AYBU BUSINESS JOURNAL

JUNE 2025 Volume: 5 Number: 1 e-ISSN:2792-0119

ANKARA YILDIRIM BEYAZIT UNIVERSITY
AYBU

AYBU BUSINESS JOURNAL

Volume: 5 • **Number:** 1 • June 2025

OWNER

Prof. Dr. RAFET AKTAŞ

Ankara Yildirim Beyazit University, Business School, Ankara, Turkey

CORRESPONDENCE ADDRESS

Ankara Yıldırım Beyazıt University, Esenboğa Campus, Business School, Esenboğa/ANKARA

Ankara Yildirim Beyazit University, Esenboğa Campus, Esenboğa/Ankara

Phone: (0312) 906 16 /21 / 47 /48

E-mail:bsdo@ybu.edu.tr

https://aybu.edu.tr/isletme/tr/sayfa/5218/AYBU-BUSINESS-JOURNAL

PUBLISHER

Ankara Yildirim Beyazit University, Esenboğa Campus, Esenboğa/Ankara

The publication language of the journal is English.

Publication Type

Periodical

AYBU BUSINESS JOURNAL

Volume: 4 • **Number:** 1 • June 2024

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AYBU Business Journal

Submitted: 12 June 2025
Accepted: 17 June 2025
Published Online: 30 June 2025
DOI: 10.61725/abj.1718377

RESEARCH ARTICLE

The Effect of Share Buyback Notifications on Covid-19 Process To Stocks Return: An Analysis of Companies In The BIST 100 Index

Şevket Durmaz[a*], Güven Sayılgan[b]

[a]*Institute of Social Sciences, Department of Business Administration, PhD Student, Ankara University, Ankara, Turkiye*

[b]*Faculty of Political Sciences, Department of Business Administration, Ankara University, Ankara, Turkiye*

Abstract

The buyback of shares has gained great popularity in Turkey and in the world in the last 10 years. The purpose of this study is to determine the effect of share buyback notifications issued by companies on the return of stock in the process of COVID-19, where all world exchanges have bad times. For this purpose, buyback notifications published in KAP by companies at BIST 100 between 01.02.2020-15.04.2020, in which the effect of COVID-19 epidemic is felt in Turkey and global markets, was examined. The effect of share buyback notifications on stock return was handled by the event study method and the event window was determined as -10, +10 days. As a result of the analysis, it was concluded that the effect of share buyback notifications on stock returns is short-term and negative returns increase as a move away from the day of the event.

Keyword

Share Buyback Notifications, Stock Return, Abnormal Return, Cumulative Abnormal Return, BIST 100, COVID-19

1. Introduction

Share buyback refers to the practice whereby a company or its subsidiaries buy back shares previously issued and held by investors. In such transactions, the company distributes cash to its shareholders in exchange for reacquiring its own equity.

Depending on the company's share buyback program, the repurchased shares may either be resold on the market or cancelled. The cancellation of shares is effectively a capital reduction, which increases the debt-to-equity ratio and consequently affects the firm's capital structure.

*Corresponding author.
Contact: Şevket Durmaz ✉ sevketdurmaz23@gmail.com, Guven Sayılgan ✉ sayilgan@ankara.edu.tr
To cite this article: Durmaz, Ş., & Sayılgan, G. (2025). The Effect Of Share Buyback Notifications On Covid-19 Process To Stocks Return: An Analysis Of Companies In The Bist 100 Index. *AYBU Business Journal,5*(1), 1-13.

The Effect Of Share Buyback Notifications On Covid-19 Process To Stocks Return: An Analysis Of Companies In The Bist 100 Index

Whether or not a shareholder participates in the share buybacks program alters the ownership distribution among shareholders. Unlike cash dividend distributions, share buybacks also provide shareholders with the opportunity to engage in tax planning, depending on their individual tax positions (Shahar & Abdullah, 2007, p. 39).

Share buybacks may occur through open market transactions or directly from shareholders. Companies may repurchase their shares for various reasons, often aiming to improve key financial ratios. In many countries, firms are allowed to make cash offers to existing shareholders in exchange for a portion of the company's excess equity capital. In other words, they may use distributable profits to reduce the number of outstanding shares. The repurchased shares may also be retained by the company for future resale (Preeti Attri, 2018, p. 39). The duration of share buyback programs is typically regulated by each country's legal framework. For instance, as of June 2020 in Turkey, publicly listed companies are allowed a maximum period of three years, while non-listed companies are limited to one year.

The United States has the longest-standing history of allowing share buybacks, having first introduced the practice in the late 1960s, with a surge in popularity during the mid-1980s. Outside the U.S., buyback programs began in the early 1980s in the United Kingdom and became relatively common. During the 1990s, the prevalence of repurchases in other European countries remained low, largely due to legal restrictions or punitive tax regimes. France and Germany legalized share repurchases in 1998. In Asia, such practices were gradually permitted toward the end of the 1990s (Gupta, 2018, p. 43).

Although share buybacks have a well-established history in many countries, Turkey did not adopt such practices until 2009. Under the former Turkish Commercial Code No. 6762, companies were generally prohibited from buying back their own shares, except in exceptional circumstances. A decision published by the Capital Markets Board (CMB) on September 1, 2009, permitted limited buybacks on the stock exchange, but only by brokerage firms and investment trusts. This marked the beginning of regulated share repurchase activity in Turkey. Subsequently, the Turkish Commercial Code No. 6102, enacted in 2011 and enforced in 2012, granted companies the legal right to repurchase their own shares within specified limits. According to the code, the volume of buybacks shares could not exceed one-tenth of the company's paid-in or issued capital. However, in the wake of the failed coup attempt in 2016 and to mitigate anticipated market volatility, the CMB released a public statement on July 21, 2016, allowing companies to buy back their own shares without volume restrictions, provided that a material event disclosure was issued. This regulatory change significantly contributed to the widespread adoption of share buybacks practices in Turkey (Karakuş, Zor & Küçük, 2017, p. 58).

The COVID-19 pandemic had a profound impact on global stock markets. The BIST 100 Index also suffered significant losses due to the panic triggered by the pandemic. In this environment, share repurchases by companies served as a mechanism to prevent excessive declines in stock prices and helped restore investor confidence, thus alleviating selling pressure. One key factor influencing long-term investment decisions is whether companies demonstrate support for their stocks and shareholders during times of financial distress. Firms that stand by their investors during crises are believed to generate long-term positive outcomes.

This study investigates the impact of share buyback notifications on stock returns during the COVID-19 pandemic—a period of significant economic distress in Turkey and around the globe. Although there exists an extensive body of research on the relationship between share buybacks and returns in other countries, the Turkish literature on the topic remains scarce. While the time frame covered in this study is relatively short, the analysis contributes to the limited empirical research available in Turkey, especially by examining the effects of buyback notifications made during the extraordinary circumstances of the COVID-19 crisis.

Literature Review

The first studies on share buyback were conducted in the 1980s in the United States and the United Kingdom. Subsequently, comprehensive research has been carried out across various countries in Europe and other continents to analyze different aspects of share buyback practices. A series of empirical and theoretical studies have addressed the rationale and effects of share buyback, offering different perspectives on the motives behind buyback notifications and the reasons for market reactions to such announcements. In Turkey, academic studies on this topic began after 2011, when the legal framework started allowing share buybacks. Compared to international studies, research conducted in Turkey remains limited in number and scope.

In the international literature, Dielman, Nantell, and Wright (1980) examined 174 buyback transactions conducted by 139 companies between 1957 and 1974 via open market purchases and tender offers. Using a regression model, the authors found that open market buybacks had no economic significance meaning their effect on return rates was negligible while tender offers were associated with significantly higher returns in the announcement month. They also suggested that such announcements signal the exhaustion of profitable investment opportunities, implying a negative relationship between buybacks activity and stock prices.

Masulis (1980) analyzed 199 buyback offers made between 1963 and 1978 by firms listed on the NYSE and ASE using an event study approach. He found that returns on the announcement day and the following day were 17% higher compared to the 40-day pre-announcement period.

Ikenberry, Lakonishok, and Vermaelen (1995) adopted a long-term perspective, analyzing the effects of share buybacks over a ten-year period. Despite public endorsements from firms suggesting that their stock was undervalued and a "good investment," the average market reaction was only about 3.5%, indicating that managers may be overly optimistic about firm value.

In a 2000 study, Ikenberry, Lakonishok, and Vermaelen (2020) investigated the long-term performance of open market buybacks in Canada. They found that abnormal returns averaged approximately 7% per year over a three-year holding period. Their findings suggested that high-value firms experienced greater post-announcement returns compared to low-value firms and that share buybacks offered better long-term performance than other factors.

Mishra (2005) examined the price effects of 25 share buyback notifications made between 1999 and 2001. The study revealed that 14 of the 25 companies performed better in the short term following buyback notifications, while only 11 showed improved performance in the long term. The findings support the notion that share buybacks positively impact stock prices but only in the short run.

Kaur and Singh (2010) used data from 100 buyback events of firms listed on the Bombay Stock Exchange (BSE) between 1999 and 2004. Their study showed that the market reacted positively to buyback notifications.

The price reaction was found to begin even before the public disclosure, with an average abnormal return of around 2.22% on the notification day.

Gupta (2018) examined the effects of buyback notifications on stock price movements across different sectors. In a study of companies listed on the BSE that buyback shares between 2000 and 2015, Gupta found that buyback notifications yielded abnormal returns, but only for a brief period. The study concluded that the sectoral affiliation of companies did not significantly influence market reactions to buyback notifications..

Gupta and Wagner (2018) analyzed 1,830 open market buyback notifications from 15 European countries between 1998 and 2013. They investigated the magnitude and determinants of stock price reactions. Their findings indicated that buyback notifications in Europe led to a statistically significant abnormal return of 0.92% on the notification day, although the effect was moderated by firm size and the frequency of buyback notifications.

Gopalkrishnan et al. (2019) explored the price effects of buybacks by Indian IT companies between 2013 and 2018. Analyzing the top five IT firms in India, the study found that buyback activities had short-term positive effects on stock returns.

Turning to studies conducted in Turkey, Karakuş, Zor, and Küçük (2017) examined the impact of share buyback notifications made by companies listed on Borsa Istanbul (BIST) on stock returns. Using the event study methodology, they found that buyback notifications led to statistically significant cumulative abnormal returns in the pre- and post-notification periods. When grouping firms based on asset size and market-to-book ratio, they observed differences in the results between groups.

Göçmen Yağcılar and Arslan (2018) analyzed 17 buyback notifications made by 10 companies and their effects on stock returns. Using an event window of -10 to +10 days, they calculated expected returns and found both positive and negative abnormal returns around the notification date. However, the cumulative abnormal returns were not statistically significant.

Arsoy (2017) approached the subject from a different angle, investigating the relationship between market capitalization and buyback notifications among BIST-listed companies. Using an event study with a window of (-20, +20) days, the study divided firms into those that made notifications and those that did not. The findings showed no statistically significant cumulative abnormal returns, though share prices appeared to be influenced during the observation period.

Data and Methodology

This study aims to examine the impact of share buyback notifications made during the COVID-19 period on the stock prices of the respective companies. Specifically, the analysis focuses on share buyback notifications issued by companies listed in the BIST 100 Index between February 1, 2020, and April 15, 2020. Following the screening process, a dataset comprising 10 share buyback notifications made by 10 different companies was constructed. The details of the companies that issued share buyback notifications during the sample period are provided below.

Table 1: Share Buyback Notifications

	Notification Date	**Company Name**
1	25.02.2020	ENKAI
2	28.02.2020	DOHOL
3	05.03.2020	EREGL
4	09.03.2020	THYAO
5	12.03.2020	TAVHL
6	16.03.2020	AKSA
7	17.03.2020	VAKBN
8	17.03.2020	HALKB
9	20.03.2020	EKGYO
10	09.04.2020	BIMAS

Since companies listed on Borsa Istanbul are required to publicly disclose their stock repurchase announcements through the Public Disclosure Platform (KAP), the data on share buyback notifications were obtained from this source. Relevant data on the BIST 100 Index and the constituent companies were retrieved from the official website https://tr.investing.com.

Methodology

In this study, the **event study** method is employed. The event study method is widely used to examine the impact of share buyback notifications on stock prices. To measure the abnormal performance of stock returns around the notification date, it is necessary to calculate **Abnormal Return (AR)** (Pradhan & Kasilingam, 2019, p. 115).

In this analysis, the BIST 100 Index is used as a proxy for market returns within the market model over a 210-day estimation period. The event window is defined as 21 trading days—comprising 10 days before and 10 days after the notification date. The notification day is denoted as day "0". Based on buyback notifications, abnormal returns for the companies within the defined event window are calculated using the following formula (Karakuş, Zor & Küçük, 2017, p. 61):

$$AR_{it} = R_{it} - E(R_{it}) \quad (1)$$

AR_{it} : Abnormal return of stock *i* on day *t*,

R_{it} : Actual return of stock *i* on day *t*,

$E(R_{it})$: Expected (normal) return of stock *i* on day *t*.

To compute abnormal returns, both actual and expected returns must be determined. The actual and expected returns are calculated using the logarithmic method as shown below:

$$R_{it} = \ln\left(\frac{P_{i,t}}{P_{i,t-1}}\right) \quad (2)$$

$P_{i,t}$: Closing price of stock *i* on day *t*,

$P_{i,t-1}$: Closing price of stock *i* on day *t–1*.

Various statistical and economic models can be used to calculate and evaluate abnormal returns. In this study, the **market model**, which is a statistical approach, is selected. The expected return is computed as follows:

$$E(R_{it}) = \alpha + \beta_i(R_{m,t}) \quad (3)$$

$R_{m,t}$: Market return on day *t* (BIST 100 Index return),

α : Intercept term estimated during the estimation window,

β_i : Beta coefficient for stock *i* calculated over the estimation window.

The parameters α and β_i are estimated using data from the interval [-210, -11].

The market return on day *t* is calculated using the formula below:

$$R_{mt} = \ln\left(\frac{P_{m,t}}{P_{m,t-1}}\right) \quad (4)$$

$P_{m,t}$: Closing value of the BIST 100 Index on day *t*,

$P_{m,t-1}$: Closing value of the BIST 100 Index on day *t–1*.

These formulas facilitate the calculation of abnormal returns as defined in Equation (1). After computing the abnormal returns, the **Cumulative Abnormal Returns (CAR)** over a given event window can be calculated using the formula:

$$CAR\,_{t1}^{t2} = \sum_{t1}^{t2} AR_i \quad (5)$$

In Equation (5), t1 and t2 denote the bounds of the event window. Table 3 presents the event windows and corresponding *t*-statistics used to test statistical significance.

Findings

The period from February 1, 2020 to April 15, 2020, during which the impact of the COVID-19 pandemic was felt both in Turkey and global markets, was examined. Buyback notifications published by companies listed in the BIST 100 on the Public Disclosure Platform (KAP) were analyzed.

Using the event study methodology with an event window of -10 to +10 days, the impact of share buyback notifications on stock returns was investigated.

The calculated AAR (Average Abnormal Return) values and the results of the t-tests for statistical significance are presented below:

Table 2: Abnormal Returns for the Entire Sample

Event Day	AAR	t-statistic
-10	-0,0012395	-0,250853777
-9	-0,012545	-2,538924704*
-8	-0,0111874	-2,264171151*
-7	-0,007118	-1,440588562
-6	0,00543975	1,100928613
-5	-0,0020271	-0,410253498
-4	-0,0007865	-0,159174928
-3	-0,0097723	-1,97777876*

-2	0,00284975	0,576748452
-1	0,00457386	0,925685494
0	0,00585843	1,185663242
1	0,00521952	1,056356677
2	-0,0035233	-0,713070275
3	0,00023377	0,047311004
4	-0,0035118	-0,710738131
5	-0,0095682	-1,936461569**
6	-0,0011688	-0,2365483
7	-0,0102682	-2,078134034*
8	0,01086251	2,19841961*
9	-0,0041556	-0,841035655
10	0,0013026	0,263627581
Note: * and ** indicate that the abnormal return (AR) values are statistically significant at the 5% and 10% significance levels, respectively, based on the t-statistics.		

Table 2 presents the Average Abnormal Returns (AAR) calculated for each day within a 21-day period, consisting of 10 days before the share buyback notifications (day 0), the notification day itself, and 10 days after the notification. Accordingly, during the pre-notification period, predominantly negative returns were observed; however, starting from day -2, these negative returns turned positive and continued until the end of day +1. Afterward, on day +2, returns fluctuated back into negative territory.

Specifically, abnormal returns were generally negative between days -10 and -2, and positive between days -2 and +1. The AAR value of approximately 0.5% on the notification day and the following day indicates higher returns compared to the pre-notification period, reflecting an optimistic reaction from investors after the event. Furthermore, the abnormal returns were found to be statistically significant at the 5% level on days -9, -8, -3, +7, and +8, and at the 10% level on day +5. As seen in the table, the effect of the buyback notifications appears to be temporary, providing no long-term benefit. The decline in returns starting from day +2 suggests that despite significant price changes immediately following the notifications, buybacks do not create substantial value for shareholders in the longer term.

Table 3: Cumulative Returns for the Entire Sample

Event Window	CAAR	t-statistic
-10,+10	-0,0405314	-1,790039754**
-5,+5	-0,0104539	-0,637911258
-3, +3	0,00543969	0,416107073
-1 ,+1	0,01565181	1,828875573**
0, +1	0,01107794	1,585347488
0,+5	-0,01115	-1,009183226
0, +10	-0,008719	-0,532049889
-10, -1	-0,0318124	-2,035995416*
-5, -1	-0,0051623	-0,467236798
-1, 0	0,01043229	1,492949009

Note: * and ** indicate that the CAAR values are statistically significant at the 5% and 10% significance levels, respectively, based on the t-statistics.

To measure the impact of the buyback notification on stock returns over specific periods, event window analysis was conducted. The analysis considered event windows of (−1, +1), (−3, +3), (−5, +5), and (−10, +10) days, as well as cumulative average abnormal returns (CAAR) for 1, 5, and 10 days before and after the event.

When examining the cumulative average abnormal returns (CAAR), it was found that the returns are statistically significant across the event windows of −10 to +10 and −1 to +1 days, among others. The lowest CAAR value of -4% was observed in the −10 to +10 day event window, while the highest CAAR value of 1.5% was recorded within the −1 to +1 day window. Additionally, the CAAR analysis indicates that negative returns tend to decrease as the event day approaches and increase as the window moves further away from the notification date.

Abnormal returns (AR) were also analyzed on a company basis and are presented in Tables 4 and 5.

Table 4: Abnormal Returns at the Firm Level

Event Day	ENKAI	DOHOL	EREGL	THYAO	TAV
-10	-0,011645521	-0,00033628	**0,029083799***	**-0,022744256****	-0,01865586
-9	0,003094357	0,02484017	0,009430484	-0,021866071	**-0,056399378***
-8	0,016068506	-0,001184526	-0,01715567	**-0,025800645****	-0,007701923
-7	0,001378156	-0,010426684	0,002429593	**-0,03067954***	0,001080427
-6	0,000681751	-0,004524451	**0,023778516****	0,020159163	**-0,029882267****
-5	0,009038516	0,012004503	-0,005175242	-0,010403143	-0,023351418
-4	0,005745662	-0,012115597	0,000381539	-0,009603003	-0,012692163
-3	**-0,03660732****	-0,000052261	-0,009235692	**-0,03316578***	-0,01241271
-2	0,010128928	-0,016855897	-0,001030382	-0,01409646	-0,007188532
-1	-0,000980005	**-0,030480951****	**-0,021320207****	**-0,023063533****	-0,003461988
0	0,003035337	-0,034252288*	**0,045052543***	0,003676607	-0,019945798
1	0,012266057	-0,003882921	**0,034830342***	-0,008255232	0,014700943
2	-0,017344518	0,021526635	0,007749987	**-0,034374561***	-0,005539515
3	-0,007473858	-0,01670909	**0,036507964***	**-0,027289644***	0,01818973
4	-0,01502683	-0,00222408	**-0,022189516****	**0,049483395***	-0,020915413
5	0,008664201	**-0,030165973****	**0,028876558***	0,004250165	**-0,056338883***
6	0,022917978	**-0,046646622***	**-0,031409491***	-0,013356104	0,018579608
7	-0,003293138	-0,00688697	0,000390368	0,008980603	**-0,052968851***
8	**0,026535856****	-0,014607761	0,00204705	0,011956759	**0,059899809***
9	**-0,042515006***	**-0,038205637***	**0,028614815***	-0,002802318	0,025927941
10	**-0,084511249***	-0,000753478	**0,027900714***	-0,009862517	**0,079200092***

Note: * and ** indicate that the AR values are statistically significant at the 5% and 10% significance levels, respectively, based on the t-statistics.

Table 5: Abnormal Returns at the Firm Level

Event Day	AKSA	VAKBN	HALKB	EKGYO	BIMAS
-10	-0,021961861	0,019797773	0,019671936	0,003249593	-0,008854148
-9	-0,026565451	-0,007947534	**-0,029030766***	0,003104225	-0,024109708
-8	-0,018785679	-0,02215833	-0,011421139	-0,024576553	0,000842012
-7	0,019938689	-0,010677319	-0,006012006	**-0,030398317***	-0,007813276
-6	-0,017861671	0,018222246	0,006120465	0,013918421	0,023785319
-5	**-0,051542901***	**0,024568305****	0,015655115	0,018228086	-0,009292672
-4	0,000166626	0,008972664	-0,010851383	**0,039596191***	-0,017465456
-3	**-0,044290976***	**0,032886449***	0,018658857	-0,002601408	-0,010902302
-2	**0,033064654***	0,012069431	0,015993346	0,007648366	-0,011235994
-1	**0,031748038****	**0,036415774***	**0,039153231***	0,014551262	0,00317701
0	**-0,042619772***	**0,063990467***	**0,056593485***	-0,008076329	-0,008869975
1	-0,004646562	0,006818772	-0,003028892	-0,014933334	0,018325995
2	-0,008917334	0,006770707	-0,005662596	0,003649669	-0,003091671
3	0,004386433	-0,005152444	0,001450989	0,00318258	-0,004754997
4	0,020959353	**-0,031476674***	**-0,052296909***	-0,014797441	**0,053366152***
5	**-0,035675701***	-0,020448616	-0,010181404	0,010216014	0,005122003
6	0,026538255	-0,007144944	-0,002277499	0,009914818	0,011196019
7	-0,025846722	**-0,022832533****	-0,016697475	0,005124124	0,011348844
8	0,006338642	0,010495603	0,023338615	-0,000971379	-0,016408066
9	-0,001452047	0,005239365	0,009633585	-0,01406919	-0,011927545
10	-0,00473284	-0,000625211	-0,006449104	-0,000326645	0,013186222

Note: * and ** indicate that the AR values are statistically significant at the 5% and 10% significance levels, respectively, based on the t-statistics.

When examining abnormal returns (AR) at the firm level, the following observations were made:

For **ENKAI**, a positive abnormal return was observed on day +8, significant at the 10% level. Negative abnormal returns were noted on days +9 and +10, significant at the 5% level, and on day -3, significant at the 10% level.

For **DOHOL**, negative abnormal returns occurred on days +6 and +9, significant at the 5% level, while days -1 and +5 showed significance at the 10% level.

For **EREGL**, positive abnormal returns were found on days -10, 0 (event day), +1, +3, +5, +9, and +10, all significant at the 5% level. Additionally, day -6 showed significance at the 10% level. Negative abnormal returns were observed on day +6 (significant at 5%), and on days -1 and +4 (significant at 10%).

For **THYAO**, a positive abnormal return occurred on day +4, significant at the 5% level. Negative abnormal returns appeared on days -7, -3, +2, and +3, all significant at the 5% level, with days -10, -8, and -1 significant at the 10% level.

For **TAV**, positive abnormal returns were observed on days +8 and +10, significant at the 5% level. Negative abnormal returns were found on days -9, +5, and +7 (all significant at 5%), and on day -6 (significant at 10%).

For **AKSA**, a positive abnormal return was seen on day -2, significant at the 5% level, and day -1 significant at the 10% level. Negative abnormal returns were detected on days -5, -3, 0, and +5, all significant at the 5% level.

For **VAKBN**, positive abnormal returns occurred on days -3, -1, and 0, significant at the 5% level, and day -5 was significant at the 10% level. Negative abnormal returns appeared on day +4 (significant at 5%) and day +7 (significant at 10%).

For **HALKB**, positive abnormal returns were observed on the day before and the event day, significant at the 5% level. Negative abnormal returns were noted on days -9 and +4, significant at the 5% level.

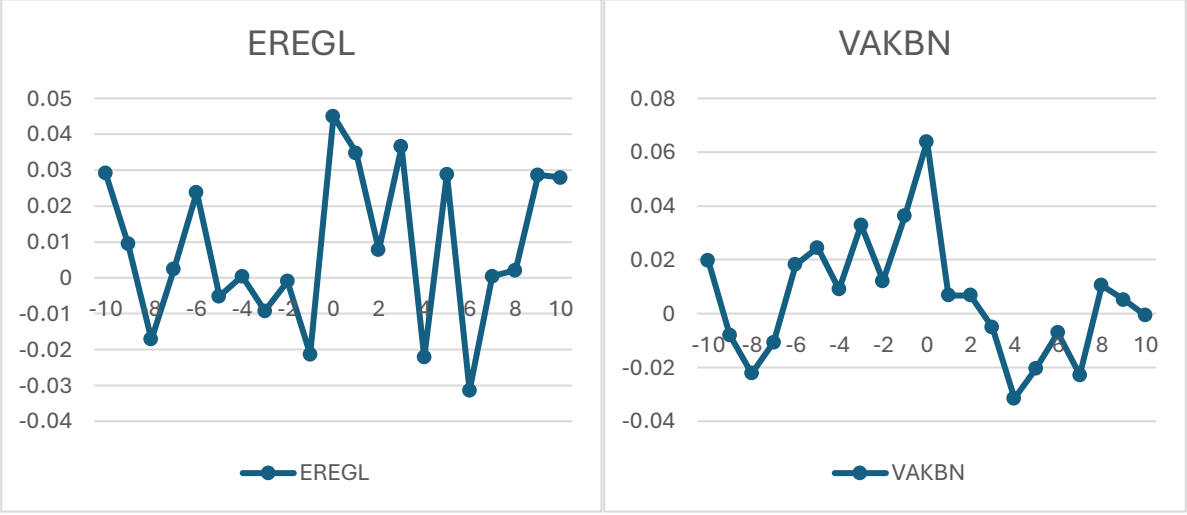
For **EKGYO**, a positive abnormal return was detected on day -4 (significant at 5%), while a negative abnormal return was found on day -7 (significant at 5%).

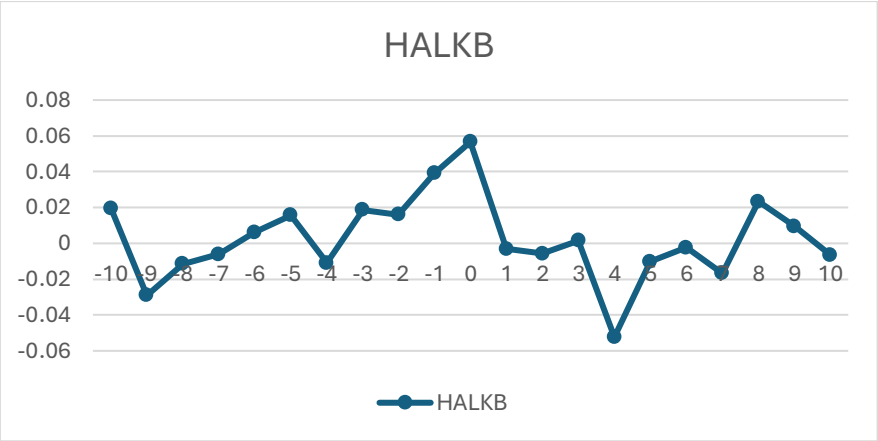
For **BIMAS**, a positive abnormal return occurred on day +4, significant at the 5% level.

When focusing on **EREGL**, **VAKBN**, and **HALKB**, positive abnormal returns on the event day were statistically significant at the 5% level. EREGL exhibited negative abnormal returns from day -3 until the day before the event, with a positive return of 4% on the event day. VAKBN recorded its highest return of 6% on the event day within the −10 to +10 event window. Similarly, HALKB achieved its highest return of 5% on the event day compared to other days.

These findings suggest that the buyback notifications by these companies had a positive effect on stock returns. The positive abnormal returns on the event day indicate an optimistic market reaction to the buyback notifications. However, the decline in positive returns and their replacement by negative returns in the days following the event suggest that the effect of buyback notifications is short-lived and diminishes after the event day.

For better visualization, the data for these three companies are presented graphically below.





The graph illustrates that these companies achieved the highest abnormal returns on the event day, with the effect gradually diminishing in the days following the notification. When examining data from other companies, although not statistically significant, **ENKAI** and **THYAO** exhibited negative abnormal returns on the day prior to the event but experienced positive returns on the event day when the buyback notification was made.

Conclusion

Shere buybacks are considered an important financial restructuring tool and have seen increasing application worldwide in recent years. This study examined the impact of share buyback notifications on stock returns in a country like Turkey, where share buyback are relatively new. Using the event study method, 10 share buyback notifications made by 10 companies between February 1, 2020, and April 15, 2020, were analyzed. The event window was set as -10 to +10 days, and the estimation window was defined as -21 days. The market model was preferred for measuring abnormal returns, with the BIST 100 index returns used as the market return.

The analysis revealed that average abnormal returns, which were negative before the event, started to turn positive two days prior to the notification and continued positively on the event day and the following day. The abnormal returns of approximately 0.5% on the event day and the next day indicate that share buyback notifications positively affected stock returns compared to previous days. The reversal to negative returns two days after the event suggests that the impact of share buyback notifications on stock returns is short-lived. Furthermore, abnormal returns on days -9, -8, -3, +7, and +8 were statistically significant at the 5% level, and on day +5 at the 10% level.

At the firm level, it was found that EREGL, VAKBN, and HALKB achieved their highest returns on the event day, and these returns were statistically significant at the 5% level. These findings indicate that for these three companies, share buyback notifications positively influenced stock returns, reflecting a favorable market reaction. Similarly, data for THYAO and ENKAI show that the market responded positively to buyback notifications, with previously negative returns turning into positive abnormal returns on the event day.

Looking at cumulative average abnormal returns (CAAR), statistical significance was found across the event windows of -10 to +10 and -1 to +1 days. The lowest CAAR value was -4% for the -10 to +10 day window, while the highest CAAR value of 1.5% was observed in the -1 to +1 day window, significant at the 10% level. The CAAR results indicate that negative returns increase as the event window lengthens.

We believe the findings are insufficient for strong generalizations. Considering that among the 10 companies analyzed, three are industrial, two banks, two holdings, one real estate investment trust, one airline, and one retail company, the heterogeneous nature of the sectors likely prevented identification of a clear pattern.

This study aimed to explain the effect of share buyback notifications on stock returns during the unique period of the COVID-19 pandemic. Although limited by the short time frame, it may serve as a starting point for future long-term research, especially since it remains uncertain when the pandemic will end and how long its effects will last, alongside increasing share buyback notificatios.

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https://dergipark.org.tr/tr/pub/abj
https://aybu.edu.tr/isletme/tr/sayfa/5218/AYBU-BUSINESS-JOURNAL

AYBU Business Journal

Submitted: 17 June 2025
Accepted: 24 June 2025
Published Online: 30 June 2025
DOI: 10.61725/abj.1721385

RESEARCH ARTICLE

Shaping Organizational Change: The Impact of Organizational Support and Job Crafting

Firuze Yazıcıoğlu[a*]

[a]*Department of Management, Ankara Yildirim Beyazit University, Ankara, Turkey*

Abstract

This study investigates the mediating role of job crafting in the relationship between perceived organizational support (POS) and resistance to change (RTC) among employees in the Turkish private sector. Drawing upon Social Exchange Theory and Self-Regulation Theory, the research proposes that when employees perceive high levels of organizational support, they are more likely to engage in job crafting behaviors—specifically task, relational, and cognitive crafting—which in turn reduce their resistance to organizational change. Data were collected from 202 employees through validated survey instruments and analyzed using structural equation modeling. The findings confirm that POS is negatively associated with RTC and positively related to all three dimensions of job crafting. Moreover, job crafting significantly mediates the relationship between POS and RTC, highlighting its critical role as a proactive strategy for adaptation during organizational change. The results provide both theoretical and practical implications by emphasizing the value of supportive environments and proactive employee behavior in managing change effectively.

Keyword

Perceived Organizational Support, Job Crafting, Resistance to Change, Organizational Change

1. INTRODUCTION

Due to increasing complexity and uncertainty in their operating environments, organizational change has become a vital part of organizations across sectors. Despite the necessity and importance of change, only about 30% of change initiatives are successful (Aiken & Keller, 2009), leading academicians and practitioners to continue searching for ways to improve this statistic (King and Anderson, 1995; Elias, 2009). Regarding barriers to change, literature highlights that managers must

*Corresponding author.
Contact: Firuze Yazıcıoğlu ✉ fyazicioglu@ aybu.edu.tr

To cite this article: Yazıcıoğlu, F. (2025). Shaping Organizational Change: The Impact of Organizational Support and Job Crafting. *AYBU Business Journal,5*(1), 14-28.

recognize employees as vital agents in determining the success of the implementation of change (Oreg et al., 2011; Vakola et al., 2020). Previous studies show that the successful implementation of change depends on the degree to which employees cope with, respond to, and support changes that affect their roles in the organization (Griffin et al., 2007). It is therefore not surprising that the dominant topic investigated under the subject of organizational change is resistance to change (RTC) (Cutcher, 2009, Oreg et al., 2011). RTC, defined as commitment to the current state (Armenakis et. al, 1999), is regarded as a critical factor for the success or failure of change implementation (Armenakis et. al, 1993; Piderit, 2000). Although there is an extensive literature probing the factors influencing RTC (Peccei et al., 2011), there is a gap in understanding how specific organizational factors can help reduce resistance, such as perceived organizational support (POS) and job redesign.

POS refers to generalized perception of employees toward the extent to which their organizations' care about their contribution and well-being (Eisenberger et al., 1990). Meta-analytic reviews (Rhoades and Einsenberg, 2002; Riggle, Edmonson and Hansen, 2009) demonstrated that POS is related to attitudinal outcomess such as affective organizational commitment, job satisfaction. However, the relationship between POS and RTC is not fully clarified (Greasley et al., 2009). Clarification of this relationship can be crucial to predict the success of organizational change (Ming-Chu and Meng-Hsiu, 2015) because the psychological states and perceptions of employees significantly affect employee reactions to change (Caldwell et al., 2004; Herold et al., 2007; Shin et al., 2012).

On the other hand, the transformation in working life, which has been caused by the global competition and knowledge economy (Sekiguchi et al., 2014), required job design theory to be reframed through the considerations on flexibility, team-working, interdependence and integration (Cullinane, 2013). Thus, the traditional top-down job design approach has been replaced by the new understanding of bottom-up approach. This bottom-up approach is initiated through proactive behaviour of employees (Berg et al., 2010) which is called as job crafting (Wrzesniewski and Dutton, 2001). In this respect, recent studies have pointed to the importance of employee behaviors, particularly proactive behaviors like job crafting, in shaping employees' responses to change (Bakker et al., 2012; Wrzesniewski & Dutton, 2001). Even though antecedents of job crafting are not fully understood (Bakker et al., 2012; Lyons, 2008), there are studies showing that POS is positively related with job crafting (e.g. Kanten et. al. 2020). Also, literature highlights that job crafting can be expected to occur more during change as a self-regulating and adaptation behaviour considering the stressful workplace caused by change process (Smollan & Morrison, 2019). Thus, job crafting can be expected to influence RTC.

Overall, based on Social Exchange Theory (SET) (Blau, 1964) and Self-Regulation Theory (Bandura, 1991), this study aims to examine the relationship between POS and Resistance to Change RTC through job crafting and its subdimensions. Specifically, it seeks to understand whether employees who feel supported by their organization are more likely to engage in job crafting behaviors, thereby diminishing their resistance to change in order not to hinder the change process. Understanding whether subdimensions of job crafting serve as pathways to ease embrace change may provide new

insights academicians and practitioners to demystify through which ways employees can be supported to decrease RTC.

Based on the identified gaps and insights from the literature, this paper addresses the following research questions:

RQ1: *To what extent POS is related to RTC?*
RQ2: *Does job crafting mediate the relationship between POS and RTC of employees?*

2. CONCEPTUAL FRAMEWORK

To address the research questions, this study develops a conceptual model that integrates the relationships among POS, job crafting, its subdimensions: task crafting, relational crafting, and cognitive crafting, and RTC.

To answer research questions, this article examines relevant academic literature, develops hypotheses, and proposes the following conceptual model that integrates the relationship between POS, job crafting, and RTC. In this regard, it empirically tests the hypotheses using survey data of private sector employees in Turkey, a context that offers a relevant setting due to its dynamic economic conditions, increasing globalization, and frequent organizational transformations (e.g. World Bank, 2024; Altay, 2024).

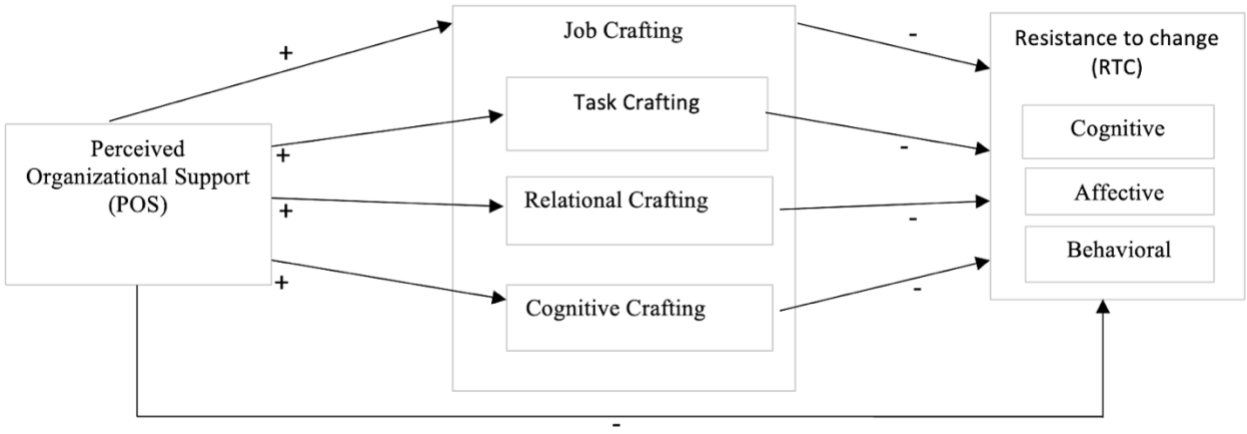

Figure 1: Conceptual Research Model

3. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

3.1. Perceived Organizational Support and Resistance to Change

Organizational change can occur because of internal and external forces and be planned or unplanned (Engemann, Engemann and Scott, 2022). Independent of the cause of change, employees feel uncertainty, anxiety, and stress during change process (Lang et. al, 2011). American Psychological Association for Organizational Excellence reported that change in organizations cause employees to experience work-life conflict, feel cynical towards co-workers, increase food-intake or smoking habits. Therefore, it is important to provide a positive work environment during times of change. In this regard, Perceived Organizational Support (POS) contributes to employees' adaptation to change. POS is a well-research concept that stands for the extent to which employees feel that their organization cares about their well-being and values their contribution to the organization (Eisenberger et al., 1990). On this basis, Eby et al. (2000) showed that there is a significant relationship between organizational support and readiness for change. Also, Weber and Weber (2001) and Madsen et. al (2005) found out that a higher degree of support in the work environment enhances readiness for change. Hence, it is not surprising that RTC has been observed to be decreased by increasing POS (Armenakis et al., 1993, Rafferty and Simons, 2006). Drawing upon the perceived organizational support theory, when members perceive organizational support, they will believe that their organization concerns them (Self et al., 2007), and thus organizational members regard the organizational changes as needed to be applied (French et al., 2004). Thus, in the existence of perceived organizational support, organizational members may reduce their anxiety and resistance about moving to an uncertain future (Cummings & Worley, 2009). Besides, SET (Blau, 1964) is used to explain the relationship between employee and organization. The study of Eisenberger et al. (1986), based on SET, suggests that as a way to respond to perceived organizational support, employees feel more obliged to contribute to their organizations' prosperity and help their organization to achieve its goals. Overall, Yu and Frenkel (2013) posit that perceived organizational support has positive consequences including reducing unwanted behavior of the employees. Therefore, from the perspective of SET, it can be expected that employees' RTC, which poses an obstacle for the achievement of change, can be prevented by perceived organizational support. Under the light of these arguments, the following hypothesis was proposed.

H1: *POS is negatively related to RTC.*

3.2. Job Crafting

In contrast to top-down approach, jobs are not only designed by organizations according to the prespecified requirements but are also actively redesigned by their holders (Niessen et. Al, 2016). The process of shaping jobs so that tasks, social interactions and signification better suit an individual's needs, abilities and preferences is called job crafting (Wrzesniewski and Dutton, 2001). In other words, job crafting is a process of employees' proactive behaviors to change the boundaries of their jobs (Wrzesniewski and Dutton, 2001). According to job crafting perspective suggested by Wrzesniewski and Dutton (2001) job crafting has three different facets, which are not mutually exclusive (Wrzesniewski et. al, 2013), namely task crafting, relational crafting and cognitive crafting. Therefore, it is important to approach job crafting by looking at each of its three facets individually (Wrzesniewski and Dutton, 2001) (e.g. Niessen et. al, (2016). In this study, the perspective of Niessen et. al (2016) on job crafting is embraced. Firstly, they follow the conceptualization of Wrzesniewski and Dutton (2001), which considers cognitive crafting as a sub dimension of job crafting unlike Tims

et. al (2012). Secondly, Niessen et al. (2016) approach job crafting by focusing on the self-oriented nature of the behaviour which is important in this study in order to distinguish job crafting behaviour from other proactive behaviours such as seeking feedback.

3.3. Perceived Organizational Support and Job Crafting

Job crafting has received increased attention in organizational research (Niessen et al., 2016) due to its importance both for employees and organizations considering its positive outcomes including job satisfaction, work engagement, innovativeness, and adaptability (Berg et al., 2013). Therefore, there are many studies to present the antecedents of job crafting (Kanten, 2014). They have found out that job crafting is influenced by individual and contextual factors (Li et al., 2014) such as person-job fit, self-efficacy and job characteristics (Kirkendall, 2013; Tims and Bakker, 2010; Tims et al., 2014). Considering the contextual factors, POS can be approached as one of the antecedents of job crafting as an organizational factor (e.g. Kanten, 2014) . As it is previously defined, POS is the extent to which employees' feel an organization values their work contributions, as well as cares about their well-being (Eisenberger et al., 1990). Employees' perception of organizational support in the form of caring, comfort, sympathy and encouragement creates positive emotions and enhances their creativity (Shantz et. al, 2014), increase attachment (Hobfoll *et al.*, 2003; Okun and Lockwood, 2003) and commitment (Gupta et. al, 2016) to the organization, and improves work performance (Vatankhah et. al, 2017). Previous studies have attempted to explain positive relationship between POS and job crafting behavior through several theories including Fredrickson's broaden-and-build theory (2001) (e.g. Madrid *et al*., 2016), and conservation of resources theory (COR) (eg. Tims et. al, 2012) . In this study, it is drawn on SET that employees tend to repay such positive treatment, POS, they receive from the organization by performing voluntary behaviors benefiting the organization such as proactive behaviors (Caesens *et al.*, 2016). Thus, this study considers POS as a contextual level predictor of job crafting such that POS is expected to be positively related to job crafting and its three subdimensions.

H2: *POS is positively related with job crafting (composite measure)*

H2a: *POS is positively related with task crafting*

H2b: *POS is positively related with relational crafting*

H5c: *POS is positively related with cognitive crafting*

3.4. Job Crafting and Resistance to Change

Job crafting is a type of proactive work behavior that enables employees to adapt to new work demands by changing aspects of their responsibilities and perceptions at work (Berg et. al, 2010; Griffin et. al, 2007). As job crafting tends to occur in situations when individuals try to make sense of their work roles (Weick, 1995), it is very likely to occur during organizational change as a result of increased pressures on employees to find meaning again in their changing job (Berg et al., 2013). In this manner, Petrou et al. (2018) define job crafting behavior as a strategy of dealing with new and threatening situations effectively through regulating one's work environment. Therefore, job crafting has been recognized as a strategy facilitating adaptation to organizational change (Petrou et al., 2018). On the other hand, the literature on organizational change suggests that need for control is an important factor for the reaction of change recipients (Oreg et al., 2011). In this regard, employees

experiencing changes in their work may attempt to engage in behaviours aiming to regain the control of their job, such as job crafting (Wrzesniewski & Dutton, 2001). All in all, engagement in job crafting behaviour can be expected to occur during organizational change (Wrzesniewski & Dutton, 2001).
As it is important for organizations to understand and alter the attitudes of their employees toward change, it can be meaningful to recognize if subdimensions of job crafting, which are task crafting, relational crafting and cognitive crafting, differ in terms of influencing the RTC. Self-regulation theory (Bandura, 1991) posits that individuals monitor changes according to the nature of the events and respond according to self-regulation characteristics largely determined by basic psychological needs, either for human connection or situation control. Drawing on this theory, it can be firstly considered that employees may respond to change event through different job crafting behaviors, regarding subdimensions of job crafting, since organizational change may affect the different dimensions of the work such as hierarchical position or quality of work. Secondly, employees may prefer to craft their job through one specific job crafting sub dimension since they consider that kind of job crafting as more achievable during the change process. To illustrate, employees who prioritize control over their tasks may engage more in task crafting, whereas those valuing interpersonal connections may be more inclined toward relational crafting. Employees seeking meaning and purpose during disruptive change may turn to cognitive crafting. Therefore, job crafting and its sub dimensions are expected to serve as pathways through which POS influences employees' willingness to embrace, rather than resist, organizational changes.
Even though there are adequate reasons to discuss approach-oriented and avoidance-oriented strategies within task, relational and cognitive crafting (Berg, Dutton, and Wrzesniewski, 2008), it is beyond the scope of this study. Therefore, following hypotheses are proposed based on literature review discussing the relationship between job crafting and RTC.

H3: *Job crafting (composite measure) is negatively related with RTC.*
H3a: *Task crafting is negatively related with RTC.*
H3b: *Relational crafting is negatively related with RTC.*
H3c: *Cognitive crafting is negatively related with RTC.*

3.5. Mediating Role of Job Crafting Between Perceived Organizational Support and Resistance to Change

It was hypothesized that POS is positively related with job crafting and job crafting is negatively related with RTC. Taken together, it is predicted that job crafting mediates the relationship between POS and RTC. SET (Blau, 1964) and self-regulation theory (Bandura, 1991) form the basis to explain the mediation process. Drawing on SET (Blau, 1964), it is expected that employees who feel supported by their organizations are more likely to reciprocate by investing more in their roles and thus craft their jobs by realigning changing job demands with their personal strengths and needs. In turn, employees recreate the meaning of their jobs and decrease their RTC for the good of their organizations. Additionally, based on self regulation theory, the model considers that employees may selectively engage in different types of job crafting behavior (task crafting, relational crafting, or cognitive crafting) depending on their psychological needs and the specific nature of the organizational change they face. Thus, the following hypothesis is proposed:

H4: *The relationship between POS and RTC is either partially or fully mediated by job crafting (composite measure.*

H4a: *The relationship between POS and RTC is either partially or fully mediated by task crafting.*

H4b: *The relationship between POS and RTC is either partially or fully mediated by relational crafting.*

H5c: *The relationship between POS and RTC is either partially or fully mediated by cognitive crafting.*

4. RESEARCH METHODS

4.1. Sample and procedure

This study employed a cross-sectional survey design and used a purposive sampling strategy to collect data from 202 employees working in the private sector in Turkey. Data were gathered from a single geographic location, Ankara, chosen due to its concentration of diverse private sector organizations and its relevance as a representative urban labor market within the Turkish economy. The rationale for focusing on private sector employees stems from the dynamic and competitive nature of Turkey's private business environment, which has been characterized in recent years by rapid globalization, economic volatility, and frequent organizational restructuring. These conditions make the private sector a particularly relevant context for studying employee reactions to change (Altay, 2024; World Bank, 2024).

An online survey method was used to facilitate data collection, ensuring voluntary participation and respondent anonymity. Participants were informed about the purpose of the study, assured of the confidentiality of their responses, and asked to respond honestly based on their current workplace experiences. The survey included standardized scales measuring perceived organizational support (POS), job crafting, and resistance to change (RTC), all of which had validated Turkish versions. The average completion time for the survey was approximately 10–12 minutes.

This sample is considered appropriate for testing the proposed conceptual model and hypotheses, as the private sector context in Ankara provides a suitable and relevant setting to observe the interplay between organizational support, proactive employee behavior, and attitudes toward change.

4.2. Measurement

All constructs in this study were measured using previously validated scales adapted to the Turkish context.

4.2.1. Perceived Organizational Support (POS). POS was measured using the Perceived Organizational Support Scale developed by Eisenberger et al. (1986) and adapted into Turkish by Çöl (2004). The scale consists of 24 items (e.g., *"Organization values my contribution to its well-being"*), rated on a 5-point Likert scale ranging from 1 (*Strongly disagree*) to 5 (*Strongly agree*). Higher scores

indicate higher levels of perceived organizational support. The Turkish version has demonstrated strong psychometric properties (Çöl, 2004), and the Cronbach's alpha in this study was 0.88.

4.2.2. Job Crafting: Job crafting was measured using the Job Crafting Scale originally developed by Wrzesniewski and Dutton (2001) and adapted into Turkish by Demerouti and Bakker (2014), with localization by Yalçın and Erdoğan (2019). The scale consists of 15 items across three subdimensions:

• Task Crafting (e.g., "I introduce new approaches to improve my work"),

• Relational Crafting (e.g., "I make an effort to get to know people well at work"),

• Cognitive Crafting (e.g., "I remind myself of the significance of my work to society").

All items were rated on a 5-point Likert scale (1 = *Never*, 5 = *Always*). The Turkish version of the scale has demonstrated acceptable reliability, and in the current study, Cronbach's alpha values for subdimensions were:.

• Task Crafting: 0.84

• Relational Crafting: 0.82

• Cognitive Crafting: 0.78

4.2.3. Resistance to Change (RTC). RTC was assessed using the Resistance to Change Scale developed by Oreg (2003) and adapted to Turkish by Kılıçlar, Sarıkoç, and Bozkurt (2019). The scale includes 17 items across four subdimensions:

• Routine Seeking,

• Emotional Reaction to Change,

• Short-Term Focus,

• Cognitive Rigidity.

Participants responded using a 5-point Likert scale (1 = *Strongly disagree*, 5 = *Strongly agree*). Higher scores indicate higher resistance to change. Cronbach's alpha for the total scale in this study was 0.87, with each sub dimension also showing satisfactory internal consistency.

5. RESULTS

Validity and reliability

Before hypothesis testing, confirmatory factor analysis was performed to confirm the distinctiveness of the study variables. Following recommended guidelines (Bentler, 1989; Henry & Stone, 1994; Scott, 1994; Hair et al., 2006), the four-factor measurement model (POS, JCT, JCB, JCR, and RTC) was assessed for model fit and reliability. The model demonstrated satisfactory fit to the data ($\chi^2/df < 5$; CFI = 0.91; IFI = 0.90; TLI = 0.91; RMSEA = 0.05; SRMR = 0.03), with all indices meeting conventional cut-off values. Furthermore, factor loadings exceeded the minimum criterion

of 0.50, while both average variance extracted (AVE > 0.50) and composite reliability (CR > 0.70) for each factor indicated good convergent validity and internal consistency (Hair et al., 2006). These results confirmed that the measurement model was both reliable and valid for further hypothesis testing.

Table 1. Four factor loadings, Cronbach's a, CR and AVE scores

Variables	Factor loadings	Cronbach's α	CR	AVE
POS	0.72- 0.85	0.89	0.92	0.66
JCT	0.68- 0.87	0.92	0.94	0.72
JCB	0.83- 0.91	0.85	0.91	0.76
JCR	0.88- 0.93	0.87	0.93	0.78
RTC	0.67- 0.89	0.91	0.93	0.68

As summarized in Table 1, the average variance extracted (AVE) and composite reliability (CR) values for all four factors exceeded the recommended thresholds of 0.50 and 0.70, respectively (Hair et al., 2006). Additionally, for each construct, the CR values were greater than the corresponding AVE values, further supporting convergent validity (Hair et al., 2006). Discriminant validity was also established, as each factor satisfied the conventional criteria. Reliability analyses indicated that all Cronbach's alpha coefficients ranged between 0.85 and 0.95, surpassing the minimum standard of 0.70 (Nunnally, 1978), thus demonstrating strong internal consistency. Table 2 presents Fornell–Larcker criterion values, squared AVE values, and intercorrelations among the primary study variables.

Table 2. Fornell–Larcker criterion

Variables	1	2	3	4	5
POS	(0.81)				
JCT	0.48	(0.85)			
JCB	0.53	0.44	(0.87)		
JCR	0.56	0.51	0.49	(0.88)	
RTC	0.41	0.47	0.38	0.46	(0.82)
Notes: n =201, values in parentheses on the diagonal are the square of AVE of each scale					

Discriminant validity was evaluated to ensure that each construct in the model was clearly differentiated from the others. This assessment was based on two widely used methods: comparing the square root of the AVE values on the diagonal with the correlations between constructs, and examining the HTMT ratios. The results showed that the square root of each construct's AVE exceeded the corresponding correlations, and all HTMT values were below the accepted threshold.

These findings confirm that the constructs are distinct and measure separate concepts within the model.

Table 3. HTMT criterion

Variables	1	2	3	4	5
POS	-				
JCT	0.71	-			
JCB	0.64	0.62	-		
JCR	0.69	0.66	0.60	-	
RTC	0.52	0.61	0.58	0.59	-

Notes: n =201, values in parentheses on the diagonal are the square of AVE of each scale

Structural model

After the measurement model is evaluated in PLS-SEM, the next step is to analyze the structural model (Hair et al., 2011; Hulland, 1999).

Path	β	Std. Dev.	t value	p-value
POS → JCB	0.566	0.205	2.767	0.006
POS → JCR	0.624	0.030	20.941	0.000
POS → JCT	0.698	0.043	16.169	0.000
JCB → RTC	-0.281	0.176	1.601	0.109
JCR → RTC	-0.401	0.195	2.059	0.040
JCT → RTC	-0.946	0.334	2.835	0.005
POS → RTC	-0.408	0.164	2.492	0.013
POS → JCT → RTC	-0.660	0.240	2.757	0.006
POS → JCR → RTC	-0.250	0.123	2.028	0.043
POS → JCB → RTC	-0.159	0.087	1.827	0.068

POS was positively related to JCB (β = 0.566, t = 2.77, p = 0.006), JCR (β = 0.624, t = 20.94, p < 0.001), and JCT (β = 0.698, t = 16.17, p < 0.001). JCB was not significantly associated with RTC (β = -0.281, t = -1.60, p = 0.109). JCR was negatively associated with RTC (β = -0.401, t = -2.06, p = 0.040), while JCT was also negatively related to RTC (β = -0.946, t = -2.84, p = 0.005). POS showed a significant negative direct effect on RTC (β = -0.408, t = -2.49, p = 0.013). For mediation effects, the indirect path from POS to RTC via JCT was significant and negative (β = -0.660, t = -2.76, p = 0.006). The indirect effect through JCR was also significant and negative (β = -0.250, t = -2.03, p = 0.043), while the indirect effect via JCB was negative but not significant (β = -0.159, t = -1.83, p = 0.068).

6. DISCUSSION

The findings of this study offer important insights into how POS and job crafting behaviors interact with RTC, aligning with and extending existing literature. Contrary to expectations and prior research (e.g., Rhoades & Eisenberger, 2002; Rafferty & Simons, 2006), the direct path from POS to RTC was found to be positive and significant, suggesting that higher POS may not universally buffer against resistance. One possible interpretation is that when employees strongly identify with and feel supported by their organizations, they may resist changes perceived as threats to the organization's core values or stability. In this regard, the finding of a positive association aligns with emerging literature suggesting that high organizational support may sometimes reinforce attachment to the status quo (Greasley et al., 2009; Ming-Chu & Meng-Hsiu, 2015). From a Conservation of Resources perspective (Hobfoll, 1989), employees may resist change not due to lack of resources, but out of a desire to protect valued resources such as support, familiarity, or identity. Therefore, it can be assumed that the valence of the change (whether perceived as opportunity or threat) may play a moderating role in employee reactions as suggested in emerging research (Self et al., 2007; Ming-Chu & Meng-Hsiu, 2015).

On the other hand, the results offer stronger support for the mediating role of job crafting. Specifically, task crafting was found to significantly mediate the relationship between POS and RTC, with a negative indirect effect. This implies that when employees feel supported, they are more likely to proactively reshape their tasks in ways that help them cope with change, thereby reducing resistance. This supports previous arguments that job crafting serves as a self-regulatory mechanism for adapting to workplace challenges (Wrzesniewski & Dutton, 2001; Niessen et al., 2016).

Interestingly, relational crafting also emerged as a significant mediator, but its effect on RTC was positive. This suggests that seeking or enhancing workplace relationships during change might not always serve as a coping mechanism—in some cases, it may reinforce collective skepticism or amplify resistance if shared sentiments are negative. This points to the importance of change climate and peer influence during transformation processes (Petrou et al., 2015).

Cognitive crafting, despite being activated by POS, did not significantly influence RTC. This indicates that while employees may attempt to reframe the meaning of their work during change, such efforts might not directly translate into reduced resistance—perhaps because cognitive crafting is more internally focused and less actionable compared to task-based changes.

Overall, these findings underscore the importance of distinguishing among job crafting subdimensions. Unlike previous studies that often conceptualized job crafting as a unified construct (Tims et al., 2012), this research highlights the divergent roles of task, relational, and cognitive crafting. From a self-regulation perspective (Bandura, 1991), it becomes evident that different strategies are activated by different psychological needs, and not all lead to adaptive outcomes.

By identifying task crafting as the most effective path from POS to lower RTC, this study contributes to a deeper understanding of how supportive work environments can foster behavioral flexibility and change readiness.

6.2. Practical Implications

The study's objective was not only to expand theoretical understanding but also to offer actionable insights for managing resistance to change more effectively. In this regard, the findings of this study provide several practical implications for organizations seeking to navigate organizational change by fostering supportive environments and enabling employee-driven adaptation strategies.

Interestingly, the positive direct relationship between POS and RTC suggests that simply providing support may not always reduce resistance. When organizational support leads to stronger attachment to existing roles or culture, change initiatives may be perceived as threatening what employees value. Therefore, organizations should be mindful of how support is framed and aligned with the goals of change. Transparent communication, participative decision-making, and inclusive framing of the change process can help ensure that support does not unintentionally reinforce resistance (Ming-Chu & Meng-Hsiu, 2015; Greasley et al., 2009).

On the other hand, the mediating role of job crafting, particularly task crafting, offers a promising strategy to reduce resistance. Task crafting emerged as the most effective behavior through which employees translate support into adaptive action. Thus, organizations should create conditions that allow employees to proactively reshape how they perform their tasks, such as offering greater autonomy, flexible job roles, and opportunities to align work with personal strengths and competencies.

The findings also highlight that not all crafting behaviors contribute equally to reducing resistance. Relational crafting, while often encouraged, was found to increase resistance in this study, potentially due to shared negative sentiments or peer reinforcement of doubt during change. This indicates that social interaction opportunities should be structured with care in order to ensure promoting positive dialogue and shared vision rather than unstructured venting. Cognitive crafting did not significantly influence RTC, suggesting that reframing meaning alone may be insufficient unless accompanied by tangible changes in how work is performed.

In sum, organizations should encourage task-level experimentation and flexibility, guide relational dynamics constructively, and offer meaning-centered communication to support employees in navigating change. By differentiating and enabling targeted forms of job crafting, managers can foster a sense of control, purpose, and alignment which is ultimately reducing resistance and enhancing change success.

7. Limitations and Future Studies

While this study contributes to the understanding of how POS and job crafting influence RTC, it is not without limitations. These limitations should be acknowledged when interpreting the findings and can serve as a foundation for future research.

Firstly, the sample did not specifically include individuals who were currently experiencing or had recently undergone an organizational change. Since perceptions, behaviors, and reactions toward change are likely to be more salient during or shortly after change events, future studies should aim to capture data from participants actively involved in such processes. Longitudinal or event-based

research designs could offer more nuanced insights into how POS and job crafting behaviors evolve throughout different stages of organizational change.

Secondly, the study did not examine employees' subjective perceptions of the change itself such as whether they viewed it as positive, negative, or neutral. Previous research suggests that individuals' appraisals of change significantly affect their emotional and behavioral responses (Oreg et al., 2011). Future studies should consider incorporating change valenceas a moderator, as it may clarify when organizational support reduces or paradoxically increases resistance.

Thirdly, although job crafting was examined as a mediator, this study did not investigate contextual variables that might influence the effectiveness or direction of different job crafting dimensions. The current findings revealed that relational crafting may increase resistance, whereas task crafting reduces it, and cognitive crafting showed no significant effect. This highlights the need to better understand under what conditions specific forms of job crafting are helpful or harmful. Future research could explore how the type of change event (e.g., restructuring, digitalization, leadership change) and the quality of change communication (e.g., transparency, clarity, involvement) moderate these relationships (Petrou et al., 2015; Petrou et al., 2018).

Finally, the generalizability of the findings is limited to Turkish private sector employees. Cultural norms, power distance, and leadership behaviors may affect how support is perceived and how employees engage in job crafting. Future research could replicate this model in public sector settings and across different cultural contexts to explore institutional and cultural variations.

Overall, future studies are encouraged to employ dynamic, longitudinal designs, incorporate perceptual and contextual moderators, and compare across organizational and national cultures to expand the theoretical and practical understanding of resistance to change in relation to POS and job crafting.

8. Conclusion

This study set out to explore the mediating role of job crafting in the relationship between perceived organizational support (POS) and resistance to change (RTC). Building on prior literature, it was proposed that POS would negatively influence RTC and that job crafting, which comprises task, relational, and cognitive dimensions, would serve as a proactive mechanism enabling employees to adapt during organizational transitions.

The findings partially confirmed the hypotheses and provided novel insights. Contrary to expectations, POS showed a positive relationship with RTC, suggesting that under certain conditions, higher levels of perceived support may also heighten employees' sensitivity to potential disruptions, especially when organizational changes challenge previously stable expectations. However, task crafting emerged as a significant negative predictor of RTC, supporting its role as an adaptive coping strategy. In contrast, relational crafting showed a positive association with RTC, and cognitive craftinghad no significant effect, indicating that not all forms of crafting uniformly reduce resistance.

These results contribute to the literature by revealing that job crafting is not a monolithic construct in the context of organizational change, and that the influence of POS may vary depending on how

employees interpret and respond to support. From a practical standpoint, organizations should focus on fostering task-related autonomy and clarity while being cautious that relational overreliance or misaligned support might inadvertently increase resistance. Ultimately, this study highlights the complexity of employee adaptation during change and underscores the importance of tailoring supportive interventions based on nuanced employee behaviors and needs.

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AYBU Business Journal, 5(1), 29-42

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https://aybu.edu.tr/isletme/tr/sayfa/5218/AYBU-BUSINESS-JOURNAL

AYBU Business Journal

Submitted: 15 May 2025
Accepted: 29 June 2025
Published Online: 30 June 2025

RESEARCH ARTICLE

DOI: 10.61725/abj.1699872

BANK CONCENTRATION AND COMPETITION; EVIDENCE FROM TÜRKİYE

Belma Arslan[a*]

[a]*Department of Finance and Banking, Ankara Yildirim Beyazit University, Ankara, Turkey*

Abstract

Liberalization of the banking sector has significantly transformed the market structure. The global and Turkish banking markets have become increasingly concentrated due to globalization. Higher concentration may lead to changes in market structure, reducing competition and establishing a situation where a few dominant banks control the market. The issue of competition and concentration should be assessed to create banking rules and reduce the danger of financial crises. It is crucial to properly evaluate, analyze, and comprehend the banking market structure. This research determines the competitive level of the Turkish banking sector from 2010 to 2020 through the Panzar-Rosse model and the concentration level via k-bank concentration ratio and HHI (Herfindahl Hirschman Index). As a result of concentration analyses, it is concluded that the Turkish banking sector is moderately concentrated. Monopolistic competition has been present throughout the 11 years analyzed. Furthermore, the level of competition exhibited minor fluctuations, indicating no significant changes during the analyzed time.

Keyword

Competition, Concentration, Banking

INTRODUCTION

The Structure-Behaviour-Performance hypothesis is considered to be the basic hypothesis of the traditional structural competition approach and provides the most competent framework for understanding competition in the banking sector. In its simplest form, it may be explained as more firms exhibit more competitive pricing

*Corresponding author.
Thic article was produced from the phd dissertation titled "THE EFFECT OF COMPETITION, CONCENTRATION AND FINANCIAL INCLUSION ON BANK STABILITY"
Contact: Belma Arslan ✉ belmaarslan@aybu.edu.tr

To cite this article: Arslan, B. (2025). Bank Concentration and Competition; Evidence From Türkiye. *AYBU Business Journal,5*(1), 29-42.

behaviour, leading to a decrease in extraordinary profits in the sector and an increase in consumer welfare (Mendes and Rebelo 2003). This paradigm, which comes from the Classical Industrial Organisation approach, was developed by Mason (1939) and Bain (1956) and is defined as the SCP (Structure- Conduct- Performance) hypothesis in the literature. This view, which tries to explain competition in the sector with the behaviour of firms, argues that firms are also formed according to the market structure. Market structure refers to the level of concentration of the market, and in a concentrated market, the market power of firms high and exceptionally high profits are inevitable. Another hypothesis derived from and supported by SCP was proposed by Bain (1951) is the Collaboration hypothesis. According to related hypothesis, concentration weakens competition by encouraging collusive behaviour among firms, leading to higher prices and lower household welfare. As an alternative to the SCP paradigm, the Efficient Structure Hypothesis, proposed by Demsetz (1973), attributes the relatively higher profitability of banks operating in concentrated markets to the fact that large banks operate more effectively than small banks. In today's world where information and resource mobility is high, the way a sector can concentrate under competitive conditions depends on its ability to reduce costs or to capture a different advantage that will increase efficiency. The cost advantage that causes an increase in density enables economies of scale to occur in the sector, thus enabling households to access higher quality products at more affordable prices (Demsetz1973). The conflict between the Collaboration and Efficiency hypotheses arises from the fact that large banks attribute their profitability to two different inputs. While the Collaboration hypothesis attributes profitability to inter-firm agreement, the Efficiency hypothesis attributes it to economies of scale. The relative-market-power hypothesis (RMP) which was suggested by Sepherd (1986), a similar theory, contends that only companies with substantial market shares and distinctive products can use market power to set prices for these goods and generate supernormal profits.

The banking sector acts as a significant channel for transmitting instability to other economic sectors by disrupting the interbank lending market and payment systems, diminishing credit availability, and freezing deposits. The apprehension that heightened competition could exacerbate financial system fragility has historically driven regulators to prioritize the formulation of policies aimed at maintaining stability within the banking sector. (Berger et all., 2008)

Consequently, it is essential to ascertain the market structure of the banking sector, and the objective of this study is to analyze the market structure of the Turkish banking sector from 2010 to 2020. The paper's hypothesis, is that the industry is moderately competitive and concentrated. Subsequent to assessing the concentration and competition levels, a separate investigation analyzed the influence of these values on stability. (Arslan, 2024)

LITERATURE REVIEW ON BANK COMPETITION AND CONCENTRATION

The relationship between competition and concentration in the banking sector has been a subject of extensive research. The interaction between these two factors is complex and often varies across countries and over time, with multiple dimensions influencing the overall dynamics of the market. The impact of competition in banking is especially significant in emerging economies, where the banking system plays a crucial role in resource allocation, cost structure, service quality, and ultimately, economic development.

Competition in banking has traditionally been seen as beneficial to economic efficiency, as it disciplines pricing behavior, enhances consumer welfare, and promotes cost-effectiveness. Classical microeconomic theory supports this view, as increased competition generally leads to lower prices and improved service quality. However, it is also well-established that the effects of competition cannot be understood solely through concentration levels, as competition is influenced by a variety of factors such as market structure, regulatory environment, and technological advancements.

Berger et al. (2004, 2008) argued that market concentration alone is insufficient for explaining competition in banking. They stressed that competition should be evaluated not only through concentration metrics but also through behavioral indicators, which reflect how market participants behave within the competitive environment. This view is supported by Panzar and Rosse (1987), who developed the H-statistic, a widely used method for determining competition levels in a sector. Their work contributed significantly to the structural analysis of markets and underscored the importance of considering both structural and behavioral factors when assessing competition in banking.

Furthermore, Boone (2008) directly linked the effects of competition to bank performance, particularly focusing on profitability. His research suggested that competition tends to improve performance by forcing banks to operate more efficiently. However, while many studies support this view, the evidence is not always consistent. Some research, such as that by Casu and Girardone (2009), found that increased competition in the European banking sector had a detrimental effect on economies of scale, reducing cost efficiency. Other studies, such as Fernandez de Guevara and Maudos (2007), showed that heightened competition leads to a reduction in pricing power, ultimately benefiting consumers through lower prices and better services.

The relationship between concentration and competition is also highly contextual, varying by country and over time. For instance, Bikker and Spierdijk (2008) observed that competition in the European banking sector had decreased over time, with rising concentration being a significant contributing factor. Their study suggested that this decline in competition was associated with increased market concentration, where a few large players dominate the market. This trend highlights the potential negative effects of high market concentration, as it can reduce competition and harm consumer interests.

In Türkiye, several studies have explored the effects of competition and concentration within the banking sector. Hazar et al. (2017) found that after the 2001 crisis, there was an increase in the market share of large

banks, signaling a rise in market concentration. This concentration, in turn, may have limited competition and affected pricing behaviors. Kocaman (2021) emphasized the growing dominance of public banks, particularly during the COVID-19 period, suggesting that the concentration of the banking sector could result in reduced competition, potentially harming the sector's overall stability. In contrast, Ildırar and Kıral (2018) observed that competitive structures within sectors could vary, highlighting the need for micro-level analysis to understand how competition operates within different segments of the banking industry.

The effects of competition and concentration in the banking sector are also shaped by broader economic conditions, regulatory policies, and technological developments. Studies have shown that regulatory environments play a critical role in shaping competitive dynamics. In countries where regulations are more stringent, competition may be constrained, leading to higher concentration levels. On the other hand, countries with liberalized banking systems often experience greater competition, but this can sometimes lead to destabilization or market volatility.

METHODOLOGY

K-Bank concentration index

A prevalent method for assessing banking sector concentration is the k-bank concentration approach. The primary advantage of the method is its calculation using a straightforward and restricted data set. K-bank concentration indicates the percentage ratio of the assets of a specified number of banks within the sector to the total assets of all banks in that sector. CR3, CR4, CR5 and CR8 ratios are frequently used in the literature. This study used concentration ratios CR3 and CR5, referencing Bikker and Haaf (2000).

Herfindahl-Hirschman index (HHI)

In market concentration analysis, the Herfindahl-Hirschman index is one of the most significant indicators. The squares of each bank's sector share are added up to determine the HHI index. The formula used in the calculation is given in Equation 1 below.

$$HHI = \sum_{i=1}^{N} (Bi/BT)^2 \quad (1)$$

Where Bi symbolises the asset size of bank i and BT symbolises the asset size of all banks.

Since they are complementary methods with the k-bank concentration ratio, they are frequently used together in the literature.(Boďa (2014), Hazar et.al., (2017), Kasman and Kasman (2015)) In this method, firms with high market shares are given more weight due to the squaring of market shares (Ildirar and Kiral 2018).

The thresholds used in EU competition law (European Commission, 2004) are as follows: If HHI<1000, the market can be called unconcentrated. If 1000<HHI<2000, it can be called a moderately concentrated market. 2000<HHI symbolises a highly concentrated market (Yanık, 2021).

The HHI index was calculated separately for assets, deposits and loans.

Panzar-Rosse model

The Panzar-Rosse model, extensively employed to ascertain banking market structure since the 1990s and to evaluate market competition, was introduced in studies done in 1977 and 1987 (Kuzucu 2014). The Panzar-Rosse model, utilized to assess the level of competition in this study, posits that the market should achieve equilibrium in the long run. The logarithmic and linear marginal cost and marginal income functions posited by Bikker and Haaf (2002) must be equivalent for a profit-maximizing bank. The optimum amount of output derived from this equation indicates equilibrium. For ease of application, the reduced income equation, in which the conditions in the equation are realised, is used in the studies.

$$\ln(P_{it}) = \alpha + \beta_1 \ln(W_{1,it}) + \beta_2 \ln(W_{2,it}) + \beta_3 \ln(W_{3,it}) + \gamma_1 \ln(Y_{1,it}) + \gamma_2 \ln(Y_{2,it}) + \gamma_3 \ln(Y_{3,it}) + \varepsilon_{it} \quad (2)$$

In Equation (2), the sub-indices t and i represent years and banks, respectively. Additional elucidations of the variables are provided below.

P: Interest income/ Total Assets

W_1: Interest Expense / Total Deposits

W_2: (Personnel Expenses + Severance Pay) / Total Assets

W_3: Other Operating Expenses / Total Assets

Y_1: Equity/Total Assets

Y_2: Total Loans/Total Assets

Y_3: Total Assets (thousand TL)

This study employs the commonly utilized -reduced-form income equation- identified in the literature. When conducting research, the selection of dependent and independent variables is a crucial decision that rests with the individual researcher. While this study utilizes the ratio of interest income to total assets as its dependent variable, it's important to acknowledge the diversity in methodological approaches across the literature. Some researchers, for instance, have opted for the ratio of total income to total assets as their dependent variable, recognizing a broader scope of financial performance. Furthermore, other studies have focused directly on total income or interest income in isolation as the primary dependent variable, reflecting varied research objectives and theoretical frameworks. (Bikker, 2006).

The H-statistic, a key measure derived from the Panzar-Rosse model, is calculated as the sum of the estimated coefficients β1+β2+β3 within equation (2), with its value theoretically ranging between 0 and 1. A fundamental

prerequisite for the valid interpretation of the Panzar-Rosse model's coefficients is that the market under examination must be in equilibrium. To empirically ascertain this crucial equilibrium condition, equation (3) is estimated.

$$\ln(ROA_{it}) = \alpha + \beta_1 \ln(W_{1,it}) + \beta_2 \ln(W_{2,it}) + \beta_3 \ln(W_{3,it}) + \gamma_1 \ln(Y_{1,it}) + \gamma_2 \ln(Y_{2,it}) + \gamma_3 \ln(Y_{3,it}) + \varepsilon_{it}, \quad (3)$$

For clarity in interpreting the empirical results, the theoretical evaluation scale of the H-statistic is presented in Table 1.

Table 1: H-statistic evaluation scale

H-statistic	Evaluation
H≤0	Monopoly Market
0<H<1	Monopolistic Competition
H=1	Perfect Competition Market

RESULTS

In this section, we present the results derived from the concentration and competition analyses undertaken as part of this study.

K-Bank Concentration Results

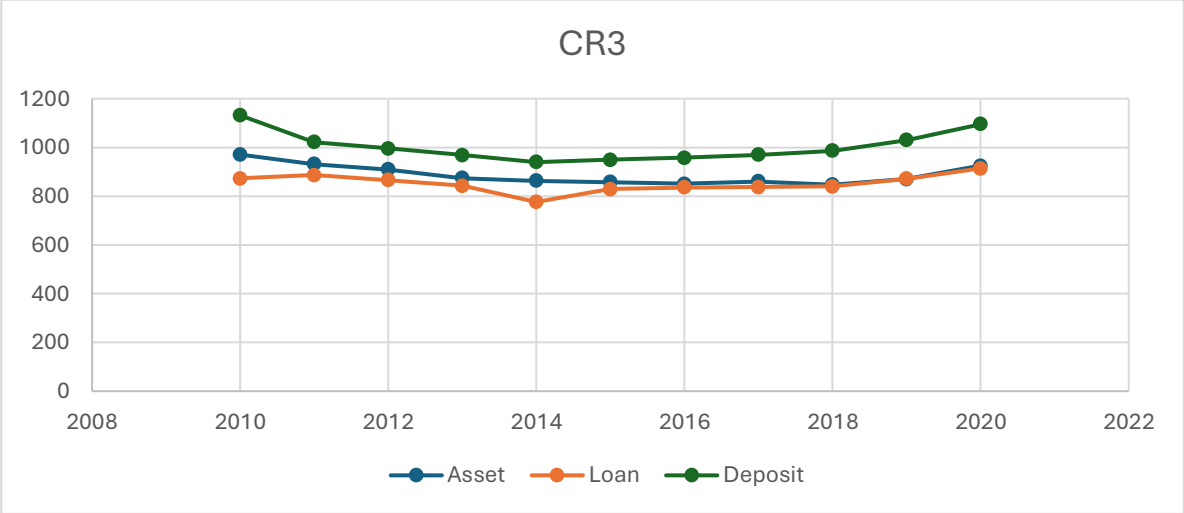
While k-bank concentration ratios are commonly presented as a value between 0 and 1 in much of the existing literature, this study expresses these ratios as percentages. These ratios are computed separately for loans, assets, and deposits to provide a comprehensive view of market concentration. The detailed results are systematically presented in Table 2. For illustrative purposes, in 2010, the combined asset ratio of the three largest banks affiliated with the Banks Association of Türkiye (BAT), relative to the total assets of all other BAT-affiliated banks, stood at 42.304 percent.

Table 2: K-Bank Concentration Results

	CR3			**CR5**		
	Asset	Loan	Deposit	Asset	Loan	Deposit
2010	42.304	36.749	46.643	62.883	57.482	66.482
2011	40.404	37.16	42.339	61.223	57.946	62.807

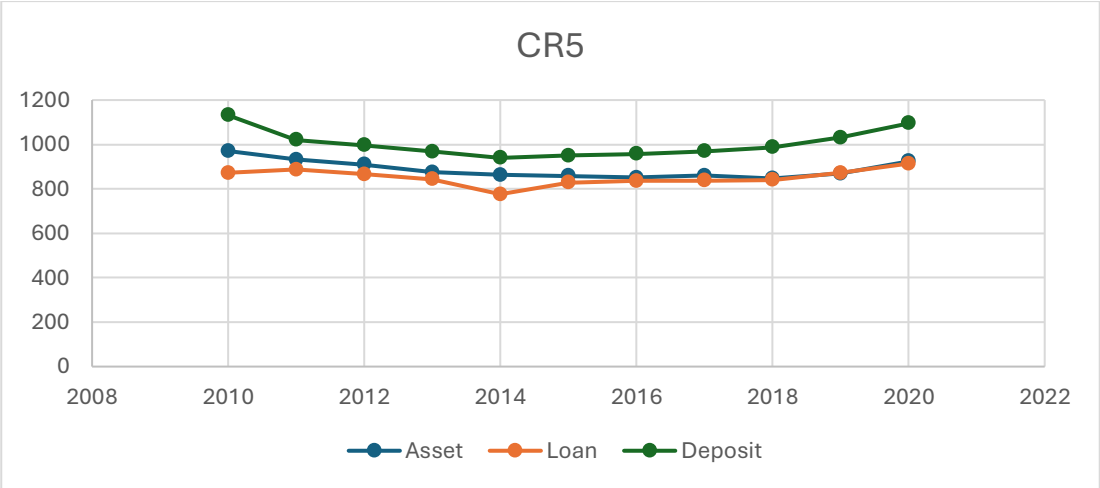
2012	38.401	37.273	40.495	59.817	56.414	62.063
2013	37.600	35.941	39.136	57.938	59.491	60.977
2014	37.296	35.698	38.492	57.771	56.199	59.15
2015	37.248	35.918	38.471	57.604	55.837	59.727
2016	36.739	36.288	38.390	56.922	55.771	59.796
2017	36.246	36.115	38.720	56.321	55.349	60.084
2018	36.428	37.292	40.515	55.777	56.087	61.166
2019	37.479	38.119	42.056	56.768	57.752	62.269
2020	40.983	41.284	45.376	60.170	60.143	66.244

Graphs 1 and 2 illustrate the concentration ratios for assets, loans, and deposits, designated as CR3 and CR5, respectively. The subsequent conclusions regarding the market structure can be drawn from the progression of the graphs;



Graph 1:CR3 Concentration Graph

The graphical representations indicate a consistent trend between the CR3 and CR5 concentration indices across all observed metrics. Notably, deposit concentration exhibits a pronounced U-shaped trajectory between 2010 and 2020. Specifically, for the CR3, deposit concentration initiated at 46%, subsequently declined to a low of 38%, and then ascended to 45% by the conclusion of the review period. Conversely, loan concentration began at 36%, remained relatively stable around 35% during the mid-period, and ultimately reached 41% by the period's end. Asset concentration, starting at approximately 42% in 2010, decreased to a minimum of 36% in the middle of the review period before recovering to 40% in 2020.



Graph 2:CR5 Concentration Graph

Parallel to the trends observed with the CR3 index, the CR5 concentration index for deposits exhibited a broad U-shaped trajectory. Specifically, deposit concentration began at 66% at the commencement of the period, declined to a low of 59% during the mid-period, and subsequently returned to 66% by the period's conclusion. For loans, the CR5 concentration ratio initiated at 57%, decreased to a minimum of 55% in the middle of the period, and ultimately concluded at 60%. Regarding asset concentration, the CR5 stood at 62% in 2010 and registered 60% in 2020.

A comprehensive analysis of concentration ratios, considering both the CR3 and CR5 indices across all three variables (deposits, loans, and assets), reveals that the years 2010 and 2020 exhibit comparable characteristics in terms of concentration levels. Conversely, a noticeable decline in concentration is consistently observed across all three variables during the mid-period.

Herfindahl-Hirschman index (HHI) Results

The computed HHI index values for assets, loans, and deposits are presented separately in Table 3 and illustrated in Graph 3.

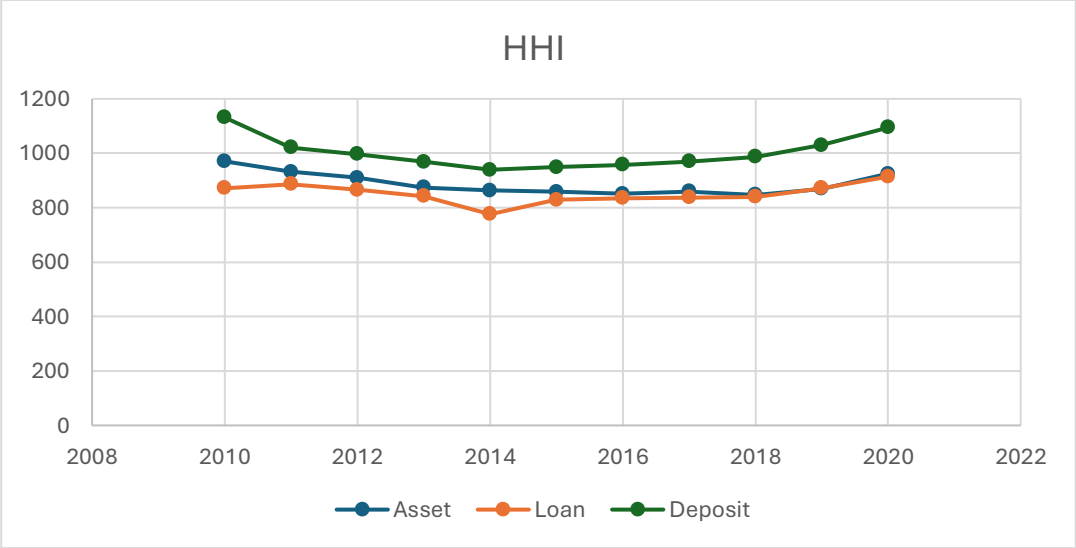
Table 3: HHI Concentration Results

	HHI		
	Asset	Loan	Deposit
2010	970.497	872.193	1131.447
2011	931.614	886.597	1021.121
2012	909.790	865.532	996.308
2013	874.113	842.756	968.173
2014	863.210	776.170	939.476
2015	857.866	829.014	949.319
2016	851.341	835.620	957.489

2017	859.829	837.300	969.965
2018	846.885	839.792	986.814
2019	869.394	871.666	1030.355
2020	924.573	914.005	1095.508

An examination of the HHI graph reveals a parallel trend to those observed with the CR3 and CR5 concentration ratios. Consistent with the CR3 and CR5 findings, the order of concentration from highest to lowest remains deposits, assets, and loans.

Specifically, deposit concentration, measured by the HHI, commenced at 1131, subsequently declined to a minimum of 939 during the mid-period, and concluded at 1095 by the period's end. Asset concentration, conversely, initiated at 970, experienced its lowest level at 846 in the middle of the period, and concluded at 924. Finally, loan concentration, starting at 872 in 2010, reached its nadir for the period at 776 in 2014, before closing at 914 in 2020.



Graph 3: HHI Concentration Graph

Results of Panzar-Rosse Model (H-Statistic)

The dataset for this study was compiled from the official website of the Banks Association of Türkiye (BAT) and subsequently processed by the author. The sample comprises 21 banks operating within the sector, selected based on the completeness of their financial information for the period spanning 2010 to 2020. This temporal scope was deliberately chosen to precede the recent period of significant interest rate reductions. The dataset's truncation at 2020 further aims to ensure the stability and predictability of the banks' financial indicators.

Methodologically, the study employs the H-statistic, a measure of competition originally proposed by Panzar and Rosse in 1982 and 1987. Its application in this research follows the methodological framework outlined

by Bikker and Spierdijk (2008). The reduced-form income equation, central to the H-statistic estimation, is analyzed using the Fixed Effects method, a widely recognized technique within panel data analysis. Diagnostic testing, specifically the Breusch-Pagan and Honda tests, indicated the presence of both unit and time-specific effects, confirming the appropriateness of the Fixed Effects model. The detailed results of these diagnostic tests are presented in Table 4.

Table 4: Breusch-Pagan and Honda tests

	One sided unit effect	**One sided time effect**	**Two sided effect**
Breusch Pagan	71.629*** (0.0000)	25.500*** (0.0000)	97.129*** (0.0000)
Honda	8.463*** (0.0000)	5.049*** (0.0000)	9.555*** (0.0000)

The Hausman test is employed to ascertain the most appropriate panel data estimation method for the dataset.

Table 5: Hausman test results

Unit and Time Random Effects Test				
Variables	Fixed(b)	Random (B)	Diff (b-B)	Prob.
LW1	0.359	0.364	-0.000	NA
LW2	0.397	0.427	0.000	0.000
LW3	-0.153	-0.139	0.000	0.439
LY1	0.353	0.280	-0.000	NA
LY2	-0.095	-0.119	-0.000	NA
LY3	0.079	0.075	0.000	0.891
Test Summary	Chi-Sq. Statistic		Chi-Sq. d.f.	Prob.
Unit and Time Random	0.000000		6	1.0000

Although the Hausman test yielded a p-value greater than 0.05, the random effects model was deemed inappropriate due to the presence of negative variance estimates. Consequently, the fixed effects model was adopted. Furthermore, diagnostic tests indicated the existence of heteroscedasticity, autocorrelation, and cross-sectional dependence within the model. Therefore, the equation was estimated using the Driscoll-Kraay fixed effects approach, which accounts for these econometric issues. The estimation results are reported in Table 6.

Table 6: Results of fixed effects model

		Number of Observation	231
		Number of group	21
		F (16, 10)	151.95
		Prob> F	0.000
		R^2	0.8002
Independent Variables	Kats.	Driscoll/Kray Std. Error	t	P>ItI
LW1	0.286***	0.035	7.98	0.000
LW2	0.241***	0.075	3.19	0.010
LW3	0.039	0.102	0.39	0.706
LY1	0.171***	0.060	2.82	0.018
LY2	-0.069***	0.016	-4.18	0.002
LY3	-0.061	0.067	-0.92	0.379

The H-statistic for the Turkish banking sector, calculated as the sum of the β1, β2, and β3 coefficients, is 0.286+0.241+0.039=0.568, which we can round to approximately 0.57. However, for this derived competition measure to be considered valid, we must re-estimate the reduced-form income equation (Equation 3) using Return on Assets (ROA) as the dependent variable. We then need to test whether the sum of the β1, β2, and β3 coefficients is statistically equal to zero. We perform this test using the Wald testWhile the full details of this analysis are available in the associated thesis (Arslan, 2024), we'll only present the Wald test results here. Table 7 reports the outcomes of the Wald statistic, which specifically tests the long-run market equilibrium condition. This condition is a crucial prerequisite for the validity of our estimated competition value.The null hypothesis (H_0) for the Wald test is formulated as follows:

$H_0: \beta_1+\beta_2+\beta_3=0$

Table 7: Wald Test

Wald Test			
Test statistics	Value	Degree of Freedom	Prob.
T statistics	-1.621	204	0.106
F statistics	2.630	(1, 204)	0.106
Chi-square	2.630	1	0.105

Since the Wald test statistic is $p>0.05$, the null hypothesis $\beta_1+\beta_2+\beta_3=0$ cannot be rejected. Considering that the condition $\beta_1+\beta_2+\beta_2+\beta_3=0$, which signifies long-run market equilibrium, is fulfilled, it is said that the competition rate established in the initial section is accurate. The competitiveness score in the Turkish banking sector from 2010 to 2020 is 0.57, signifying a monopolistic competition market structure.

CONCLUSION

This study analyzes the concentration and competitive dynamics of Turkish commercial banks from 2010 to 2020. Two methodologies were employed to ascertain concentration levels: the K-bank concentration ratio and the Herfindahl-Hirschman Index (HHI). The Panzar-Rosse approach was employed as a measure of competition. The results indicate a moderate amount of market concentration, as demonstrated by the K-bank concentration ratio and the HHI. The Panzar-Rosse competition analysis indicates that the competition level in the Turkish banking sector is 0.57, denoting an environment of monopolistic competition.

The significance and prevalence of banks within the financial system, particularly in developing nations, is substantial due to the scarcity of alternative financial channels. Any detrimental change in the banking sector does substantial damage to national economies. Besides operational, financial, and market-related hazards, the banking system is also susceptible to asymmetric information, moral hazard, and adverse selection. The financial turmoil of an individual bank might adversely affect the other banks consumers. The intrinsic interdependence among banks is robust, necessitating their collaborative and harmonious operation, irrespective of their preferences. Accordingly, in contrast to other industries, the banking sector necessitates oversight by regulatory and supervisory authorities.

Therefore, it is imperative to evaluate the concentration and competitive dynamics of the banking sector at all times. Specific degrees of competition within the banking sector are both acceptable and advantageous in a competitive landscape, low loan interest rates and elevated deposit interest rates are desirable from the perspective of welfare economics. The value of h- statistic of 0.57 shows that there is a measurable level of competition in the industry and banks have a considerable degree of pricing power. The banking system under consideration can be characterized as operating within a monopolistic competition framework, accompanied by low market concentration. The low concentration level implies that no single or small group of banks dominates the market. This structure supports a competitive dynamic that enhances both financial stability and consumer welfare. Such a market configuration is generally favorable, as it combines competitive pressures with a degree of strategic flexibility for individual banks. Nevertheless, ongoing monitoring is warranted to detect potential shifts in concentration or emerging dominance by larger institutions, which could alter the competitive landscape over time For these reasons, it is vital to determine the level of competition and to establish a balanced relationship between concentration and competition. Continuous assessment of

competitive dynamics, coupled with forward-looking adaptation to macroeconomic and institutional shocks, enables banks to strengthen the resilience and precision of their risk management strategies.

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