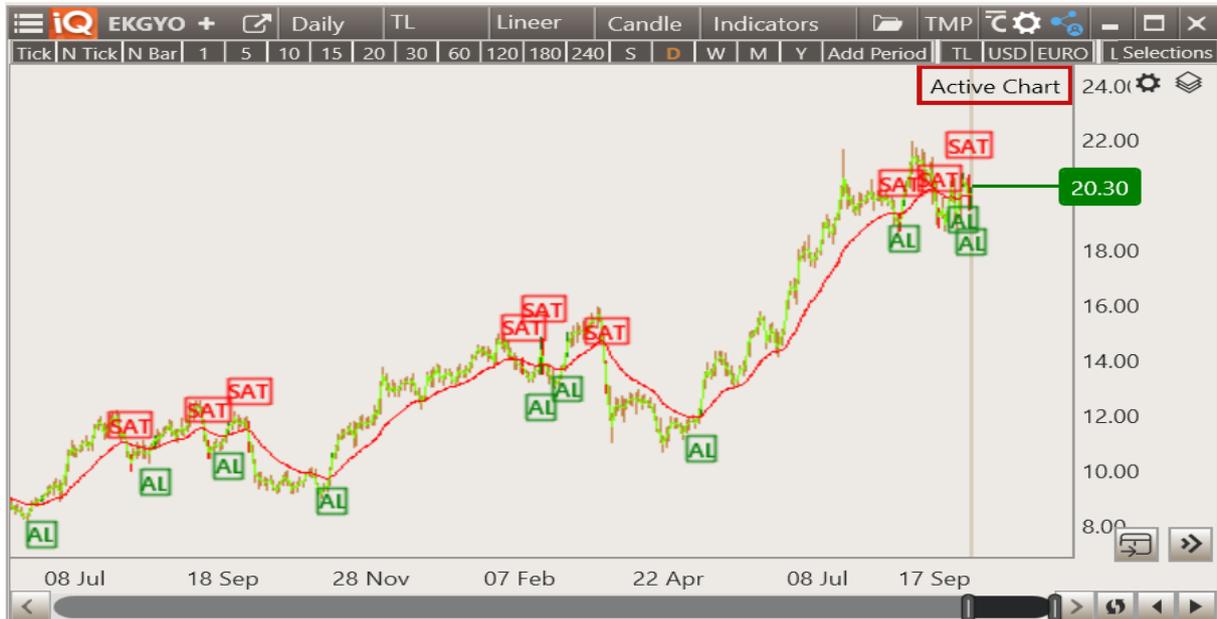


Figure 6. EKGYO Daily Chart

Source: Matriks IQ data terminal (September 19, 2025)

Figure 6 shows the daily chart for EKGYO. The EKGYO share, based on TL, produced a BUY signal by crossing the 5/22 moving average upward on May 9, 2025, without reaching its historical peak price. The share reached the BUY position at the level of 12.44 TL, and at the same time, trading shares increased rapidly, as seen in Figure 5. This buy signal, combined with the rapidly increasing settlement shares, has boosted returns. On August 22, 2025, it reached its highest price of 21.98 TL. The rapidly increasing settlement and the stock's return after the buy signal have significantly increased returns. Looking at the returns, the stock, which generated a buy signal from 12.44 TL, the stock produced a BUY signal, and when calculated based on its historical peak of 21.98 TL, it achieved a return of 76.68%. As long as there are no changes in trading, as seen in the chart, the return is quite high at 63% as of October 19, 2025, based on the closing price of 20.30 TL. As long as the stock remains in a HOLD position and there is no decrease in settlement shares, the increase is expected to continue.

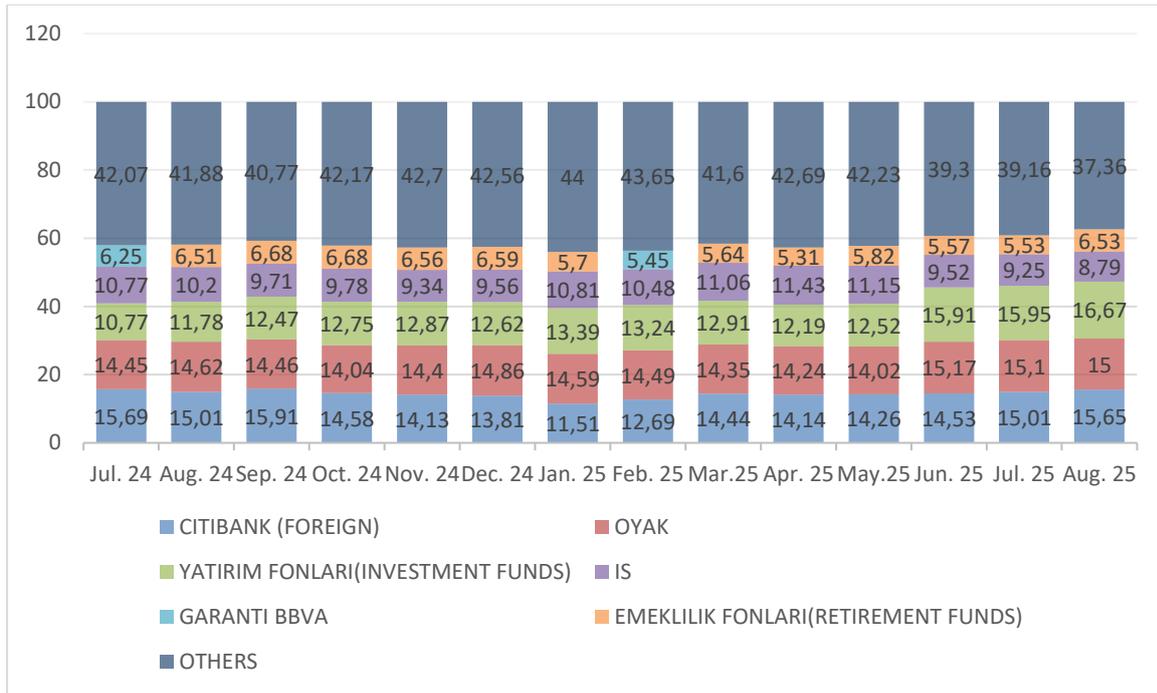


Figure 7. EREGL July 2024-August 2025 Monthly distribution of the top five brokerage firms
Source: Matriks IQ data terminal

The settlement distribution for Ereğli shares is shown in Figure 7. When examining the brokerage firm distribution of settlement shares, it is seen that the highest share belongs to CITIBANK (15.69%) on July 2024. However, during the year, Investment Funds increased their settlement share of 10.77% in July 2024 each month, reaching a 16.67% share by August 2025. Looking at the brokerage firm distribution as of August 2025, Investment Funds are seen to have reached the peak.



Figure 8. EREGL Daily Chart
Source: Matriks IQ data terminal (September 19, 2025)

Looking at the technical analysis data for EREGL shares in Figure 8, the BUY signal came on June 10, 2025, at a closing price of TL 23.97, and subsequently reached a high of TL 30.38 on September 2, 2025. Investment funds increased their settlement share from 12.52% in May 2025 to 15.91% in June 2025, and after this purchase, raised the settlement share to 16.67% by August 2025. In June 2025, the increasing settlement share of Investment Funds technically crossed the 5/22 moving average upwards, generating a BUY signal. Looking at stock returns after this date, the return from the price of 23.97 TL on June 10, 2025, when it reached the BUY position, to its peak of 30.38 TL was 27%.

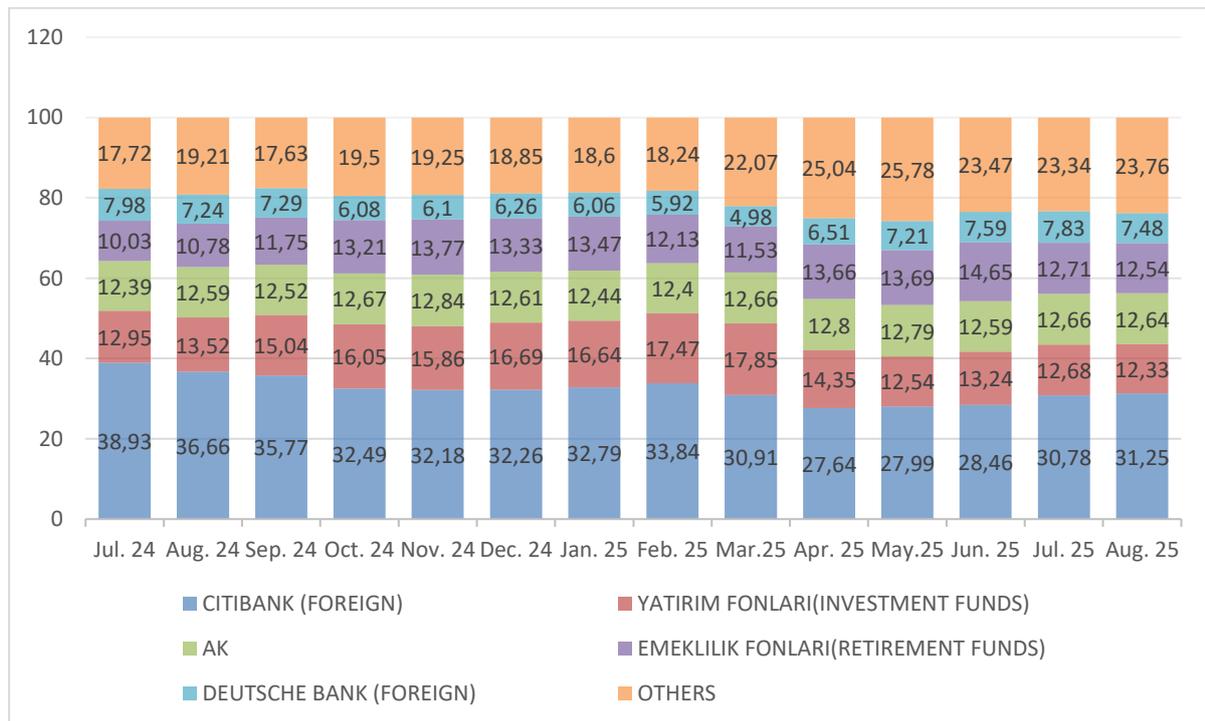


Figure 9. SAHOL July 2024-August 2025 Monthly top five brokerage firms distribution

Source: Matriks IQ data terminal

Figure 9. Looking at the settlement shares of SAHOL stock, CITIBANK ranks first among the top five brokerage firms with a settlement share of 38.93% as of July 2024. However, the highest price observed on July 23, 2024 was 107, 40 TL, after which it corrected to around 72 TL. It is clear that this decline is closely related to CITIBANK, which held the top position in settlement, reducing its settlement shares from 38.93% (July 2024) to 27.64% in April 2025. The share price experienced a decline of approximately 30% from its highest peak. This decline can be explained as a consolidation process following the upward performance observed prior to July 2024.

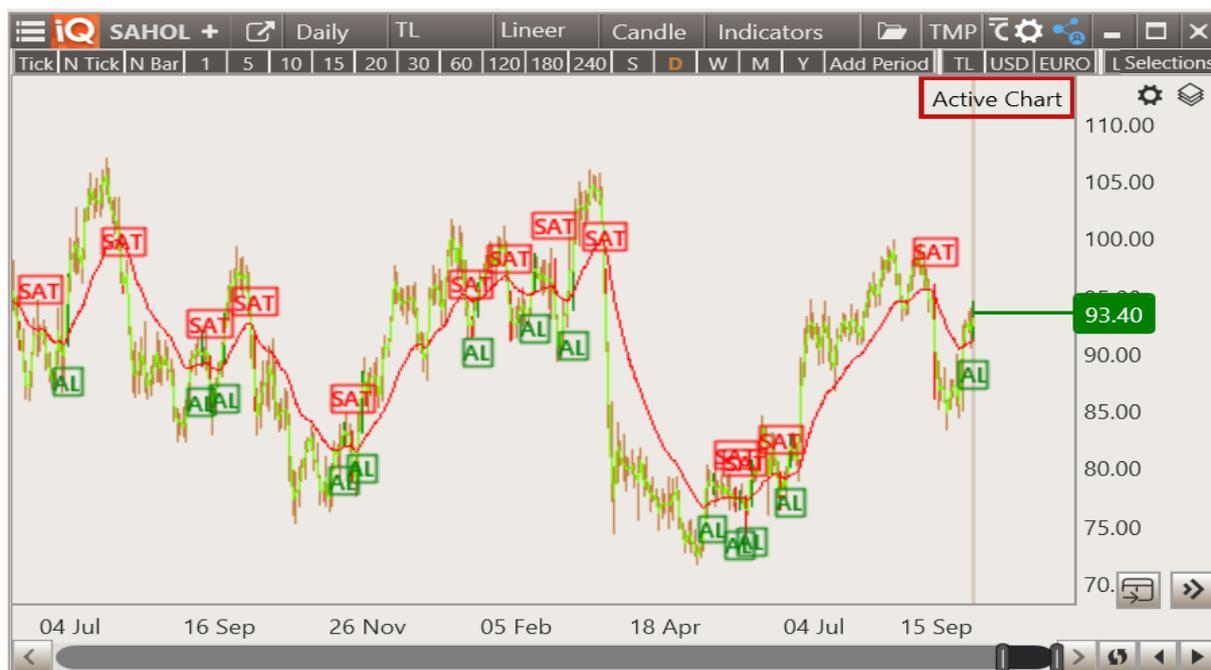


Figure 10. SAHOL Daily Chart

Source: Matriks IQ data terminal (September 19, 2025)

Looking at the technical analysis data for SAHOL shares in Figure 10, the 5/22 moving average crossover moved to a SELL position on March 19, 2025, after the last peak price, and it appears that CITIBANK liquidated its settlement shares before moving to this position. Subsequently, it went through an accumulation phase between March 2025 and June 24, 2025. After the stock correction, it was seen that CITIBANK and Deutsche Bank started buying again during a 3-month period between the lowest levels it saw after the correction, which were 72 TL and 84 TL. Both brokerage firms increased their settlement shares by approximately 3% to 4%, and after this phase, the stock generated a BUY signal (June 24, 2025). Following the BUY signal, Retirement Funds sold 21,504,604 lots and CITIBANK bought 38,742,291 lots during this period. Despite the large sale, the greater amount of foreign purchases brought the stock to a BUY position. The increase in the settlement share caused stock prices to rise and ensured higher returns. A BUY signal was generated at the level of 82.65 TL on June 14, 2025, and the stock reached price levels of 99.95 TL by 08.14.2025. In this context, the return after the technical buy signal was around 20-21%. As of September 19, 2025, with a price of 93.40 TL, the current return is around 13%, and the stock is in a HOLD position.

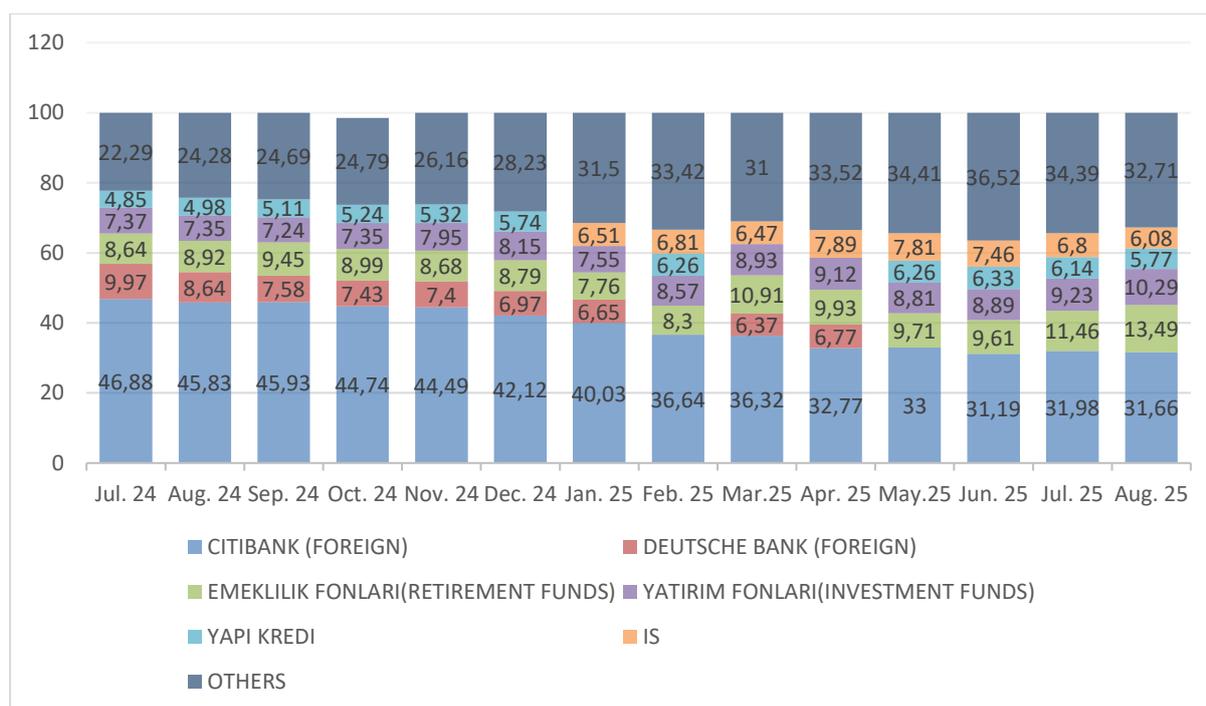


Figure 11. KCHOL July 2024 - August 2025 Monthly distribution of the top five brokerage firms

Source: Matriks IQ data terminal

Looking at the trading shares of KCHOL stock in Figure 11, it can be seen that CITIBANK ranked first among the top five brokerage firms in terms of settlement share with 46.88% on July 2024. However, the highest price observed on July 5, 2024, was 227.39 TL, after which it corrected to around 135 TL. It is clear that this correction was largely due to CITIBANK, which held the top position in trading, reducing its settlement shares from 46.88% (July 2024) to 31.66% in August 2025. The share price experienced a decline of approximately 47% from its highest peak. This decline can be explained as a consolidation process following the increase in performance seen before July 2024. The fact that the clearing house sold its shares in a fragmented manner from a single institution to other institutions can be seen as the main factor in the share prices remaining flat.



Figure 12. *KCHOL Daily Chart*

Source: Matriks IQ data terminal (September 19, 2025)

Looking at the technical analysis data for KCHOL shares in Figure 12, after reaching a peak in TL terms on the date of the 5/22 moving average crossover, it entered a downward trend from a price of 258.68 TL on May 22, 2024. This process can be described as consolidation. CITIBANK (from 46.88% to 31.66%) and Deutsche Bank (from 9.97% to 6%) have been reducing their settlement shares since the 5/22 moving average SELL signal. In contrast, between January 2025 and August 2025, Retirement Funds increased their settlement share from 8.64% to 13.49%, Investment Funds increased theirs from 7.37% to 10.29%, and IS Bank also increased its settlement share to 6%. In February 2025, IS Bank began to increase its settlement, and from that date onwards, the stock produced a short-term BUY signal on March 5, 2025. It then returned to a SELL position on March 19, 2025. Subsequently, short-term BUY and SELL signals formed in a horizontal area. On June 30, 2025, it moved to a BUY position with a voluminous rise (daily increase of 10%) at a price of TL 154. From TL 154 to TL 190 Looking at the settlement distribution on this date (July 2, 2025 to August 27, 2025), Pension Funds purchased 25,137,446 lots and Investment Funds purchased 4,213,707 lots, while CITIBANK, the leader in settlement share, sold 1,183,590 lots.

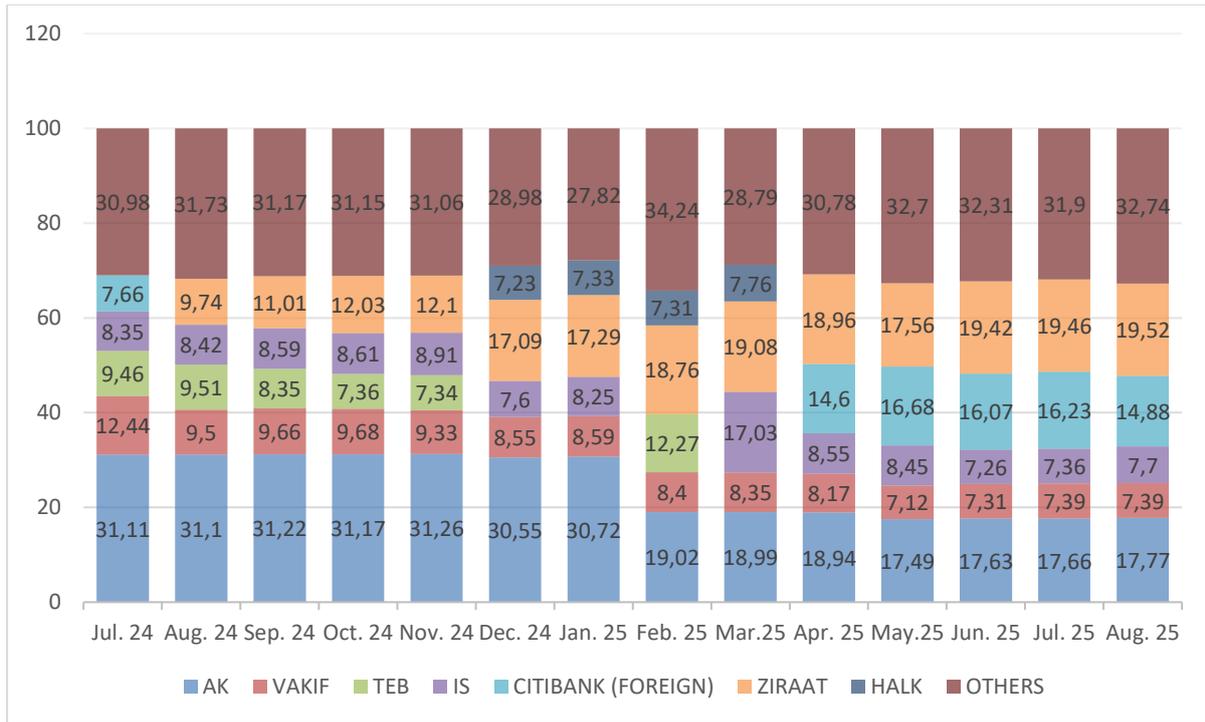


Figure 13. SASA July 2024-August 2025 Monthly top five brokerage firms distribution

Source: Matriks IQ data terminal

Figure 13. When examining SASA's settlement transactions, it is seen that AK Investment leads among the top five brokerage firms with a 31.11% share as of July 2024. The other shares range between 8% and 12% among other brokerage firms. The share of the “Others” group, which includes dozens of brokerage firms, is 30.98% as of July 2024, which is quite high. Although AK Investment holds the top position as the leading brokerage firm, the share of the ‘Others’ group, which includes dozens of brokerage firms, is high. This means that the ratio between institutional and individual investors is very close. Therefore, it can be said that this is the reason why the stock prices have not moved for a certain period of time.



Figure 14. SASA Daily Chart

Source: Matriks IQ data terminal (19.09.2025)

When SASA is examined from a technical analysis perspective in Figure 14, the share price has continuously declined since the historical peak of 10.28 TL on November 16, 2022, until 2025. Although the stock was in a downward trend, it produced a BUY signal after closing at 3.39 TL following the upward break of the 5/22 moving average on August 8, 2025. Subsequently, it rapidly reached a high of 5.66 TL on August 26, 2025, and closed at 5.16 TL. Looking at the settlement share data that triggered the stock's movement, it is closely related to CITIBANK's purchases between April 2025 and August 2025 and Ziraat Bank's increase in its share from 9.74% in August 2024 to 19.52% by August 2025. CITIBANK's increase in settlement shares in April 2025 triggered the stock accumulation process, followed by a price movement with the Buy signal in August 2025. The technical BUY signal received on August 6, 2025, at a price of 3.18 TL rose to 5.66 TL by August 26, 2025, and then corrected to its simple averages. After this movement, the stock's return was 77%. Based on the closing price of 3.39 TL on September 19, 2025, the stock's return is 6%. The stock is in a HOLD position.

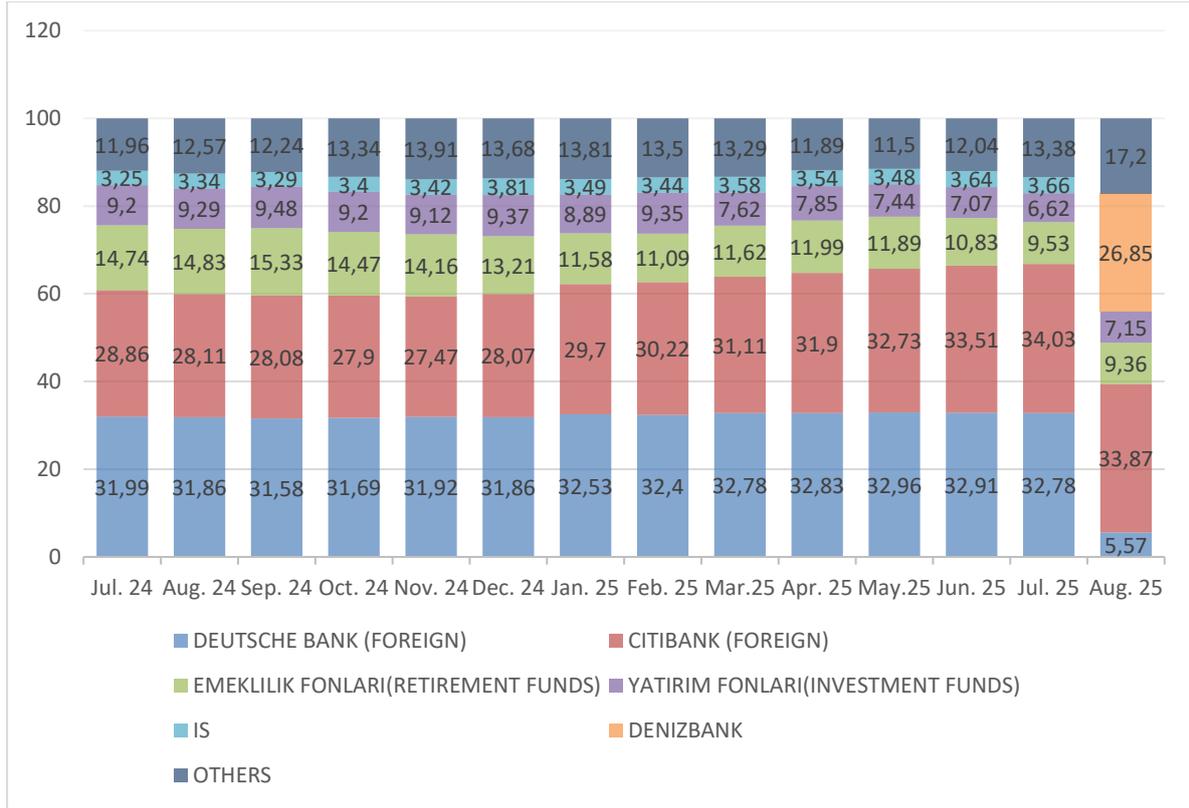


Figure 15. TCELL July 2024-August 2025 Monthly top five brokerage firms distribution

Source: Matriks IQ data terminal

When examining the brokerage firm distribution for TCELL in Figure 15; Deutsche Bank's settlement shares between July 2024 and July 2025, ranging from 31% to 32%, and between July 2024 and August 2025, ranging from 27% to 34%, and CITIBANK's settlement shares, which were the highest in the latest brokerage distribution, are significant. However, in August 2025, there was a significant decrease in Deutsche Bank's settlement shares (27.21%), and a very large increase in DENİZBANK's settlement shares (26.85%), which is quite noteworthy. After reaching a historic high of 109.51 TL in July 2024, the share price remained flat until August 2025. It can be said that there were no major changes in the clearing distribution except for the high turnover rate in August 2025.



Figure 16. TCELL Daily chart

Source: Matriks IQ data terminal (September 19, 2025)

When examining the technical BUY and SELL signals for TCELL stock in Figure 16, it is observed that after the peak on July 2024, the same peak was retested on March 17, 2025, but was not surpassed. The buy signal for the double top was generated on November 8, 2024, with a daily closing price of TL 86.81. The technical buy signal generated here and the subsequent trading volumes between November 10, 2024, and March 20, 2025, should be carefully examined. Looking at this time frame, CITIBANK purchased 44,534,482 lots, Bank of America purchased 19,253,735 lots, and Deutsche Bank purchased 15,081,400 lots. It is easy to predict that the technical buy signal was triggered by the trading shares of these three foreign investor banks. Looking at the returns, the return from the price of 86.81 TL to the price of 109.02 TL is around 25%. The returns for those who bought the stock with a technical signal and held it at the closing price of 97 TL on September 19, 2025, are around 11-12%. The stock is in a HOLD position.

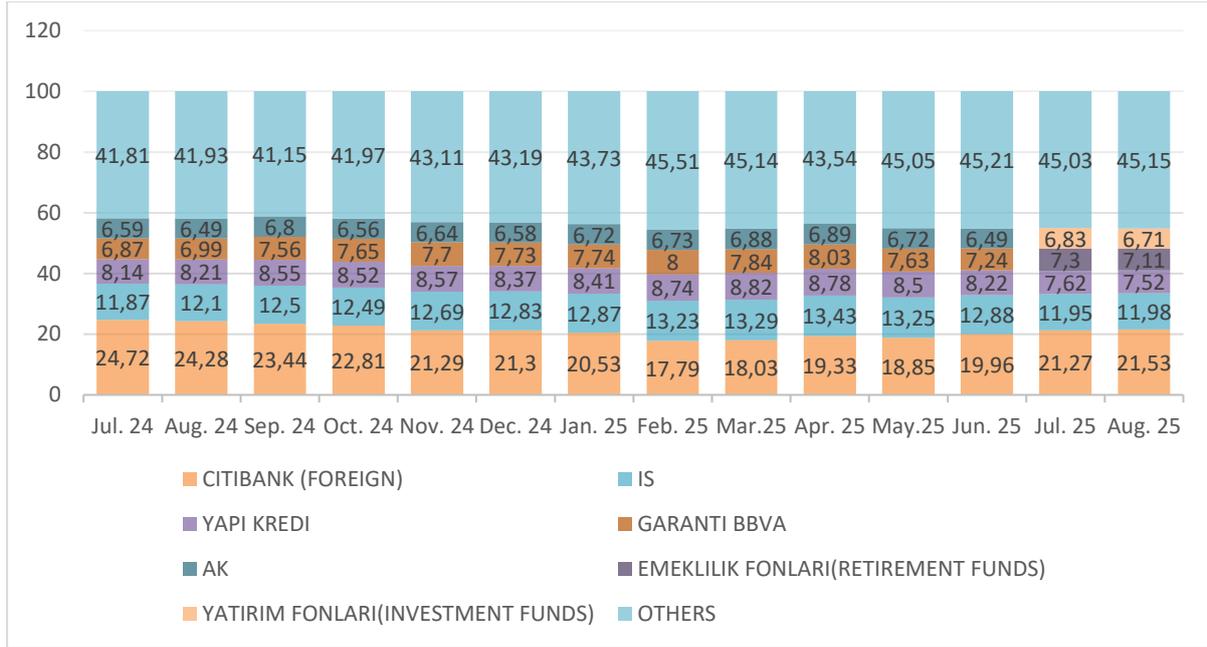


Figure 17. TUPRS July 2024-August 2025 Monthly top five brokerage firms distribution

Source: Matriks IQ data terminal

When examining the trading analysis of TUPRS shares in Figure 17, CITIBANK ranks first with a 24.72% share in the top five brokerage firms as of July 2024. The share of dozens of brokerage firms in the OTHER group is between 41% and 45% between July 2024 and August 2025. This ratio can be said to be quite high. Looking at this trading distribution, it can be said that individual investors rather than institutional investors have a share in the stock. CITIBANK reduced its settlement share from 24.72% to 17.79% between July 2024 and February 2025, then increased its settlement share again from 18.85% on March 2025 to 21.53% by August 2025. The purchases made by Retirement Funds and Investment Funds brokerage firms around July 2025 and August 2025, at around 6-7%, are the second notable situation after CITIBANK's purchase of the stock.



Figure 18. *TUPRS Daily Chart*

Source: Matriks IQ data terminal (September 19, 2025)

Figure 18 shows the technical BUY and SELL signals for TUPRS shares. The most recent BUY signal for the stock occurred on June 4, 2025, with a closing price of TL 133.00. The stock continued to rise until September 19, 2025, with a closing price of TL 195.00. The settlement distribution that created this BUY signal and subsequently increased with the rise should be carefully examined. When examining the two-day trading period (June 10, 2025-June 12, 2025) following the date when the signal triggering the stock's movement arrived (T+2 trading day), a technical BUY signal was generated with CITIBANK purchasing 3,242,878 lots and Deutsche Bank purchasing 869,242 lots. Looking at the lot purchases between June 10, 2025, and September 19, 2025, CITIBANK made a net purchase of 36,474,529 lots, Retirement Funds 30,590,882, Investment Funds 16,800,097, and Bank of America 5,497,973. When evaluating the purchases made, it is seen that institutional investors increased their settlement shares after the technical BUY signal. The stock continues to rise and is in a HOLD position.

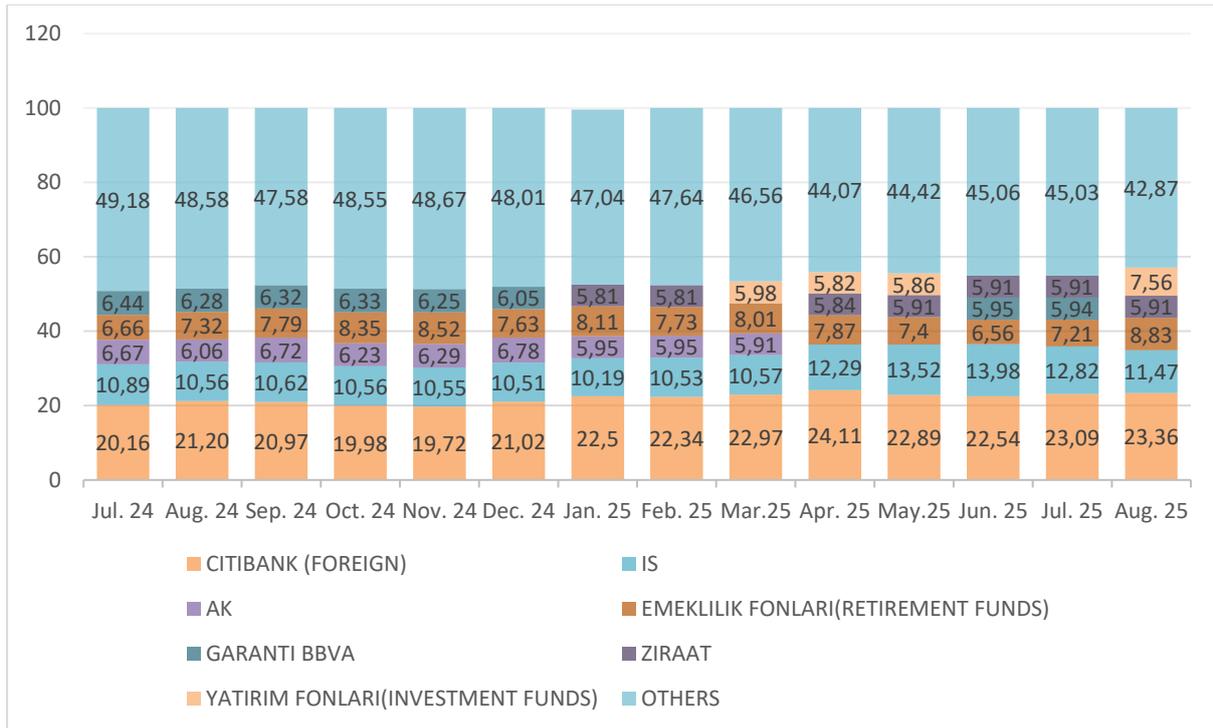


Figure 19. THYAO July 2024-August 2025 Monthly top five brokerage firms distribution

Source: Matriks IQ data terminal

When examining the settlement share distribution of THYAO shares in Figure 19; CITIBANK is the leading institutional investor with a settlement share of 20.16%–23.36% between July 2024 and August 2025. The share of the OTHERS group was 49.18% in July 2024, and the settlement rates decreased to 42.87% in the following months. This shows that while the share price was rising, individual investors sold their shares during high price movements, but institutional investors continued to buy. No brokerage firm other than the ‘OTHERS’ group showed a decrease in the settlement distribution. On the contrary, Investment Funds increased their settlement share to 7.56% in August 2025.



Figure 20. THYAO Daily Chart

Source: Matriks IQ data terminal (September 19, 2025)

Figure 20 shows the daily chart displaying the technical BUY and SELL signals for THYAO stock. After reaching its highest level of 331.65 TL on March 14, 2025, the stock experienced continuous declines until June 23, 2025, and then rose to 246.66 TL. Following this decline, a technical BUY signal was generated at a price level of 280.61 TL on June 30, 2025, and the stock rose to price levels of 342.72 TL on August 27, 2025. The returns from this rise were 22%. Based on the closing price on September 19, 2025 (319.75 TL), the current return is approximately 14%. The stock is showing horizontal price movements and is in a HOLD position.

Result and Discussion

In financial markets, theoretical models treat buying and selling as different aspects of the same information, assuming that informed investors are equally likely to buy on positive signals and sell on negative signals. However, in practice, apart from randomly behaving investors, buying and selling decisions for real investors are fundamentally different. Investors face a challenging search problem when selecting stocks, as they must choose from thousands of alternatives. Due to bounded rationality, cognitive and time constraints, it is not possible to evaluate all alternatives. Therefore, narrowing down the selection set makes the process more manageable and increases decision-making efficiency (Barber and Odean, 2008, p.786). Many

people believe that the best results in the securities market can be achieved by analyzing a stock's market position and intrinsic value together (Graham and Dodd, 2009, p.697). From this perspective, the settlement analysis, fundamental analysis, and technical analysis are of great importance for a securities analyst. Settlement analysis, in particular, is an important technique for identifying demand concentrations for a stock. Settlement analysis alone is not sufficient. Therefore, when used in conjunction with other types of analysis, investors' returns on stocks are seen to increase.

In the study, ASELS, EKGYO, EREGL SASA, TUPRS, and THYAO were found to be stocks with fixed settlement share distributions and corresponding price increases. BIMAS, SAHOL, KCHOL, and TCELL were found to be stocks with stable settlement share distributions and horizontal prices. A consolidation process can be observed in stocks exhibiting horizontal price movements. The study results demonstrate that the relationship between technical and settlement analysis and stock price movements has significant potential in explaining their dynamics. Findings in the literature have demonstrated the predictability of market prices through technical analysis (Brock et al., 1992; Park and Irwin, 2007; Sharma and Bhalla, 2025) and the potential for understanding investor behavior through settlement data (Saltik, 2024), supporting our study. However, the number of studies examining technical analysis and settlement data in conjunction is quite limited. In this context, the study aims to make an original contribution to the literature by considering the relationship between technical analysis and settlement analysis in a holistic manner.

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