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Bank Mergers' Impact on Competition: The Market's Perception

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ההשפעה התחרותית של מיזוג מזרחי-איגוד, מה השוק חושב?

נדב שטינברג

תקציר

מחקר זה משתמש בנתונים משוק ההון כדי ללמוד על הערכת המשקיעים לגבי ההשפעה של המיזוג בין בנק 'מזרחי-טפחות' ובנק 'אגוד' על שוק הבנקאות בישראל. רכישת 'אגוד', הבנק השישי בגודלו בישראל, על-ידי 'מזרחי-טפחות', הבנק השלישי בגודלו, היא אחד מהשינויים הגדולים ביותר שאירעו בשוק הבנקאות בישראל והיא הביאה לדיון ער בין מומחים, רגולטורים ופוליטיקאים לגבי השפעתה על התחרות בשוק זה. חלק מהצדדים למהלך טענו שהמיזוג צפוי לתרום ליעילות הצדדים המתמזגים ולהשפיע לחיוב על רמת התחרות בענף. לעומתם חלק אחר מהמתייחסים טענו שהמיזוג צפוי להשפיע לשלילה על רמת התחרות בענף. בית הדין להגבלים עסקיים שדן בסוגיה פסק שלא ניתן להוכיח זאת ומשכך אישר את ביצוע המיזוג. מבחינת התנהגות שערי מניות הבנקים המתחרים סביב ההודעות על המיזוג עולה כי המשקיעים בשוק המניות פירשו את המיזוג כאירוע חיובי עבור הבנקים המתחרים וזה בא לידי ביטוי בעליה במחירי המניות שלהם .בספרות המחקרית בתחום נהוג לפרש תגובה חיובית של מניות החברות המתחרות (לצד תגובה חיובית של מניות החברות המתמזגות עצמן) כהערכה של המשקיעים שלפיה המיזוג צפוי להקטין את התחרות. על רקע שינויים משמעותיים נוספים במערכת הפיננסית להגברת התחרות, יש צורך להמשיך ולעקוב אחר ההתפתחויות ולבחון האם המיזוג תרם בטווח הארוך לתחרות בשוק הבנקאות ולרווחת לקוחות הבנקים.

Bank Mergers' Impact on Competition: The Market's Perception

Nadav Steinberg

Abstract

This paper utilizes capital market data to analyze investors' assessment of the expected impact of the merger between Mizrahi-Tefahot Bank and Union Bank on the Israeli banking industry. The acquisition of Union Bank, the sixth largest bank in Israel, by Mizrahi-Tefahot, the third largest bank, is among the most prominent changes to have taken place in the Israeli banking industry in recent decades, and it initiated a fierce debate among experts, regulators, and politicians regarding its impact on competition within this industry. An examination of the behavior of the other bank stocks around the time of merger-related announcements suggests that investors saw the merger as a net-positive event for the rival banks, as reflected by a surge in their stock prices. The economic literature commonly interprets a positive reaction of rival firms' stocks (alongside a positive reaction of the merging firms' stocks) as an indication that investors expect the merger to reduce competition within the affected industry. However, and in light of other significant changes in the financial industry, the merger's long-term impact on the competitive landscape in the banking industry and on bank customers remains an open question.

1. Background

Israel's banking market is dominated by two major banks, with few additional players. According to the Review of the Supervisor of Banks for the Year 2022, for example, Bank Hapoalim and Bank Leumi jointly held 57 percent of the total assets in the banking system.[2] Therefore, when Mizrahi Tefahot Bank, the third-largest bank in the banking system, offered to acquire Union Bank, the sixth largest bank at the time, the potential effect of the proposed acquisition on competition in the banking sector was the subject of an in-depth investigation. In view of the conflicting findings in academic literature on the association between concentration and competition in the banking system, regulators and various professionals differed in their assessment of the merger's anticipated effect on the banking market and its customers. The current research studies the stock market's assessment of this effect taking into account that financial markets have a relatively good forecasting ability yet market assessments are occasionally found to be in error, and prices adjust to the new situation gradually. It is therefore necessary to consider the market's assessment of the merger alongside findings from the literature and expert opinions.

1.1 Literature Review: Bank Mergers and Acquisitions (M&As)

Two focal theories that aim to explain motivations for M&A are efficiency theory, which posits that mergers may improve the efficiency of the merging firms and reduce their manufacturing costs (e.g., Steiner, 1975), and market power theory, which argues that mergers facilitate collusion between competitors and allow the merging firms and their rivals to benefit from increased market power vis a vis their customers/suppliers (e.g., Stigler, 1964).

According to early papers on competition in banking, as market concentration increases, banks tend to charge higher interest rates from small and medium-sized businesses and pay lower interest rates on household deposits. In contrast, in a sample of 50 countries Claessens and Laeven (2004) found no evidence of a negative association between concentration and competition in the banking industry. They suggest that competition in the banking market may be promoted through the removal of entry barriers and the reduction of restrictions on banks' activity. Allen et al. (2014) found a heterogeneous effect of mergers involving mortgage banks: Mean interest rose by 6 basis points, but the outcome stemmed entirely from the

[2] https://www.boi.org.il/publications/regularpublications/banking-system

adverse effect on customers who had benefited from low interest rates, while weaker customers, who do not conduct price comparisons or negotiate over prices, were not adversely affected.

Alongside the effect of the structure of the banking system and bank mergers on competition among banks, studies found that mergers may improve bank efficiency, which ultimately is passed on to customers (Focarelli & Panetta, 2003), and improve the quality of customer service offerings (Berger & Mester, 2003). Montgomery et al. (2014), in contrast, found that bank mergers in Japan following the crisis that wracked the country in the 1990s, actually led to a decline in cost efficiencies, which banks concealed using their increased market power at their customers' expense.

Finally, DeYoung et al. (2004) distinguished between major banks and small domestic banks, and Stein (2002) argued that the differences between large and small banks in loan technologies may lead to a focus on different customer groups, which may explain the decline in loans to small businesses after mergers. Coccorese and Santucci (2020) showed that small banks in Italy operate less competitively than larger banks, and they attributed this to the small banks' relationship lending practices.

Another important effect, from the banking system's perspective, is the effect of a bank merger on rivals' financial stability risks. Different types of ties between banks may trigger financial contagion, causing a negative shock to one bank to spread to its competitors (e.g., Greenwood et al., 2015; Memmel & Sachs, 2013; Mitchner & Richardson, 2013). Therefore if a relatively risky bank is also linked to other banks (through strong direct ties, the inter-bank market, or similar holdings), its acquisition by a second bank may not only reduce the direct riskiness of the first bank but also reduce the risk of contagion from it to its rivals. The expected effect may be in the opposite direction if the merger increases the systemic risk to its rival banks.[3]

[3] For example, we can consider a situation in which Bank A suffers from a relatively high level of risk but has few ties to other banks, while Bank B has a broad systemic impact but benefits from solid financial stability. If, after a merger between Bank A and Bank B, the operations of the merged bank are relatively risky, similar to Bank A's riskiness, but it maintains strong ties to other banks, which characterized Bank B, the merger is expected to increase systemic risk.

1.2 Mizrahi-Tefahot and Union Bank Merger and regulators' Responses

On July 31, 2017, Mizrahi Tefahot Bank issued an immediate report to the public concerning negotiations to acquire control of Union Bank, following a report in the media on the previous day. On August 14, 2017, in an interview with a financial newspaper, the then-Supervisor of Banks noted that the Department of Banking Supervision at the Bank of Israel is "in favor of the merger" because "it will increase competition in the banking system. It will create a third bank that will challenge the two major [banks] in the system, Hapoalim and Leumi [...] Reinforcing a medium-sized player can make a large contribution to competition, and this aligns with the approach of strengthening the medium-sized banks." The Supervision of Banks sent its position in support of the merger to the Competition Authority: Two of its arguments were that the creation of a third significant bank in the system, which will challenge the two major [banks], Hapoalim and Leumi, could make a large contribution to competition, and the move meshes with the Supervision's approach to strengthening the medium-sized banks, both for the sake of competition and systemic efficiency, and for the sake of systemic stability. In contrast, governmental economic ministries and representatives of the Committee to Increase Competition in Common Banking and Financial Services in Israel submitted objections to the merger, based on their concerns of adverse competition effects.

On May 30, 2018, the Competition Authority announced its objection to the merger. The Authority argued that Union Bank has attracted a high proportion of customer switches from other banks for its size, and it differs from the larger banks in its price-focused rather than service-focused marketing. According to the Authority, "From the perspective of the incentives of Mizrahi Bank, as a medium-sized bank with a large number of customers who differ from Union Bank's customers [...], Mizrahi Bank is trying to increase its market share by offering a different value proposition. The bank wishes to minimize the cannibalization effect, stresses the customer service element, and is careful not to highlight the price element." The Authority also argued that a small bank like Union has less incentive than a large bank to collude with the other banks and therefore its elimination as a competitor may make it easier to achieve a stable anti-competitive collusive equilibrium. The Authority was not convinced that the merger's added efficiency is significant, and also concluded that the proposed merger may have a significant anti-competition effect in the area of credit to the diamond industry.

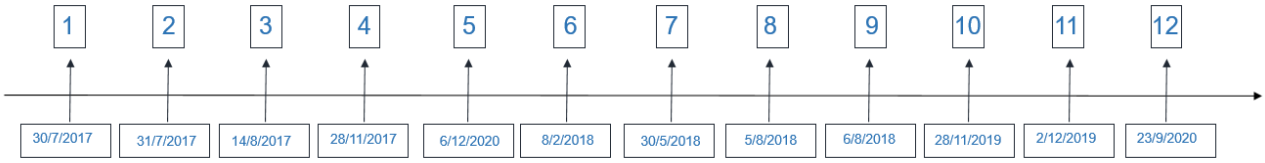
On August 6, 2018, Mizrah-Tefahot Bank and Union Bank filed an appeal with the Anti-Trust Tribunal against the Competition Authority's decision. On November 28, 2019, the Tribunal decided in favor of the appeal and determined that the market definition on which the Competition Authority based its analysis was problematic, as was its examination of bank switchings. The judge stated that there was no significant indication of Union Bank's influence on other market players, and he accepted the banks' arguments on Union's lack of efficiency. However, the judge did confirm the Competition Authority's concerns of an adverse effect on competition in credit for the diamond industry and asked the Authority to define conditions that would mitigate these concerns. On December 2, 2019, the then-Ministry of Economics estimated that an appeal against the Anti-Trust Tribunal's decision would be filed. On August 30, 2020 Mizrahi-Tefahot Bank officially filed an offer to Union Bank's shareholders. On September 17, 2020 Mizrahi-Tefahot improved the terms of its offer, and on September 23, 2002, 97.6 percent of Union Bank's shareholders accepted the offer, fulfilling the condition for a forced sale of all the shares.

1.3 Timeline of Events

Below is the timeline of the key events surrounding the merger. The relevant events were identified by searching the reports issued to the public by Mizrahi-Tefahot and Union on the Tel Aviv Stock Market's MAYA system and by searching relevant media items concerning the merger using the Google search engine.[4] In Figure 1, eight events that were expected to increase the probability of the merger appear in roman font, while three events that were expected to reduce the probability of the merger appear in italics. As indicated by the timeline, the relevant events spanned a period of several years, but five of these events were concentrated in the first four months of the period of investigation.

[4] According to a search of the Bank of Israel website, it appears that on the dates that were identified as being relevant for the merger, no other significant notices were issued that were expected to significant affect the banks or their share price.

Figure 1: Timeline of key events preceding the approval of the Mizrahi-Tefahot and Union merger



This figure lists the main events that affected the probability of a merger between Mizrahi-Tefahot and Union over time.

The following events were identified (events that reduced the probability of the merger appear in italics):

1. Controlling shareholders disclosed their intention to sell their holdings in the bank.
2. In response to media reports that commenced in the afternoon of July 30, the banks issue a report to the public about their merger negotiations.
3. The Supervisor of Banks expresses support for the merger in a newspaper interview.[5]
4. The merger agreement is signed.
5. *PMs submit a bill proposing that a bank merger requires the approval of the Minister of Finance and the Minister of Economy.*
6. After receiving an evaluation, Mizrahi-Tefahot elects not to terminate the agreement, as the deadline for termination elapse.
7. *The Competition Authority announces its decision to oppose the merger.*
8. The controlling shareholders and Mizrahi Bank disclose their decision to file an appeal against the Competition Authority's decision.
9. The banks' boards of directors decide to join the appeal.
10. The Anti-Trust Tribunal rejects the position of the Competition Authority.
11. *The Minister of Economy speculates that an appeal against the Anti-Trust Tribunal's decision will be filed and if the Competition Authority's decision is not upheld, the issue will be brought before the Supreme Court.*
12. Mizrahi-Tefahot's tender offer is accepted by Union Bank's shareholders.

In view of the inconsistent findings in the research literature, the different positions held by various regulators, and the intense public debate, an examination was conducted of market players' assessment of the effects of the proposed merger on the banking system by analyzing the changes in the banks' share prices. Due to the diversity of market players, which differ in their opinions, their analytical abilities, and the information available to them, alongside the incentives created by the considerable investments made by these market players, the stock

[5] See interview dated August 14, 2017. https://www.themarker.com/markets/1.4346197.

market is an "incentivized survey of future expected outcomes" and offers useful information, especially in complex, fast-evolving situations (Wagner, 2020).

2. The Merger's Effects on the Merging Banks

An examination of the effects of the events leading up to the merger, presented on the timeline shown above, on the shares of the merging banks, Mizrahi-Tefahot and Union, indicates that the tender offer and the events that increased the probability of the acquisition had a very positive effect on the target's shares. The mean daily return on Union Bank shares on the eight days of events that positively affected the acquisition probability was 5.8 percent. Investors apparently believed that the acquisition also offers advantages to the acquirer because Mizrahi-Tefahot shares generated a mean daily return of 1 percent on those eight days. For comparison, the mean daily return of the TA 25 and the TA 125 indexes on those eight days was 0.4 percent and 0.3 percent, respectively. The mean daily return of Union Bank shares on the three days of events that reduced the probability of the merger occurred was -3.1 percent, compared to a low negative return of the above indexes on those three days.

A comparison of the yield to maturity (YTM) of Union Bank bonds and comparable government bonds indicates that the target's bonds also responded favorably to the proposed merger. Their spread declined by 2.7 percent (equivalent to a decline of less than 2 bps) on average on the eight days of events that increased the probability of the merger, and increased by 5.8 percent (4 bps) on average on the three days on which events that reduced this probability occurred. It therefore appears that investors estimated that the merger would not only generate value for Union Bank's shareholders but would also reduce its creditors' risk somewhat. Nonetheless it is important to note that this risk was not estimated by the market to be especially high from the outset: In June 2017, on the eve of the announcement of the merger, the YTM spread between Union Bank and comparable government bonds was a mere 64 bps, which was similar to the mean and the median spread of the five largest banks (Hapoalim, Leumi, Mizrahi-Tefahot, Discount, and First International) at the time. Similarly, Union Bank's insolvency risk, based on the Merton (1974) model and estimated by Moody's KMV (Crosbie & Bohn, 2003), was similar to that of the five largest banks on the eve of the merger announcement.

3. Literature Review: An Event Study Approach to Identify Mergers' Effects on Industry Competition

I use the event study method to examine the effect of the proposed merger on competition in the banking market, as estimated by the financial markets in real time. An event study is a commonly used tool in economics and finance in general, including in competition- and anti-trust-related issues. It helps that the events described in the timeline were not anticipated, and each event increased or reduced the probability of a successful merger. At first glance I could examine the effect of the merger's probability on the shares of the acquirer and the target, which is also presented above. However, the merger's relative effect on the acquirer and the target is influenced by the premium or discount that the tender offer implies. Moreover, an increase in the overall value of the merging companies does not necessarily indicate expectations of an anti-competitive effect and adverse effect on customers' surplus: It may stem from expectations of increased efficiency. Indeed, as seen in the background information presented above, the discussions over the Mizrahi-Tefahot–Union merger focused both on the merger's expected impact on competition and on its potential to increase efficiency.

To account for these limitations and identify the expected effect of the investigated events on competition in the banking market, our empirical examination focuses rather on the competing firms. As noted, a positive or negative response of the merging companies' shares to events that increased or reduced the probability of a successful merger may stem from expectations of a post-merger improvement in efficiency (the efficiency theory) or from decline in competition in the banking market (the market power theory). To examine the merits of these two explanations, I also examine the effect of the merger on the merging firms' competitors. As Eckbo (1983), for example, explains, expectations of increased efficiency in the merging companies after the merger may have a negative or a positive effect on their competitors and therefore — on their competitors' shares. Directly, a negative effect is possible because increased efficiency in the merging companies will lead to reduced costs and to stronger competition on their part, which will adversely affect the competitors. In contrast, indirectly, the merger and increased efficiency may reveal similar efficiency-saving potential in the

competitors, specifically through mergers, and will have a positive effect on them.[6] In contrast to some ambivalence about the merger's effect on the competitors according to the efficiency theory, the merger will have a positive effect on the competitors according to the market power theory. According to this theory, a merger reduces the number of firms in the market and therefore facilitates collusion among rivaling firms. Therefore, to the extent that the proposed merger was expected to reduce competition in the banking market, the competitors' shares were also expected to rise in response to the heightened probability of the merger. Finally, if the market considers Union Bank to be a relatively risky firm and one that is sufficiently linked to other banks, investors may be concerned that that a negative shock to Union Bank may lead to financial contagion to the competitors and adversely affect them. If investors believe that the probability of such an outcome is non-zero, and is mitigated by the proposed merger, the merger may have a positive effect on the shares and the bonds of the rival banks, as a result of the reduced risk to the stability of the banking system.

The use of an event study that focuses on rivals' shares to examine a merger's effects on competition and consumer welfare was first proposed in the pioneer studies of Eckbo (1983) and Stillman (1983). Since then, the method has been used extensively to examine the effect of mergers as well as the effects of actions against monopolies and cartels on competition in various markets. Bittlingmayer and Hazlett (2000), for example, studied how enforcement of US anti-trust laws against Microsoft affected its rivals and suppliers in the computing industry. Fee and Thomas (2004) and Shahrur (2005) used a large sample of vertical mergers to examine their effect on the merging firms' competitors, suppliers, and customers. Becher et al. (2012) focused on firms in the infrastructure sector and found mixed evidence of excess return to firms that compete with mergers; More importantly, they found no excess return for competitors in the same geographic area that could be expected to be the main beneficiaries of a decline in competition. In contrast, Clougherty and Dusco (2009) found a positive effect of mergers on competitors and Dusco et al. (2011) found that in Europe, a merger cancellation announcement by an anti-trust authority offset the merger's positive effect yet restrictions to prevent anti-competition effects only reduced the effect. A recent study by Kepler et al. (2023)

[6] As I explain below, the argument that a merger may reveal the potential for increased efficiencies through additional mergers may be less relevant for the banking sector in Israel because of its currently limited merger potential.

stressed another limitation to anti-trust authorities' ability to prevent mergers that adversely affect competition: They found that firms in the United States tend to perform more vertical mergers in amounts slightly below the minimum that triggers an anti-trust investigation compared to vertical mergers in amounts slightly above this minimum, and that the shares of the merging firms' competitors respond more positively to mergers under this minimum. These findings suggest that firms evade regulatory reviews of a merger's competition effects and investors interpret this as a positive outcome for all competing firms.

Within the body of research that used an event case to assess mergers' effects on market competition, two studies specifically examined M&As involving banks. Hanker et al. (2011) studied the market response to 600 M&As of banks in Northern American and Europe between 1990 and 2008. They studied the response of the shares of the acquirer bank, the target bank, and their competitors to the major events surrounding the merger: the announcement of the merger, its completion, or its termination. The researchers used varying time intervals surrounding these events and various event-case models, and studied whether the behaviour of the shares of the merging bank and the competitor banks around the announcement of the merger or its termination fits one of the theories known in the M&A research literature. They found that the most common pattern of share response follows the predictions of the market power theory, although this theory is a good fit for only 11 percent of the merger events they studied.[7] A recent study of historical events strengthens the suspicion that the desire to obtain market power and facilitate price collusions is the main motive for mergers in the banking industry. Braggion et al. (2022) investigated the wave of bank mergers in the UK in the late nineteenth and early twentieth centuries. They found that the shares of the merging banks as well as those of the competitors, and especially the banks whose level of local concentration increased following the merger, responded favourably to the merger. The researchers interpreted this response as evidence that the investigated wave of mergers, which transformed the UK banking sector into a concentrated market with five major banks, contributed to collusion among the banks, against the interests of their customers.

[7] For the sake of comparison, the behavior of the shares around the merger fits the efficiency theory in only 5% of the mergers that were studied.

An examination of the effects of mergers on competitors' shares faces several methodological challenges. In a relatively early paper, McAfee and Williams (1988) demonstrated that occasionally only a relatively small proportion of the competitors' sales come from the industry in which the merger was performed and therefore the merger's effect on them is expected to be moderate. Furthermore, Fridolfsson and Stennek (2010) argued that several studies tend to disregard the information that was already implied in the prices as a result of rumors about the merger, its pricing, or the possibility that the pricing of the competitors reflects the latter's own expectations of being involved in the merger as a potential acquirer or target.[8] It is important to stress that these methodological issues are minor in the current context since the Israeli banks are relatively homogeneous in their operational focus on financial intermediary activities.[9,10] Therefore, if the merger of two firms in this sector affects within-industry competition, the merger is also expected to affects the share prices of the other banks. Furthermore, the specific structure of the banking sector in Israel reduces the potential for mergers whose structure differs from the specific case under investigation.[11] Finally, the following empirical tests use media reports in addition to official reports, in order to confirm the date on which the market responded to new information.

[8] Wan and Wong (2009) showed that political opposition to the acquisition of a US firm by a Chinese firm lead to a decline in the shares of competing US firms, and attributed this effect to a decline in the potential acquisition premium.

[9] Karceski et al. (2005) focused on mergers in the banking sector. They studied the effect of mergers on the customers of the merging banks and showed that the shares of firms that borrowed from target banks responded negatively to the acquisition announcement.

[10] Israeli law significantly limits banks' ability to operate in non-traditional banking activities. Banks in Israel do not engage in investment management, underwriting, advice on acquisition transactions, and other activities and their holdings in large-scale real firms is limited. The current examination focuses on the four major banks that were not involved in the investigated merger and the fifth major bank that was a party to the merger (Mizrahi-Tefahot), all of which have similar activities,.

[11] It is therefore difficult to believe that the market assessed that the Anti-Trust Authority would approve an acquisition of a small or medium-sized bank by one of the two largest banks—Hapoalim or Leumi, and a fortiori there was no expectation that one of these two banks would be acquired by another.

4. Data and Methodology

This section examines how key events that increased or reduced the probability of a successful merger affected the shares of the four largest banks in the Israeli banking system—Hapoalim, Leumi, Discount, and First International—not including its effect on the shares of Mizrahi-Tefahot, a party to the merger under investigation.[12]

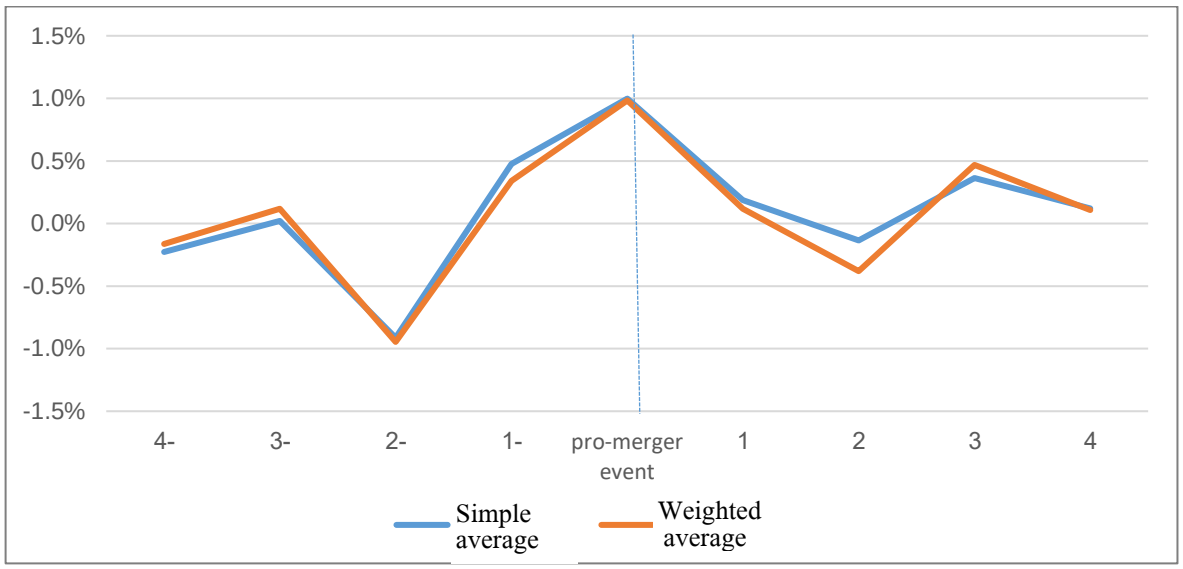
4.1 Data

I calculated the daily returns, adjusted for dividends and distributions-in-kind on each day in a period surrounding each of the merger events presented in the above timeline. Statistical tests based on an examination of the effect of each event on the shares of each of the major banks might be problematic if the shares of these banks are correlated on these days. To mitigate this concern, I examined the effect of the events not only on each bank's shares but also their effect on a weighted portfolio of shares of the major banks. To this end I constructed two synthetic portfolios of the major banks that were not parties to the merger: one portfolio comprises a simple daily mean of the daily return on the shares of these four banks, and one portfolio is a daily market-cap weighted mean of the daily returns of the shares of these banks.

Figure 2 presents the portfolio based on the simple mean of the returns of the shares of the four largest competitors (blue line) and the portfolio based on the market-cap weighted mean of the returns of these banks' shares (orange line). Returns are shown for trading days around the events that increased the probability of the merger, beginning four trading days prior to the event and ending four trading days after the event. Figure 2 indicates that on the days on which events that increased the probability of the bank merger were identified, the competitors achieved mean returns of approximately 1 percent, which was significantly higher than the returns achieved in the other trading days around the day of the event.

[12] The shares of Jerusalem Bank are also listed on the Tel Aviv Stock Exchange, but this bank is much smaller than the four largest banks, it does not compete with them on all banking products, and its shares are not included in the TA 35 index. Empirically, Jerusalem Bank's shares behave differently from the shares of the four largest banks, with lower tradability, and their correlation with the main indexes is low. Also traded on the TASE is FIBI, which is the controlling shareholder of International Bank. Otzar Hityashvut Yehudit, the controlling shareholder of Bank Leumi, was also previously traded on the TASE. The shares of these holding companies suffer from similar drawbacks to those mentioned in reference to Jerusalem Bank, and their inclusion in the sample might create an issue of duplicate counts of the shares of the banks they control. For these reasons I focused on the four largest banks.

Figure 2: Mean returns of shares of the four bank competitors around events that increased the probability of the bank merger



Source: TASE data processed by the Bank of Israel.

This figure shows the mean returns of the competitors' shares on the 9 days around and including the events that increased the probability of a merger between Mizrahi-Tefahot and Union Banks, beginning four trading days before each event and ending four trading days after the event. Returns on the day of the event are marked in a dashed blue line. "Simple mean" represents the returns of the four major competitor banks based on a simple mean, while "weighted mean" represents the market-cap weighted mean return.

Table 1 presents the returns of the shares of the merging banks (Mizrahi-Tefahot and Union), the shares of the four major competitors (Hapoalim, Leumi, Discount, and International), and the portfolios comprising the shares of the four competitor banks, on each day on which a key event that affected the probability of the merger occurred. The Table shows that the mean and median daily returns on the shares of each of the four competitors on the dates of the 8 events that increased the probability of the merger were positive and approached 1 percent. Competitors' shares showed an especially strong response to the announcements of the Supervisor of Banks' public support of the merger, the signing of the agreement, the decision to file an appeal against the challenge to the merger, and the court's decision to approve the merging banks' appeal against the Competition Authority. In the three events that reduced the probability that the merger would be completed, the return was negative and close to -1 percent. The competitor banks' shares showed a strong response to the Minister of Economy's announcement that an appeal against the decision of the Anti-Trust Tribunal was anticipated.

Table 1. Events that Affected the Probability of the Merger and the Banks' Daily Returns on Those Days (%)

Date	Event	Discount	Hapoalim	Leumi	First Int'l	Mizrahi	Union	Weighted mean	Simple mean
30/7/17	Controlling shareholders intend to sell their holdings in the bank	-1.2	-0.8	-0.1	-0.5	0.6	8.5	-0.6	-0.6
31/7/17	In response to reports in the media, beginning in the afternoon of July 30, the banks reported that they were negotiating a merger.	0.2	-0.6	-1.0	1.2	-0.5	6.3	-0.5	-0.1
14/8/17	The Supervisor of Banks expresses public support for the merger in a media interview.	2.3	2.7	3.0	2.7	2.1	3.2	2.8	2.7
28/11/17	Merger agreement signed	1.5	2.3	3.5	0.7	2.4	4.8	2.5	2.0
6/12/17	*MPs introduce a bill that would require a bank merger to obtain approval of the Minister of Finance and the Minister of Economy*	-0.9	-0.1	-1.2	-1.8	-1.4	-2.9	-0.8	-1.0
8/2/18	On the deadline for termination, after an evaluation was received, Mizrahi decides not to terminate the merger agreement	-0.1	-1.9	-0.4	-0.7	-2.4	1.5	-1.0	-0.8
30/5/18	*The Competition Authority gives notice of its decision to challenge the merger*	0.5	-1.3	0.2	-0.5	0.0	-2.5	-0.4	-0.3
5/8/18	The controlling shareholders and Mizrahi Bank agree to file an appeal on the Competition Authority's decision	1.8	1.9	1.3	2.2	2.1	3.7	1.7	1.8
6/8/18	The banks' boards of directors decide to join the appeal	-0.3	0.6	0.1	0.2	-0.1	2.7	0.3	0.2
28/11/18	The Anti-Trust Tribunal rejects the Competition Authority's position	1.6	3.6	2.1	3.9	4.2	15.5	2.7	2.8
2/12/19	*The Minister of Economy estimates that an appeal on the Anti-Trust Tribunal's ruling will be filed, and if the appeal fails, an appeal will be filed with the High Court of Justice*	-0.9	-1.4	-1.4	-2.2	-1.1	-4.0	-1.4	-1.5
Mean	Mean return on events that increased the probability of the merger	0.7	1.0	1.1	1.2	1.0	5.8	1.0	1.0
Median	Median return on events that increased the probability of the merger	0.9	1.2	0.7	1.0	1.3	4.3	1.0	1.0
Mean	Mean return on events that decreased the probability of the merger	-0.5	-0.9	-0.8	-1.5	-0.8	-3.1	-0.9	-0.9
Median	Mean return on events that decreased the probability of the merger	-0.9	-1.3	-1.2	-1.8	-1.1	-2.9	-0.8	-1.0

Source: Maya (public companies reporting system), media items, TASE. Data processed by the Bank of Israel.
Note. Table 1 presents the events that were identified as affecting the probability of the merger between Mizrahi-Tefahot and Union. Events that were expected to reduce this probability appear in italics. Alongside each event is the daily return (%) of the shares of the rival banks (columns 3–6), the merging banks (columns 7–8), a portfolio of the four largest banks weighted by market cap (column 9), and an equally weighted portfolio of the four rival banks (column 10).

In principle, I could use the return of the shares of the various banks on the key event dates to gain insight into the effect of these events on competition in the banking sector. However, the shares of major Israeli banks are affected not only by expectations of future competition but also by macroeconomic and financial events that impact the Israeli economy as a whole. In line with the best practices for event studies (MacKinlay, 1997), to control for the effects of general economic and financial developments, estimations also include the daily returns on the TA 35 index, which is the primary TASE index. Similar results are obtained when controlling for these effects using the more broad-based TA 125 index.

Furthermore, the banks may be responding not only to general developments in the Israeli economy but also to specific factors that affect financial institutions. To control for such factors, several of our specifications also include two indexes that can be used as indicators for developments in or affecting financial institutions: (a) The TA Insurance-Plus index, which comprises financial firms and includes the shares of non-bank financial institutions listed on the TASE: insurance companies, investment houses, and non-bank lenders; and (b) the S&P Banks index, which comprises the shares of the banks included in the United States' S&P500 index.

Table 2. Mean and Median Returns of Shares of Major Banks and Control Indexes (%) Pre- and Post- Merger (2014–2016 and 2017–2019)

		2017–2019	2014–2016
TA 35	Mean	0.02	0.02
	Median	0.05	0.05
TA 125	Mean	0.03**	0.01
	Median	6.49%	0.05
TA Insurance-Plus	Mean	0.04***	-0.01
	Median	0.08***	0.00
S&P Banks	Mean	0.01	0.08***
	Median	0.04	0.1***
Rival banks, simple average	Mean	0.08***	0.03
	Median	0.08***	0.03
Rival banks, weighted average	Mean	0.08***	0.03
	Median	0.05***	0.00

Source: TASE. Processed by the Bank of Israel.

Table 2 presents the mean and median daily returns (%) of indexes that control for macro effects and financial institution effects in various specifications of our model: TA 35, TA 125, TA Insurance-Plus, and S&P Banks, and the returns of two synthetic portfolios comprising the shares of the four major rival banks based on a simple mean (Row 5) and weighted by market cap (Row 6).

*, **, *** indicate that the mean/median in that sub-period was higher than in the other sub-period, at a 10%, 5%, and 1% level of statistical significance, respectively, based on a t test for equality of means/ a non-parametric test for equality of medians.

Table 2 presents the mean and median daily returns of the indexes used as controls in the various specifications of our model and of the two synthetic portfolios that include the shares of the four largest rival banks. The table indicates that the returns of the rivals' shares were higher in the merger period vs. the pre-merger period. Nonetheless, the differences do not necessarily stem from the merger-related events. To examine the association between the returns and the merger-related events, I focus below on specific dates of the relevant events and control for these benchmark indexes, which, as Table 2 indicates, whose returns also varied in the pre-merger and merger periods.

Table 3 presents the correlations between the controlled indexes in the various specifications, and the correlations between them and the returns of the two synthetic portfolios. Table 3 indicates that all the indexes are positively correlated and that the correlation between the two leading TASE indexes is close to 1. Their multicollinearity clarifies that both indexes should not be included in the specifications and it is sufficient to control for one of them. The strong correlations between the two synthetic portfolios and the benchmark indexes highlight the importance of controlling for these indexes when studying the effects of the merger-related events on the rival banks.

Table 3. Correlations between Returns of Major Banks and Control Indexes

	TA 35	TA 125	TA Insurance-Plus	S&P Banks	Shares of Rival Banks	
					Simple mean	Weighted mean
TA 35	1					
TA 125	0.98	1				
TA Insurance-Plus	0.69	0.74	1			
S&P Banks	0.39	0.41	0.34	1		
Rival Banks - Simple mean	0.75	0.73	0.62	0.31	1	
Rival Banks - Weighted mean	0.72	0.70	0.59	0.29	0.98	1

Source: TASE. Processed by the Bank of Israel.

Table 3 presents the correlations between each of the control indexes in the various specifications and the synthetic portfolios. The correlations were calculated over a period of six years beginning in 2014, several years before the earliest merger-related events occurred, and ending in 2019, and therefore include all the events related to the Mizrahi-Tefahot and Union merger.

4.2 Methodology

To formally examine the merger's effect on competition, I examined the effect of the events that increased or reduced the probability of the merger on the portfolios of the four major banks that were not involved in the merger, controlling for the relevant benchmark indexes. Adopting the method used by Wan and Wong (2009), the following equation was estimated:

$$(1) \quad R_t = \alpha + \beta_m R_{m,t} + \beta_{ins} R_{ins,t} + \beta_{sp\_banks} R_{sp\_banks,t} + \gamma D_t + \varepsilon_t$$

where

R_t is the return of the equally weighted/ market-cap-weighted portfolio of the major rival banks; $R_{m,t}$ is the return of TA 35 on day t; $R_{ins,t}$ is the return of the Insurance-Plus index on day t; $R_{sp\_banks,t}$ is the return of S&P Banks on day t; D_t is a dummy variable whose value is 1 on each of the eight days identified as events that increased the probability of the merger between Mizrahi-Tefahot and Union, and 0 otherwise. Therefore its coefficient estimates the average effect of an increase in the probability of the merger on the shares of the rival banks.

In addition to the examination on the portfolio of the rival banks' shares, I performed the following two tests to examine the robustness of the results at the single-bank level:

(a) I re-estimated Eq. (1) using the dependent variable $R_{i,t}$ whereby $R_{i,t}$ is the return of rival bank *i* on day *t*.

(b) For each bank i, I estimated the following equation for an estimation period that began one year before the first merger-related event and ended two weeks before said event:

$$(2) \quad R_{i,t} = a_i + ß_{i,m} R_{m,t} + ß_{i,ins} R_{ins,t} + ß_{i,sp\_banks} R_{sp\_banks,t} + e_t$$

I used the coefficients resulting from this estimation as the basis for predicting the expected return on merger-related event days and calculated the abnormal returns (AB) of each event for each of the rival banks' shares:

$$(3) \quad AR_{i,t} = R_{i,t} - \widehat{a_i} - \widehat{ß_{i,m}} R_{m,t} - \widehat{ß_{i,ins}} R_{ins,t} - \widehat{ß_{i,sp\_banks}} R_{sp\_banks,t}$$

Using a two-tailed t test for equal means, I tested the hypothesis that the mean AR of the rival banks' shares on the day of an event does not significantly differ from 0. I also used a non-parametric test to test the hypothesis that the number of bank-event observations of a positive AR is similar to the number of bank-event observations of a negative AR. Finally, I used the Wilcoxon non-parametric test to examine to what extent the ARs are positive or negative.

5. The Merger's Effect on Rival Banks – Estimation Results

5.1 Effect on the Weighted Portfolio of Rival Banks' Shares

Table 4 presents the results of the estimation of Eq. (1) over a period of 1,055 calendar days beginning 100 days before the first merger-related event and ending 100 days after the final merger-related event. Table 4 presents the effect of the events that influenced the probability of the merger on the equally weighted and market-cap weighted portfolios of the four major banks that were not involved in the merger of Mizrahi-Tefahot and Union banks. The table clearly shows that in each specification, the events that increased the probability of the merger had a statistically significant positive effect on the returns of the rival banks' share prices on the day of the event. The coefficient of the effect is approx. 0.6 percent and stable across the various specifications.[13] This result implies that an event that increased the probability of the merger contributed 0.6 percent on average to the rival banks' shares above and beyond the effect of other factors.[14] The remaining coefficients are in the expected direction, and the domestic indexes, headed by TA 35, the main share index, are very significantly correlated with the returns over the investigated period, while the effect of the US industry index, S&P Banks, is insignificant.

[13] The majority of the significant events that I identified increased the probability of the merger, yet three events reduced this probability and led to a decline in the price of Union Bank's shares. These events are marked by a minus sign and are included in the main estimation. Still, to ensure that this methodological decision is not driving the observed effect, Eq. (1) was also estimated after omitting these events and the results are almost identical to those presented in Table 4: the positive-effect variable, which obtains the value 1 only if the event increased the probability of the merger and 0 otherwise, has a positive and statistically significant effect on the returns of the rival banks, and its coefficient is stable at 0.6%.

[14] The regressions control for relevant variables that may affect the returns of all the banks under investigation, however, idiosyncratic events may have affected specific banks. To address this possibility, I studied all the rival banks' reports posted on the Maya system and identified six cases in which a merger-related event coincided with a potentially significant report of one of the banks (e.g., publication of financial statements of the bank or its subsidiary, or a disclosure of shares' buy-back). The effect of the merger-related events on the shares of the rival banks is strongly significant even when these 6 observations are omitted.

Table 4. The Relation Between Merger-Related Events and Returns of Rival Banks' Shares (%)

	(1)	(2)	(3)	(4)
Merger-Related Event	0.6***	0.58**	0.59***	0.57**
TA 35	87.9***	86.7***	75.8***	76.7***
TA Insurance-Plus			11.3***	9.04**
S&P Banks			1.04	1.38
Constant	0.04	0.03	0.04*	0.04
No. of observations	708	708	708	708
Adjusted R^2	55.7%	50.3%	56.4%	50.7%

Source: Maya, media items, TASE. Processed by the Bank of Israel.

Table 4 presents the results of the estimation of Eq. (1) over a period of 1,055 days beginning 100 days before the first merger-related event and ending 100 days after the final merger-related event (announcement by the Minister of Economy that he estimated that an appeal on the Anti-Trust Tribunal's ruling should be expected). Table 4 presents the effect of the events that influenced the probability of the merger on the returns of the portfolios of the four major banks that were not involved in the merger of Mizrahi-Tefahot and Union banks. Columns 1 and 2 control for the return of the TA 35 index, and columns 3 and 4 additionally control for the TA Insurance-Plus and the S&P Banks indexes. Columns 1 and 3 present the effect of the merger-related events on the simple mean return of the shares of the four rival banks, while columns 2 and 4 present the effect of the merger on the mean return of the shares of the four rival banks weighted by market cap.

*, **, *** indicate that the coefficient differs from zero at the 10%, 5%, and 1% level of statistical significance, respectively, based on a t test with heteroscedasticity-robust standard deviations.

5.2 The Effect on Returns of Rival Banks

To examine the effect of the merger-related events on each rival bank separately I re-estimated Eq. (1) using the return of a bank's shares on each date as the explained variable. As shown in Table 5, the coefficient of the merger-related events remained positive and stable across all specifications, at around 0.6 percent and statistical significance similar to the specification presented in Table 4. Even in the most stringent specification, controlling for all the relevant benchmark indexes and fixed features of each of the four rival banks, and allowing a correlation between the standard deviations of the single bank over time and on each day across banks, merger-related events that increased the probability of the merger led to a 0.59 percent increase in the mean return on the rival banks' shares, at a 1 percent significance level (column 8). Moreover, Table 5 indicates that the expected effect of the merger on the two largest banks, Hapoalim and Leumi, is not different from its effect on the two smaller banks,

Discount and First International, according to the coefficient of the interaction effect (twolargest × merger), which does not significantly differ from 0 (columns 9 and 10).[15]

Table 5. Relation between Merger-Related Events and Returns of Rival Banks' Shares, by Bank (%)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Merger-related event	0.60***	0.59***	0.60**	0.59**	0.60**	0.59**	0.60***	0.59***	0.60**	0.58**
TA 35	87.8***	75.8***	87.8***	75.8***	87.8***	75.8***	87.8***	75.8***	87.8***	75.8***
TA Insurance-Plus		11.3***		11.3**		11.3**		11.3***		11.3***
S&P Banks		1.04		1.04		1.04		1.04		1.04
twolargest × merger									0.01	0.01
Bank dummy					YES	YES	YES	YES	YES	YES
Constant	0.04**	0.04**	0.04**	0.04**	0.05***	0.06***	0.05***	0.06***	0.05***	0.06***
No. of observations	2832	2832	2832	2832	2832	2832	2832	2832	2832	2832
Adjusted R^2	38.4%	38.9%	38.4%	38.9%	38.3%	38.9%	38.3%	38.9%	38.3%	38.9%

Source: Maya, media items, TASE. Processed by the Bank of Israel.

Table 5 presents the results of the estimation of Eq. (1) over a period of 1,055 days beginning 100 days before the first merger-related event (announcement of the intention to sell Union Bank) and ending 100 days after the final merger-related event that significantly changed the probability of the merger (the Minister of Economy's announcement that an appeal on the Anti-Trust Tribunal's ruling could be expected). Table 5 presents the effect of the merger-related events on the returns of the shares of each of the four largest banks that were not involved in the merger of Mizrahi-Tefahot and Union banks. In the odd-numbered columns, returns are after controlling for changes in the TA 35 index, and in the even-numbered columns, returns are additionally controlled for changes in the TA Insurance-Plus index and the S&P Banks index. Columns 1 and 2 represent the basic estimation with heteroscedasticity-robust standard deviations, columns 3 and 4 also allow for correlations between the standard deviations of each bank (standard errors clustered by bank), and in columns 5 and 6 I also control for bank fixed effects for each bank (bank FE and standard errors clustered by bank). In columns 7 and 8, I control for bank fixed effects and allow for correlations between the standard deviations of each bank over time, as well as for correlations between the standard deviation of the banks on each date (double clustering by bank and date, following the method described in Petersen (2009). In columns 9 and 10, the equation also includes a term that represents the interaction effect of merger events and the dummy variable for the two largest banks, Hapoalim and Leumi.

*, **, *** indicate that the coefficient differs from zero at the 10%, 5%, and 1% level of statistical significance, respectively, based on a t test.

[15] Bank Leumi, in addition to being one of the two largest banks, is also connected to Union Bank through a computerization service agreement. Therefore, it may be affected by the merger between Mizrahi-Tefahot and Union more directly compared to its effect on the other rival banks. Excluding Bank Leumi from the estimation leads to results that both qualitatively and quantitatively similar to the main results presented in this paper.

Finally, for each bank I estimated the expected return based on Eq. (2) for an estimation period that began one year before the first merger-related event and ended two weeks before said event. The estimated expected return was subtracted from the actual return on the investigated event days in order to calculate the abnormal returns. To maintain consistency in the direction of the effect, abnormal return effects of events that reduced the probability of the merger were multiplied by -1 (Table 6, rows 1 and 2), or only the events that increased the probability of the merger were included in the estimation (Table 6, rows 3 and 4). As indicated in Table 6, the mean and median daily abnormal returns of the shares of the four rival banks on the days of the eight events that increased the probability of the merger were very high—between 1 percent and 1.2 percent. The mean and median abnormal returns were significantly larger than 0, according to the majority of the statistical tests.

Table 6: Abnormal Returns of Shares of the Rival Banks, by Bank (%)

	No. of observations	Mean	Median	No. of Negative observations	No. of Positive observations
AR1	44	1.18%***	1.48%***	15	29**
AR2	44	1.27%***	1.41%***	13	31***
AR3	32	1.10%***	1.01%**	13	19
AR4	32	1.18%***	1.09%***	11	21

Source: Maya, media items, TASE. Processing by the Bank of Israel.

This table summarizes the abnormal returns (%) of the four largest banks that were not involved in the merger between Mizrahi-Tefahot and Union on the days of events that affected the probability of the merger. The abnormal returns on each bank-event observation were estimated as the difference between the return of the bank's share on the event date and the expected returns based on the coefficients obtained from the estimation of Eq. (2) in the estimation period (from July 31, 2016 to July 16, 2017). AR1 and AR3 are the abnormal returns based on the estimation of Eq. (2) with one explaining variable (TA 35 index). AR2 and AR4 are the abnormal returns based on the estimation of Eq. (2) including all explaining variables: TA 35 index, Insurance-Plus index, and S&P Banks index. AR1 and AR2 focus on all the merger-related events, where the abnormal return of an event that reduced the probability of the merger was multiplied by -1, and AE3 and AR4 focus only on the events that increased the probability of the merger. Column 2 presents the number of observations used in the estimation, which equals the number of events multiplied by the number of banks in question (4). Column (3) presents the mean abnormal return, for which statistical significance is based on a two-tailed t test of the hypothesis that the mean abnormal return equals 0. Column (4) presents the median abnormal return, where statistical significance is based on a two-tailed Wilcoxon signed-rank test of the hypothesis that the mean abnormal return equals 0. Columns (5) and (6) present the number of bank-event observations with negative and positive abnormal returns, respectively, where statistical significance is based on the sign test.

5.3 The Economic Significance of the Merger's Effect on the Rival Banks

I can use the coefficients that estimated the effect of changes in the probability of the merger on the shares of the rival banks to estimate the market's assessment of the merger's overall economic effect on the rival banks. To do so, the estimated coefficients of the effect of the merger events (Tables 4, 5, 6) were multiplied by the number of events that increased the probability of the merger, after deducting the number of events that reduced the probability of the merger (8 – 3 = 5). I use the simplifying assumptions that the 11 events studied here constitute all the events that are relevant to the merger; the probability of the merger was 0 percent before the first merger-related event; and the probability of the merger was 100 percent immediately after the final merger-related event. Under these assumptions, and based on the coefficients presented in Tables 4, 5, and 6, the merger between Mizrahi-Tefahot and Union contributed between 2.85 percent (5× 0.57 percent) and 6.35 percent (5 × 1.27 percent) to the market cap of each rival bank, on average. To obtain an estimate of the total nominal effect, I multiply the cumulative market cap of the four largest rival banks on the eve of the merger (NIS 77 billion) by the coefficient of the merger's effect on the weighted portfolio of these banks taken from Table 4 (0.57 percent) and then by the net number of relevant events (5). This gives a total effect of NIS 2.2 billion, which implies that market expectations of the merger's effect contributed more than NIS 2 billion to the market cap of the rival banks in the period leading up to the merger.[16]

5.4 The Effect of the Merger on Rival Banks' Risk

This section examines the effect of the merger events on the yield spread of the rival banks' bonds, which serves as an indicator of the merger's effect on their overall riskiness. To this end, I estimated an equation similar to Eq. (1), where the dependent variable is the change in the mean yield spread (relative to similar government bonds) of the rival banks' bonds (Hapoalim, Leumi, Discount, and First International), and the estimation controls for the

[16] If investors' assessment about the effects of the merger changes later, perhaps as a result of changes in the competitive environment in response to efforts by the government and the Bank of Israel to increase competition in the financial sector, the estimate of the overall effect of the merger on the rivals' market cap will change accordingly.

change in the yield spread on the Tel-Bond 20 index (relative to similar government bonds).[17] As Table 7 indicates, the merger events did not have a significant effect on the risk of the rival banks, estimated on the basis of their yield spreads, and the coefficient is even positive. Therefore there is no indication that investors believed that the merger would reduce the rival banks' overall risk. This finding is consistent with the low risk that the market attributed to Union Bank on the eve of the merger, which was described in Section 2, and is consistent with the relatively low linkage between Union Bank and the other banks, which is reflected in its asset similarity index.[18]

Table 7. Relation between Merger Events and Rival Banks' Yield Spread

	(1)	(2)
Yield spread – Tel-Bond 20	3.706*	4.256
Merger event	2.9%	4.2%
Constant	-3.8%	-6.6%
No. of observations	708	708
Adjusted R^2	1.2%	0.8%

Source: Maya, media items, TASE. Processed by the Bank of Israel.

Table 7 presents the results of the estimation of Eq. (1) for the period of 1,055 days (708 trading days), beginning 100 days prior to the first merger-related event (the report on the intention to sell Union Bank) and ending 100 days after the final event that significantly affected the probability of the merger (the Minister of Economy's announcement that an appeal on the ruling of the Anti-Trust Tribunal could be expected). Table 7 presents the effect of the merger events on the yield spread (vs. similar government bonds) of portfolios of the four largest banks that were not involved in the merger, controlling for the change in the yield spread of the Tel-Bond 20 index. Column 1 presents the effect of the merger events on the simple mean yield spread of the four rival banks and column 2 presents the effect of the merger events on the market-cap-weighted mean yield spread of these four rival banks.

*, **, *** indicate that the coefficient differs from zero at a level of statistical significance of 10%, 5%, and 1% respectively, based on a t test with heteroscedasticity-robust standard deviations.

[17] The effect of the merger-related events on the rival banks' yield spread is similar when I control for the variables that were used to explain the rival banks' returns, and when the general corporate bond index was used as control.

[18] The mean correlation between Bank Union's assets and the assets of each of the five major banks, on the eve of the merger, was lower than the mean correlation between the assets of each pair among the five larger banks (for more details on the methodology to examine assets' similarity, please refer to the Bank of Israel Financial Stability Report for the second half of 2017).

6. Summary

The merger between Mizrahi-Tefahot Bank and Union Bank may have a significant effect on the banking industry. In view of the high degree of concentration, the proposed merger triggered both expectations and concerns on part of the Israeli public and the regulators. Some of the parties to this move argued that the merger would increase the efficiency of the merging banks and have a positive effect on competition in the banking sector. Others argued that the merger would adversely affect the competition among the banks. The Anti-Trust Tribunal, which heard the issue, ruled that the merger's anticipated negative effect on competition could not be proven and therefore the Tribunal approved the merger.

This study examined the capital market's assessments of the merger's effect on the value of the rival banks, as reflected in the capital market's short-term response to merger-related information. Based on extensive finance research literature, this study examined the effect of changes in the probability of the merger on the shares of each of the rival banks (Hapoalim, Leumi, Discount, and First International), and the effect on an equally-weighted or market cap-weighted portfolio of these banks' shares. The various examinations controlled for additional factors that were expected to affect the shares of the rival banks. All the tests clearly indicated that an increase in the probability of the merger led to an increase in the share price of the rival banks. An estimation based on the regression coefficients showed that overall, the events that increased the probability of the merger contributed approximately 3 percent, or more than NIS 2 billion, to the rival banks' market cap.

The rival banks' shares positive response to an increase in the probability of the merger between Mizrahi-Tefahot and Union is in consistent with the market's assessment that the merger will reduce the rival banks' motivation to compete and increase the potential for collusion among the banks. The positive response of the merging banks themselves may also reflect an expectations of increased efficiency post-merger, yet such increased efficiency also explains the positive response of the rival banks' shares only subject to strict assumptions.[19] Theoretically, the positive response of the rival banks' shares may also be the result of a drop in systemic risk stemming from Bank Union, but in effect, Bank Union's riskiness was low

[19] The merger is expected to contribute to the rival banks' efficiency if I assume, for example, that they lacked sufficient incentive to increase their efficiency prior to the merger.

before the merger, and the events that increased the probability of the merger correlated with an increasingly unfavorable yield spread of the rival banks. In summary, it appears that investors believed that the merger would reduce competition in the banking market.

The research literature shows that, on average, over time, and across countries, financial markets have some forecasting ability, but this does not mean that the market is always correct. Sometimes market assessments have been proven wrong, and prices gradually adjust to the new situation. The findings of this study therefore offer one of many possible perspectives and should be taken into consideration alongside the opinions of industry experts. From a broader vantage point, I stress that the study described above focuses on a single event in a dynamic market that is affected by dynamic and evolving regulation. The policy actions of the government and the Bank of Israel, designed to promote competition in the banking sector[20] may have a lagged effect, which obliges us to continue to monitor market developments. The actual effect of the merger on competition in the banking market, and on the prices, services, and credit allocations may be revealed only in the long term.

[20] Such as increased access of information services to all financial entities and facilitating customers' switching between banks.

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