

CHAPTER 1

CHAPTER 1 DEVELOPMENTS IN THE ACTIVITY OF THE ISRAELI BANKING SYSTEM

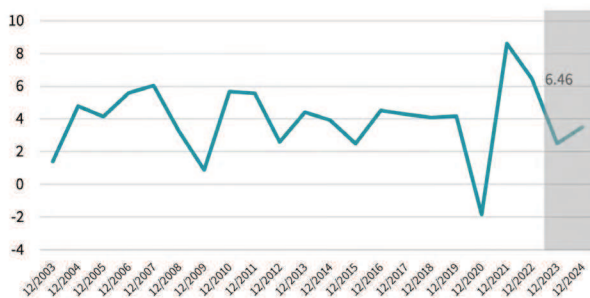
1. BACKGROUND—GLOBAL AND DOMESTIC MACROECONOMIC DEVELOPMENTS

The recovery of the Israeli economy from the COVID-19 pandemic continued in 2022. Following the accelerated growth in 2021, which reflected the beginning of economic growth alongside the COVID-19 pandemic, **economic activity stabilized in 2022** at high levels of employment and growth. GDP grew by 6.46 percent (Figure 1.1), which is higher than its long-term rate, and the unemployment rate returned to pre-COVID-19 levels (reaching about 3.8 percent in December 2022) in parallel to the increase in labor force participation to historically high levels (Figure 1.2).

The high rate of growth and the decline in unemployment reflect the strong performance of the economy in 2022.

Figure 1.1

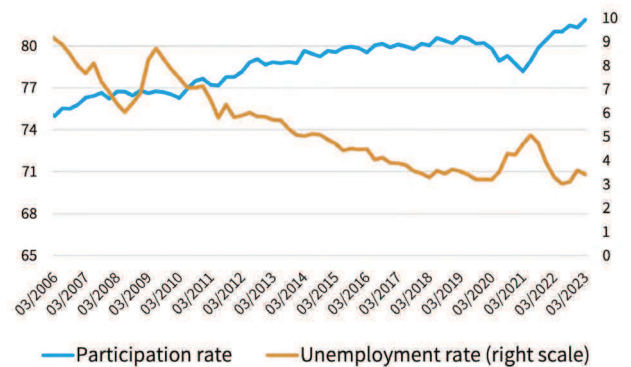
GDP Growth Rate in Israel, 2003–2024 (annual, percent)



SOURCE: Based on Central Bureau of Statistics data.

Figure 1.2

Unemployment and Participation Rates, January 2012–March 2023 (aged 25–64, monthly, seasonally adjusted, percent)



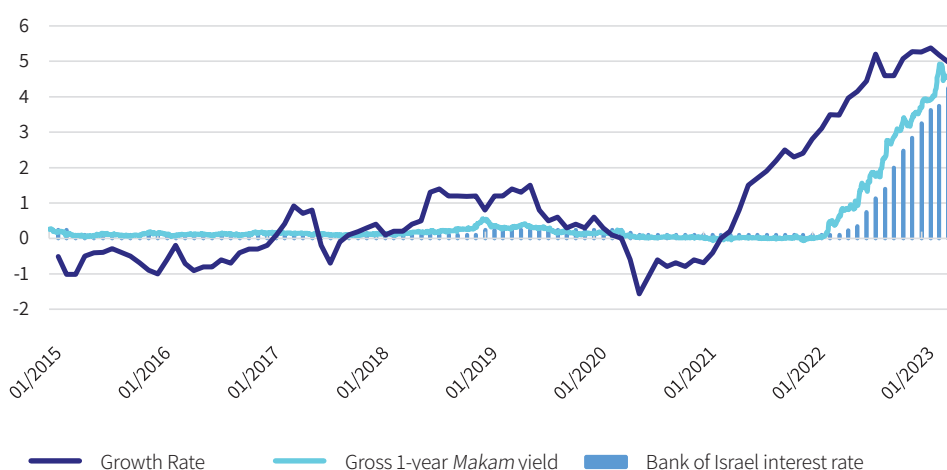
SOURCE: Based on Central Bureau of Statistics Labor Force Survey.

The Russia-Ukraine war, which began in early 2022 and took place against the background of continued COVID-19 crisis in China, intensified **the disruptions in supply chains and led to an acceleration of inflation worldwide and in Israel**, where it reached an annual rate of 5.3 percent during 2022 (Figure 1.3). This is higher relative to the target rate of inflation but lower than global levels. In order to deal with the increase in the inflation environment, central banks worldwide have adopted a tightening monetary policy and have raised their interest rates. Similarly, **the Bank of Israel interest rate was raised from 0.1 percent at the beginning of the year to 3.25 percent in December 2022**. This upward trend continued into 2023, with the interest rate reaching 4.5 percent in April. The increase in the inflation environment and the Bank of Israel interest rate also led to an increase in bond yields.

The increases in inflation and the interest rate were reflected in the banking system's results. The banks' profits reached their highest level since 2006 (for further details, see Chapter 2). In parallel, the banks maintained high capital and liquidity ratios (for further details, see Chapter 4 and Chapter 5.3). However, changes in the macroeconomic environment are having an effect on the loan repayments of borrowers, depending on their loan tracks. In particular, there has been an increase in the monthly payments of mortgage holders, and for some of them the increase has been significant (for further details, see Box 5.2). In parallel, there has been some increase in credit loss provisions as a result of the transition to CECL-based allowances, which are more sensitive to the macroeconomic environment and to the increase in uncertainty (for further details, see Chapter 5.2). This only partially offset the increase in interest income.

The rise in inflation led to an increase in the Bank of Israel interest rate and in the yields of long-term bonds.

Figure 1.3 Inflation Rate, Bank of Israel Interest Rate, and *Makam* Yields, January 2015–April 2023 (percent)



SOURCE: Based on Central Bureau of Statistics and Bank of Israel data.

The banking system is dealing with numerous risks, the effects of which vary in intensity and direction over time. A risk survey carried out among senior executives of the banking system at the beginning of 2023 indicates that cyber risk remains the most concerning type of risk that the system is dealing with; however, other types of risk, such as geopolitical, have intensified in recent years (for further details, see Chapter 5). The Banking Supervision Department continually monitors the management of risk in the banking system and its preparedness for future challenges. In this context, it carried out stress tests of the banking system again this year (for further details, see Box 5.1). It also carried out a survey of the banks in order to assess their management of climate risk (for further details, see Box 5.4).

Looking ahead, the year 2023 will be characterized by a sharp rise in uncertainty. Domestically, the source of increased uncertainty lies in the advancing of significant legislative changes related to the judicial system in Israel and their possible effect¹ on the Israeli economy. This effect may also affect the results of the banking system. Furthermore, internationally, there have been several bank failures in the US and Europe during the initial months of 2023, which were partly due to the changes in the global macroeconomic environment. These events illustrate the importance of a stable and reliable banking system that will provide support to the state's economy.

Recent publications by regulators in the US regarding the bank failures² provide several important insights into the primary reasons for those events. These insights point to the important role played by risk management and corporate governance at those banks, as well as the failure of supervisory bodies to comprehend risks as they emerged in real time and the critical need to deal with the problems once they appear. The Banking Supervision Department is examining the factors that led to these bank failures, with the goal of ensuring that the banking system in Israel, the structure of its activity and its capital and liquidity levels are stable and adequate, even given situations such as those described above, and that the supervisory processes are appropriate to deal with the potential risks.

To mark fifty years since the Banking Supervision Department began publishing the Israel's Banking System annual survey, some of the analyses in the various chapters are “spiced up” with the addition of a long-term perspective. This historical view makes it possible to examine the shifts and structural changes that the economy, and in particular the banking system, has undergone. It also makes it possible to identify the common denominator that characterizes the risks and challenges that the banking has dealt with over the years and that have shaped it into its current configuration. All this has contributed to the formulation of an in-depth supervisory approach that is based on a historical, but also forward-looking, perspective that is primed to deal with the risks that may be realized at various levels of severity.

¹ For further details, see the Research Department's forecast published on April 3, 2023 <https://www.boi.org.il/en/communication-and-publications/press-releases/research-department-staff-forecast-april-2023/>

² Review of the Federal Reserve's Supervision and Regulation of Silicon Valley Bank, April 28, 2023; FDIC'S supervision of Signature Bank, April 28, 2023.

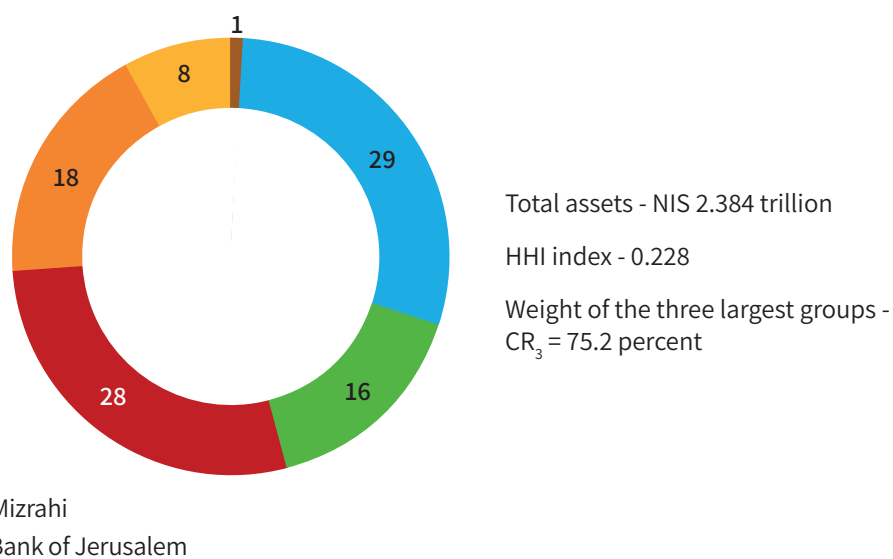
2. THE STRUCTURE OF THE BANKING SYSTEM IN ISRAEL

a. The structure of the system and the holdings of the banks

The Israeli banking system is essentially made up of five banking groups (Leumi, Hapoalim, Mizrahi-Tefahot, Discount, and First International) which account for 98 percent of the system's assets (Figure 1.4). There are also two independent banks (Jerusalem and One Zero, the latter of which is a digital bank that began operating during the year being surveyed) and four branches of foreign banks (Citibank, HSBC, Barclays and State Bank of India), which account for only a small proportion of the domestic credit market (which is where the main part of their activity in Israel takes place). The banking groups include commercial banks in Israel and their branches abroad. In addition, toward the end of 2022, a license was awarded to the esh Israel Bank³, another digital bank, which is expected to begin operating in coming years.

The two largest banks (CR₂) account for about 57 percent of the banking system's assets.

Figure 1.4 Structure of the Israeli Banking System, December 2022
(groups on a consolidated basis, total assets)



* At this time, One Zero bank is still not mentioned, despite the fact that it is part of the system.

SOURCE: Based on published financial statements.

In addition, there are three credit card companies, two of which are independent (Isracard and Max) while the third is owned by one of the banks (Cal).

³ See the press release on the Bank of Israel site [here](#).

Structural changes in the system

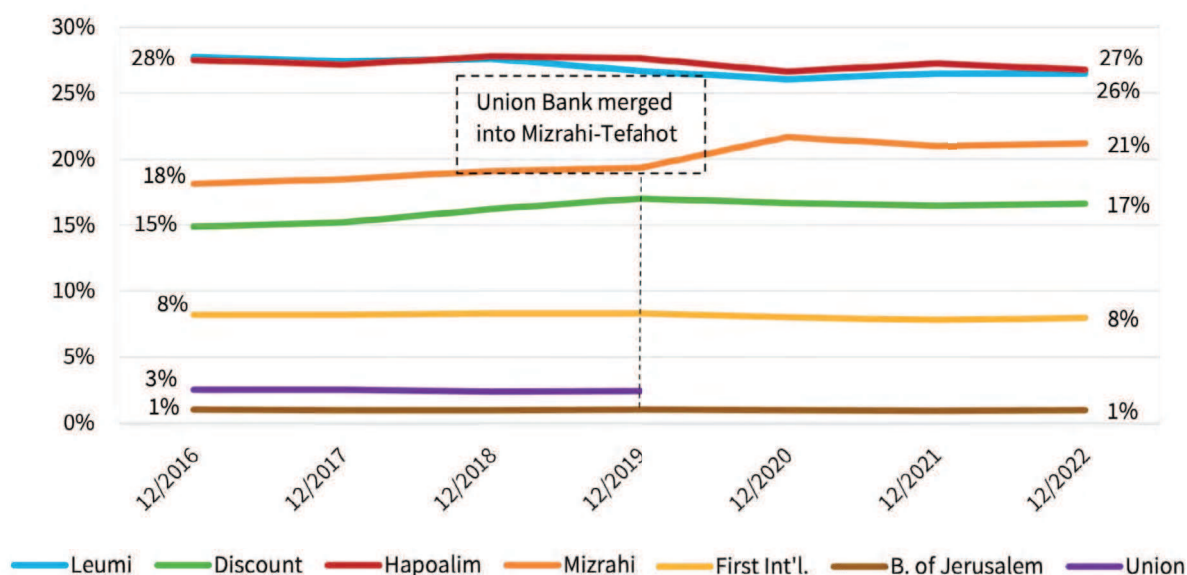
In recent years, a number of processes have led to changes in the structure of the banking system, some of them in opposing directions. The mergers of small independent banks into medium-sized banking groups were completed. Two mergers between banking system participants (Union Bank into the Mizrahi-Tefahot group, and Dexia Bank into Mercantile Bank, which is in the Discount group) led to a reduction in the number of banks in the system; however, they also contributed to increasing the share of the medium-sized banks within the total banking system (Figure 1.5).

As part of the recommendations of the Committee to Increase Competition in Banking and Financial Services (the Strum Committee), **the two largest banks were required to sell their holdings in the credit card companies they held** where the income from the sales was not used to expand operations or increase market share.⁴

Also in the context of recommendations by the Strum Committee, it was recently decided to require Discount to sell its holdings in the Cal credit card company.⁵ It accounted for about 7 percent of the total credit provided by the bank as of the end of 2022.

In recent years, the share of medium-sized banks has grown at the expense of the large banks.

Figure 1.5 Distribution of Market Share in the Banking System, 2016–2022 (groups on a consolidated basis, net balance of credit to the public)



SOURCE: Based on published financial statements.

⁴ Thus, as a result of the sale of MAX (formerly Leumi Card), Leumi distributed larger dividends and carried out a share buyback while the separation of Isracard was accomplished as a dividend in kind.

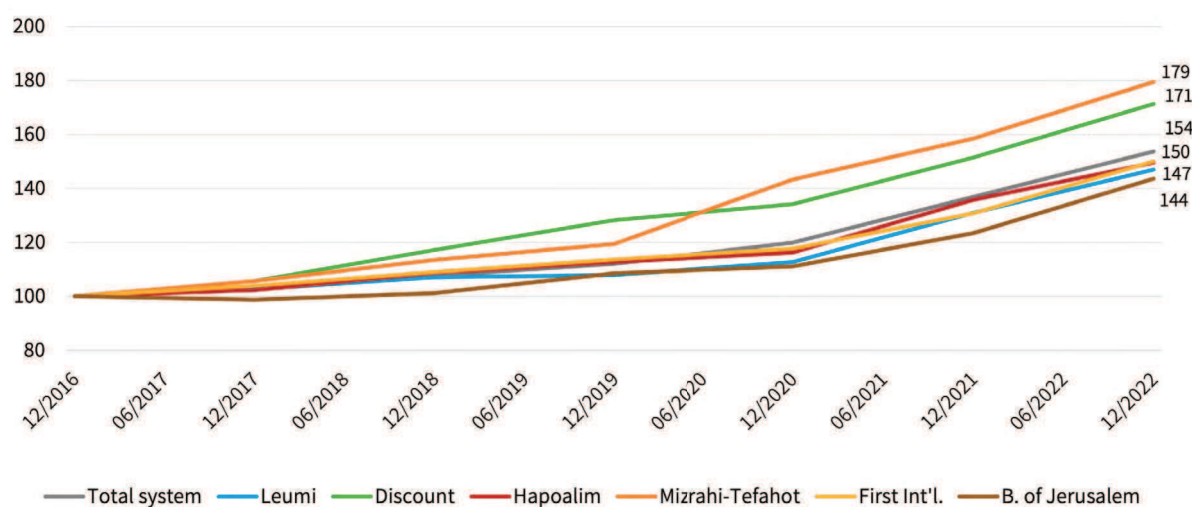
⁵ See the press release [here](#).

Developments at the individual bank level

In recent years, the rate of growth in credit to the public has varied across the banks. Starting in 2019, and during the year being surveyed, most of the medium-sized banks were able to increase their net total credit to the public at a faster rate than the large banks (Figure 1.6).

Among most of the medium-sized banks, the rate of increase in net credit to the public was faster than among the large banks

Figure 1.6 Index of Development of Credit to the Public, 2016–2022
(groups on a consolidated basis, total banking system)



SOURCE: Based on published financial statements.

thus, the processes of separating the credit card companies has somewhat reduced the market shares of the large banks and has contributed to a decline in concentration indices.⁶ Yet, in contrast, the processes of the small banks merging into the medium-sized banks contributed somewhat to increasing the concentration indices. Furthermore, the inherently more rapid growth in credit to the public among the medium-sized banks in recent years has moderately contributed to reducing the concentration index. The fact that these events have had opposing effects on the level of concentration in the banking system, as measured by, for example, the Herfindahl–Hirschman (HHI) index,⁷ has meant that overall the concentration indices have not changed dramatically relative to previous years (Figure 1.7).⁸

⁶ Since 2018, Hapoalim and Leumi have classified the activity of the credit card companies as “terminated activity” or “held for sale”, such that since then they have not been counted in the credit the banks provide. Thus, they had an offsetting effect on the growth in credit that year and reduced the total pie from which the market shares are calculated.

⁷ The index is calculated based on the banking groups. The Herfindahl–Hirschman Index for industry concentration, where y_i = the production of bank i (net credit to the public) within total production y .

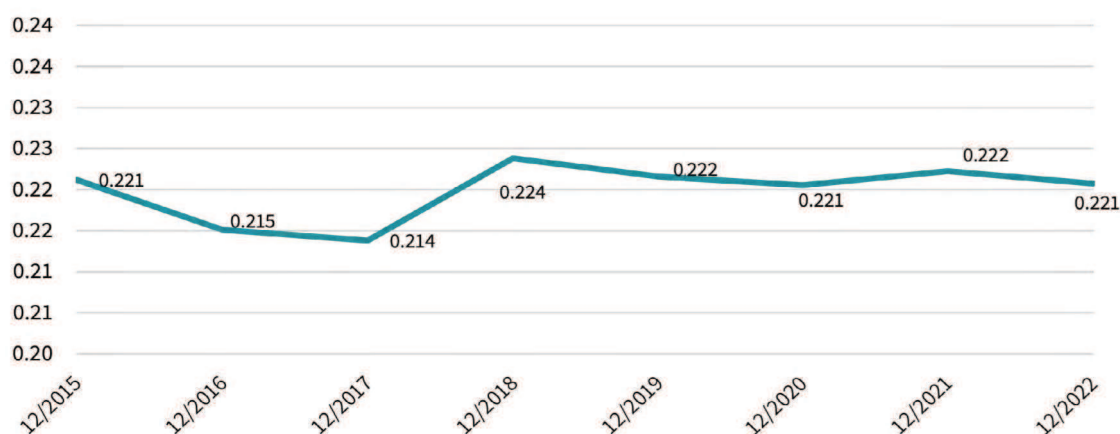
⁸ Note that there is a range of approaches to measuring the level of competition in a market and in particular the credit market. In addition to the concentration indices, such as the HHI index presented in this chapter, which looks at market shares (the structure of the system), there are other ways of measuring the level of competition. One example is the threat of competition faced by the system, which is based on, for example, the profit margins of the players (a dynamic approach) which analyzes the dynamics between the players relative to developments in prices, services and quality of the products. Thus, measuring the market shares in the system

The entry of new players into the banking system

In recent years, and as part of the measures promoted by the Bank of Israel and others working to increase competition in the financial system, licenses were granted to operate new banks⁹, for the first time in about 40 years. One of them is the One Zero Bank, which began operations domestically during the year being surveyed. It focuses on providing banking services to households and small and micro businesses, including, among other things, extending credit, management of deposits, and advanced payment services. Furthermore, a license was granted in late 2022 to esh bank Israel, another digital bank that will begin operating in coming years, also in the domestic market. It is too early to know what the effect of the digital banks will be on the banking system. Nonetheless, their entry is based on innovative technology that may in the future change the relationships between the players in the market.

There has not been any significant change in the HHI Index in recent years.

Figure 1.7 Herfindal-Hirschman Index (HHI) of Concentration of Credit to the Public, 2015–2022 (net, total banking system)



The Herfindahl-Hirschman index of industry concentration is based on a standalone calculation of total credit at each bank, and not on a consolidated basis: $H = \sum_{i=1}^n (y_i/y)^2$, where y_i = the output of bank i (credit to the public, net) and y = the industry's output.

SOURCE: Based on published financial statements and reports to the Banking Supervision Department.

b. The banks as part of the financial system

The commercial banks constitute a significant part of the financial system in Israel, which is made up of financial intermediaries that provide financing services to the economy. Apart from the banks, there are also institutional entities (pension funds, provident funds and insurance companies), non-bank entities¹⁰, and credit card companies. They provide their customers with various services, some of which are similar to those provided by the banking system, including the extending of credit.

captures only one dimension of the market and does not necessarily reflect its level of competition.

⁹ During 2020, a license was granted to One Zero, the first digital bank.

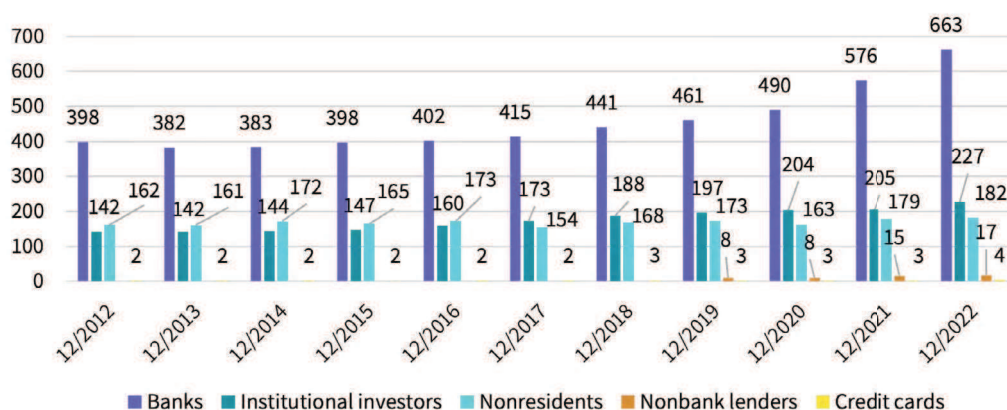
¹⁰ Such as Mimun Yashir, Peninsula, Nawei Albar, etc.

The total debt of the business sector to the financial system increased by 11.9 percent during 2022 relative to the previous year¹¹, reaching about NIS 1,094 billion.¹² The growth during the year being surveyed was higher than that in previous years (an average annual rate of growth of about 7.7 percent during 2015–22; Figure 1.8), which represents a direct continuation of the growth in business debt in recent years.

The growth in the debt of the business sector encompassed all the players in the financial system. Nonetheless, the rate of growth varies between them. The main part of the growth in debt was in the banking system and the institutional entities. The rate of growth in the banking system was reflected in, among other things, the growth in its share of business debt, which stood at about 61 percent at the end of 2022 (compared to about 55 percent in 2019; Figure 1.9), alongside stability in the share of the institutional entities (about 21 percent at the end of 2022 as compared to about 23 percent in 2019).

The banking system and the institutional entities constitute the main sources of financing for the business sector.

Figure 1.8 Development of Business Debt by Financing Source, 2012–2022 (NIS billion)



The nonbank companies included in the calculation from 2019 onward are: Opal Balance Investments Ltd., Orshi G.S. Ltd., S. R. Accord Ltd., Bull Trading and Investments Ltd., Barkat Capital Ltd., Gibui Holdings Ltd. Gama Management and Settlement Ltd., Gamla-Harel Residential Real Estate Ltd., Unet Credit Financial Services Ltd., Michman BSD Ltd., Michlol Financing Ltd., M.L.R.N. Projects and Trading Ltd., Manif Financial Services Ltd., Nawi Brothers Group Ltd., Erech Halakhic Financing Ltd., Psagot Group, Peninsula Group Ltd., A. N. Shoham Business Ltd., and Yaakov Finance and Investments Ltd.

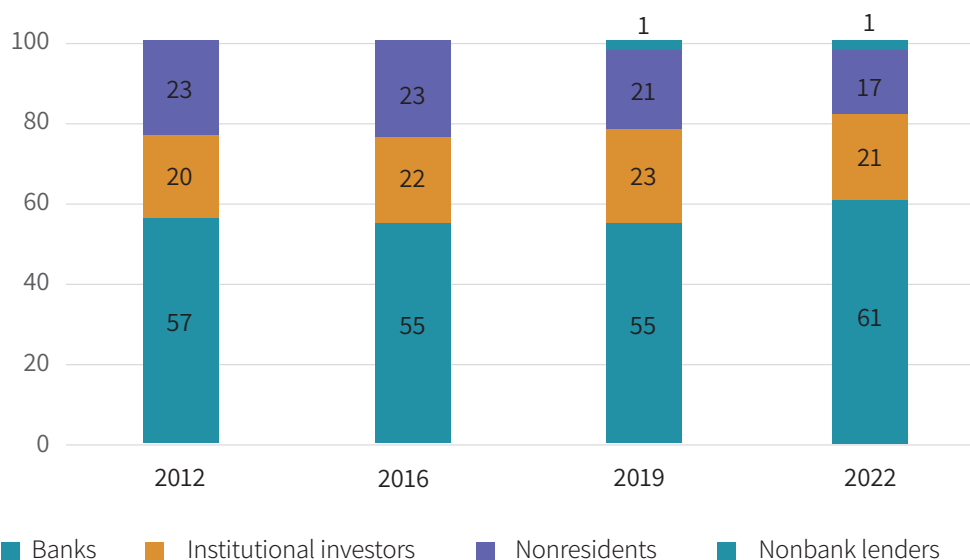
SOURCE: Based on reports to the Bank of Israel and the Tel Aviv Stock Exchange.

¹¹ For further details on the factors responsible for the increase in the level of debt during 2022, see the Bank of Israel Annual Report for 2022.

¹² Not including the debt of governments, local authorities, banks and insurance companies. It includes the debt of Israeli residents only. Individual data for the banks include foreign branches but not subsidiaries abroad.

The banking system has increased its share of total financing of the business sector in recent years.

Figure 1.9 Distribution of Business Sector Debt by Financial System Lender, 2012, 2016, 2019, and 2022 (percent)



The nonbank companies included in the calculation from 2019 onward are: Opel Balance Investments Ltd., Orshi G.S. Ltd., S. R. Accord Ltd., Bull Trading and Investments Ltd., Barkat Capital Ltd., Gibui Holdings Ltd. Gama Management and Settlement Ltd., Gamla-Harel Residential Real Estate Ltd., Unet Credit Financial Services Ltd., Michman BSD Ltd., Michlol Financing Ltd., M.L.R.N. Projects and Trading Ltd., Manif Financial Services Ltd., Nawi Brothers Group Ltd., Erech Halakhic Financing Ltd., Psagot Group, Peninsula Group Ltd., A. N. Shoham Business Ltd., and Yaakov Finance and Investments Ltd.

The credit card companies provide a miniscule amount of business credit (less than 0.5 percent of total credit of this type), and are therefore not included in this figure.

SOURCE: Based on reports to the Bank of Israel and the Tel Aviv Stock Exchange.

Total nonhousing debt of households increased during 2022 by a rate of about 8.1 percent relative to the previous year, reaching about NIS 227.6 billion.¹³ The banking system is the main source of nonhousing credit to households. However, in recent years the share of nonbank lenders has grown significantly. This trend should be viewed against the background of measures carried out in recent years, such as the separation of the credit card companies from the banks, which transformed these companies into a source of nonbank credit, and the integration of the credit database for individual borrowers, which helped to reduce the gaps in information between the various lenders in the system, thus facilitating more accurate pricing of credit.¹⁴ Despite the growth in credit provided by nonbank entities in recent years, the banks remain the main players in this market (for further details on the market shares of credit to households in the banking system, see Chapter 5.2 in this survey).

The banking system continues to be the main source of financing in the market for housing credit, accounting for about 97 percent of housing credit on average.

¹³ For further details on the factors accounting for the increase in total debt in recent years, see the Bank of Israel Annual Report for 2022.

¹⁴ For further details on the main initiatives to increase competition promoted by the Bank of Israel together with other partners, see Box 3.1 in Israel's Banking System for 2020.



THE STRUCTURE OF THE BANKING SYSTEM OVER THE YEARS

Over the years, the banking system has constituted the main financial intermediary in the domestic economy. In 1974, about one year after the first publication of the Banking Supervision's annual report, "Israel's Banking System", the banking system was characterized by a large number of players (64 banking corporations). They included commercial banks, foreign banks, banks for the promotion of business, investment banks, mortgage banks, financial institutions, and joint companies.

Until the 1990s, the banks tended to operate in niches, which varied according to the products provided and the industry of focus. Examples include the Agriculture Bank for Israel Ltd., which provided credit to the agriculture sector during the period 1951–91; banks that provide mortgages, of which there were 15 in 1986; and investment banks, of which there were 9 in 1986 (together accounting for about 34 percent of the banking corporations in the system in that year; Figure 1.10).

The banking corporations whose activity was focused on a particular niche sometimes found it difficult to weather a crisis. Therefore, some of them were closed while the others merged. During the period 1990–2010 in particular, the process of bank closures and mergers intensified and during those years, about one-half of the banks ceased to operate independently. The banking corporations that remained, among them the merged banks, expanded their areas of activity and became increasingly similar to the banking corporations that exist today.

Another event that had a decisive impact on the structure of the financial system in Israel occurred in 2004, when the recommendations of a workgroup within the Bachar Committee for the Reform of the Capital Market were published. Among its main recommendations, which included a wide range of practical steps meant to create a more competitive structure and a more efficient capital market, was the obligation of the banks to liquidate their ownership of the provident funds and mutual funds. The implementation of the recommendations led to changes in the structure of the financial system, with institutional entities entering the capital market and becoming a major source of financing in the economy (as described in the abovementioned chapter).

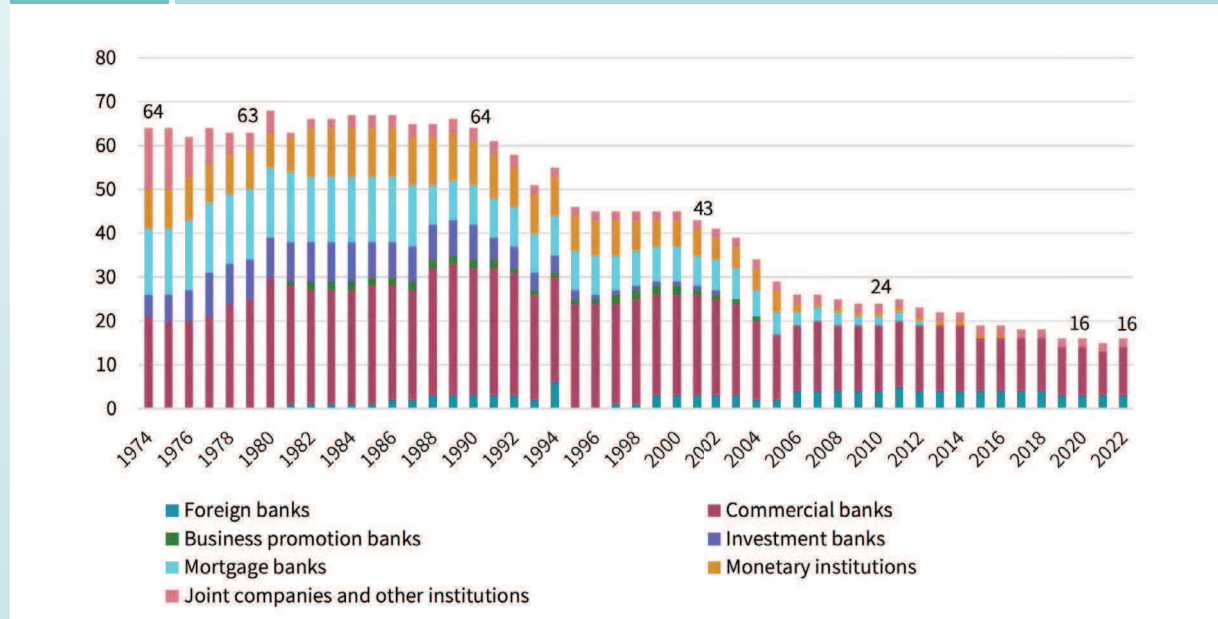


From the mid-2000s until 2020, **the mergers of the small and independent banks (such as the mortgage banks, although other small banks as well) into the larger banks was completed**, in parallel to the continued closing of financial institutions (the last of which was closed in 2017). This resulted in a reduction in the number of banking corporations.

In 2022, following several decades in which the number of commercial banks declined, a new independent bank was added to the banking system (the One Zero digital bank) and started operating during the year being surveyed. Furthermore, a license for an additional digital bank was granted during 2022¹⁵, and it will start operating in Israel in coming years.

The merging of the banks, starting primarily from the 1990s, was the main factor behind the decline in the number of banks.

Figure 1.10 Number of Banking Corporations in the Israeli Banking System, 1974–2022



SOURCE: Based on reports to the Banking Supervision Department.

¹⁵ See footnote 1.

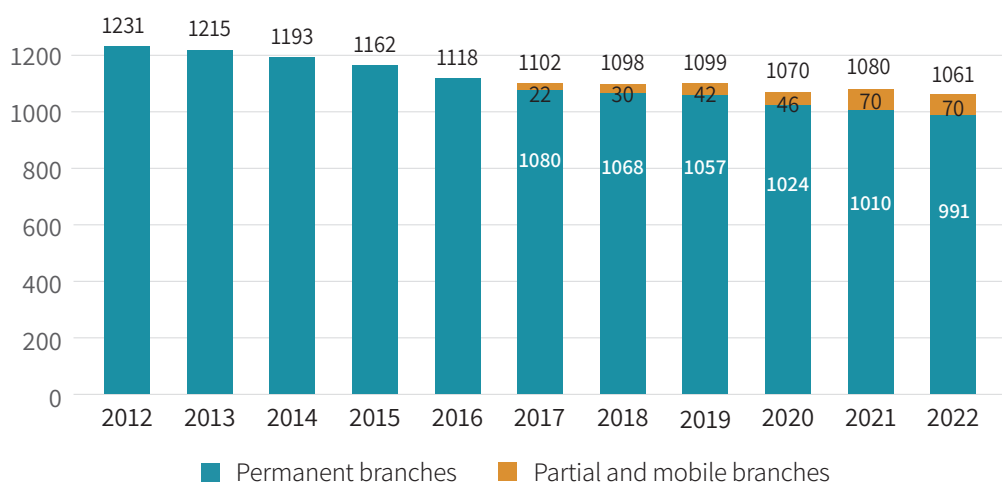
3. ACCESSIBILITY OF BANKING SERVICES

The infrastructure on which banking services are provided to the public is of a hybrid nature, with both physical and digital components. The transformation of the way in which banking services are provided, including the decline in the number of physical branches, is occurring alongside changes in the consumption patterns of banking services. These changes are occurring against the background of improvement in the quality and diversity of services offered by means of direct channels of communication.

The domestic banking system included 991 fixed branches at the end of 2022.¹⁶ In addition to the fixed branches, there are 70 partial and mobile branches¹⁷, in addition to about 7,800 automated teller machines (ATMs), about 6,400 of which are for withdrawing cash¹⁸ and about 1,400 of which are for providing information and carrying out financial transactions or other banking instructions.¹⁹ Alongside the branches and ATMs, the banks facilitate the consumption of banking services by way of mobile phone apps, secure Internet services and staffed phone centers, with the use of these channels expanding significantly in recent years (see elaboration below).

The number of fixed branches has declined consistently during the past decade, where the growth in partial and mobile branches is a factor moderating that trend.

Figure 1.11 Number of Bank Branches,¹ Total Banking System, 2012–2022



¹ Permanent branches operating in Israel, excluding performance divisions and units.

SOURCE: Based on reports to the Banking Supervision Department.

¹⁶ As defined in Reporting Directive 888.

¹⁷ As defined in Reporting Directive 888, the main characteristics of partial and mobile branches are: (1) the branch is not fixed and operates in an appropriate space with bank signage or by means of a branch that can be moved and operated from various locations (including within an appropriate vehicle); (2) the branches operate with a fixed schedule and at least once a month and have the capability of providing all banking services, apart from signing customers on guarantees and the providing of housing loans; (3) the services are provided only to individuals or small businesses; (4) the permit provided for this type of branch is for a specific period and must be renewed periodically.

¹⁸ About 66 percent of them are non-bank ATMs, including those of Shva (Hebrew acronym for Automated Banking Services).

¹⁹ As of December 2021.

Branches

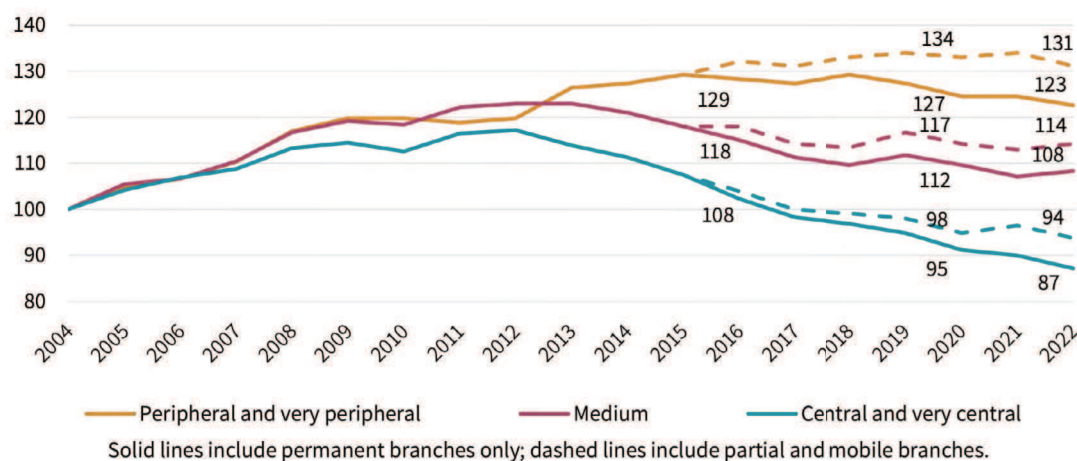
The number of fixed branches has been gradually and consistently declining during the past decade. However, this decline is moderate relative to the global trend and is closely monitored and regulated by the Banking Supervision Department (for further details on the rate of branch closure in Israel relative to other countries, see Box 3.1 in this survey). Similarly, based on a broader perspective on the trend in branch numbers and in view of the contribution of partial and mobile branches to customer services, it appears that the growth in the number of partial and mobile branches in recent years has provided a partial solution for specific population groups that have been adversely affected by the closure of branches during the past decade. Although partial and mobile branches provide only a limited selection of services relative to fixed branches, they provide a limited solution for bank customers who rely on physical infrastructure for their banking needs during the period of transition to the consumption of services by direct channels.

The recent growth in the number of partial and mobile branches, although they still constitute a relatively small proportion of total bank branches, has in recent years reflected the moderate rate of decline in number of branches (Figure 1.11). Note that the formal procedure for branch closure in the directive, which requires an in-depth internal analysis prior to contacting the Banking Supervision Department for approval of the closure. Approval is provided after a comprehensive examination of the relevant consumer considerations²⁰, primarily the good of the consumer. In most cases where approval is granted, it is conditional on the creation of alternative infrastructure in relatively close proximity. In most cases, this involves a fixed branch that is located nearby, and in other cases, other alternatives are offered to customers, such as a partial mobile branch or ATMs, even though these provide only a partial solution to the customers of the closed branch. Only in recent years have the banks begun to operate partial and mobile branches and until 2017, most of the banks did not operate any branches of this type.

²⁰ For further details on the assessment prior to closing a branch, see [Proper Conduct of Banking Business Directive 400](#) and Chapter 6 in this survey.

The opening of partial and mobile branches moderated the rate of branch closure in central areas and has even fully offset it in peripheral areas since 2015.

Figure 1.12 Development of the Number of Branches by Peripherality Level,¹ Total Banking System, 2004–2022 (index: 2004=100)



¹ Peripherality level of the locality as measured by the Central Bureau of Statistics in 2008, relying on 2004 data.

SOURCE: Based on reports to the Banking Supervision Department.

The process of branch closure has been concentrated primarily in central areas and in the mid-periphery²¹ and only in recent years have the banks begun to reduce the number of fixed branches in peripheral areas. At the same time, the growth in the number of partial and mobile branches since 2017 has partially offset the rate of branch closure in central areas and in areas classified as mid-peripheral, which have constituted the main areas in which fixed branches have been closed. In areas that are classified as peripheral, the growth in the number of partial and mobile branches has fully offset the number of fixed branches closed and has even led to an increase in total branches in these areas.

The trend in branch closure relative to other countries

The rate of branch closure in Israel in recent years has been below the OECD average (for further details on the trends in number of branches relative to other countries, see Box 3.1 in this survey).

The number of branches per 100,000 residents is lower in Israel than in the OECD countries (Figure 1.13).²² In contrast, in a comparison of the distribution of branches by territory, the number of

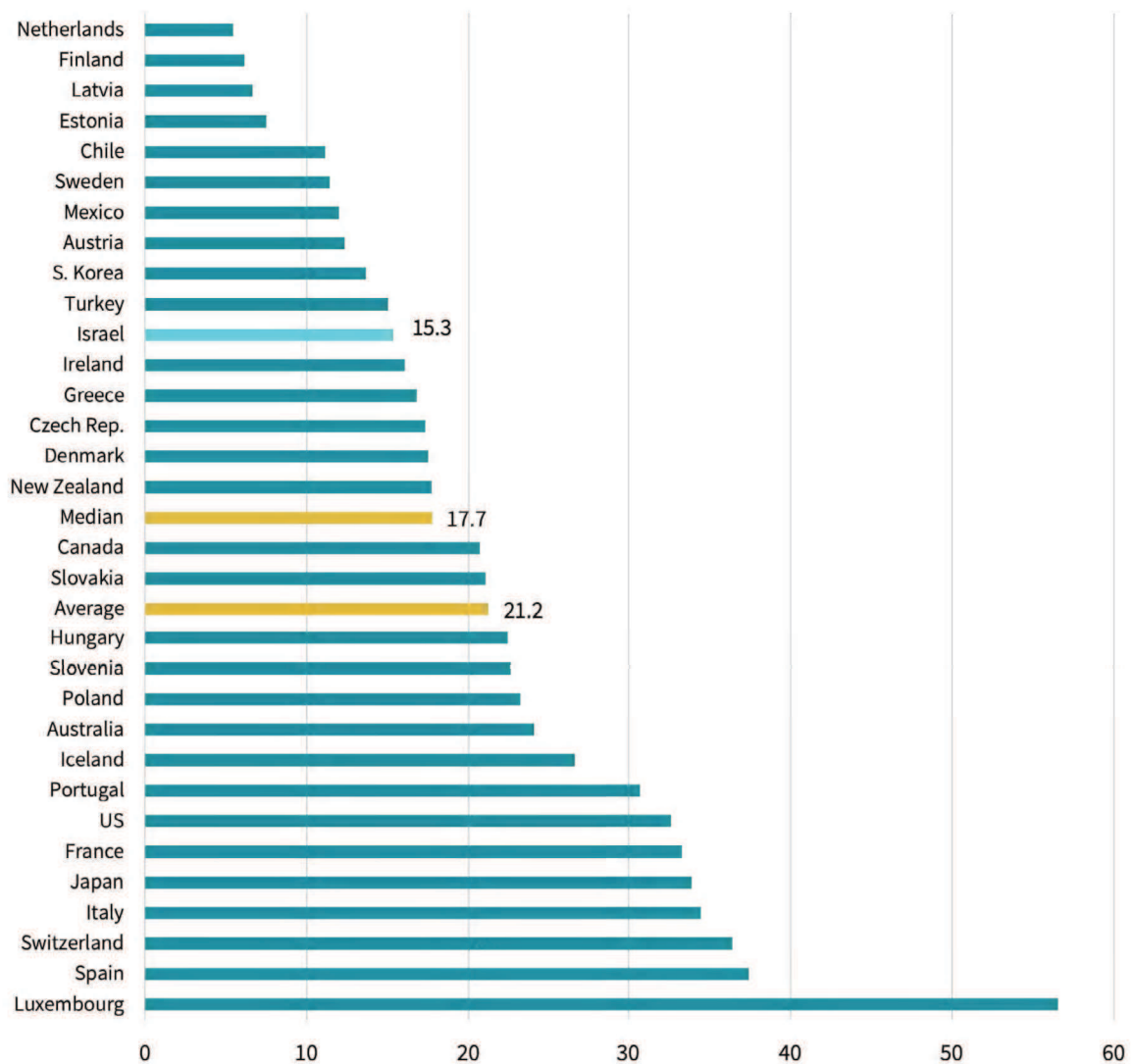
²¹ As defined by the Central Bureau of Statistics, the level of peripherality is calculated as a weighting of two indices with equal weight: (1) proximity of the local authority to the boundary of the Tel Aviv area; and (2) the accessibility index, which weights the proximity of the local authority to other local authorities in Israel and the size of its population. The ranking is from 1 to 10 where a larger index indicates an area with a more central classification.

²² Note that during this period, a number of countries reported extreme changes in the opening and closing of branches, perhaps because of the restrictions imposed during the COVID-19 pandemic, which do not necessarily reflect strategic changes in the distribution of branches, but rather the result of the pandemic management policy. Nonetheless, even after omitting outliers (an annual rate of change exceeding 25 percent), the rate of branch closure in Israel is low relative to other countries (an average rate of 9.7 percent during the years 2019–21 and a median of 10.8 percent).

branches per 1,000 square kilometers is high in Israel relative to the OECD countries (Figure 1.14). These findings are therefore in line with the fact that Israel is a small and crowded country, and relative to its population, the number of branches is lower than the OECD average; however, relative to the country's territory, the number of branches is above the OECD average.

Number of branches in Israel per 100,000 adults is lower than the average for other countries.

Figure 1.13 Number of Branches¹ per 100,000 Adults, OECD Countries,² 2021



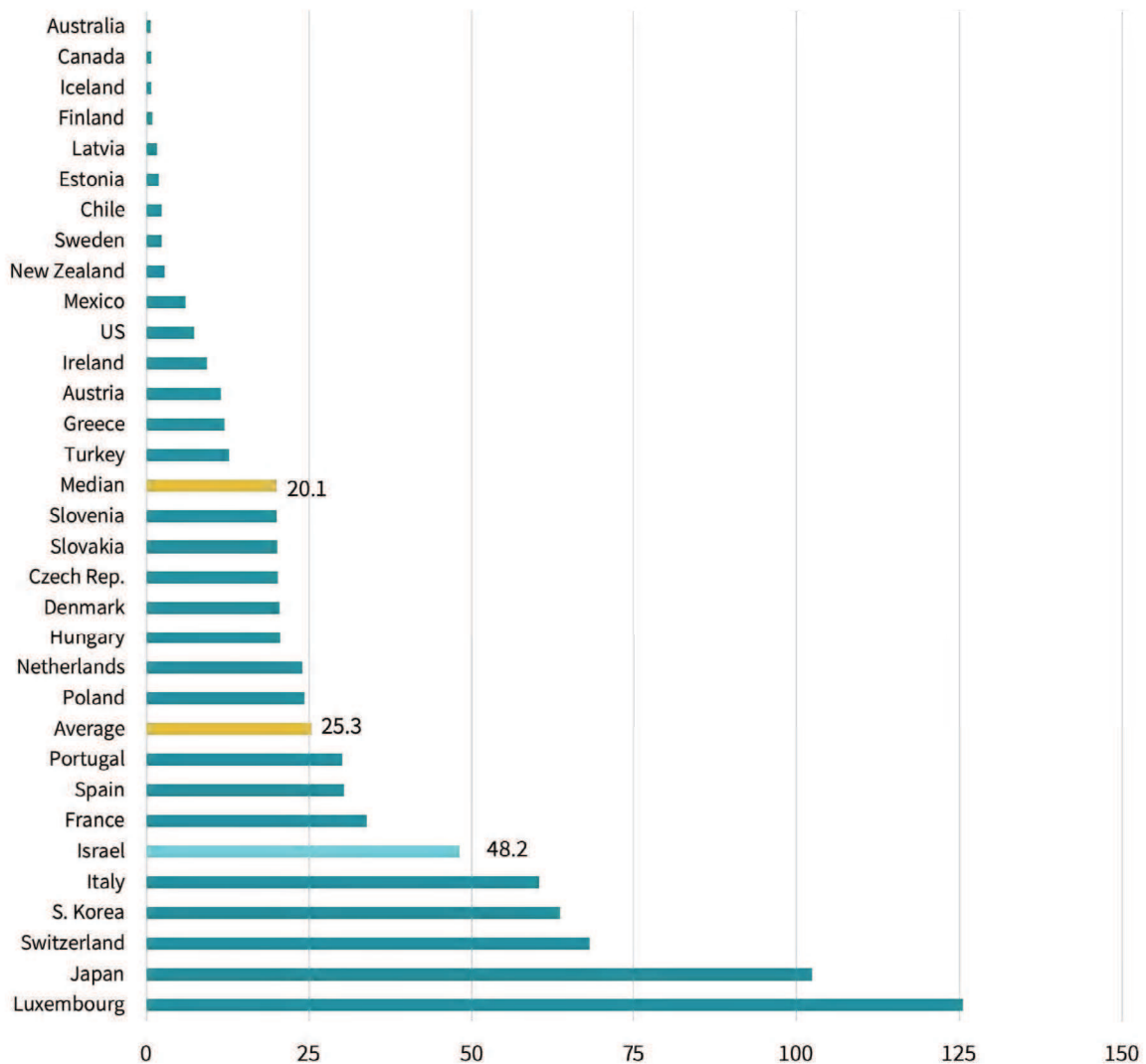
¹ According to International Monetary Fund definitions, which are broader since they include foreign branches.

² Belgium, Germany, Norway, and UK are omitted from the comparison due to a lack of data.

SOURCE: Israel - Based on reports to the Banking Supervision Department; US - FDIC; other countries - International Monetary Fund.

The number of branches in Israel per 1,000 square kilometers is higher than the average for other countries.

Figure 1.14 Number of Branches¹ per 1,000 Sq.km, OECD Countries,² 2021



¹ According to International Monetary Fund definitions, which are broader since they include foreign branches.

² Belgium, Germany, Norway, and UK are omitted from the comparison due to a lack of data.

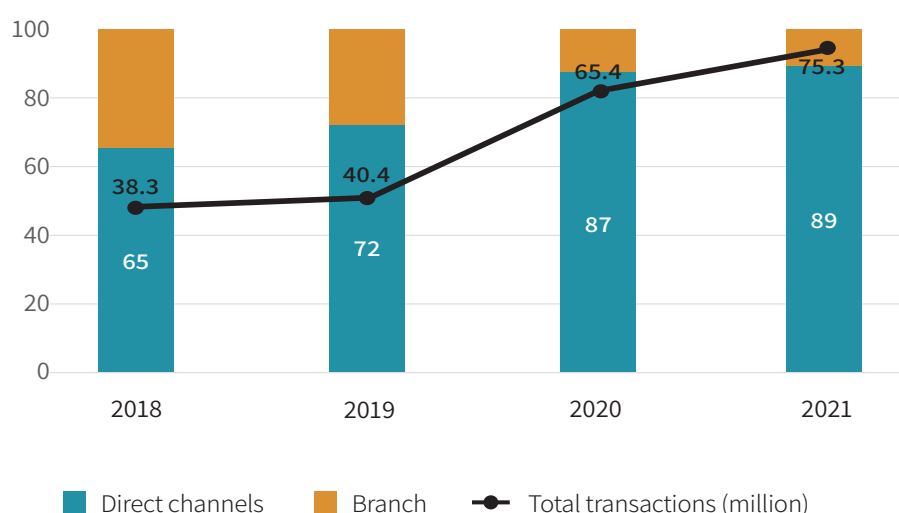
SOURCE: Israel - Based on reports to the Banking Supervision Department; US - FDIC; other countries - International Monetary Fund.

Online banking

The closing of branches is occurring simultaneously with changes in the pattern of banking service consumption, which is driven by the improvement in the quality and diversity of online services and is characterized by an increase in customer use of digital service channels at the expense of activity in the branch (Figure 1.15). The use of direct channels in order to carry out bank transactions instead of a visit to a branch has continued to grow during this period, from a rate of about 65 percent of total transactions in December 2019 to a rate of 89 percent in December 2022. The increase in the usage of direct channels occurred alongside the growth in the number of transactions overall (an increase of 14.8 percent during the year being surveyed), **such that the gap in the rate of growth in number of transactions carried out in direct channels relative to those carried out in the branches reflects the fact that the average customer carries out a larger number of banking transactions by way of the direct channels while the number of transactions by way of a branch teller has remained almost unchanged** (an increase of 1 percent). In recent years, there has been a consistent increase in the proportion of transactions carried out using direct channels and in particular during 2021. It is not unlikely that the COVID-19 pandemic, which was characterized by restrictions on movement and a prohibition of congregating in bank branches, among other locations, encouraged the use of direct channels and accelerated the changes in the consumption pattern of digital services and in particular banking services.²³

During 2022, there was significant growth in the proportion of transactions carried out using direct channels.

Figure 1.15 Rate of Transactions Using Various Channels Relative to Branch Activity, The Five Large Banking Groups, December 2018–December 2022

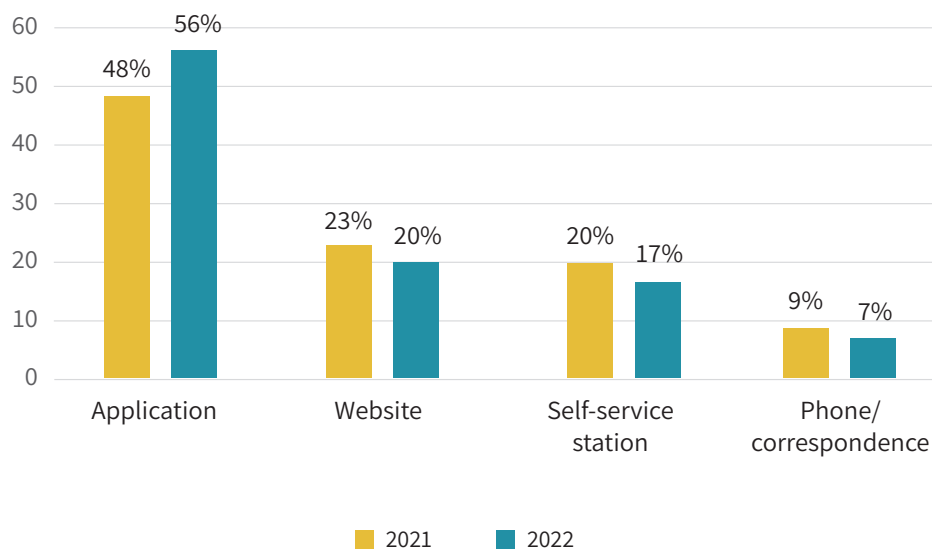


SOURCE: Reports to the Banking Supervision Department.

²³ Furthermore, in 2021 the definition of a “transaction” carried out using direct channels was changed, which led to an increase in the number of transactions carried out in those channels; however, the change in the classification of a “transaction” had a relatively negligible effect and does not fully explain the increase.

During 2022, there was an increase in the proportion of transactions carried out by way of banking apps within the total transactions carried out through direct channels, at the expense of other direct channels.

Figure 1.16 Rate of Household Transactions Using Various Channels, The Five Large Banking Groups, December 2021–December 2022



SOURCE: Reports to the Banking Supervision Department.

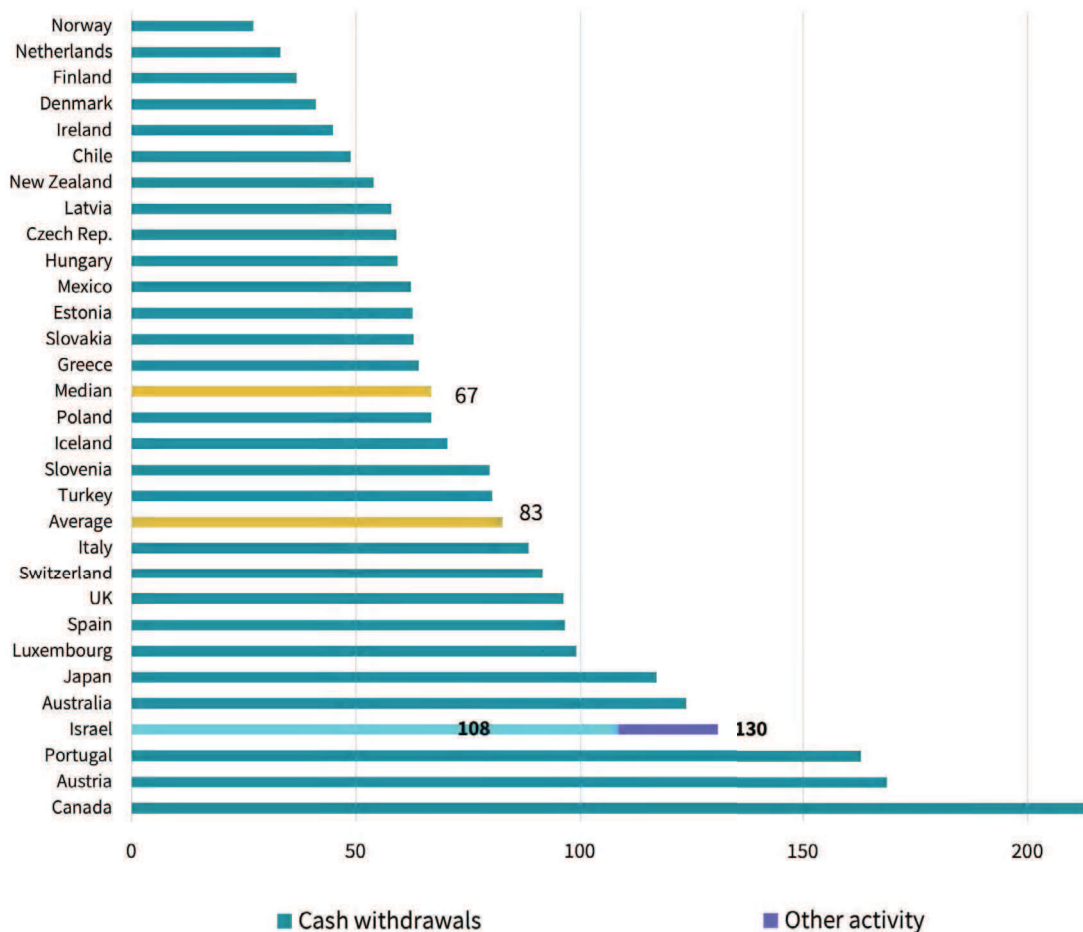
The execution of transactions using direct channels is concentrated primarily in app transactions (56 percent of the transactions; Figure 1.16). The largest increase was recorded in this channel relative to the other online banking channels: an increase of 35 percent during 2022 relative to the previous year. This channel is used primarily (though not exclusively) by younger customers. The increase in the share of transactions carried out on an app within total transactions carried out using direct channels was at the expense of other direct channels (Figure 1.16).

ATMs

The number of ATMs remained almost unchanged during the past decade, with the total number growing by a cumulative rate of about 3 percent during 2013–22. However, the share of ATMs operated by nonbank entities grew, and as of the end of 2022, it accounted for about 50 percent of ATMs in Israel, compared to about 46 percent in 2013. The number of ATMs in Israel relative to the population (131 per 100,000 residents) is higher than the OECD average (Figure 1.17).

The number of ATMs in Israel relative to the adult population is high relative to other countries.

Figure 1.17 Number of ATMs¹ per 100,000 Adults, OECD Countries,² 2021



* For Israel, we distinguish between cash withdrawal machines and machines for other activity (with no option for cash withdrawals). This distinction is not possible for the other countries.

¹ According to International Monetary Fund definitions, ATMs include bank and nonbank cash withdrawal machines and machines for conducting other activity.

² Belgium, France, Germany, South Korea, Sweden, and the US are omitted from the comparison due to a lack of data.

SOURCE: Israel - Based on reports to the Banking Supervision Department; other countries - International Monetary Fund.

Box 1.1**Amendment 4 to Proper Conduct of Banking Business Directive no. 362 – Cloud Computing**

- Cloud computing technology is going through a period of accelerated development, and cloud-computing services are upgrading and reinforcing organizational computing abilities. These services make it possible for organizations, including banking corporations, in Israel and worldwide to improve their efficiency and to react quickly to market needs, and they can also provide solutions to meet business needs, such as upgrading material systems.
- Cloud computing technology facilitates the efficient and convenient exploitation of computer resources, with the possibility of pooling resources and using them as needed. This is in parallel to savings in the cost of equipment, data center capacity, electricity consumption, etc. The use of cloud computing services provides a banking corporation with flexibility in the use of computer resources according to models that are appropriate to it and according to its continually changing needs.
- Most supervisory authorities worldwide relate to cloud computing as a type of outsourcing relationship, and there is no leading global regulation that prohibits banking entities from operating critical or core systems on a cloud.
- Starting from January 1, 2023, the Banking Supervision Department has allowed the use of cloud computing subject to risk management under the responsibility of the board of directors and the management of the banking corporation. At the same time, the prohibition on using cloud-computing services for core systems was cancelled.
- As a result of the change in the Banking Supervision Department's policy, the banking corporations in Israel are currently considering the large-scale use of cloud computing services, with the intention of contracting with one or two providers of cloud computing services who provide cloud computing technology that supports the banking corporation's business strategy.

Introduction

In recent years, there has been a growing trend of transition to various configurations of cloud computing. Cloud computing technology is undergoing accelerated development and cloud computing services are upgrading and reinforcing organizational computing abilities and are making it possible for organizations, including banking corporations in Israel and worldwide, to improve their efficiency and to respond rapidly to market needs. Furthermore, they can meet business needs such as the upgrading of material systems. This trend is expected to

intensify against the background of, among other things, the development and upgrading of cloud computing technology and the growing competition between the banks.

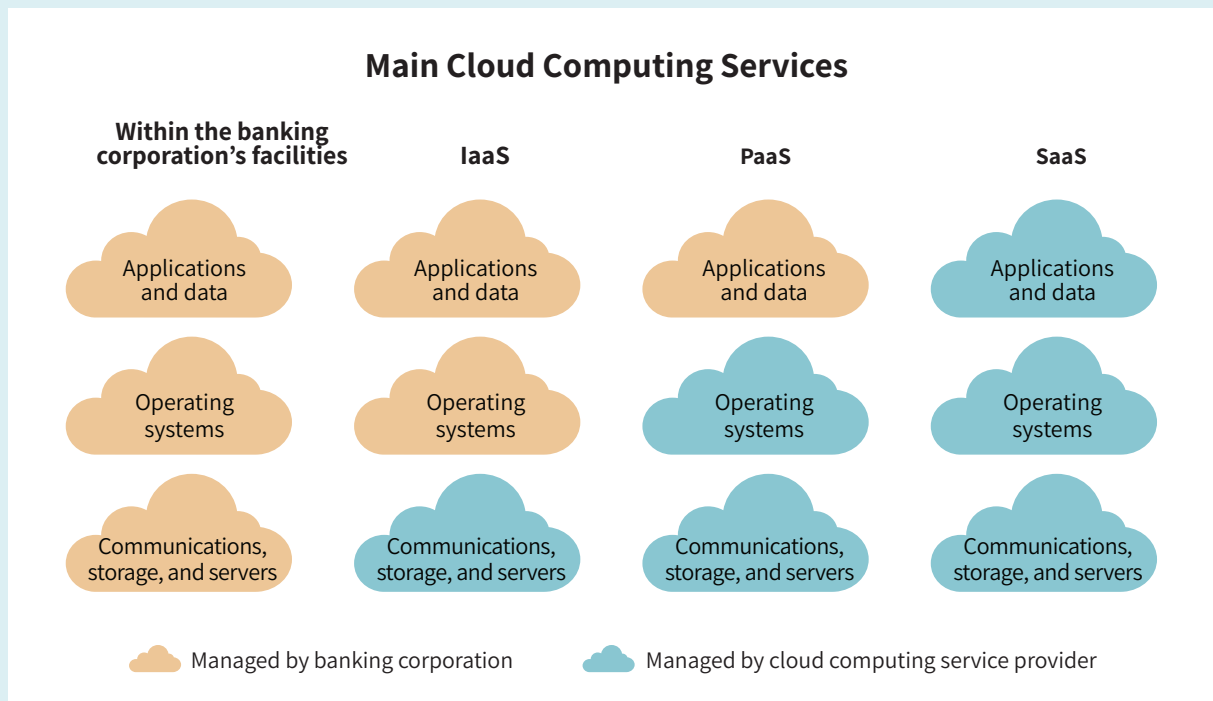
The current supervisory approach views the transfer of the banking corporations' systems to the cloud, including their material systems, as part of the natural development of innovation and technological progress, which can be facilitated in the context of an informed, prudent and meticulous risk management.

What is cloud computing?

Cloud computing is a model that provides convenient access on demand from any location to the shared database of definable computer resources (for example, networks, servers, storage, applications and services) and that can be quickly modified to match the banking corporation's needs.

The main cloud types include: a public cloud—a cloud infrastructure that serves a number of organizations or the broader public by means of the computer systems center of a designated cloud computing service provider; a community cloud—a cloud infrastructure shared by a number of organizations and that supports a particular and defined community with a common interest; a hybrid cloud—a cloud infrastructure that combines two or three models that work independently, but which share standards and technologies that facilitate sharing and the conveyance of information and applications; and a multicloud—a cloud infrastructure based on several cloud computing service providers that is built on an identical architecture. In addition, there are also private clouds that can usually be characterized as a cloud computing infrastructure operated for the exclusive use of a single banking corporation. The infrastructure can be operated by the organization itself or by an external service provider and can be located within the banking corporation's premises or outside them.

There are three main models/types of cloud computing services: Infrastructure as a Service (IaaS)—a service model in which the physical layer and the computerization infrastructures are provided by the cloud while the implementation is the responsibility of the bank; Platform as a Service (PaaS)—a service model in which the cloud provider provides a platform of basic software packages, a full work environment that includes physical infrastructures, computing resources and operating systems; and Software as a Service (SaaS)—a service model in which the cloud computing services include the customer's end applications, all of the infrastructures, the data centers, the interfaces and ongoing operation.

Figure 1.18 Main Cloud Computing Services

Benefits and risks in the transition to cloud computing

Cloud computing technology facilitates the efficient and convenient exploitation of computer resources with the possibility of pooling resources and using them as needed. This is in parallel to the saving in the cost of equipment, data center capacity, electricity consumption, etc. The use of cloud computing services provides a banking corporation with flexibility in the use of computer resources according to models that are appropriate to it and according to its continually changing needs. This includes access based on a short-term commitment to the infrastructure and the advanced computer systems of the cloud computing service provider. Those systems are up-to-date, secure, and maintained by the provider. The banking corporation is not required to make huge investments in the acquisition of computer equipment and storage, security systems and information security, in development or in expensive human resources.

Apart from the advantages of using cloud technologies, their use may expose the banking corporation to major operational risks, which are primarily related to the control and oversight over its information assets, as a result of the dependency on the providers of computing services or on specific technologies.

Added to these are systemic risks. The first is concentration risk, which is a result of the exposure of several banking corporations to the widespread effect of a technological/cyber incident experienced by a single cloud computing service provider, which may threaten the resilience of the financial sector. The second is the risk of an international regulatory variation with respect to cloud computing. This may involve the cloud computing service provider in regulatory conflicts between countries.

References of supervisory authorities worldwide to cloud computing

Regulatory authorities worldwide generally treat cloud computing as a form of outsourcing, subject to the same instructions and regulations that govern external outsourcing. These instructions specify the steps, controls, and risk management processes required when contracting with cloud service providers, along with specific guidelines for cloud computing service providers. Accordingly, there is no global regulation that prohibits financial entities from operating critical or core systems in the cloud. The regulator leaves the discretion with the supervised entities and guides their way of acting to be based on the principle of “risk-directed” when creating a new outsourcing relationship and throughout the lifecycle of that relationship. The risks associated with cloud computing services emphasize the importance of security controls and management’s understanding that despite the transition to the cloud, responsibility remains with the bank and cannot be transferred to the cloud service provider in the event of disruptions or failures.

Some supervisory authorities emphasize existing outsourcing regulations in the context of cloud computing, with an emphasis on material outsourcing to cloud computing. Materiality is measured according to a number of parameters, such as the criticality of the activity to the banking corporations’ business continuity or the level of criticality and sensitivity of the relevant information asset and of the information assets that can be accessed as part of the cloud computing services. The use of scenario analysis to analyze security incidents, including the impact on Confidentiality, Integrity and Availability, is a practical technique for assessing the materiality of the proposed arrangements.

Supervisory policy toward “cloud computing”—amendment to Proper Conduct of Banking Business Directive no. 362

Based on developments in the world of technology, there have been changes in the Banking Supervision Department’s policy on cloud computing. Starting from January 1, 2023, it is permitted to use cloud computing, subject to risk management by the banking corporation’s board of directors and management. In parallel, the prohibition of using cloud computing services for core systems was cancelled.

Advanced cloud computing technology that is composed of multiple technological layers is provided as a service by the technology company in various configurations of cloud type (public, community, hybrid, etc.) and cloud computing services' types (SaaS, PaaS, IaaS, etc.). Therefore, the dichotomous definition of "core systems" is no longer suited to the management of cloud computing. As a result, the terms have been changed and the term "core systems" has been deleted from Proper Conduct of Banking Business Directive no. 362 on "Cloud Computing". The directive is now formulated in more flexible language that is more appropriate to the complexity of the technological world and the management of risks within it, with respect to "material cloud computing" and "non-material cloud computing". The directive lists the considerations for determining the materiality of cloud computing activity and in addition it is harmonized with Proper Conduct of Banking Business Directive no. 359A – Outsourcing, including clearer language with respect to the use of cloud computing services as a special case of outsourcing. In accordance with the change in terminology, definitions of "cloud computing" and a "private cloud" were added to the directive and criteria were provided for defining "material cloud computing", where materiality is determined according to the criteria for materiality appearing in Proper Conduct of Banking Business Directive no. 359A, in addition to the special criteria for cloud computing.

The directive on cloud computing includes regulations in several different domains:

- Corporate governance – Senior management is to formulate a policy document for the use of cloud computing technologies. The document should include, among other things, the guidelines for determining the materiality of the cloud computing activities based on the definitions provided in the directive concerning material cloud computing, as well as the permissions, responsibilities, and activities of the cloud computing management entities, including management of the cloud computing service providers and of the control entities and controls. Senior management is responsible for preparing an annual work plan, and the board of directors must approve the cloud computing technology usage policy and the annual cloud computing work plan.
- Risk management – Additional requirements for cloud computing risk management were imposed on a banking corporation, and primarily the definition of the model for dividing responsibility between the banking corporation and the cloud computing service provider. Emphasis is placed on the banking corporation's non-derogation of its responsibility to comply with all of the laws, regulations, and responsibilities toward the Banking Supervision Department and towards the customer. Also added were the relevant criteria for assessing cloud computing risks that is incumbent on the banking corporation, including:

- The use or non-use of a multicloud configuration (cloud infrastructures based on the integration of various cloud computing solutions).
 - Changes required by the cloud computing service provider as a result of technological developments and changes in the provided services.
 - Logical and administrative separation between the systems of different customers in the cloud.
 - Contracting with a cloud computing service provider – The requirement that the cloud computing provider comply with the European directive was replaced by a requirement to comply with the European Union's General Data Protection Regulation (GDPR). A requirement was also added to conduct an adequacy assessment of the provider of material cloud computing services according to the cloud computing risk appendix to the directive. Finally, requirements have been added for contracting with a cloud computing service provider, such as:
 - Data deletion without the possibility of recovery upon termination of the contract.
 - Disclosure by the service provider of the location of the cloud facility and the data storage location.
 - Non-dependence on other customers for the operation and interruption of material cloud computing services.
- In addition, requirements have been added for the ongoing relationship with the cloud computing service provider:
- Monitoring of service performance.
 - Periodic assessment of the relationship with the cloud computing service provider, including risk assessment.
 - Existence of an exit/termination plan.
- With regard to information security and cyber defense – Further emphasis has been placed on cyber incident monitoring and response to cyber incidents:
 - The banking corporation is required to ensure its ability to perform continuous, complete, and real-time monitoring that will enable the early detection of a cyber incident to the fullest extent possible and in a manner suited to cloud computing services.

- The banking corporation must be prepared to deal with cyber incidents in cloud computing services. This is to be achieved by, among other things, conducting cyber exercises and executing cyber incident scenarios.
- The banking corporation must ensure that for all access channels to and from the cloud computing services, there exist the means to secure the information and protect against cyber threats, with the goal of minimizing, to whatever extent possible, the use of these channels to attack the banking corporation.
- Business continuity – The banking corporation is required to respond to a situation of service unavailability due to a communication failure and to address domestic reference threats in the hosting country. In addition, the cloud-computing site must meet Tier 3 requirements.
- Furthermore, the directive for reporting to the Banking Supervision Department with respect to cloud computing has been updated, such that the banking corporations are to update the Banking Supervision Department annually regarding their cloud computing status.

Cloud computing in Israeli banking

Cloud computing services in the Israeli banking system are currently used for systems that are not considered material or core systems, due to the prohibition of the Banking Supervision Department to outsource those systems to cloud computing.

Following the change in the Banking Supervision Department's policy, Israeli banking corporations are currently considering the use of cloud computing services for material systems with the goal of contracting with one or two cloud computing service providers, at most, who will provide cloud-computing technology that supports the banking corporation's business strategy. As part of their preparations, the banking corporations are formulating their cloud computing policies and establishing professional teams to assess the implications of transitioning computing services to the cloud and the ongoing management of this transition. It is expected that in the coming years, the banking corporations will gradually transition to increased use of cloud computing services, including material cloud computing.

In this context, it should be noted that the State of Israel has contracted with two public cloud computing service providers located in Israel (the Nimbus project) to provide services to government ministries. The establishment of a public cloud in Israel is also expected to impact on the extent of the Israeli banking sector's use of cloud computing services.

Box 1.2

Business continuity from a technological perspective

- In 2022, the Banking Supervision Department required the banks to conduct an exercise to examine the technological aspects of business continuity. One of the objectives of the exercise was for the banking corporations to enhance their preparedness to deal with a technological failure event.
- The challenge in this exercise was the need to analyze the impact of a technological failure event, which appeared to be localized, on business processes and to provide—from an overall perspective that incorporates both business and technological considerations—a comprehensive response to business continuity. In the exercise, the banks were to assess whether their technological readiness meets the predefined recovery objectives.
- The conclusions drawn from the exercise indicate that disaster recovery plans generally provided a response to the selected scenario. It is evident that there is a significant commitment to business continuity and recovery from failure, and that the banking corporations are investing a great deal of resources in this endeavor. However, there is a need to strengthen the connection between the business response and the technological response, such that business operations can be restored within the framework of the recovery objectives defined for the business process and the technological components that support it.
- Among other things, this can be achieved by setting technological recovery objectives and addressing the continuation of the recovery plan until the stage of full return to routine, including the restoration of the technological components to the state they were in before the failure event occurred.

Introduction

The Banking Supervision Department places emphasis on a banking corporation's business continuity. To this end, the bank's readiness to deal with a technological failure was assessed by means of a simulation exercise that the banks were required to carry out. It was also motivated by an increase in technological risk and the concern of a major technological failure event that would have an adverse and widespread impact on the banking corporations' activity, on the services they provide to customers, and on the banking system as a whole.

The main objective of the exercise was to enhance the banking corporations' operational resilience and improve their preparedness to deal with the aforementioned technological failures, as well as to assess their ability to identify and analyze the technological components that are involved end-to-end in the affected business process. It was also meant to familiarize

the banking corporation's employees with this situation, with an emphasis on a holistic view that combines technological and business aspects, from the onset of disruptions until full recovery. Finally, the exercise was intended to examine the banks' readiness to cope with technological failure events.

In this exercise, the Banking Supervision Department chose a scenario of technological failure similar to those reported to it as part of Proper Conduct of Banking Business Directive no. 366.¹ The banking corporations were asked to carry out an analysis of the scenario's impact on their business activity and on their customers, and to describe the technological solution they provided, alongside the business solution, in both the short and long terms, in order to deal with the failure event. Furthermore, the banking corporations were asked to provide information on similar exercises that they have carried out in recent years.

The findings were analyzed by the Banking Supervision Department, which included an assessment of the following, among other things: technological and business aspects of the response; defining the recovery objectives of technological components; and should the involvement of external providers be needed for the business process, then their resilience in the scenario and targets chosen as well.

Technological aspects of business continuity²

The technological aspects of the business continuity plan that were examined include the following:

- Analysis of business impacts, including outlining systems and essential equipment necessary for the continuity of business operations.
- Definition of technology recovery objectives: To ensure that the recovery plan aligns with the defined recovery objectives for business operations, it is important to verify that all components supporting business activities, such as servers, databases, web servers, communication components, and suppliers, adhere to the defined recovery requirements as determined by the technological experts and do not deviate from the recovery definitions of the business process.
- Service level definition: Addressing technological constraints, if any, in order to meet the defined recovery objectives.

¹ Proper Conduct of Banking Business Directive no. 366 requires banking corporations to report a major technological failure event.

² Most of the analysis relates to the establishments of Disaster Recovery (DR) sites and recovery plans. They do not emphasize the connection to business continuity. In the exercise we carried out, we attempted to expand the boundaries according to the guidelines described in NIST-800-34 Contingency Planning Guide for Federal Information Systems.

- Full technological restoration: During the transition to full service restoration, it is crucial to verify that the technological infrastructure supporting business activities returns to full operation. This refers to, for example, the reconnection of security and monitoring systems, and the restoration of the process's ability to smoothly and quickly shift to the disaster recovery (DR) site. The technological response should meet both business requirements and technological goals.
- Verification that external business and technological suppliers, both business-related and technological, comply with the defined business and technological recovery objectives set by the relevant functions within the banking corporation.
- Simulation exercises: Note that the technological aspect of the recovery plan may not be implemented for various reasons, including a failure in the mechanism to transition to the DR site. Therefore, it is important to simulate special scenarios that do not involve an automatic transition to an alternative system or DR site, including simulations involving manual work.

As previously noted, the examination of technological aspects of continuity requires banking corporations to look beyond business implications and to understand how technology influences business continuity, whether as a barrier or as support. Among other considerations, banking corporations were required to take into account the following possibilities and constraints: Architecture designed to minimize the risk of system unavailability may not function during a disaster event or may not necessarily become the preferred solution; the use of manual work in alternative systems and standalone systems that are not integrated into the regular technological infrastructure may create vulnerabilities due to disconnection from existing control mechanisms. In addition, banking corporations were required to consider the consequences of not meeting the defined service level objectives and the reputation risk associated with that.

From a banking activities perspective, it appears that recovery plans generally provide a solution in the selected scenarios. However, there is a need, among others, to strengthen the connection between the business response and the technological response. This can be achieved by defining technology recovery objectives and addressing the continuation of the recovery plan until a full return to normalcy is achieved, including the restoration of technological components to their pre-failure state. In terms of simulation exercises, while banking corporations practice the transition to a DR site and test system availability there, there is also a need to simulate the handling of a specific technological failure event that can be addressed without automatically switching to a pre-designated alternative system or DR site.