Bank of Israel—Financial Stability Report: 2024:H1

January–June

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Table of contents

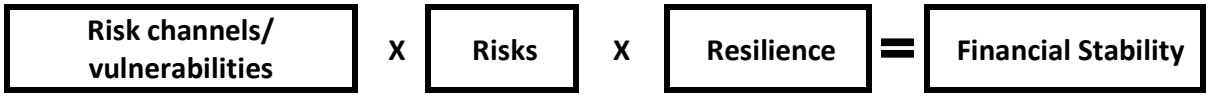
The Financial Stability Report for the first half of 2024 reviews the financial developments during this period and assesses the system's stability in light of the ongoing "Swords of Iron" War in Gaza and its expansion to additional fronts. The report examines the impact of the war on risk exposure channels, given the resilience of financial institutions. The level of financial stability is assessed based on these analyses.

Structure, method of analysis, and purpose of this report

In the Financial Stability Report for the first half of 2024, the Bank of Israel's economists analyze the level of financial stability in Israel, determined in accordance with the vulnerability of the financial system overall, based on the channels of exposure to risk; the risk scenarios relevant to the period, and in line with the resilience of the financial institutions (Figure 1.1).[1] The final assessment of the economy's financial stability rests on the combined conclusions adduced from these three levels together (Figure 1.2—the colors in the figure reflect the results of the analysis of the various parts and the measure of risk in each one of them. Details are provided in the report itself). The assessments and analyses presented in this Report are based on a survey of structural characteristics, use of analytical tools, as well as an assessment of the latest background conditions in the global economy. The Report describes the main risks to Israel's financial system that may have major implications for domestic economic activity. The purpose of the Report is to enhance policymakers'[2] and the public's awareness of the potential threats that the financial system may be facing in the near and medium terms so that they may prepare accordingly.

Figure 1.1

The process of assessment and analysis of the level of financial stability



To assess the level of financial risk and indicate changes during the reviewed period, the Financial Stability Monitor in Israel is used. This monitor consists of a set of quantitative indicators that describe risk levels across various exposure channels and the resilience of the financial institutions. The risk level for the reviewed half-year is determined by comparing these quantitative indicators to their long-term historical distributions in Israel.[3] Based on the

[1] A detailed description of each of the components in Figure 1 can be found in the Financial Stability Report for the Second Half of 2022.

[2] For elaboration, see Konstantin Kosenko and Noam Michelson, *Monitor for Financial Stability in Israel,* Bank of Israel, Occasional Papers 2020.02 (in Hebrew).

[3] The Monitor is intended to identify the main areas of vulnerability to a financial shock to the economy, not to forecast its timing or estimate its intensity.

Monitor's findings, an analysis is conducted to evaluate the observed vulnerabilities. This assessment considers past events in the domestic economy and compares the developments of the selected indicators (intensity of changes) to international developments, focusing on macroeconomic channels, asset prices, and credit. The final and subjective assessment of the risk levels in each channel is presented using a color-coded heat map, ranging from the lowest potential vulnerability (dark green) to the highest vulnerability (red).

MAIN FINDINGS

- Despite ongoing security and geopolitical challenges, Israel's financial system is demonstrating strong resilience, with adequate capital ratios, liquidity, and buffers in the banking and insurance sectors. A low debt to GDP ratio before the war and high foreign exchange reserves at the Bank of Israel have contributed to system stability.
- During the reviewed period, macroeconomic risk remained high due to the security situation and its impact on economic activity, which remained below normal levels. The government's financing needs and the associated costs have increased, and credit rating agencies have downgraded Israel's credit rating.
- During the period, domestic equity indices increased moderately, with stock prices relative to corporate profitability and relative to global indices indicating relatively low valuation levels.
- Credit to the private sector grew by NIS 51 billion in the first half of 2024, primarily in the real estate and mortgage sectors. Delinquency rates in bank credit remain low relative to total debt, but there is a slight increase in the rate of debt in arrears in certain sectors, particularly among large businesses and construction companies.

1. General Assessment

In order to assess the risk to the stability of the financial system, the level of vulnerability in the risk channels and the level of risk in potential scenarios were evaluated relative to the resilience and absorptive capacity of the financial institutions. In the first half of 2024, despite the impact on macroeconomic channels and on asset prices and the geopolitical scenario of escalating tensions, financial institutions demonstrated strong resilience, including adequate capital ratios, liquidity, and buffers. A low government debt-to-GDP ratio at the onset of the war and high foreign exchange reserves held by the Bank of Israel have also contributed to the financial system's stability.

During this period, the macroeconomic risk level remained high, as in the previous report, although there are signs of economic recovery compared to the early stages of the Swords of Iron War, such as improvement in private consumption, exports, and the labor market. Nonetheless, the government deficit has deepened and government bond yields have risen, both in shekel terms and in terms of foreign currency, and the cost of financing government expenditures has increased accordingly.[4] The credit rating agencies have downgraded Israel's credit rating and outlook due to heightened uncertainty regarding the potential expansion of the war to additional fronts, the timeline for ending the fighting in Gaza, and the increased fiscal/defense needs.

The assessment of risk levels in the financial asset price channel remains high in the current report. Domestic stock indices increased during the reviewed period, but at a relatively low rate. Valuations relative to corporate profitability and major global stock indices continued to decline to particularly low levels. The poor performance of the local stock exchange, which persisted during the reviewed period, added to the low performance recorded during 2023 up until the war, amid high uncertainty in the stock market during the first half of 2024. At the onset of the war, foreign investors sold off holdings in Israel's financial markets, a trend that weakened after

[4] This relationship between the deficit and the yield to maturity on government bonds has been empirically tested and is also consistent with the observed impact in the current period. See: Brender and Ribon, 2015, "The Impact of Fiscal and Monetary Policy in Israel, and the Global Economy, on the Real Yields of Government Bonds in Israel: A Reassessment After a Decade," Bank of Israel Survey 88 [Hebrew]; Michelson and Stein, 2023, "Factors Explaining Long-Term Government Bond Yields in Israel and OECD Countries," Bank of Israel Survey 93. [Hebrew]

a few months as the economy returned to normal operation. In fact, during the second quarter, there were positive capital flows/net purchases by nonresident investors.

Households in Israel are accumulating foreign financial assets, a trend that has accelerated since the outbreak of the war. Institutional investors increased their holdings in foreign assets, which grew to 41 percent of the total assets that they manage. The public also increased its holdings in foreign financial assets through mutual funds, particularly via derivative securities rather than direct holdings of the underlying assets. This type of investment raises liquidity risks for government bonds, which are used as collateral for such derivatives. If foreign asset prices were to drop sharply, it would lead to intense pressure to sell government bonds and purchase foreign currency, as occurred during the onset of the COVID-19 crisis (see further details in Box 1 of the current report and Box 3 of the Financial Stability Report for the Second Half of 2020).

Delinquency rates on bank credit repayments remain low relative to total debt, but certain sectors, particularly large businesses and construction companies, show an increase in debt in arrears. This debt had already been classified by banks as nonaccruing in previous quarters. Private sector credit grew by approximately NIS 51 billion starting from the outbreak of the Swords of Iron War through July 2024, driven by business credit to the construction and real estate sector and by mortgages granted to households. Real estate and construction companies have successfully raised new debt in the bond market through a significant volume of issues in recent months.

Construction companies increased the number of building completions in the last quarter of 2023 and the first quarter of 2024, following the significant growth in building starts in 2022. However, National Accounts data for the first half of 2024 show a substantial decline in investment in residential construction compared to the prewar period, possibly reflecting a shortage of workers (and raw materials) that has become chronic.

Meanwhile, the housing market has seen a recovery in activity, a development that may alleviate liquidity difficulties faced by companies in the market (Chapter 2.3). However, the practice of selling apartments while deferring a significant portion of the payment to the contractor or postponing payment of the mortgage principal may increase the exposure of real estate companies and buyers to market risks, especially if the pace of interest rate reductions in

Israel and globally is slower than market expectations at the time of the transaction. Additionally, the increase in short-term bond issues to refinance debt while interest rates remain high, based on an assumption of rate reductions, exposes issuers to greater refinancing risks.

The scenarios for the continuation of the war, along with the high uncertainty regarding its resolution, impact the financial system through several channels. The macroeconomic channel is the primary one affected by geopolitical developments, manifesting in potential disruptions to business activity, an increase in government financing needs, higher costs of servicing public and private debt, and adverse implications for international trade. Other channels, such as financial asset prices and credit, are also affected, with significant implications for highly leveraged and relatively illiquid companies, particularly in the real estate sector.

Israel's financial stability largely depends on responsible and balanced fiscal management. Such a policy would prevent divergence in the government debt-to-GDP ratio amid increasing budgetary demands and would prioritize the allocation of national resources to support growth potential. This approach is critical for maintaining market and investor confidence in Israel's economy. A key challenge for the government in this context is formulating a multiyear defense budget plan that sustainably balances the necessary allocation of resources for national security while minimizing the impact on long-term economic growth.[5]

The macroeconomic and financial picture, as presented in the report, indicates that Israel's financial system demonstrates resilience, despite the risks and vulnerability, allowing it to effectively address ongoing challenges, particularly those stemming from the conflict and the geopolitical crisis. This resilience should not be underestimated. It relies on several contributing factors, including appropriate and responsible monetary and fiscal policies implemented at the onset of the war, as well as swift action by the banking regulator and the government in introducing measures to assist the most vulnerable borrowers who are facing short-term liquidity challenges. In light of escalating threats to the economy and to financial stability—primarily the potential for further escalation of the conflict—it is essential to maintain responsible economic

[5] Subsequent to the period being reviewed, the 2025 budget was approved by the government. See the remarks by the Governor of the Bank of Israel on the approved budget framework and its composition at https://www.boi.org.il/publications/pressreleases/1-11-24/ [Hebrew].

policies on both the fiscal and monetary fronts in order to ensure the economy's resilience to possible extreme scenarios.

This report includes analyses of structural issues related to financial stability in four boxes:

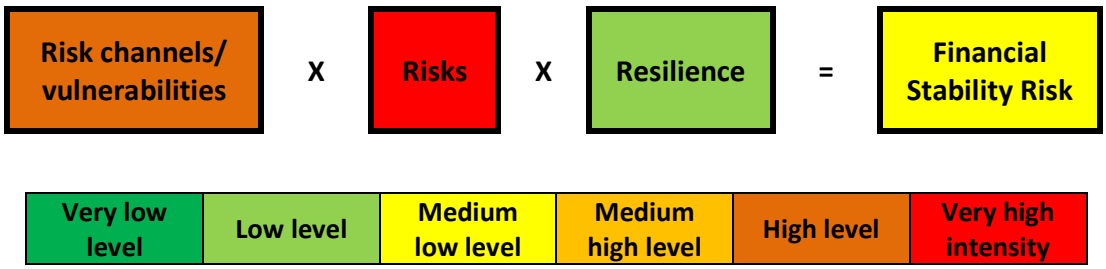
Box 1 examines the increased exposure of institutional investment abroad to futures contracts in recent years, a trend that has accelerated since the start of the war. These investments include equities and index-tracking financial assets, resulting in portfolios more exposed to external shocks than in the past. This exposure has yielded high returns on the public's portfolios over the last two years, due to the increase in foreign indices which outpaced that in domestic asset prices. However, the level of investment in foreign share indices by way of futures contracts increases the risk of crises in the capital and foreign exchange markets.

Box 2 highlights the unambiguous relationship between the profits of the banks on the credit they extend to various businesses and the growth rate of such credit. This emphasizes the relatively rapid growth in credit to large corporations and the real estate sector, alongside the shift of some small business credit toward nonbank credit institutions.

Box 3 explores the growing impact of exchange traded funds (ETFs) on their underlying assets in terms of both price volatility and liquidity. It also examines how some investors profit from updates in the indices at the expense of investors in ETFs.

Box 4 discusses the investment by the Israeli public in crypto assets. Despite the increase in investment that is driven by the upsurge in prices in this market, it remains at a low level relative to other countries.

Figure 1.2
The summary assessment of the level of risk in the financial system, using a heat map

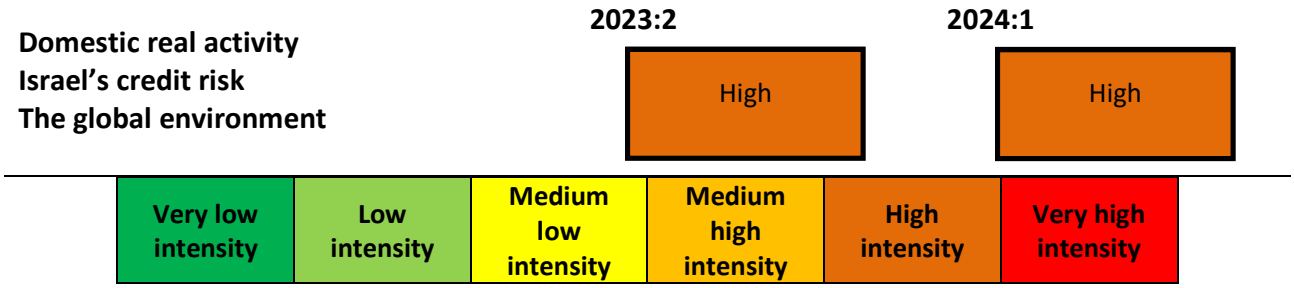


2. Risk Exposure Channels

The vulnerability of the financial system as a whole is derived from the level of exposure of its main risk channels. The report for the first half of 2024 analyzes three primary risk channels:

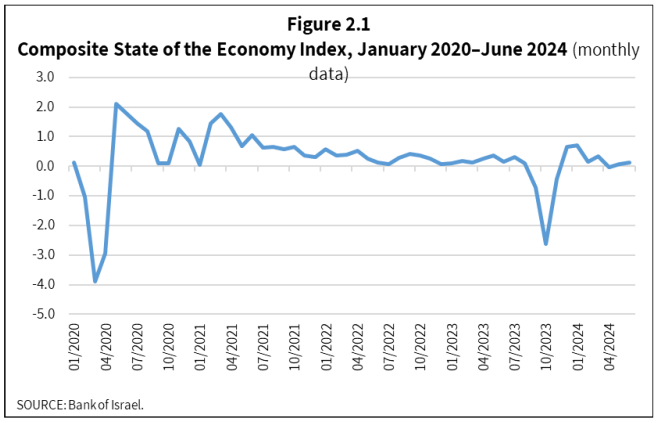
- The macroeconomic channel (economic activity)**:** The local macroeconomic environment affects economic activity and the resilience of key players in the financial system—households, companies, and financial intermediaries. The less stable this environment and the more volatile or negative the forecasts of its trend, the higher will be the system's vulnerability.
- Asset price channel**:** The financial system's vulnerability will increase if asset prices deviate significantly from their fundamentals or their long-term trends, particularly due to underpricing of risk. In such an environment, there is an elevated risk of sharp corrections in financial and/or real asset prices, potentially affecting the financial system.
- Credit channel**:** High levels of credit provided to households and businesses (i.e., leverage) expose them to various risks, such as interest rate increases (especially in the case of variable-rate credit), declines in local or global economic activity, and falling asset prices. The level of leverage, its distribution and its rate of change, and the uses of credit all influence the financial system's vulnerability.

2.1. The macroeconomic channel



The war led to a sharp decline in economic activity in October 2023, followed by a gradual recovery. During the reviewed period, the macroeconomic channel remained highly vulnerable due to geopolitical tensions and negative global sentiment toward Israel. This channel is adversely affected by potential disruptions to business activity, increased government financing needs, higher costs associated with servicing government debt, and negative implications for international trade. Israel's credit risk premium remained elevated and even rose slightly in April 2024, contributing to higher yields on government bonds. Credit rating agencies downgraded Israel's credit rating and outlook as a result.

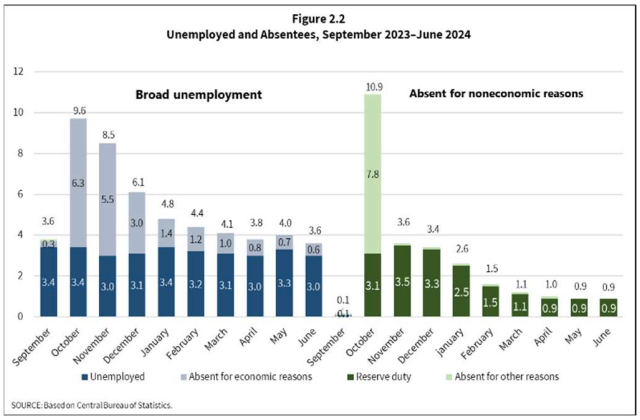
The macroeconomic risk remains at a high level in view of Israel's ongoing geopolitical situation since October 2023 and its impact on government financing costs, which have become more significant following the increase in the deficit.



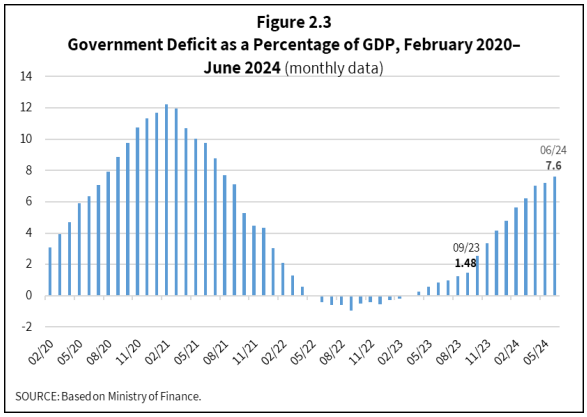
The Composite State of the Economy Index, which reflects the level of economic activity, recovered at the beginning of the reviewed period following the sharp decline at the onset of the war in October 2023, indicating a certain level of adaptation of the economy in a time of war (Figure 2.1). However, the Composite Index remained at a low level (close to zero) in the second quarter of the year, signaling the continued impact of the war on economic activity. An encouraging sign of the economy's recovery can be

found in tax revenues, which were higher since the beginning of the year relative to the same period last year.

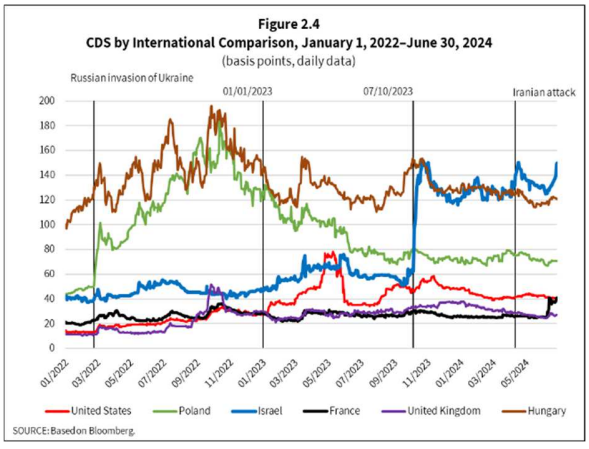
At the beginning of the reviewed period, the labor market continued to recover, with an increase in demand for workers and an easing of labor supply constraints due to the reduction in the number of military reservists (Figure 2.2). The broad unemployment rate[6] moderated during the period, reaching 3.6 percent, which is similar to the prewar rate. The rate of absence from work for noneconomic reasons also declined but remained at 0.9 percent in the second quarter of the year, reflecting the number of those called to military reserve duty.



Due to high government expenditure, the cumulative deficit over the past 12 months continued to rise during the period, reaching 7.6 percent of GDP in June (Figure 2.3).



International credit rating agencies downgraded Israel's credit rating during the reviewed period, with some maintaining a negative outlook, a possible indication of further downgrades (Chapter 3.1). The downgrade was attributed to uncertainty with respect to the potential expansion of the war to additional fronts, the timeline for ending the fighting in Gaza, and changes in fiscal policy. These developments are clearly reflected in the rise of Israel's

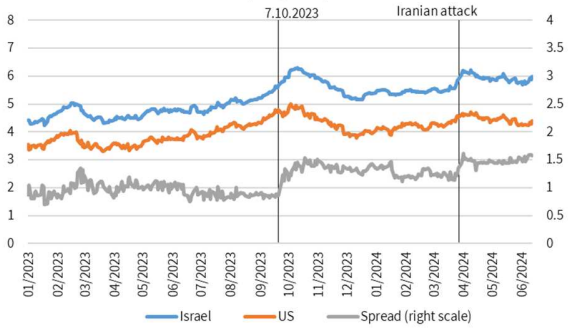


[6] The unemployed plus those absent from work for economic reasons every day of the week.

risk premium, as measured by the cost of insurance against the state's bankruptcy (credit default swaps – CDS; Figure 2.4). The cost of this insurance continued to rise during the period, following an initial surge at the start of the war in October 2023.

Israel's heightened risk level is evident in the increased cost of government debt, as measured by the widening yield spread between Israeli government bonds denominated in dollars and US government bonds. This spread rose by a total of half a percentage point (from a level of one percentage point) at two points in time—at the start of the war and during Iran's direct attack on Israel (Figure 2.5).

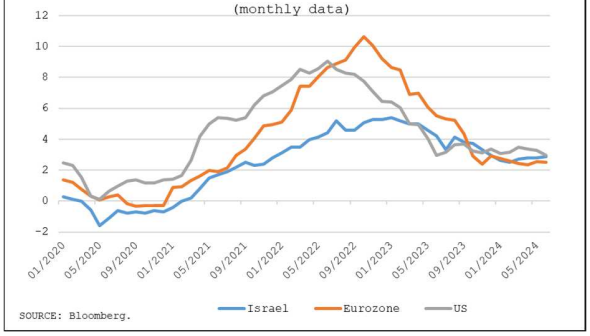
Figure 2.5
Ten-Year Dollar Bonds, US vs Israel, January 2023–June 2024
(daily data)



SOURCE: Based on Bloomberg.

While Israel's inflation environment has entered the target range, inflation expectations remained relatively high during the reviewed period, near the upper limit of the target range. An international comparison shows that the decline in inflation slowed during the reviewed period, including in the US and the eurozone countries (Figure 2.6).

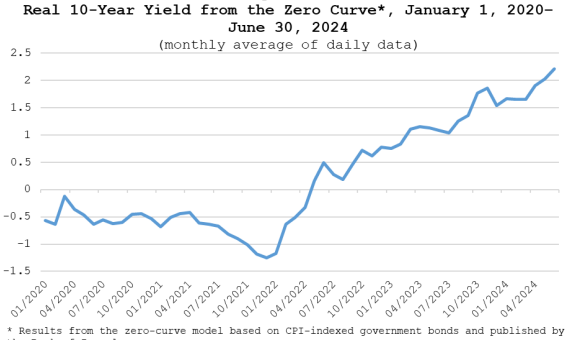
Figure 2.6
Inflation in Israel, the US, and the Eurozone, January 2020–June 2024
(monthly data)



SOURCE: Bloomberg.

The real interest rate, estimated as the cost of government debt financing based on the yield to maturity of 10-year CPI-indexed government bonds, continued to rise during the reviewed period, surpassing 2 percent (Figure 2.7). This reflects the highest real cost of government debt financing in over a decade.

Figure 2.7
Real 10-Year Yield from the Zero Curve*, January 1, 2020–June 30, 2024
(monthly average of daily data)

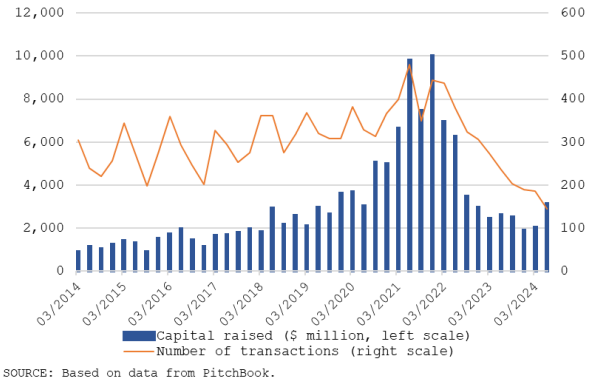


* Results from the zero-curve model based on CPI-indexed government bonds and published by the Bank of Israel.

SOURCE: Based on Tel Aviv Stock Exchange.

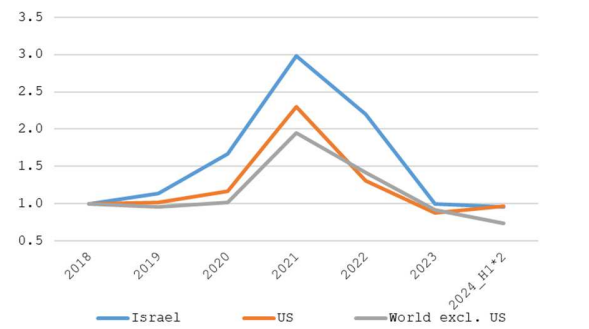
In 2021 and 2022, Israeli high tech raised record levels of capital, but there was a decline in subsequent years to prepandemic levels (Figure 2.8). During the reviewed period, a recovery in raising of capital was observed. In 2023, and even more so in 2024, a larger portion of the funds raised were allocated to later-stage companies, with less going to early-stage startups. Companies raising funds in 2023 and early 2024 were generally more established and in a revenue growth phase.

Figure 2.8
Capital Raised by Israeli High-Tech Companies 2022:Q1–2024:Q2 (quarterly data)



SOURCE: Based on data from PitchBook.

Figure 2.9
Venture Capital Raised in Israel and Abroad, 2018–June 2024 (annual rate of change, index: 2018=1)

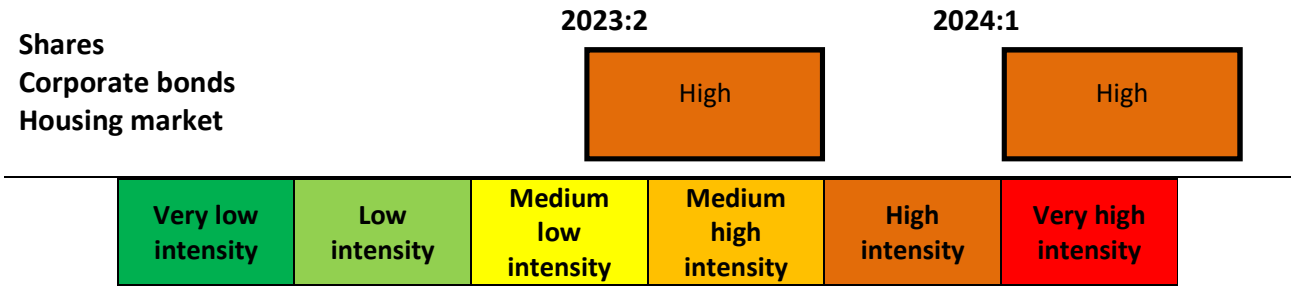


* The figure for 2024 is an estimate based on the first half of the year multiplied by 2.
SOURCE: Based on data from PitchBook.

An international comparison shows that the growth rate of capital raised in Israel's high tech sector was high in 2021 and 2022 but slowed in 2023 and the first half of 2024, similar to trends in the US (Figure 2.9).

Israel may be more vulnerable to the global decline in high tech financing relative to other countries, since the total activity and investment in this sector relative to GDP are higher in Israel than in most other countries.

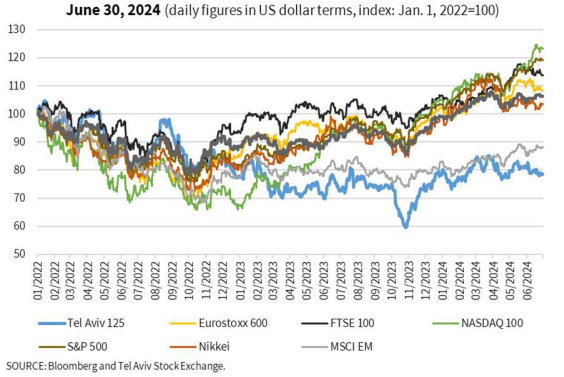
2.2. The asset prices channel



During the reviewed period, domestic equity indices increased but at a relatively slow pace. Valuations, relative to company profitability and leading global stock indices, continued to decline, reflecting the market's increased assessment of risk during this period. The trend of underperformance in the local stock market relative to global markets has persisted since it began at the start of 2023. Corporate bond spreads, which widened with the outbreak of the war, have since narrowed due to pressure in demand for these bonds originating from the mutual funds. These spreads are now below their prewar levels and even lower than their fundamental valuations. In contrast, home prices resumed their upward trend during the reviewed period, raising the price-to-rent ratio, although it remains below the peak levels of mid-2022. Given the partial recovery in domestic asset prices, coupled with heightened uncertainty and significant potential for negative impacts on asset prices, the risk level for sharp declines in financial asset prices remains high.

Domestic equity indices continued to underperform compared to advanced economies, particularly relative to US equity indices, further widening the gap that appeared at the start of 2023 (Figure 2.10).

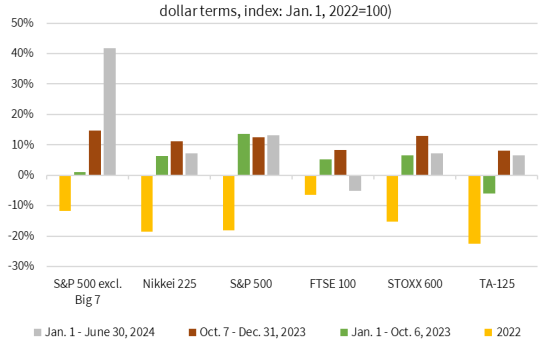
Figure 2.10
Leading Equity Indices, International Comparison, January 1, 2022–June 30, 2024 (daily figures in US dollar terms, index: Jan. 1, 2022=100)



SOURCE: Bloomberg and Tel Aviv Stock Exchange.

The rate of underperformance, which averaged 15 percent compared to selected stock market indices, occurred primarily in 2023 but continued into the first half of 2024, particularly relative to the US (Figure 2.11). Although the TA-125 index has a relatively high weight of real estate stocks, which had low returns, and a relatively low weight of high tech stocks, which had relatively high returns, these differences in weights only partially explain the underperformance in Israel.

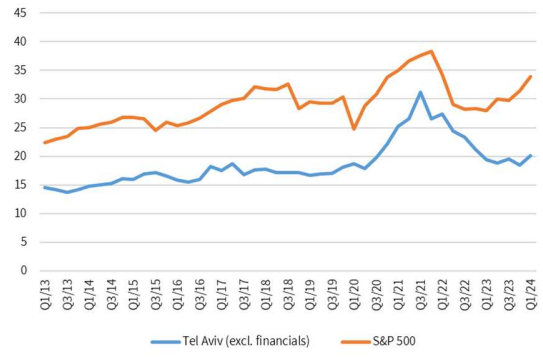
Figure 2.11
Cumulative Yield by Index During Four Periods, International Comparison, 2022, 2023 Until October 6, 2023 After October 7, and 2024 (daily figures in US dollar terms, index: Jan. 1, 2022=100)



SOURCE: Based on Bloomberg.

The price-to-earnings (P/E) ratio, which represents the ratio between stock price and net earnings per share based on financial statements, constitutes an estimate of valuation relative to profitability. The gap between the P/E ratio calculated for stocks traded on the S&P 500 and those included in the TA-35 index widened during the reviewed period, reaching a particularly high level (Figure 2.12). This implies that price levels in Israel are relatively low, impacted by expectations of lower growth in public company earnings.

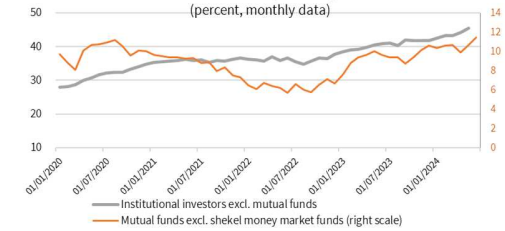
Figure 2.12
CAPE Ratio, 2013:Q1–2024:Q1 (quarterly data)



SOURCE: Based on Bloomberg.

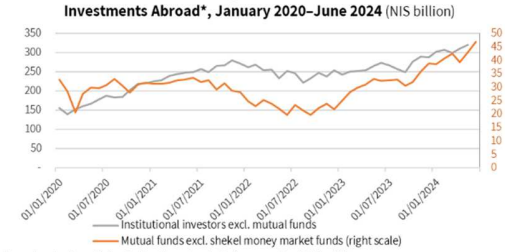
The volume of institutional investment in foreign financial assets and their proportion of the overall portfolio have increased in recent years, a trend that has accelerated markedly since the outbreak of the war (Figure 2.13). This trend is also evident during the reviewed period in the asset portfolios of mutual funds in which investment decisions are made solely by households themselves rather than

Figure 2.13a
Share of Investments Abroad*, January 2020–June 2024
(percent, monthly data)



* Investments abroad by institutional investors, including guaranteed yield policies.
SOURCE: Based on Bloomberg.

Figure 2.13b
Investments Abroad*, January 2020–June 2024 (NIS billion)

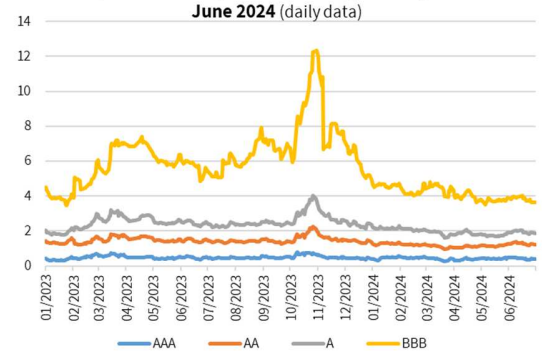


* Investments abroad by institutional investors, including guaranteed yield policies.
SOURCE: Based on Bloomberg.

by fund managers. Box 1 describes the extent of investment that tracks the S&P 500 index by means of futures contracts and the risks inherent in those contracts should there be a sharp decline in foreign stock indexes, as occurred during the COVID-19 crisis in March 2020.

Corporate bond spreads, which widened at the onset of the war, have since narrowed and declined—for all ratings—to below their prewar levels (Figure 2.14).

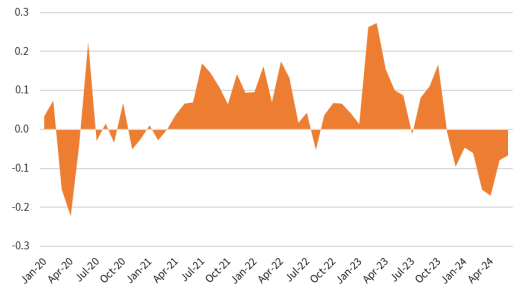
Figure 2.14
Corporate Bond Spreads by Rating, January 2023–June 2024 (daily data)



SOURCE: Based on Tel Aviv Stock Exchange.

Figure 2.15 shows that yields to maturity in the corporate bond market during the reviewed period tended to be lower than those derived from a structural model.[7] This finding suggests the potential underpricing of risk in this market. Unlike in the markets for equity, government bonds and *Makam*, mutual funds hold a significant proportion of the total issued capital of corporate bonds, which has continued to grow since October 2023.

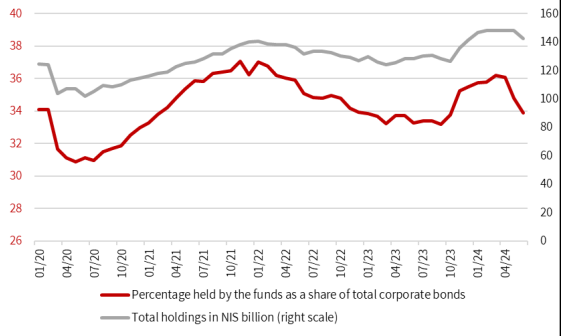
Figure 2.15
Average Spread of Forecast Investment Grade Corporate Bonds, January 2020–June 2024 (monthly data)



* Corporate bonds excluding banks and insurance companies.
SOURCE: Based on Tel Aviv Stock Exchange, financial statements, and the banks' reports to the Banking Supervision Department..

The holdings of corporate bonds by means of mutual funds reached high levels during the reviewed period. However, based on recent data, these holdings slightly declined in May and June, accounting for approximately 34 percent of the total market value of tradable corporate bonds (Figure 2.16). The high level of household savings

Figure 2.16
Mutual Fund Corporate Bond Holdings, January 2020–June 2024 (monthly data)



SOURCE: Based on Tel Aviv Stock Exchange.

[7] Graham-Rozen, Michelson, and Vieder (8/2023), "The factors affecting corporate bond spreads", Bank of Israel Survey 93. [Hebrew]

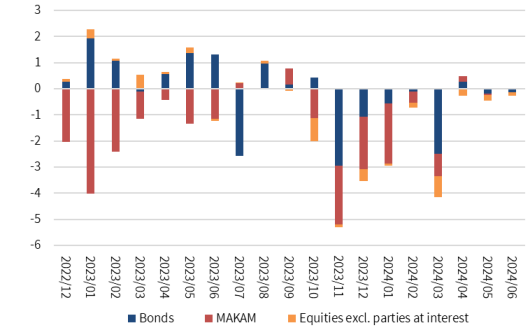
in mutual funds is likely putting downward pressure on yields, as reflected in yield spreads (Figures 2.14 and 2.15).

Spotlight I – The level of foreign investment in shekel-denominated assets

Since the outbreak of the war in October 2023, nonresident investors have liquidated a significant portion of their investment in shekel-denominated financial assets. As of June, these liquidations amounted to $19 billion, representing approximately 25 percent of their total investment in these assets.

Despite concerns raised during the reviewed period about the potential continuation of withdrawals by international funds—some of which even publicly announced their intentions to do so—the liquidations at the beginning of the reviewed period focused on short-term government bills (*Makam*) and government bonds (Figure 1.1). In the second quarter of the year, the liquidations halted, and no significant changes were observed in nonresident investors' portfolio holdings of shekel-denominated financial assets. It is noteworthy that during this period, nonresident investors moderately increased their holdings in government bonds traded abroad.

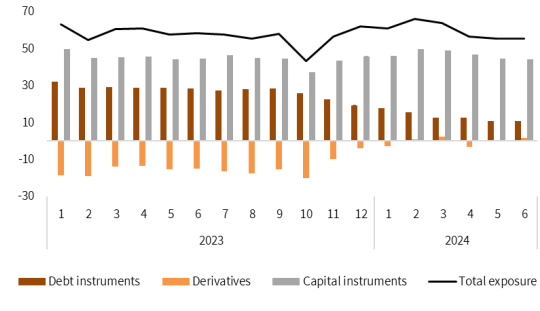
Figure 1.1
Nonresidents' Investments in Shekel Financial Assets, Government Bonds, MAKAM, and Equities, December 2022–June 2024
(excl. parties at interest, monthly data, $ billion)



SOURCE: Bank of Israel.

The trading, particularly the liquidations in *Makam*, was relatively volatile. This is partly due to changes in interest rate differentials between the shekel and the dollar, which also impacted the level of holdings in interest rate derivatives. In contrast, the volatility in government bonds and equities was relatively low and was less affected by short-term interest rate differentials between the shekel and the dollar. Nonresident investors liquidated only a small portion of their

Figure 1.2
Nonresidents' Outstanding Exposure to the Shekel in Debt, Capital, and Derivative Instruments, January 2023–June 2024
(monthly data, $ billion)



SOURCE: Bank of Israel.

investment in Israeli equities relative to their liquidation of government bonds, particularly in the initial months of the war.

The level of nonresident investors' exposure to the shekel did not decline and remained at its prewar level (Figure 1.2). This stability can be attributed to a significant decrease in their holdings of debt instruments, which was offset by a similar decrease in derivative financial instruments used as financial hedges against changes in the shekel-dollar exchange rate.

However, since a certain portion of the Israeli stock market is held by nonresident investors (approximately 14 percent), and their investment in equities (excluding stakeholders) constitute the majority of their investment in shekel-denominated financial assets, the potential impact on the stock market due to their liquidations (excluding stakeholders)[8] can be relatively significant.

In the housing market, the increase in home prices resumed in view of the recovery in the volume of transactions during the reviewed period. The pace of price increases accelerated at the end of the reviewed period, following slight declines since mid-2022. At the same time, the rent index continued to rise at a relatively fast pace. As a result, the home price-to-rent ratio rose again during the reviewed period, though it remained below the peak levels observed in mid-2022 (Figure 2.17).

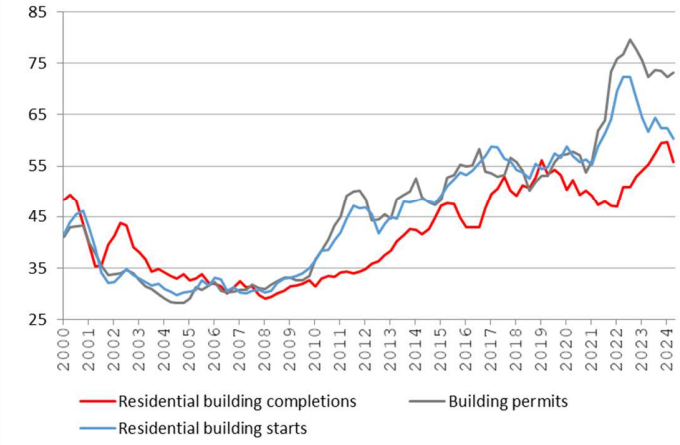
Figure 2.17
Ratio of Home Prices to Housing (Rent) Prices, January 2010–June 2024 (monthly data, index: January 2010=100)

* The index of home prices is up to date as of September 15, 2024 for June-July 2024 data.
* The Consumer Price Index is up to date as of July 15, 2024 for June 2024 data.
SOURCE: Based on data from the Capital Market, Insurance and Savings Authority.

[8] In this analysis, stakeholders are defined as investors holding more than 10 percent of a company's shares and are not characterized by rapid changes in their investment portfolio. Therefore, it is important to distinguish them from other investors in this context.

Housing starts in the fourth quarter of 2023 and the first quarter of 2024 declined but remained relatively high compared to long-term trends, with housing completions reaching historically high levels due to the particularly high number of housing starts in 2022 (Figure 2.18). Despite the apparent recovery in the construction industry, in particular the increase in the number of housing completions, National Accounts data for the first quarter of 2024 indicate that investment in residential construction remains low compared to the period before the war. This is likely due to the shortage of labor since October 2023.

Figure 2.18
Building Starts, Building Completions, and Building Permits, 2000:Q1–2024:Q2 (annual volume, thousand)

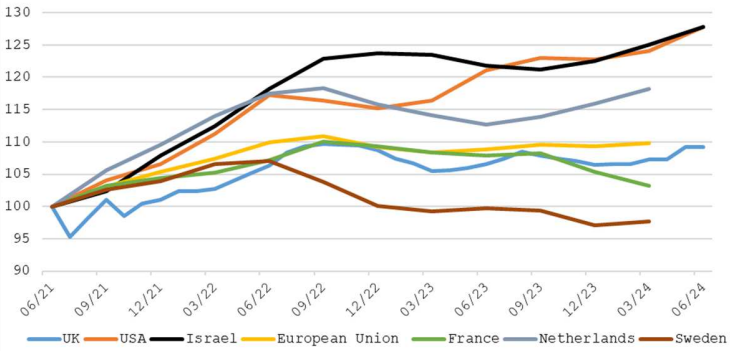


SOURCE: Based on Central Bureau of Statistics.

Furthermore, as a result of geopolitical events, restrictions on exports to Israel may weigh on economic activity and the construction industry in particular, given their impact on the supply of raw materials. Such disruptions could reduce the housing supply beyond the effect of the labor shortage.

International comparisons reveal that the recent increases in home prices are not unique to Israel but are also occurring in several other countries (Figure 2.19). Additionally, the graph shows relatively high variability in home price trends across the presented countries.

Figure 2.19
Development of Home Prices in Israel and Selected Countries, 2021:Q2–2024:Q1 (index: 2021:Q2=100)



SOURCE: UK (monthly) - HM Land Registry; USA - Federal Housing Finance Agency; Israel - Central Bureau of Statistics; EU countries - eurostat.

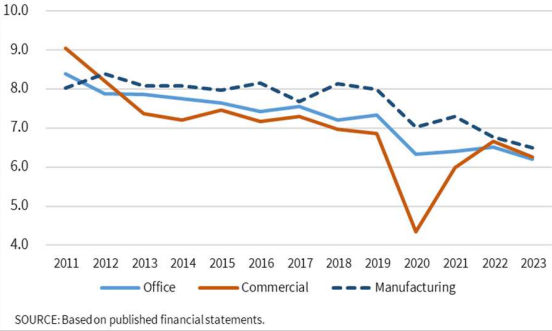
Spotlight II – A global and domestic survey of commercial real estate

Against the backdrop of rising global interest rates and structural changes following the COVID-19 pandemic, such as the shift to remote and/or hybrid work, adverse developments can be observed in the commercial real estate sector, particularly in office real estate, across many regions of the world (including the US, Europe, and China). The Global Financial Stability Report (GFSR) published by the International Monetary Fund (IMF) in April 2024 indicates that global commercial real estate prices have declined by 14 percent in real terms. In the US office sector, prices have dropped by 24 percent, and in Europe by 18 percent.[9] The GFSR also notes that vacancy rates continued to rise in 2023, averaging about 15 percent, compared to an annual average of approximately 10 percent during the years 2016–19, prior to the pandemic.

According to the IMF, these trends reflect an increase in risk, since returns on commercial real estate have gradually fallen below the borrowing costs of industry players. The IMF estimates that while the banking system is in a good position to absorb losses, some economies could face significant losses given the substantial size of the real estate sector in those economies and its ties to the financial system. In Israel, credit to the commercial real estate industry (excluding credit to construction companies) amounts to NIS 225 billion, approximately 22 percent of total business credit in the economy, underscoring the sector's critical importance to the financial system.[10]

According to the financial reports of public companies in Israel (which account for an estimated 65 percent of the commercial real estate industry), the total return on commercial real estate (from rental income and changes in property value) in 2023 was approximately 8.8 percent (in nominal terms).[11] This is lower than

Figure 2.1
Nominal Yield on Rents, by Main Commercial Real Estate Types in Israel, 2011–2023 (annual data, percent)



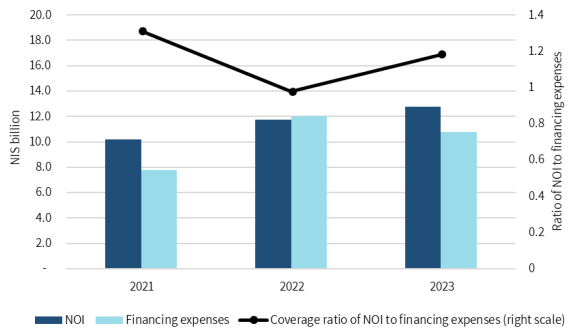
SOURCE: Based on published financial statements.

[9] https://www.imf.org/en/Publications/GFSR/Issues/2024/04/16/global-financial-stability-report-april-2024
[10] As of September 2023.
[11] The share of public companies in the industry was estimated in Box 2 of the Financial Stability Report for the Second Half of 2018.

the returns in the previous two years (13.6 percent in 2022 and 14.9 percent in 2021). Contrary to global trends, the value of commercial real estate in Israel increased in 2023: the return from changes in property value was positive at about 2.7 percent, though it was lower than the returns of 7.2 percent and 8.7 percent recorded in 2022 and 2021, respectively. The rental income yield was approximately 6 percent, continuing a downward trend observed across major sectors (Figure 2.1). This decline might be attributed to actual rental income not aligning with the values implied by the valuations used to determine property values.[12]

As noted by the IMF, the decline in rental yields, combined with rising financing costs for companies (due to higher interest rates), may increase financial risk and may potentially lead to credit losses for the financial system. Figure 2.2 illustrates the net operating income (NOI) of Israeli commercial real estate companies (excluding gains in value) relative to their financing expenses over the past three years. With rising interest rates and inflation in 2022, financing costs surged, though they decreased somewhat in 2023. The NOI to financing expense ratio (the coverage ratio) stabilized at above one in 2023, suggesting that companies are able to service their debt. This is also reflected in their bond spreads, which remain low compared to most other industries.

Figure 2.2
NOI Relative to Financing Expenses, 2021–2023 (aggregate annual data)

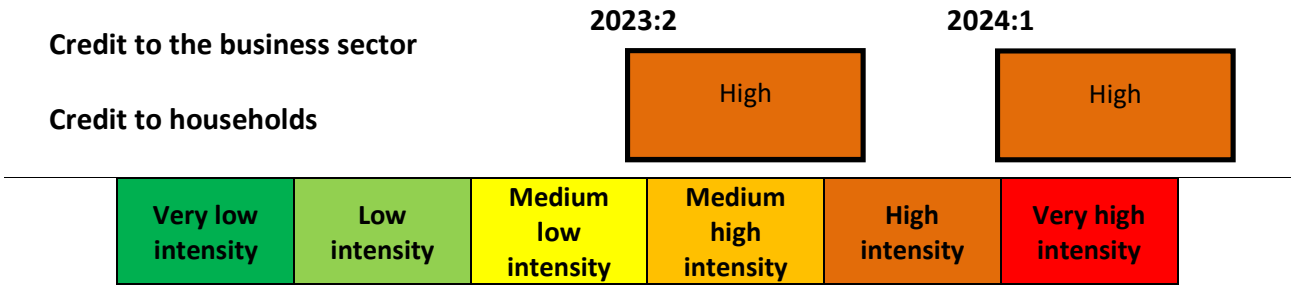


SOURCE: Based on published financial statements.

In summary, there is no evidence of a decline in the value of commercial real estate in Israel, as documented in many other parts of the world. However, as in the case of global trends, there is a decline in real estate yields alongside a sharp rise in borrowing costs. Nonetheless, no significant increase in financial risk is anticipated in this industry.

[12] This was discussed in Box 1 of the Financial Stability Report for the Second Half of 2022.

2.3. The credit channel



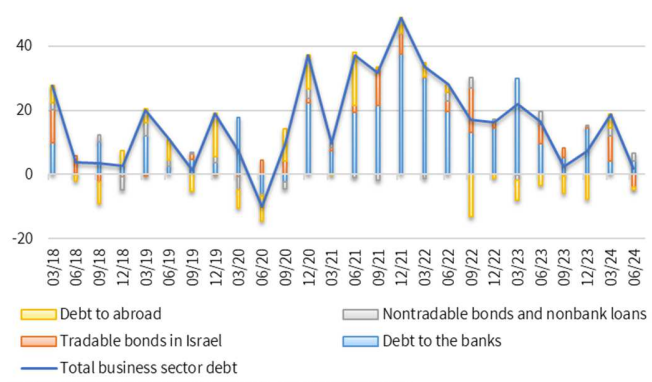
Since the outbreak of the Swords of Iron War, credit to the private nonfinancial sector (businesses and households) has grown by NIS 51 billion. This growth is primarily attributed to credit extended to the business sector and housing loans. While the credit growth rate was high in the first quarter of 2024, it slowed significantly in the second half of the year. The share of bank loans in arrears remains low from a historical perspective.

During the reviewed period, and despite labor supply constraints, the housing market experienced a recovery in transaction volume, and construction companies succeeded in increasing building completions. Bank credit to the construction industry grew by approximately NIS 12 billion, and bond issues by the industry were also substantial. However, there was a deterioration in the rate of credit in arrears among construction companies. In addition, liquidity in the construction industry remains low, heightening the risk of insolvency for some companies. New mortgage volume has been rising in recent months. Furthermore, the proportion of new mortgages with high-risk profiles remains elevated.

According to our assessment, risk in this channel remains high, similar to the second half of the previous year, against a mixed trend in indicators of loans in arrears. This includes an increase in delinquencies among large businesses and companies in the construction industry, even though some of this credit had already been reclassified by banks as nonaccruing in prior periods. The significant share of real estate backed loans in bank credit portfolios, alongside the high proportion of bonds in the real estate and construction industry, underscores the systemic importance of the real estate and construction industry to financial stability.

The expansion of credit to the business sector, by way of both banks and bonds, was partially offset by a consistent decline in credit from foreign sources. With respect to bank credit, there was growth in lending to the construction industry, the financial services industry, and medium-size and small businesses, while credit to commercial industries and to large and micro businesses contracted. Companies in the real estate and construction industries continue to secure new debt in the bond market, with a high volume of bond issues in recent months.

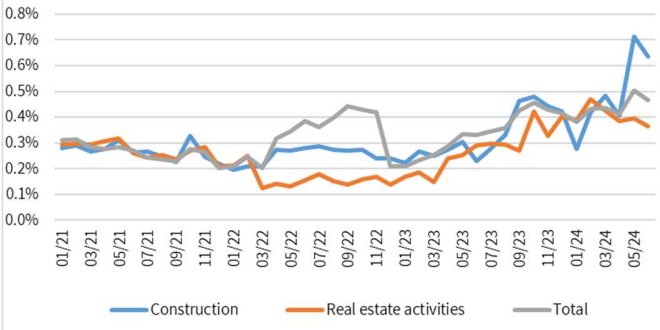
Figure 2.20
Estimated Quantitative Change in Business Sector Debt by Lender, March 2018–June 2024 (quarterly data, NIS billion)



SOURCE: BOI calculations based on published financial statements.

The delinquency rate on bank credit to the business sector has remained stable on average in recent months, although there has been a deterioration in this indicator within the construction industry. The delinquent debt had already been classified as nonaccruing in previous quarters. Banks have gradually reduced the proportion of business credit classified as problematic, as well as the share of nonaccruing credit, both in the first and second quarters of 2024. Consequently, banks have also decreased their credit loss provisions based on forecasts of macroeconomic improvement.

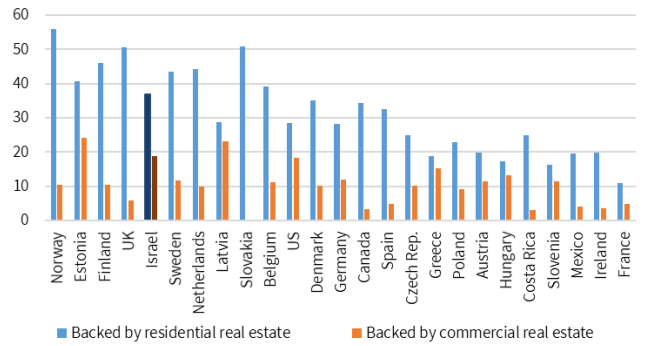
Figure 2.21
Percentage of Business Sector Debt 90 Days or More in Arrears, January 2021–June 2024
(monthly data, percent)



SOURCE: Based on banks' reports to the Bank of Israel.

After several years of a booming real estate market, during which credit to the real estate and construction industry grew at a rapid pace, the share of bank credit in Israel that is backed by real estate is now high by international standards. Additionally, a significant proportion of corporate bonds in Israel—approximately one-third of the outstanding amount—is issued by real estate and construction companies. These characteristics underscore the systemic importance of the real estate and construction industry to the financial system.

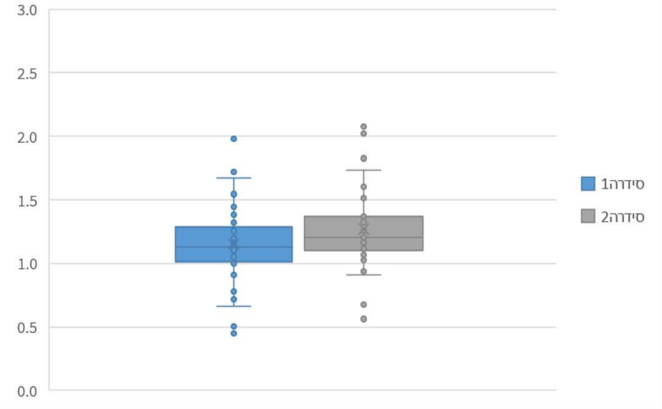
Figure 2.22
Rate of Bank Loans that are Backed by a Residential or Commercial Property, International Comparison, 2023:Q4
(quarterly data, percent)



SOURCE: IMF data.

The decline in the current ratio[13] among public construction companies indicates a worsening of the liquidity situation in this industry. In contrast, commercial real estate companies maintained better liquidity (see the spotlight on commercial real estate above). Further liquidity deterioration, whether due to reduced construction activity, declining sales, or deferred payment terms for home sales, could bring some companies to insolvency.

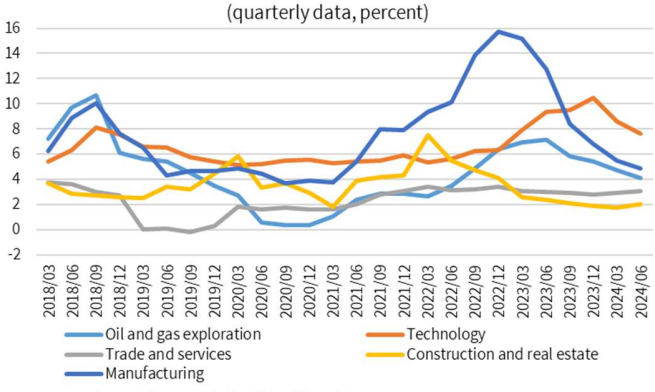
Figure 2.23
Current Ratio of Public Construction Companies, Distribution, 2022 and 2024 (quarterly data)



[13] An indicator of short-term leverage which is defined as the ratio between a company's current assets and its current liabilities.

Data from the first quarter of 2024 indicate that the profitability of public companies in the manufacturing, technology, and oil and gas industries relative to their financing expenses was negatively impacted by the war. However, there was a slight improvement in other industries. Interest coverage ratios are currently at reasonable levels in most industries compared to recent years.

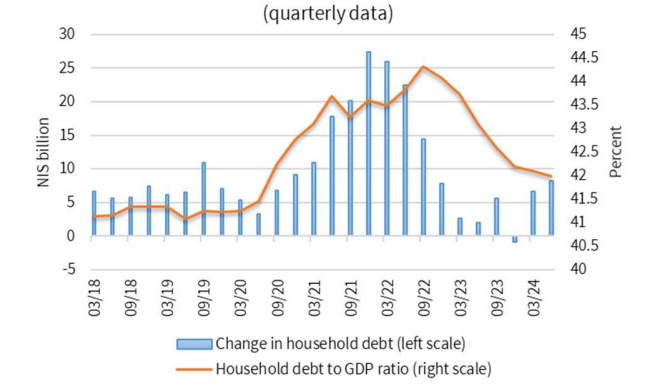
Figure 2.24
Interest Coverage Ratio Among Public Companies, by Industry, March 2018–June 2024
(quarterly data, percent)



SOURCE: Based on public companies' published financial statements.

The downward trend in the household debt to GDP ratio continued, even as household debt grew in the first half of 2024, driven by an increase in mortgage debt while other components remained stable.

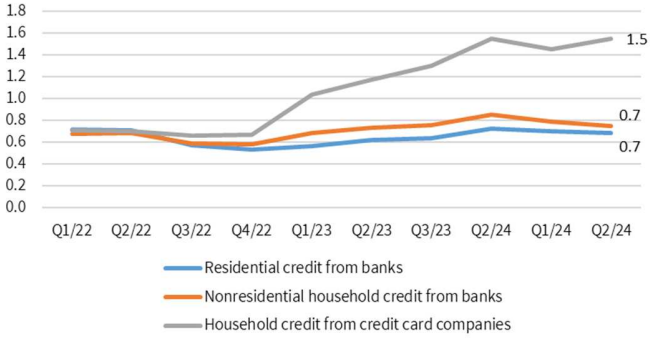
Figure 2.25
Change in Household Debt and Debt to GDP Ratio, March 2018–June 2024
(quarterly data)



SOURCE: Based on published financial statements.

Credit quality indicators for households point to a stabilization in the delinquency rate, among both banks and credit card companies. However, the delinquency rate among credit card companies remains twice as high as that of banks.

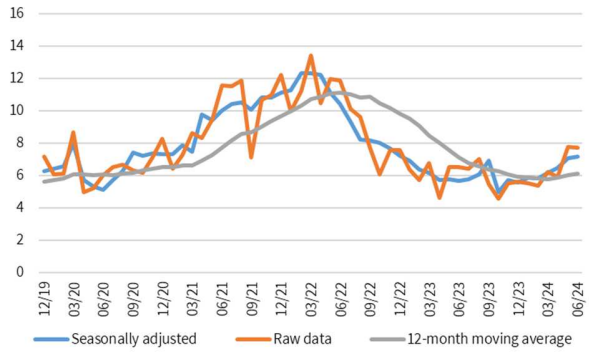
Figure 2.26
Rate of Nonaccumulating Credit and Accumulating Credit More than 90 Days in Arrears, March 2022–June 2024
(banks and credit card companies, quarterly data, percent)



SOURCE: Based on published financial statements.

Following a sharp decline in the volume of housing transactions at the onset of the Swords of Iron War and a subsequent partial recovery, there has been a recent uptick in the pace of new mortgage issues. July 2024 saw an exceptionally high volume of new mortgages, totaling NIS 9 billion.

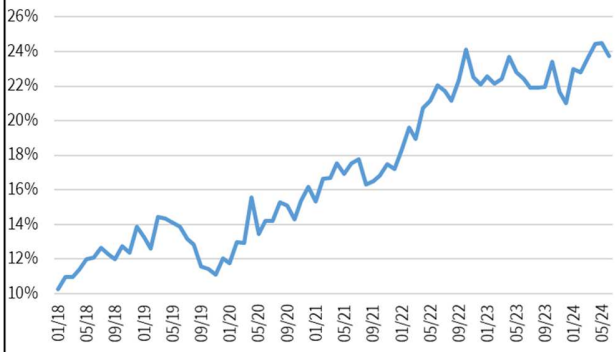
Figure 2.27
New Mortgage Borrowing, December 2019–June 2024
(monthly data, NIS billion)



SOURCE: Based on banks' reports to the Bank of Israel.

Over the past two years, the proportion of high-risk loans has stabilized at historically high levels, exceeding 20 percent.[14]

Figure 2.28
Rate of New Mortgages at High Risk, January 2018–June 2024
(monthly data, percent)



SOURCE: Based on banks' reports to the Bank of Israel.

Spotlight III – Trends in the new home market, bullet loans[15], and builders' financing incentives

- Sales of new homes have recovered since November 2023, driven by incentives from contractors that essentially and indirectly reduce home prices.
- These promotions include, for example, upgraded kitchens, free modifications to the home, exemption from indexation to the Construction Inputs Index, deferred payments until the delivery date of the apartment, and bullet loans financed by the contractor.
- Bullet loans constitute a growing share of new mortgages. The growth of such loans is due to the incentive provided by the builder, such that he pays the interest, and buyers commit to repaying the principal upon delivery of the house. At that stage, buyers are expected to convert the bullet loan into a standard mortgage loan.

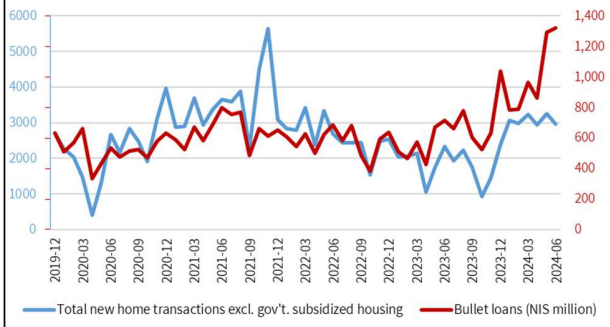
[14] High-risk mortgages are characterized by loan to value ratios of between 60 and 75 percent and/or a payment-to-income ratio of 30 to 40 percent.
[15] Loans in which the principal is paid entirely at the end of the period, whether the interest is paid over the life of the loan (bullet) or at the end of the period together with the principal (balloon).

- The main risks associated with the increase in bullet loans include the uncertainty faced by buyers as to the terms of the loan they will receive in the future and the risk of a future recession, which might prevent them from securing the mortgage amount required to convert the bullet loan.
- Nonetheless, a systemic review indicates that the risk associated with these loans is limited by various means and is therefore not expected to pose a significant threat to the banking system.

On the eve of the Swords of Iron War, the sales of new homes were at a low level due to rising interest rates, and developers accumulated a significant inventory (approximately 61,000 unsold homes). With the outbreak of the war in October 2023, the sales of new homes dropped sharply; however, by November-December, a recovery was evident. The recovery was the result of increased demand for new homes with safe rooms (see Chapter 8 of the Bank of Israel Report, 2023), promotions and incentives offered by developers to buyers, alongside concerns over a potential future shortage of new housing due to disruptions in the construction industry stemming from the prohibition on employing Palestinian workers. Promotions offered by developers included deferring most payments to the occupancy date (80/20 or even 90/10 payment plans), canceling indexation to the Construction Inputs Price index, and offering upgrades and changes to apartment specifications. Payment deferral promotions have become the primary method for purchasing a new home. Additional financing incentives offered by developers include bullet mortgage loans provided to buyers, with the interest on these loans repaid by the builder. Buyers are expected to repay the principal near the time of the delivery, usually by converting the bullet loan into a standard mortgage loan.

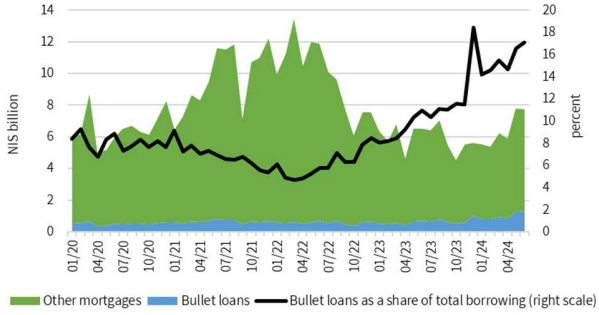
Builders' financing incentives, as shown in Figure 3.1, have increased the use of bullet loans for purchasing a home. While the sales of new homes (excluding subsidized homes) in recent months has remained similar to mid-2020 levels, the volume of bullet loans provided has more than doubled compared to sales during the same period and now accounts for over 15 percent of new mortgages (see Figure 3.2). As mentioned, most of the recent bullet loans have been organized by developers who direct buyers to specific banks with which they have arrangements. Developers cover the interest on these loans, while buyers, under whose names the loans are registered, transfer the total loan amount they receive to the developers in exchange for issuing a "Sales Law Guarantee." The amount of the bullet loan is determined by the developer but does not exceed the regulatory mortgage limit (LTV) that the buyer is eligible for, based on whether they are purchasing a first home, upgrading, or investing. The repayment date for these loans is preset to coincide with the expected completion of construction and delivery of the home. At that point, buyers are expected to convert the bullet loan into a standard mortgage loan.

Figure 3.1
New Home Transactions and Bullet Loan Borrowing, 2019–June 2024
(monthly data)



SOURCE: Based on Central Bureau of Statistics and Banking Supervision Department data.

Figure 3.2
Total New Mortgages and Bullet Loans, January 2018–June 2024
(monthly data)



SOURCE: Based on banks' reports to the Bank of Israel.

Advantages and Risks of the Bullet Loan Arrangement

For developers/builders, these loans reduce financing costs, as they are classified as housing loans, which are cheaper than business loans for contractors. This arrangement also enables contractors to increase home sales and demonstrate project progress without reducing prices. The interest paid by the contractor serves as an alternative to offering buyers a discount on the home price, which is not reflected in a reduction in the Home Price Index. For buyers, this arrangement reduces their loan payments during the interim period between the purchase

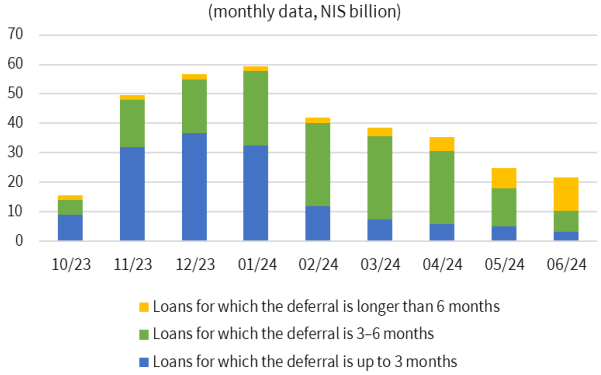
and the delivery of the apartment. Unlike the "usual" scenario where buyers must pay an increasing portion of their mortgage while also covering housing expenses (e.g., rent or a mortgage on an existing home), this relief allows potential buyers to purchase a home they otherwise might not have been able to afford.

The banks providing bullet loans also benefit from this arrangement, because these loans are less risky than business loans to contractors, carry lower capital costs, and facilitate additional credit to the construction and real estate sectors without exceeding industry credit limit. However, several risks arise with the increased prevalence of bullet loans. First, prices may become misaligned with changing market conditions, creating challenges in adjusting them as needed. Second, buyers face the risk of needing to refinance the bullet loan conversion subject to uncertain future market conditions. A reliance on selling the purchased property before completing the transaction could result in financial losses of around 10 percent of the property's value due to the "agreed-on compensation" clause in purchase contracts for new homes. Third, if a large number of buyers cannot complete the transaction, developers might end up with unsold inventories of finished homes. Finally, a recession in two to three years could worsen the financial situation of many buyers, making it difficult for them to secure a mortgage in order to redeem the bullet loan. This scenario could lead to losses for the banking system.

Nonetheless, a systemic review of the phenomenon and an assessment of systemic risks highlighted significant heterogeneity in the characteristics of these loans and several factors that reduce the likelihood of a major risk to the banking system. These include, for example: geographical diversification of the projects offering bullet loans, thus reducing localized market risks; a quantitative limit imposed by builders themselves on the proportion of bullet loan transactions within each project; one bank (or institutional entity) funds the project while another provides bullet loans to buyers, thus distributing risk among financial institutions; the dominance of medium-to-large developers or builders that have lower insolvency risk; and underwriting by the banks of buyers when extending a bullet loan, in order to assess a buyer's repayment ability, including their ability to make future repayments after converting a bullet loan into a standard mortgage.

We estimate that if housing prices increase or if demand returns to 2021–22 levels, and when interest rates decrease, builders are likely to stop offering bullet loans, thus reducing their prevalence.

Figure 2.29
Outstanding Housing Loans in Deferral, October 2023–June 2024
(monthly data, NIS billion)



SOURCE: Based on banks' reports to the Bank of Israel.

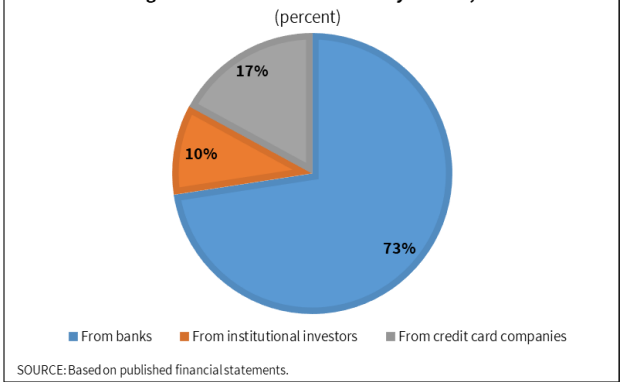
The volume of deferred loans continues to decline; however, in the case of housing loans, there remains a relatively high percentage of borrowers—approximately 30 percent—who have not yet resumed repayments under the loan deferment framework initiated due to the war.[16] This rate is lower in other segments, ranging between 10 percent and 20 percent. Housing loans still under deferred repayment represent about 79 percent of total deferred loans and approximately 4 percent of outstanding housing credit. Among borrowers who have resumed repayments after the deferral period, some are in arrears. It is notable that the proportion of loans in arrears for more than 30 days in the nonhousing household sector stands at 4 percent, compared to approximately 1.5 percent for loans included in the deferment framework prior to the deferral.

Since the war began, non-housing credit has declined by approximately NIS 2 billion. At the same time, the relative share of credit provided by banks has continued to rise, following a trend that began in 2023. This follows a long period during which its weight decreased, primarily in favor of loans from institutional bodies. These institutional loans have declined by NIS 12 billion since

[16] At the beginning of the Swords of Iron War, the Bank of Israel formulated a scheme for the deferral of loan payments which was adopted by the banking system. As part of the scheme, households directly affected by a terrorist attack or by the war were given the option of deferring loan payments for three months without incurring interest costs or fees. In addition, the bank is permitted to defer loan payments for additional populations. Given that the war is still ongoing, the Bank of Israel announced on June 2024 that the scheme adopted by the banks would be extended by three months, with adjustments of the eligibility conditions. Among other things, the deferral period of the loans and mortgages for those eligible would not be longer than nine months.

reaching a peak in 2022. In other words, against the backdrop of tighter monetary policy, household credit sources have become less diversified, with procyclical behavior among nonbank lenders proving to be stronger.

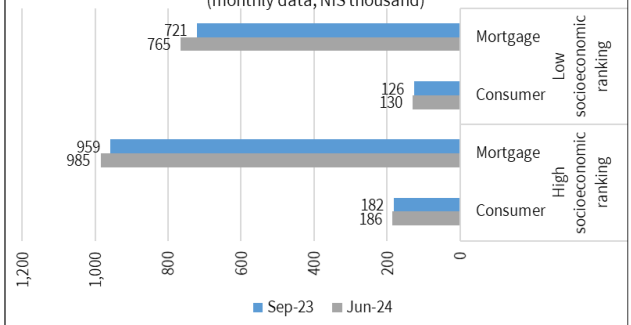
Figure 2.30
Outstanding Nonresidential Household by Lender, June 2024
(percent)



SOURCE: Based on published financial statements.

Since the outbreak of the war, average household debt has increased, both in mortgages and non-housing debt. Among households in cities with low socioeconomic ranking, the increase in the average mortgage debt was double that among households from cities with a high socioeconomic ranking. In addition, in more well-off cities, there was a decrease in the number of households with consumer debt or overdrafts—a trend not observed among households from cities with a low socioeconomic ranking. The number of households with mortgages remained almost unchanged in both groups.

Figure 2.31
Average Credit Balance by Debt Type and Borrower Type, September 2023 and June 2024
(monthly data, NIS thousand)



SOURCE: Bank of Israel Credit Data Register.

Spotlight IV – Developments in the auto loan market in Israel, 2020–24

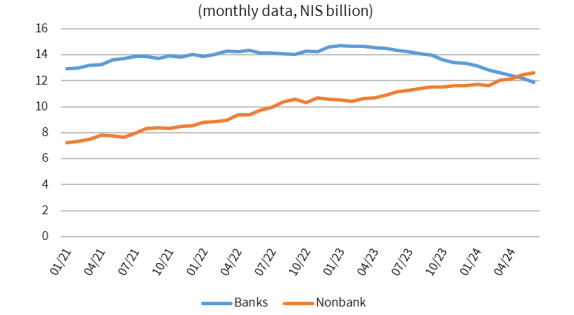
The auto loan market in Israel has expanded significantly in recent years, particularly in terms of retail credit, which is provided by regulated nonbank entities (hereafter: nonbank financial entities).17 While auto loans have not been a significant area of activity for the banking system in recent years, it has become one of the primary focuses for nonbank consumer credit providers. Over 80 percent of the nonbank consumer credit reported to the credit data registry is for auto

[17] The report focuses solely on loans classified in the credit database as loans for the purpose of a vehicle purchase, specifically those reported with vehicle-based collateral (vehicle collateral). The classification of the credit provider is based on the entity reporting to the database, i.e., the operator of the loan, even though some nonbank credit is sold to other financial entities and may not necessarily remain on the reporting entity's balance sheet. In addition, it should be noted that information sources that began reporting to the database after January 2021 are excluded from the analysis in order to maintain consistency in reporting across the periods.

loans, compared to only about 15 percent of bank consumer credit. Accordingly, this spotlight surveys the auto loan market in Israel in recent years and the development of risk in that market.

Figure 4.1 highlights total consumer credit reported to the credit data registry that is secured by a vehicle, broken down between banks and nonbank financial institutions. During the reviewed period, the credit balance of nonbank entities surged from NIS 7.2 billion to NIS 12.6 billion, growth of 74 percent. In contrast, the balance of bank credit secured by a vehicle declined by 8 percent over the same period.

Figure 4.1
Outstanding Consumer Credit with a Vehicular Lien, by Credit Provider, January 2021–June 2024
(monthly data, NIS billion)



SOURCE: Based on Credit Data Register.

Table 1 provides descriptive statistics on the characteristics of vehicle-secured loans issued between January 2021 and June 2024, with a breakdown by loans provided by the banking system and those provided by nonbank financial institutions.

Table 1 – Characteristics of credit secured by a vehicle provided, January 2021 - June 2024

	Nonbank Financial Entities		Banking Corporations	
	Average	Median	Average	Median
Original Loan Amount	97,728	78,900	108,558	98,500
Collateral Value	132,477	106,000	168,238	145,000
Original Loan Term (Months)	52.48	58.9	55.1	59.5
Interest Rate	9.06	9.82	6.06	6.43
Proportion in the form of CPI-indexed Loans	87 percent		39 percent	
Proportion in the form of Fixed-Rate Loans	94 percent		41 percent	
Number of New Loans Provided	249,513		174,907	

SOURCE: Credit data registry and processing by the Bank of Israel.

The table shows that vehicle-secured loans from nonbanking institutions and banking corporations tend to be similar in terms of the original credit period (a median of approximately 59 months). The loan size in the case of nonbanking institutions is slightly smaller than in the case of banking corporations, and the collateral value is also lower. The interest rates on auto loans from nonbanking institutions are on average about 3 percentage points higher. However, it is important to note the significant difference in the prevalent type of interest rate among

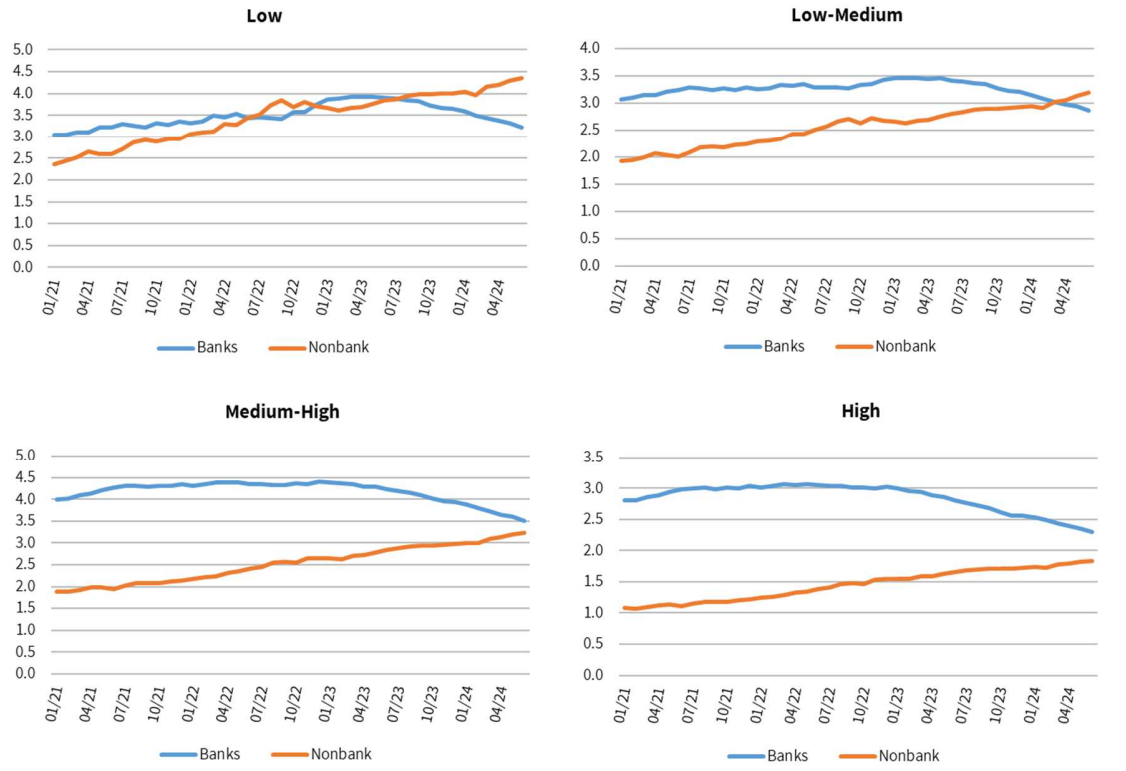
nonbanking institutions, where most loans are fixed-rate loans linked to the CPI, as compared to banking loans, which are mostly variable-rate loans linked to the prime rate. In other words, the price differences may also reflect differences arising from the nature of the loan, including the type of interest rate.

To examine the differences between borrower groups that took out loans from nonbanking institutions versus banks, Figure 2 presents total auto loans according to the socioeconomic ranking of the borrowers,[18] divided into four groups: cities ranked 1–3, defined as low socioeconomic status; cities ranked 4–5 – medium-low status; cities ranked 6–7 – medium-high status; and cities ranked 8–10 – high status. This breakdown leads to several insights. First, it is evident that the higher the socioeconomic status of a city, the larger is the proportion of bank credit for vehicles. Second, there appears to have been a significant increase over time in the proportion of borrowers who obtain a loan from a nonbanking institution across all groups of cities, including those with high socioeconomic status. That is, at least part of the increase in the outstanding balance of nonbanking credit is due to borrowers who have the possibility of obtaining a loan from a bank, which points to a trend of expanded competition in the industry between the banks and nonbanks.

In addition, we examined the development of risk in the sector. Figure 3 shows the proportion of credit classified as delinquent in the credit database, according to type of credit provider.19 It is evident that throughout the entire period, the delinquency rate among nonbanking institutions tends to be higher than in the banking system. This suggests that, in general, the credit provided by non-banking institutions tends to carry a higher level of risk than the credit from banking corporations.

[18] The variable "socioeconomic status" takes values from 1 (low) to 10 (high) according to the socioeconomic status of the city in which the borrower lives according to the Central Bureau of Statistics.
[19] The delinquency status in the credit data registry means that a business is in arrears for an amount of over NIS 2000 for 30 days or more after the expected date of payment.

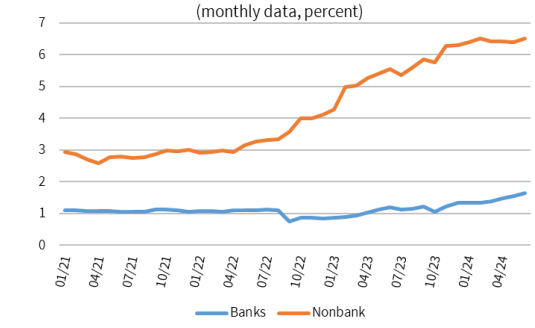
Figure 4.2
Outstanding Consumer Credit With A Vehicular Lien Reported to the Credit Register, by Credit Provider and Borrower's Residential Socioeconomic Grade, January 2021–June 2024
(NIS billion)



Furthermore, an increase in delinquency rates among nonbanking companies was observed in mid-2022, while the banking system exhibited relative stability during that time. Toward the end of the reviewed period, there was a slight increase in delinquency rates among the banks, while the situation was stable among nonbanking companies.

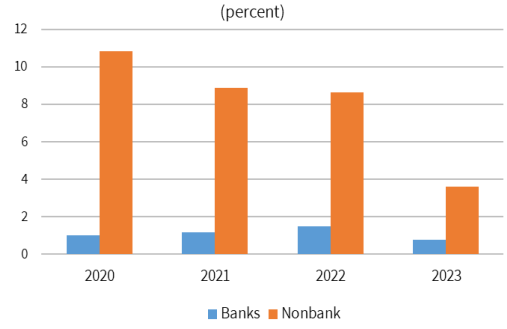
The years 2021–22 were a period of significant growth in the auto loan market, particularly among nonbanking entities. It is possible that part of the increase in delinquency rates stems from an increase in the risk appetite of these companies and a relaxation of underwriting conditions for loans issued during that period.

Figure 4.3
Rate of Consumer Credit with a Vehicular Lien that is 90 Days or More in Arrears, by Credit Provider, January 2021–June 2024
(monthly data, percent)



SOURCE: Based on Credit Data Register.

Figure 4.4
Rate of Consumer Credit with a Vehicular Lien that in Arrears, by Credit Provider and Year of Credit Provision, June 2024
(percent)



SOURCE: Based on Credit Data Register.

To test this hypothesis, Figure 4 presents the proportion of auto loans classified as in arrears as of June 2024, by the type of credit provider and the year in which the loan was issued. A significantly higher delinquency rate is evident among loans issued in 2021–22 compared to those issued in 2023. While part of this difference may reflect the duration of the loans, it appears that the significant decrease between 2022 and 2023 is also related to a tightening of the companies' underwriting conditions and a more conservative approach to granting credit compared to the years 2021–22.

3. The resilience of the financial system

The stability of the financial system depends on the resilience of its various institutions to shocks that emerge through key exposure channels. The assessment of the system's resilience, presented in the Financial Stability Report, is based on a variety of indicators derived from the financial institutions' accounting data. These indicators are used to monitor their capacity to absorb losses resulting from the realization of risk scenarios.

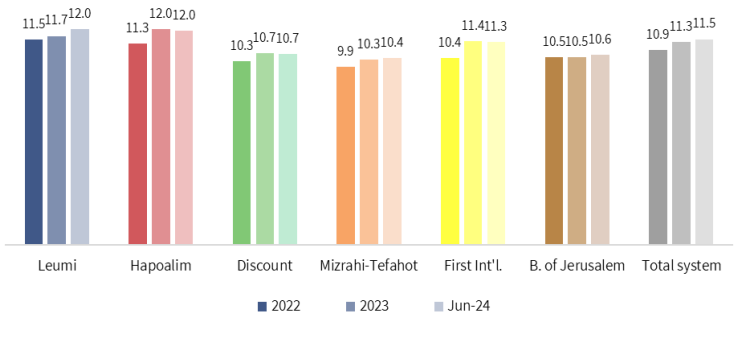
The main financial institutions, including the banks and insurance companies, remain strong and, in some areas, have improved their resilience to shocks. One of the primary contributing

factors to this resilience is the high interest rate environment. The main risks to financial institutions are the possibility of a sharp decline in financial asset prices and/or a continued deterioration in credit quality. However, we estimate that the risk to the stability of banks and insurance companies remains low, given their financial robustness and the buffers they have put in place.

3.1. The Banking System

Banks in Israel have maintained their financial stability, with capital ratios and liquidity levels remaining high during the first half of 2024. The historically high profitability recorded by banks over the past two years, driven by strong interest income in a high interest rate environment, contributed to the strength of their capital base. This profitability was achieved despite trends that worked to erode profits during 2023 and the first half of 2024, such as a significant slowdown in credit portfolio growth starting in the second half of 2023, a decline in credit quality, and a shift of funds from current accounts to interest-bearing deposits.[20]

Figure 3.1
Tier-1 Capital Ratio, Total Banking System, January 2021–June 2024 (percent)



SOURCE: Based on published financial statements.

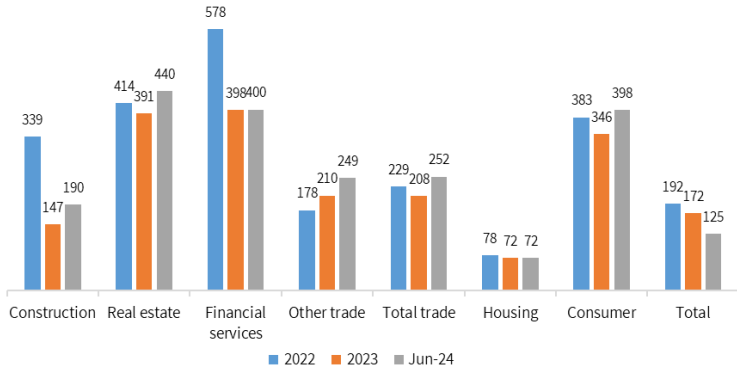
The quality of the banks' credit portfolios declined during 2023 across all sectors, and particularly housing, and in credit to the real estate and construction industries. Against this backdrop and in view of adjustments resulting from expected macroeconomic impacts on the economy, the banks significantly increased their credit loss provision at the end of 2023. However, during the first half of 2024, the provision for credit loss decreased, with some banks even reporting income in this category.[21] This improvement reflects the banks' updated assessments of improved

[20] With the outbreak of the Swords of Iron War, there was a slowdown in this shift, given that private customers preferred to leave their money in a checking account rather than transfer it to interest-bearing deposits.
[21] The credit loss provision was 0.09 percent (in annual terms) in the first half of 2024 compared to 0.5 percent during 2023.

macroeconomic conditions and revised projections of the anticipated impact of the Swords of Iron War relative to the estimates made in the last quarter of 2023.

Banks were adversely affected by the downgrade of Israel's credit rating by the Moody's, S&P, and Fitch rating agencies[22] and by the increase in Israel's risk premium, which led to higher yields on bank bonds. The downgrade of Israel's credit rating by S&P[23] resulted in higher capital requirements against the banks' exposures to the Israeli government,[24] public sector entities, institutional bodies, and other banks. This led to a decline in Tier 1 capital ratios by up to 0.25 percentage points. If S&P decides on two additional downgrades of Israel's credit rating to BBB, it would further impact banks' capital ratios. Despite the negative effect of the downgrade, Tier 1 capital ratios increased during the first half of 2024 due to high profitability and a slowdown in the growth of risk-weighted assets amid a deceleration in credit expansion.

Figure 3.2
Coverage Ratio in Selected Industries and Segments, Total Banking System, 2022–June 2024 (percent)



SOURCE: Based on published financial statements.

The loss absorption buffer (or the allowance for credit losses) increased by approximately 30 percent during 2023, reaching a total of NIS 26 billion**,** with most of the growth concentrated in the construction and real estate industries and in personal credit. However, the increase in the loss absorption buffer was smaller than the growth in nonperforming loans and loans in arrears of more than 90 days, which led to a decline in the coverage ratio in 2023. During the first half of

[22] On Friday, February 9, 2024, Moody's credit rating agency announced a downgrade of Israel's sovereign debt rating from A1 to A2, with a negative outlook. On Thursday, April 18, 2024, the S&P rating agency announced a downgrade of Israel's sovereign debt rating from AA to A, also with a negative outlook. On Monday, August 12, 2024, Fitch announced a downgrade of Israel's sovereign debt rating from A+ to A, with a negative outlook.

[23] Notably, apart from Bank Leumi, which uses the most conservative credit rating among the three rating agencies (S&P**,** Fitch**,** and Moody's), all the banks rely exclusively on S&P's ratings. Therefore, for most banks in the system, downgrades by the other rating agencies are not expected to have a direct impact on capital.

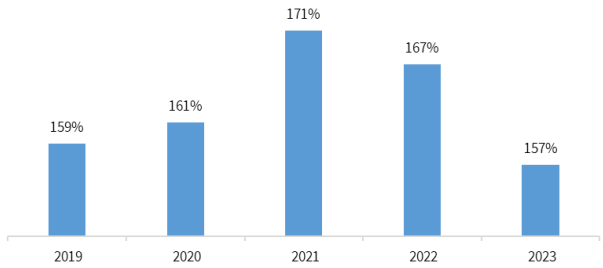
[24] Exposures of banking corporations to the Government of Israel and the Bank of Israel, denominated or paid in foreign currency.

2024, the coverage ratio[25] improved due to a reduction in total nonperforming loans and loans in arrears of more than 90 days in the construction and real estate industries.

3.2. The insurance companies

Insurance companies maintained their resilience and demonstrated high economic solvency ratios as of the end of 2023.[26] While the solvency ratio of insurance companies was somewhat impacted in 2023, it still reflects significant robustness and substantial capital surpluses. The decline in the solvency ratio was primarily due to the reduction in the deduction due to the spread period, which was recalculated following the increase in the inflation-indexed interest rate curve used for determining the economic solvency ratio, along with the natural attrition of the deduction over time.[27]

Figure 3.3
Weighted Financial Repayment Capacity of the Five Largest Companies, 2019–2023 (percent)



SOURCE: Based on data from the Capital Market, Insurance and Savings Authority.

Several factors contributed to the stability of the insurance companies: an increase in financial asset prices, the raising of capital, and a reduction in car insurance claims due to decreased travel and theft rates as a result of the war. On the other hand, inflation, declines in the value of

[25] The coverage ratio is the ratio between the credit loss allowance and total nonperforming loans and loans in arrears of more than 90 days.

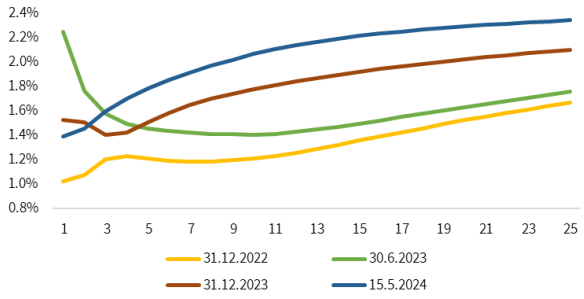
[26] Insurance companies in Israel are required to comply with economic solvency regulations based on the European Solvency II framework. Under this regime, companies must calculate an economic balance sheet by assessing the economic value of their assets and liabilities and determining the capital required to withstand various adverse scenarios. Based on this framework, an economic solvency ratio is derived, reflecting the level of capital relative to regulatory and scenario-based requirements. For further details on the economic solvency regime for insurance companies, see Chapter 6.2: Insurance Companies in the Financial Stability Report for the First Half of 2023.

[27] The deduction during the spread period refers to one of the alternatives under the transitional guidelines, which allow for a gradual spread of the increase in certain insurance reserves until 2032 for companies approved by the Capital Market, Insurance, and Savings Authority. Insurance companies whose reserves were increased due to regulatory requirements for transitioning to the Solvency II regime are permitted to spread this increase over the transition period. The amount of the deduction decreases over time, proportional to the remaining duration until the end of the transition period, and may also change following recalculations due to significant changes affecting its components, such as a material change in the interest rate curve. In the reporting of the solvency ratio for 2023, all five major insurance companies opted for the transitional instructions of reserve deduction.

overseas real estate, an increase in life insurance claims due to the war[28], and the continued growth in long-term care claims and medical expenses, as well as dividend distributions negatively impacted the solvency ratio and mitigated the aforementioned positive effects mentioned above.

In the first half of 2024, continued increases in the inflation-indexed interest rate curve and in financial asset prices in Israel and other countries contributed positively to the stability of the insurance companies. The significant uncertainty regarding the duration and character of the war, and the potential for escalation on other fronts, and the economic implications (including the possibility of renewed market instability and inflationary pressures), may lead to a decline in solvency ratios, but are not expected, in our estimation, to have a material effect on the stability of the insurance companies.

Figure 3.4
Comparing the Risk-Free Interest Rate Curve to Financial Repayment Capacity, December 2022–May 2024 (percent)



SOURCE: Based on data from the Capital Market, Insurance and Savings Authority.

At the end of 2023, the aggregate economic capital[29] of the five largest insurance companies[30] amounted to approximately NIS 69 billion, with required solvency capital of about NIS 44 billion, resulting in an aggregate solvency ratio for these five companies of 157 percent (Figure 3.3).

Throughout 2023, interest rate curves shifted upward by approximately 50 basis points on average across all terms, with an additional average increase of about 20 basis points at the beginning of 2024 (Figure 3.4),[31] contributing to an improvement in the economic solvency ratio.

[28] This insurance provides a payment to the beneficiaries of the deceased, whether a civilian or a soldier, if he had life insurance.
[29] All of the data on economic capital and the economic solvency ratio refer to results under the transitional instructions, unless otherwise stated.
[30] The five largest insurance companies are Migdal, Clal, Phoenix, Harel, and Menora Mivtachim.
[31] The interest rate curves for calculating the economic solvency ratio are based on the curves published by the company awarded the tender for price quotations. These, in turn, are based on the yield-to-maturity of tradable Government of Israel bonds. The interest rate curves used for the economic solvency ratio are identical to those published by the tender-winning company up to the Last Liquid Point (LLP) in the 10th year. Beyond this point, the interest rate curves are determined using Smith-Wilson extrapolation up to the Ultimate Forward Rate (UFR), set at

4. Risk scenarios

The level of financial stability is influenced not only by the environment in which the financial system operates but also by the risk scenarios relevant to the period, given the channels of exposure to risk and the level of their vulnerability. The selection of the scenarios and the assessment of the likelihood of them materializing involve subjective judgment and are affected by current developments in the risk factors emerging in Israel and the advanced economies, as presented in reviews by international institutions.

4.1. Main risk scenario: Expansion of the war and increased external political-economic pressure on Israel

A scenario involving the escalation and prolongation of fighting on the northern border, in Gaza, and on additional fronts could lead to further damage to the economy, due to the mobilization of reserve forces, disruptions in employment, increased defense expenditure, and other factors.

4.2. The realization of financial risks worldwide due to continued monetary tightening, at least in the near future

According to the Global Financial Stability Report published in mid-April 2024, short-term risks to the global financial system and global GDP growth have declined over the past six months. Markets at the time reflected growing confidence in a "soft landing" for global economic activity and anticipated the imminent start of monetary easing. In the months since the report's release, this has remained the leading scenario, with inflation rates in Europe and the US declining moderately. The financial vulnerabilities identified in the report include continued price declines in commercial real estate assets as well as residential properties, with this trend having a negative impact on bank balance sheets worldwide. Additional risks include corporate debt, ongoing

60 years. From the UFR point onward, the future interest rate is fixed. For details regarding the transmission of changes in the interest rate curve to the main calculation components, see the Financial Stability Report for the First Half of 2023. Based on interest rate sensitivity tests published by the companies as of December 31, 2023, a 0.5 percent upward shift in the interest rate curve (up to the LLP) is expected to increase the economic solvency ratio of the largest companies by 12 to 19 percentage points.

liquidity erosion in companies due to high financing costs, continued deterioration in the Chinese real estate market, and heightened volatility in the public debt markets of developing economies.

Volatility in public debt markets may significantly impact Israel, given that its public financing needs have grown due to the war. In addition, risks stemming from global commercial real estate and foreign corporate debt could harm the public's managed asset portfolios. The trend of interest rates in Israel will depend on both domestic factors and international monetary policy. A surprise in the pace of local interest rate reductions could challenge players who took on short-term debt and expected to refinance under more favorable conditions. Conversely, a positive interest rate gap between Israel and the advanced economies could help protect the shekel from depreciation and support demand for Government of Israel bond issues.

The World Economic Outlook from April 2024 predicts global economic growth during 2024 and 2025 to continue at the same pace as in 2023. Global inflation is expected to decline steadily, with advanced economies returning to their inflation targets at a slower rate than previously estimated, while developing economies will continue to experience relatively high inflation. Risks to the global forecast are now generally balanced. However, as noted in the report, new price increases driven by geopolitical tensions—including the war in Ukraine and in the Gaza Strip—along with persistent core inflation and uneven inflation across economies, could pressure the financial sector and currency movements, raise interest rate expectations, and reduce asset prices. The report also highlights that higher interest rates could have a greater cooling-off effect than anticipated, increasing the cost of fixed-rate mortgages for a certain term and the cost of other household debt, creating financial pressure on households. Regarding China, the report warns that without comprehensive measures to address its problematic real estate sector, growth there could stagnate, adversely affecting its trade partners.

5. Boxes

5.1. The exposure of financial institutions and mutual funds to futures contracts and the change in investment preferences

Main findings

- The box describes two main developments: the continued rapid increase in equity exposure through futures contracts in institutional and mutual fund portfolios, and the shift in asset allocation preferences among pension fund members from age- and risk-adjusted investment bundles to active investment in US equity indices through futures contracts with full foreign exchange exposure.
- These developments have macroprudential implications for the capital and foreign exchange markets in the event of increased volatility in global markets.
- Following the COVID-19 crisis, institutional entities and mutual funds increased their dollar liquidity buffers. Recent data analysis suggests that to address the possibility of sharp declines in foreign markets, this buffer needs to be further enlarged.
- Further increasing the dollar liquidity buffer would enhance the resilience of institutional entities and mutual funds against margin calls for additional dollar collateral and would reduce the likelihood of failures in the domestic capital and foreign exchange markets.

Background

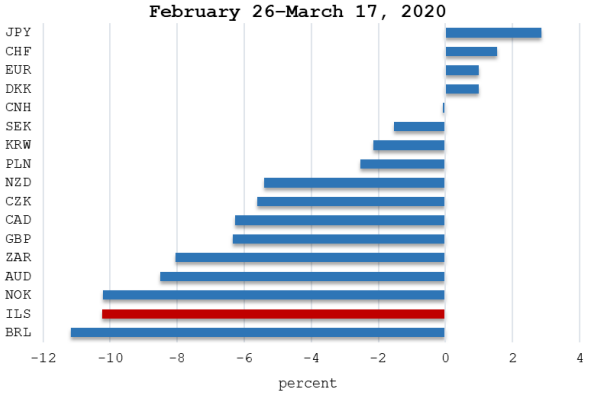
Figure 1
Cumulative Foreign Exchange Purchases by Institutional Investors, and S&P 500 Index, January 2018–May 2020

SOURCE: Based on Bloomberg.

The COVID-19 pandemic that began in March 2020 led to sharp declines in stock markets worldwide, including in Israel. While the declines in stock indices were generally aligned with the global trend, the response of the government bond market and the shekel-dollar exchange rate was more pronounced. The more pronounced reaction in Israel was explained by the significant exposure of institutional investors to stocks on the S&P500 index through futures contracts, with a notional value of approximately $30 billion at the time, and a substantial shortfall in dollar liquidity, which was meant to serve as

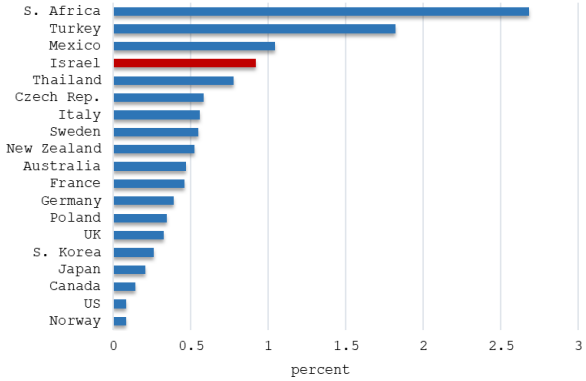
a liquidity source against margin call requirements.[32] The sharp declines in prices of stocks in the S&P500 index of about 34 percent led to margin calls amounting to about $10 billion. A shortage of immediate dollar liquidity among institutional bodies led to a fire sale of shekel-denominated collateral to purchase foreign currency in significant volumes, all within a short period. Initially,

Figure 2
Change in the Major Currencies Against the US Dollar at the Height of the COVID-19 Crisis, February 26–March 17, 2020



SOURCE: Based on Bloomberg.

Figure 3
Change in the Yield on 10-Year Government Bonds at the Height of the Crisis, March 6–22 2020



SOURCE: Based on Bloomberg.

institutional investors turned to the dollar swap market (FX SWAP), but an exceptionally low supply from foreign banks during this period—due to the contraction of dollar resources in the global banking system—caused a failure in this market. As a result, they were forced to purchase large amounts of foreign currency in the dollar-shekel market. The outcome was a sharp increase in yields in Israel, a steep depreciation of the shekel against the dollar beyond the local response and, as mentioned, a failure in the FX SWAP market. In response, the Bank of Israel announced the provision of SWAP lines totaling up to $15 billion (Figures 1–3).[33]

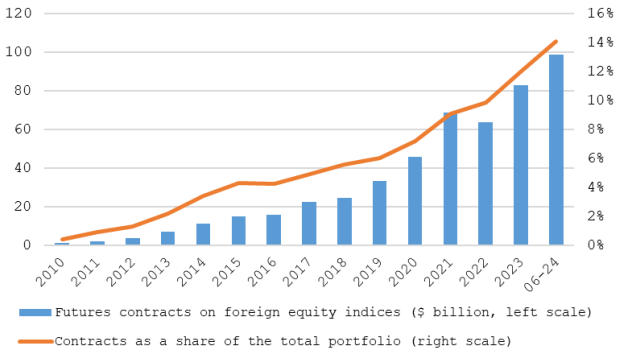
[32] An investment in a futures contract is made on a notional basis. In other words, at the time the contract is created, only a certain percentage of the investment value—known as the initial margin (approximately 5 percent of the notional amount)—is deposited with the broker. Only this amount is in dollars, while the majority of the amount is held in short-term and liquid shekel-denominated assets (such as *Makam* or government bonds), which serve as "collateral" against a demand to increase margins in the event of price declines, known as a margin call. This model creates a substantial currency exposure risk because margin requirements in the event of price declines are both daily and dollar-denominated, while the collateral is shekel-based. Consequently, there is a need for large-scale shekel sales, which are further amplified by a depreciation, thereby creating pressure on the local capital market and the foreign exchange market. Alternatively, large-scale foreign currency purchases may be required, which can impact the foreign exchange market, as occurred during the COVID-19 pandemic.

[33] For further details about the event and the reaction of the Bank of Israel, see: Abir, Friedman, 2021, "Domestic Asset Purchases by the Bank of Israel during the Pandemic", BIS.

The increase in exposure to futures contracts in institutional and mutual fund portfolios

The exposure to equity futures contracts in institutional portfolios has grown significantly in recent years, from approximately $30 billion before the COVID-19 crisis (around 6 percent of institutional portfolios) to about $100 billion today, representing approximately 14 percent of total portfolios (Figure 4). This growth rate is more than threefold in terms of value and more than double in terms of portfolio share. The implications of such levels are that price declines on the scale of what occurred during the COVID-19 pandemic could lead to dollar liquidity demands of approximately $33 billion. The rise in the value of these contracts correlates with the increase in global stock indices. In 2021 and 2023,[34] global stock indices recorded sharp gains, partially explaining the significant rise in the exposure value of futures contracts in institutional portfolios. Therefore, as global indices continue to rise, the value of these contracts in a portfolio increases passively. Another contributing factor is the active reallocation of members' funds, most of which is directed toward futures contracts. Although this segment still represents a relatively small share of the overall portfolio, it is gaining momentum, as will be discussed below.

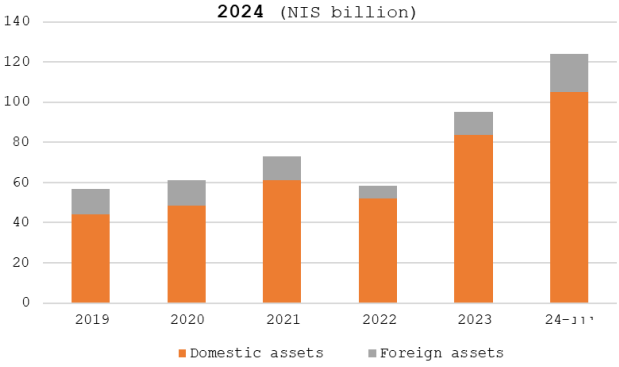
Figure 4
Volume of Futures Contracts Held by Institutional Investors, 2010–June 2024 (end of period)



SOURCE: Based on reports from the institutional investors.

The mutual fund industry has in recent years also significantly increased its exposure to foreign equities by means of futures contracts. This growth is primarily driven by an increase in household investment in higher-risk assets, partly due to the underperformance of the local market. The total assets of these funds

Figure 5
Value of Mutual Funds Tracking Foreign Equities, Divided into Foreign and Domestic Assets, 2019–June 2024 (NIS billion)



SOURCE: Bank of Israel.

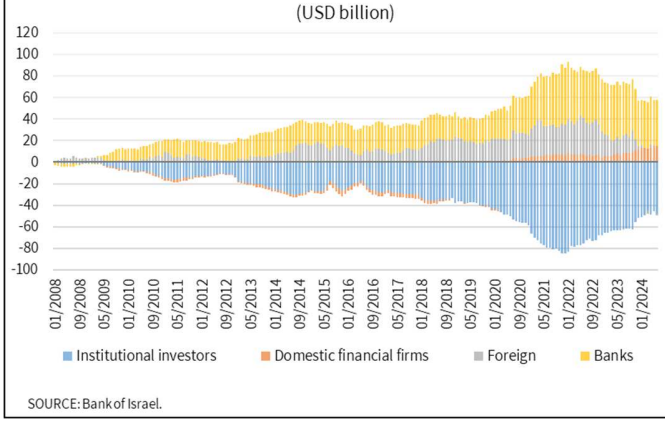
[34] The S&P500 index rose by about 20 percent in 2021 and by about 22 percent in 2023.

amount to approximately NIS 124 billion, of which about NIS 100 billion (approximately $28 billion, Figure 5) represent equity exposure via futures contracts. Foreign currency exposure is achieved by means of spot transactions, after which the funds borrow dollars in exchange for shekels through FX SWAP transactions.

Most of these foreign currency loans via SWAP transactions are short term, lasting only a few days, which results in very low available dollar liquidity that is tied to these deals. However, since the funds borrow dollars through SWAP transactions, a financial crisis that is typically accompanied by a depreciation will provide them with additional dollar liquidity through margin adjustments—unlike the situation faced by institutional entities.[35]

The data in Figure 6 show the inventory of SWAP transactions in the market, which indicate that the counterparty to the mutual funds' SWAP transactions, i.e., the borrower of the foreign currency, is the institutional entity. Given the similar investment characteristics, this relationship could amplify pressure on the dollar-shekel market in the event of a significant market event.

Figure 6
Open Balances–Main Participants, January 2008–June 2024
(USD billion)



SOURCE: Bank of Israel.

The active shift of members to active investment in contracts with full dollar exposure

A new development that has gained momentum in the past two years within institutional portfolios is the active shift of members to investing in S&P500 ETFs[36] with full foreign currency exposure. According to reports from institutional bodies, the volume of these investments is approximately NIS 121 billion shekels and is growing rapidly.

[35] A SWAP transaction consists of a shekel leg and a foreign currency leg and is subject to mark to market (daily settlement). In the event of a depreciation, the foreign currency lender (a mutual fund) receives dollars equal to the depreciation rate multiplied by the transaction value. Conversely, the borrower pays dollars, and the reverse occurs in the case of an appreciation. This means that in the event of a sharp depreciation during a major financial market decline, institutional entities would be required to pay a margin call due to the depreciation, while mutual funds would receive the margin.

[36] Investment in the S&P 500 by way of futures contracts with full foreign currency exposure.

Table 1: Investment in S&P500 ETFs, billions of shekels

	12/2023	6/2024	Total change
Total	69	121	52
Net accumulation since the beginning of the year			7.3
Shifts since the beginning of the year			28.5

Investment in an S&P500 ETF has different characteristics than investment in the general portfolio, in which the institutional entities determine the asset allocation (including exposure to futures contracts) and the levels of exposure to foreign markets and foreign currency, and it also differs by being age- and risk-adjusted. In the case of S&P500 ETFs, institutional investors are passive, with limited managerial flexibility regarding asset composition and exposure to foreign markets and foreign currency.

This phenomenon is also explained by the underperformance of the domestic market relative to global markets, partly due to the legislation for judicial reform and the regional escalation since October 2023. It also accounts for a significant part of the overall increase in exposure to stock futures in institutional portfolios over the past two years, as well as being part of the rapid increase in exposure of institutional portfolios to foreign markets and foreign currency in 2023. It is important to note that the ability of institutional entities to balance the rise in exposure to foreign markets and foreign currency by reducing those exposures in other ETFs is limited. This leads to a faster increase, given developments in global markets, in institutional portfolios and in the levels of exposure to foreign markets and foreign currency.

The investment in S&P500 ETFs works as follows: Institutional investors purchase foreign currency in a spot transaction and futures contracts (initial margin) and then enter into an FX swap transaction in which they deposit foreign currency and borrow in shekels. While this transaction creates exposure to foreign currency, it does not provide dollar liquidity. This is the opposite of the regular activity of institutional bodies in the general portfolio, in which they borrow foreign currency. The shekel proceeds are used to purchase shekel-denominated assets, i.e., *Makam* and government bonds, as in the case of their futures activity in the general portfolio. In this transaction, institutional bodies profit from the basis spread, which reflects a deviation of the shekel interest rate from the interest rate parity law, effectively obtaining a higher dollar interest rate than that derived from the law. This is one of the advantages of the transaction, in

addition to the higher liquidity of futures contracts relative to direct investment in stocks. To the extent that this development in the fund members' investments is not a trend solely dependent on yield differentials between Israel and the rest of the world, then it may pose a challenge to stability.

Calculating the margin call in the case of a global financial crisis (declines of 30 percent)

The exposure to foreign equities by way of futures contracts among institutional entities and mutual funds amounts to $128 billion. Price declines of approximately 30 percent would lead to a foreign currency margin call of about $38 billion. After accounting for the voluntary liquidity buffer, the margin call would amount to approximately $25 billion, compared to around $10 billion during the COVID-19 crisis in March 2020. It is important to note that the margin call by way of futures contracts is not the only challenge faced by institutional bodies during a market crisis. A financial crisis is often accompanied by a sharp depreciation of the shekel, leading to margin calls on the foreign currency loans (part of the FX swap transactions) which are held by institutional entities and that amount to about $44 billion. A depreciation of around 10 percent in such a crisis would create an additional margin call of about $4.4 billion for institutional entities, while the economy's dollar liquidity sources would be constrained due to the global market crisis. In such a scenario, the total margin call could reach approximately $28 billion. Institutional bodies also have an additional source of dollar liquidity in the form of GMRA agreements with foreign banks, which are meant to provide dollar liquidity against shekel-denominated collateral. However, in a severe market crisis, foreign banks tend to reduce their exposure to small emerging markets, even developed ones, and may not accept shekel-denominated assets as collateral.

As a result of the COVID-19 pandemic, institutional entities have on their own initiative increased their dollar liquidity. Mutual funds also manage similar levels of liquidity, and therefore at the moment they appear to be capable of handling dollar liquidity demands corresponding to declines of 5–10 percent in the S&P500 index. Nevertheless, some institutional entities have noted that despite the dollar liquidity buffer, the heightened market volatility in 2022 often caused their dollar collateral to significantly decline in value. If not for the gradual nature of the sharp market declines in 2022, they would have had to again sell shekel-denominated assets in

order to purchase foreign currency.[37] This suggests that the voluntary dollar liquidity buffer is insufficient given the increased market volatility. The situation for mutual funds is somewhat different, since they borrow dollars in swap transactions. In a financial crisis, which is typically accompanied by a depreciation of the shekel, mutual funds would acquire additional dollar liquidity through margin adjustments, unlike institutional investors who borrow foreign currency and therefore must incur a margin call in the event of a depreciation.

Table 2
Calculation of the margin call as a result of institutional exposure to futures contracts and FX swap transactions, billions of dollars

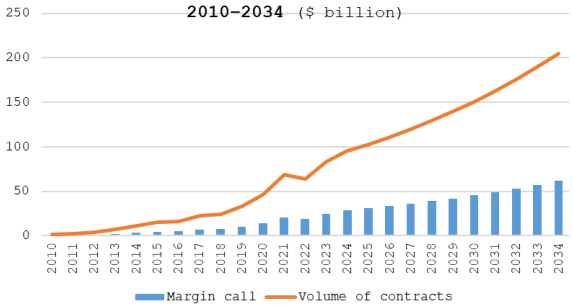
Column	(1)	(2)= (1)*30 percent	(3)= (1)*(10 percent)	(4)=10 percent swap inventory*	(5)=(2)+(3)+(4)	(6)=(2)+(3)
Body	Inventory of futures	Margin call of 30 percent	Voluntary 10 percent liquidity buffer	Effect of a 10 percent depreciation on the swap**	Margin call with a depreciation	Margin call without a depreciation
Institutional entities	100	-30	10	-4.4	-24.4	-20
Foreign equity mutual funds	28	-8.5	2.8	1.5	-4.2	-5.7
Total	128	38.5	12.8	-2.9	-28.6	-25.7

* Swap inventory – The institutional bodies borrow $44 billion, the funds lend $15 billion (February 2024).
**Assumed depreciation of 10 percent in the shekel exchange rate. A drop of 30 percent in the S&P500 index; assumption of dollar liquidity rate of 10 percent among the institutional entities and the mutual funds.

[37] Or alternatively they could turn to the Bank of Israel's repo framework.

The data presented in Table 2 indicate that despite the dollar liquidity buffer, sharp declines in the markets will compel institutional entities and mutual funds to purchase significant amounts of foreign exchange within a short period, even though a "dollar shortage" may exist in the market.

Figure 7
Scenario: Increase in Contract Inventory and Margin Calls in the Case of a 30% Decline in the S&P Index, 2010–2034 ($ billion)



* Assuming 8% growth in the contract inventory.
SOURCE: Based on reports from the institutional investors.

As a result, the dynamics that were observed in the foreign exchange market during the COVID-19 crisis might reoccur, and with even greater intensity. Moreover, in a scenario where the growth rate in the inventory of futures contracts in institutional portfolios matches the growth rate of the general portfolio, the margin call might reach over $60 billion within about a decade (see Figure 7).

5.2. The profitability of the banks in the business sector and the trends in business credit

Main findings

- This box analyzes the connection between the profitability of banks from credit to businesses by size and industry, and the allocation of credit to businesses over time.
- The findings indicate that banks provide credit to medium-size and large businesses at lower interest rates. This lending is more profitable for the banks than credit provided to small businesses.
- The construction and real estate industry stands out as more profitable than other industries for the banks, which may explain the high rate of growth in credit to this industry in recent years.
- Over time, there is a strong correlation, on average, between the profitability that different types of businesses generate for the banks and the growth in credit allocated to these businesses. This box provides important insights into the functioning and efficiency of the credit allocation mechanism within the banking system.

Introduction

In recent years, various trends have emerged regarding credit provided to businesses by segment of activity and industry. For example, since the end of 2020, there has been accelerated growth in bank credit to large businesses, while credit to micro businesses (according to the classification of the Banking Supervision Department) has remained relatively stable. Additionally, higher growth rates were recorded during this period in credit to the construction and real estate industry relative to other industries. One factor that might explain these different trends in credit allocation, apart from the demand for credit by the businesses themselves, is the profitability these businesses generate for the banks. In other words, banks allocate more credit to types of businesses that are more profitable for them. This box examines the profitability enjoyed by the banks over time from businesses in various activity sectors and industries and its relationship to developments in bank credit to businesses.[38]

From the perspective of the banks, the business sector can be divided by business size, based on the classification of the Banking Supervision Department: micro, small, medium, and large. For convenience, this box defines and examines three categories of business size, which are more closely aligned with the classification used by the banks' managements and the Small and Medium Enterprise Agency (Table 1).[39,40]

[38] The data regarding the profitability of the banking system is based on the banks' reports to the Banking Supervision Department concerning "Supervisory Activity Segments," which are also reported as part of the note on activity segment in the financial statements. The analysis relies on the banks' allocation of costs (for example, operating costs) and assumes that this allocation is reported with a high level of reliability.

[39] Based on the financial statements of the five largest banks, it is evident that there is variability in the definition of business size. However, all of them classify business size into three categories (with one bank also using the category of micro businesses): "small businesses," "commercial" (medium-size/middle market), and "business" (large).

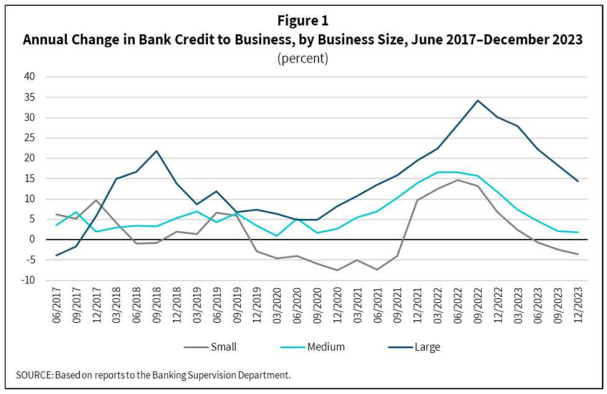
[40] The Small and Medium Enterprise Agency uses a different classification than that of the Banking Supervision Department: micro businesses with an annual turnover of up to NIS 2 million, small businesses with an annual turnover of between NIS 2 million and NIS 25 million, medium-size businesses with an annual turnover of between NIS 25 million and NIS 100 million and large businesses with an annual turnover of over NIS 100 million.

Table 1

Breakdown of business credit from the banks by business size

Category in the box	Banking Supervision Department classification	The Banking Supervision Department definition (according to turnover)	Proportion of business credit from the banks Dec. 31, 2016	Category in the box December 31, 2023
Large businesses	Large	Over NIS 250 million	39 percent	54 percent
Medium-size businesses	Medium-size and small	NIS 10 to 250 million	33 percent	28 percent
Small businesses	Micro	Less than NIS 10 million	28 percent	18 percent

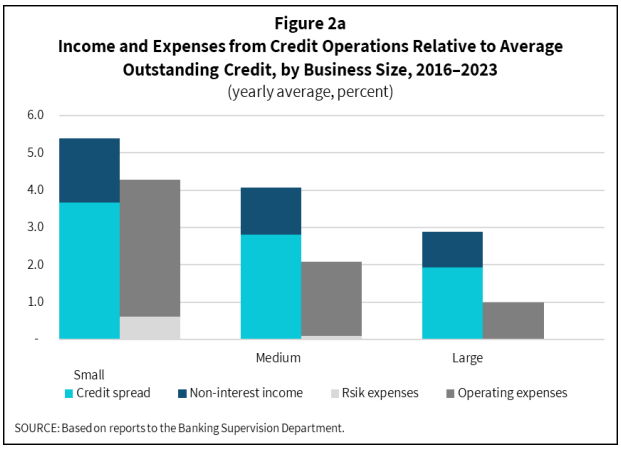
Profitability of the banks in the business sector and the connection to trends in business credit

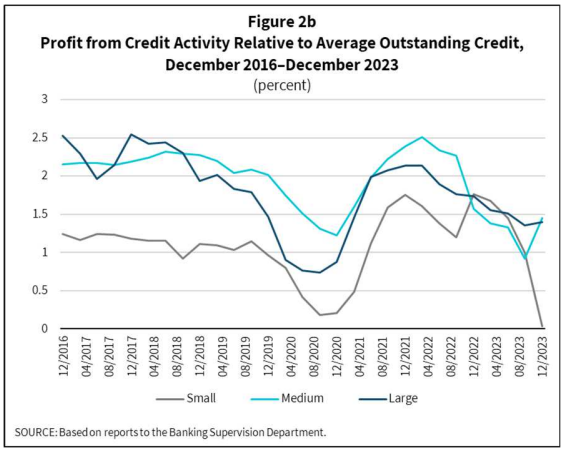


As of the end of 2023, the amount of bank credit to the business sector stood at approximately NIS 752 billion, almost double the amount at the end of 2016 (NIS 425 billion). This growth reflects an average annual growth rate of about 8.5 percent, with variation across industries.[41] Figure 1 presents the annual growth rates from June 2017 to December 2023. The graph shows that since the end of 2019, the credit growth rates for the small business sector have been lower than for the other two business sectors, i.e., medium-size and large businesses. For the latter two sectors, growth rates shot up starting from the end of 2020 until mid-2022 when interest rates started to climb in Israel and worldwide. Unlike the trend in bank credit to small businesses, the high-growth trend in credit to medium-size and large businesses continued even after the start of interest rate hikes. However, this trend began to abate about half a year later.

[41] The highest average rate of growth was found among large businesses—13.5 percent, while among medium-size businesses the rate was about 6 percent, and among small businesses it was only about 2 percent.

To analyze the relationship between credit trends and profitability from credit activities, we examine the composition of the banks' income and expenses from business credit. The gap between income and expenses represents the profit at the sector level. Figure 2a presents the average credit margin and non-interest income (the "income side") versus operating costs and risk cost (the "expense side").[42,43]





The breakdown of income and expenses by business size shows that the profitability of the banking system is higher in the medium-size and large business sectors, which have also experienced higher growth rates. Specifically, the average profit from small businesses is approximately 1 percent, while in the medium-size and large business sectors, it averages around 2 percent. Figure 2b, which presents profit relative to the average credit level over time, indicates that profitability from the small business sector during the reviewed period is consistently lower than from the other two business sectors. The profitability gap is particularly notable up to the end of 2020, prior to the accelerated growth in credit to medium-size and large businesses.[44]

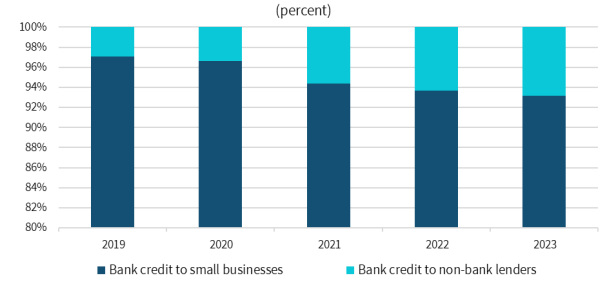
[42] The banking system's revenue is divided into interest income and noninterest income (e.g., fees for opening a file/checking account fees). Against these revenues, the bank incurs financing costs, operating expenses, and risk costs. In the pricing of its revenues, the bank takes several components into consideration: financing cost, which is the cost of the funds raised by the bank, primarily deposits; operating costs, which include expenses such as maintenance of branches, manpower, loan management, etc., and risk costs, which are the cost of the borrower's risk, as priced by the lending bank. A higher interest rate paid by the borrower reflects the higher risk perceived by the lender, which will also manifest in a higher provision for credit losses.

[43] Another component is the "deposit margin," which was not significant prior to the interest rate hike. This margin represents the gap between net interest income and the credit spread. Since this analysis focuses on the long term, independent of interest rate effects, this component will not be considered.

[44] In Figure 2b, the profit from credit activity falls to zero due to the increase in the credit loss provision, which reduced the profitability of providing credit.

This analysis reveals that profitability from credit activity is aligned with trends in credit by business size, distinguishing between the small business sector and the medium-size and large business sectors. Banks may prefer to finance small business credit through non-bank lenders due to the lower profitability of this sector. Between 2019 and 2023, the banking system provided, on average, approximately 50 percent of the internal and external financing for non-bank lenders, with no significant change during the year.[45] Figure 3 shows the trend of bank credit to non-bank lenders and small businesses, indicating an increase in the amount of credit to non-bank lenders and their share in the mix (rising from approximately 3 percent in 2019 to about 7 percent in 2023). This suggests that banks have indirectly increased credit to small businesses by providing credit to non-bank lenders.

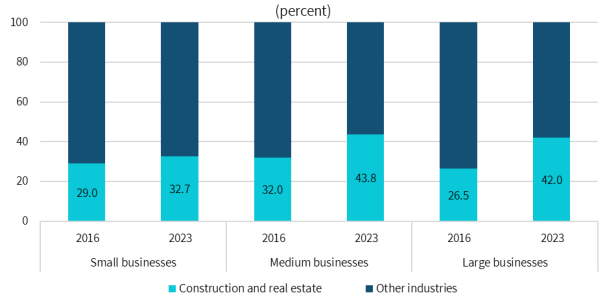
Figure 3
Mix of Bank Credit to Nonbank Lenders (to finance small businesses) and Bank Credit to Small Businesses, 2019–2023
(percent)



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

The analysis also examines the relationship by business size and industry, with emphasis on the construction and real estate industry, which has seen major growth in credit in recent years. Figure 4 presents the breakdown of bank credit by business sector at two points in time, highlighting the growing share of the construction and real estate industry in total credit, particularly in the case of medium-size and large businesses. Accordingly, and based on previous findings, this trend is expected to correlate with higher profitability from businesses in these sectors.[46]

Figure 4
Distribution of Bank Credit by Activity Segment, Construction and Real Estate and Other Industries, 2016 and 2023
(percent)

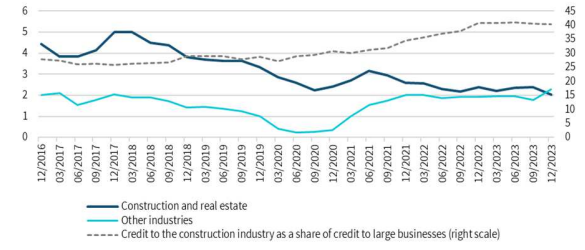


SOURCE: Based reports to the Banking Supervision Department.

[45] In the context of nonbank credit companies. According to their financial reports, they provide credit primarily to small businesses, though we do not know which definition they use. Therefore, we have assumed that these businesses are those defined in the box as "small".
[46] With the growth in the proportion of these businesses within total credit, we expect that profitability relative to the average quantity of credit will decline.

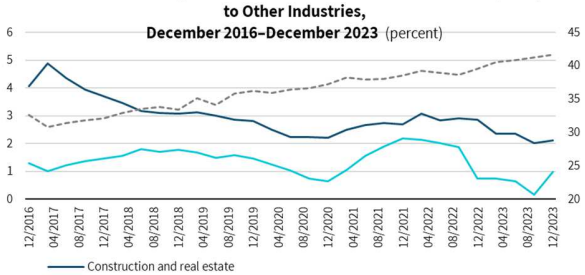
Figure 5a presents the profitability from credit activity relative to the average level of credit to the large business sector, distinguishing between the construction and real estate industry and other industries. The graph indicates that until the end of 2020, bank profitability from the construction and real estate industry was higher than the average for other industries, with a gap of approximately 2.4 percentage points (240 basis points). Since the end of 2020, there has been an upward trend in credit to the construction and real estate industry as a proportion of total credit to the large business sector, while the profitability gap from banking credit activity narrowed, though it remained higher by about 70 basis points in the construction and real estate industry.

Figure 5a
Profit Relative to Average Outstanding Credit, and Credit to the Construction and Real Estate Industry as a Share of Credit to Large Businesses, Compared to Other Industries, December 2016–December 2023 (percent)



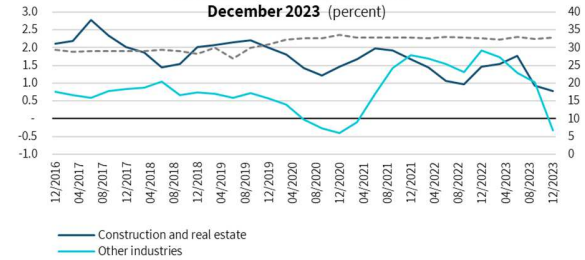
SOURCE: Based reports to the Banking Supervision Department.

Figure 5b
Profit Relative to Average Outstanding Credit, and Credit to the Construction and Real Estate Industry as a Share of Credit to Medium Businesses, Compared to Other Industries, December 2016–December 2023 (percent)



SOURCE: Based reports to the Banking Supervision Department.

Figure 5c
Profit Relative to Average Outstanding Credit, and Credit to the Construction and Real Estate Industry as a Share of Credit to Small Businesses, Compared to Other Industries, December 2016–December 2023 (percent)

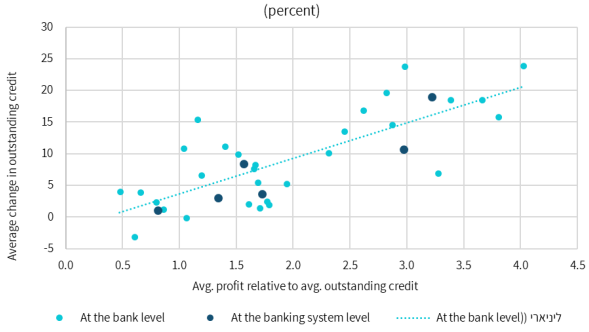


SOURCE: Based reports to the Banking Supervision Department.

Similar profitability gaps in credit activity between the construction and real estate industry and other industries are observed for medium-size businesses (Figure 5b) and small businesses (Figure 5c). However, while the profitability gap for medium-size businesses remained relatively stable throughout the period, the gap disappeared for small businesses by the end of 2021. Throughout the period, profitability from small businesses, across all industries, was lower than that of the medium-size and large business sectors, which may explain the greater allocation of credit by the banking system to these sectors.

Figure 6 presents the relationship between bank profitability from credit activity and changes in credit balances at the bank level over time. Each light-colored point in the chart represents the average change in the quantity of credit between 2016 and 2023 relative to the average profitability from credit activity during the same period for each of the five largest banks and for each of the six categories examined. The dark-colored points represent the change in credit relative to the profitability of the banking system as a whole. The figure shows a high correlation (greater than 0.75), indicating that in the long term, credit allocation to businesses from the various sectors and industries is aligned with profitability from those businesses. This perspective provides an important indication for understanding the mechanism of business credit allocation in the banking system.

Figure 6
Long-Term Link Between Average Profit from Credit Activities and the Average Change in Outstanding Credit, by Segment and at the Bank Level, 2016–2023
(percent)



Note: Each of the light-colored observations represents the average change in outstanding credit between 2016 and 2023, relative to the average profit from outstanding credit between those years, of each of the six segments that were examined: small, medium, and large businesses, and distinguishing between the construction and real estate industry and the other industries, for each of the five large banks (a total of 30 observations). The dark-colored observations represent the change inc redit relative to the profitability of the sex segments, at the total banking system level.
SOURCE: Based reports to the Banking Supervision Department.

Note: The graph presents the relationship between bank profits from credit activity and the change in total credit. Each of the light-colored observations in the graph represents the average change in total credit during the period 2016–23 relative to the average profit from credit activity during that same period for each of the six sectors examined: small businesses, medium-size businesses, and large businesses, while distinguishing between the construction and real estate industry and other industries, for each of the five large banks (resulting in 30 observations).
The dark-colored observations in the graph represent the change in credit relative to the profitability of the six sectors on the total banking system level.

5.3.The effect of ETFs on the yields and liquidity of the base assets

Main findings

- In recent years, the passive investment fund market in Israel has experienced steady growth, as was also observed in global trends.
- This box focuses on cases of shares being added to the TA-125 Index and examines the contribution of exchange-traded funds (ETFs) to their price movements and trading volumes on the stock exchange as a result of index updates.
- It was found that the average trading volume of shares that are about to be included in the TA-125 Index increases sharply the day before, though there is a trend of rising trading volumes several weeks before.
- The increase in trading volume is accompanied by higher returns for stocks that are expected to be added to the index; however, their prices begin to decline after the event.
- The significant spike in trading volume around the entry day results from the inelastic demand by passive investment funds, which is the result of the regulatory requirement that they adjust their exposure to the new stock.
- In addition, public information about the date of an index update and the publicly known criteria for a stock's inclusion allow noninstitutional and often non-Israeli investors to exploit this situation for profit.

1. Background

For over a decade, the global ETF market has experienced steady growth. As of the end of the first quarter of 2024, ETFs worldwide managed assets totaling approximately $11.38 trillion, most of which (around $9.2 trillion) is invested in equities. In the US, ETFs hold about 12.7 percent of all equities in the market, valued at approximately $6.5 trillion, while in Europe, they hold about 8.5 percent, with a total value of approximately $1.2 trillion.

With the rise in the popularity of ETFs, there has been growing interest in their potential effects on the assets they own. In general, it has been found that ETFs contribute positively to the liquidity

of their underlying assets.[47] This effect is evident when comparing to the period before the inclusion of the asset or to similar unincluded stocks. Moreover, ETFs provide diversification to investors in a simple way and with low management fees.

However, ETFs may also pose risks to financial stability. For example, during market crises, particularly in the case of flash crashes,[48] American ETFs have faced significant liquidity challenges. This phenomenon ultimately led the US Securities and Exchange Commission (SEC) to introduce a regulation in 2010 which, under certain conditions, required the suspension of ETF trading during flash crashes. This regulation was first applied in August 2015,[49] resulting in the suspension of trading for over 300 ETFs until the crisis passed. From a macroeconomic perspective of financial stability, studies have found that ETFs tend to increase the comovement (correlation) in the returns of underlying assets, which may amplify market volatility.[50]

Figure 1
Total Assets Managed by Israeli ETFs, January 1, 2019–May 16, 2024 (daily data, NIS billion)

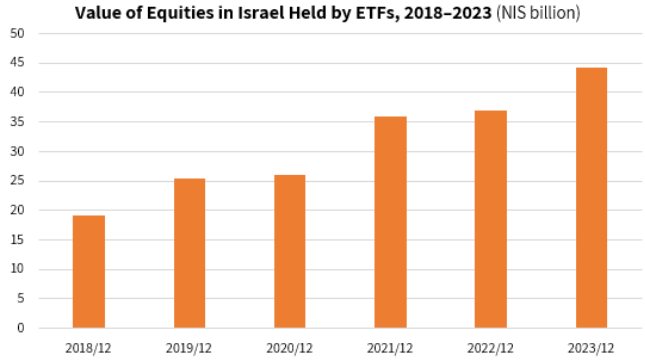
SOURCE: Based on Tel Aviv Stock Exchange data.

It was also found that attempts by sophisticated investors to exploit ETFs for arbitrage profits may affect the underlying assets in a number of ways. First, ETFs can increase the price volatility of the underlying assets relative to other assets. This is due to investors' attempts to obtain arbitrage profits from price discrepancies between the ETF and the prices of the underlying assets, as well as the transmission of shocks from ETFs to their underlying assets.[51] Studies have also found that investors, and in particular hedge funds, may exploit the transparency of ETFs and the regulatory need to rebalance the ETF's asset composition at predetermined times. This can lead to high trading costs for ETFs and significant distortions in the prices of the underlying assets.[52]

[47] According to Boehmer and Boehmer (2003), Hegde and McDermott (2004), and Hamm (2014).
[48] A dramatic and rapid decline in the prices of securities which is followed by a rapid recovery within minutes or hours.
[49] On August 24, 2015, the S&P 500 dropped by about 5 percent within minutes, and then quickly recovered almost to the opening price. It again fell toward the end of the day by 3.6 percent.
[50] According to Staer and Sottile (2018) and Sullivan & Xiong (2012).
[51] According to Malamud (2016) and Ben-David, Franzoni, and Moussawi (2018).
[52] According to Wang, Yao, & Yelekenova (2023).

The most common means of passive investment in Israel are index-tracking ETFs traded on the stock exchange,[53] which as of January 2024 held approximately 5 percent of traded equities, with a total value of about NIS 43 billion. Israeli ETFs include funds that track both domestic and foreign indices and sectors. According to an Israel Securities Authority directive, ETFs are required by regulation to hold assets that create exposure with a high correlation to the tracked asset.[54] For instance, an ETF that tracks the TA-125 Index will typically hold all 125 stocks included in the index, in proportion to each stock's weight in the index.

Figure 2
Value of Equities in Israel Held by ETFs, 2018–2023 (NIS billion)



SOURCE: Based on Tel Aviv Stock Exchange data.

As also observed in global trends, in recent years there has been a growing trend in Israel toward investing through ETFs, including those tracking Israeli indices. Against this backdrop, in this section we examine the contribution of ETFs to movements in stock prices and trading volumes on the stock exchange. To identify this effect as precisely as possible, we use an event study model, which focuses on price movements before and after the inclusion of a stock in the TA-125 Index.

[53] There are also passive index-tracking mutual funds, but they have a smaller weight than ETFs. As of January 2024, the total assets managed by these mutual funds amounted to NIS 10 billion. While this is not an insignificant amount, we focus solely on ETFs due to data limitations.

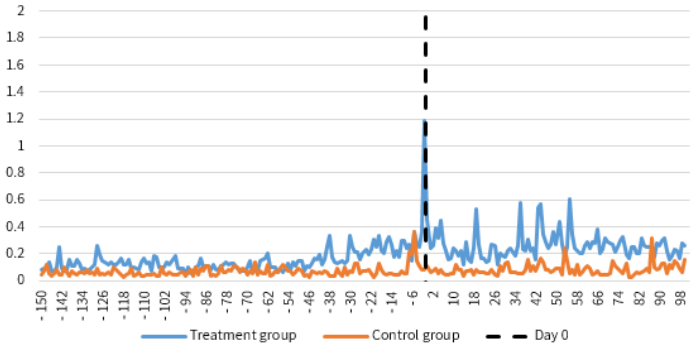
[54] This regulatory directive can be fulfilled either by directly holding the assets being tracked, by using derivatives, or by using other instruments to hold the assets. ETFs are required to make a maximal effort to achieve a return as similar as possible to the tracked asset. In practice, this means that ETFs typically purchase the underlying assets in large volumes upon their inclusion in the index.

2. Methodology and findings

As of today, the TA-125 Index is updated twice a year, in May and November, with an official public announcement about the new stocks to be included in the index made approximately two weeks prior to their inclusion. However, the public is aware of the criteria for a stock's inclusion in the index, allowing analysts to predict which stocks are likely to enter the index even before the official announcement.

The analysis focuses on the inclusion of new stocks in the TA-125 Index. Between 2021 and 2024, there were 39 stocks added to the index, of which 35 were already traded on the stock exchange prior to their inclusion. The analysis compares two groups of stocks: the treatment group, consisting of stocks that entered the index (the "125th stock"), and the control group, consisting of stocks that did not enter the index but were closest in market value to the "125th stock" on the day of inclusion.[55] The day a stock enters the index is defined as "Day 0," and various developments before and after are examined using a window of 150 days before and 100 days after Day 0. Of the new stocks included in the index during the described period, 18 were traded throughout all the relevant time windows, and these were used for comparison purposes. We examine the trading volumes of the stocks and their cumulative returns. The data we rely on is "Smart Money" data from the Tel Aviv Stock Exchange.

Figure 3
Average Turnover Rate

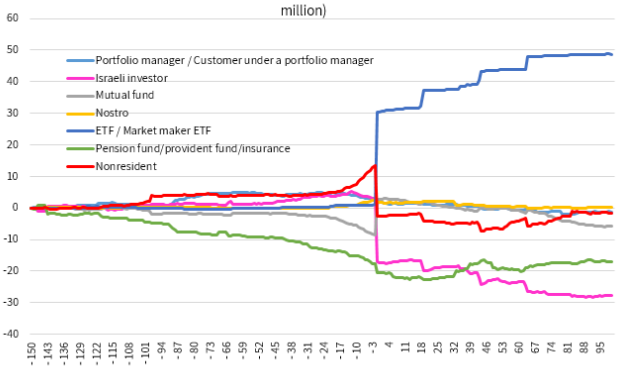


SOURCE: Based on Tel Aviv Stock Exchange data.

[55] There are only a few cases in which multiple stocks entered the index on the same day. In such instances, the weight of the next stock in line that did not enter the index was doubled in the control group, in order to maintain numerical balance between the treatment group and the control group.

Figure 3 shows the daily average of the proportion of a stock's trading volume within total trading volume[56] (hereinafter: the average turnover rate) in each of the groups. The average turnover rate shows a significant and unique spike in the treatment group on the day before Day 0. This spike is preceded by an upward trend in trading volume starting several weeks prior to the entry date, during the period when, in our assessment, the future entry into the index became predictable.[57] We also examined the profile of investors that are driving the changes in trading volume during the observed window. Figure 4 presents a rolling sum of daily averages for net trading balances (purchases minus sales, in millions of NIS) by various market participants for stocks entering the index.[58]

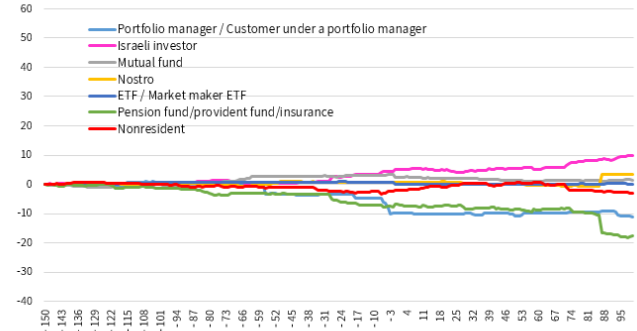
Figure 4
Average Daily Change in the Net Balance, by Market Participant–Treatment Group (NIS million)



SOURCE: Based on Tel Aviv Stock Exchange data.

The graph shows that on the day before inclusion, ETFs—and to a lesser extent, mutual funds—make significant purchases of the stocks about to enter the index. We believe that as the identity of the new stocks that are to be included in the index becomes clearer, purchases of those stocks by smaller players in the market increase, particularly in the case of foreign investors. After the stocks have been included in the index, and as part of the updating by passive funds of their holdings, investors turn into net sellers of the stocks they had accumulated over a prolonged period. Figure 5 shows that, as expected, the

Figure 5
Average Daily Change in the Net Balance, by Market Participant–Control Group (NIS million)



SOURCE: Based on Tel Aviv Stock Exchange data.

[56] The stock's trading rate as a percentage of the total trading volume on a given day is calculated as the trading volume of the stock on a specific day divided by the total trading volumes of all stocks on that day.
[57] An econometric analysis using the difference-in-differences method showed that the trading volumes of the stocks in the treatment group (those that were included the index) are significantly higher than those of the control group, both after Day 0 and even beforehand.
[58] In other words, for each market participant, we calculated the average of their net trading balance (purchases minus sales) across all stocks in the treatment group or control group. We then normalized the first day to 0 and, on each subsequent day on the timeline added the current day's average to the cumulative sum of averages from the preceding days.

control group does not exhibit a similar dynamic, suggesting that the described phenomenon is likely related to the new stock's inclusion in the index.

We now examine whether changes in trading volume also affect a stock's return. When comparing the cumulative return of the two groups (Figure 6),[59] it can be seen that although the treatment group remains slightly above the control group for most of the period—a trend that ultimately led to its inclusion in the index rather than the next-in-line stock—a significant gap between the two groups emerges a few weeks before Day 0, as trading volumes begin to rise. This upward trend halts near Day 0.[60]

Figure 6
Average Daily Cumulative Yield, New Stocks Added to the Index vs Next In Line

SOURCE: Based on Tel Aviv Stock Exchange data.

If the dynamics described above are directly related to the extent of passive investment in ETFs and index adjustments, we would expect to see the opposite trend when a stock is removed from the index. Indeed, an analysis using the same methodology of approximately 40 stocks removed from the index confirmed this inverse relationship: trading volumes spike sharply near the event, ETFs become the largest net sellers, and foreign investors (in this case, also private Israeli investors) are the largest net buyers. The selling occurs while the exiting stock's price is declining.

The findings described here reflect movements in trading volume and stock returns that are connected to passive investment in the stock market and the method of updating stock indices on the exchange. While the entry (and conversely, the exit) of a stock makes it more attractive to many market players, it also creates rigid demand due to the regulatory requirement of passive investment funds that are focused on a specific index to adjust their exposure to the new stock

[59] In calculating the cumulative return on a stock, its price on the 150th trading day prior to its inclusion in the index is normalized to 100 points. The daily return is calculated as the stock's closing price divided by its opening price. The cumulative daily return of each stock is computed as 1 plus the previous day's cumulative return, multiplied by the daily return. To address anomalies caused by idiosyncratic activity or data discrepancies, any daily return exceeding 25 percent was capped at 25 percent.

[60] An econometric analysis using the difference-in-differences method confirmed the existence of a significant effect on stock returns as well.

included in the index. This rigid demand leads to a significant increase in trading volume and returns in the case of stocks being added to the index.

Moreover, the behavior of various market players near the time of a stock's inclusion indicates that public information regarding the update schedules for the index and criteria for inclusion likely enable certain investors—often non-institutional and typically non-Israeli investors—to exploit this situation for profit. These investors anticipate a future structural rise in demand for the underlying assets, purchase the stock expected to enter the index at relatively low prices weeks before the entry, and sell it at a higher price to ETFs close to Day 0. This pattern of behavior appears to be less common among institutional entities, which have longer-term investment horizons and are less inclined to engage in short-term, low-margin profit-driven activities.

Bibliography:

Ben-David, I., Franzoni, F., & Moussawi, R. (2018). "Do ETFs increase volatility?", The Journal of Finance, 73(6), 2471-2535.

Boehmer, B., & Boehmer, E. (2003). "Trading your neighbor's ETFs: competition or fragmentation", Journal of Banking & Finance, 27(9), 1667-1703.

Hamm, S. (2014). "The effect of ETFs on stock liquidity", Available at SSRN 1687914.

Hegde, S.P., & McDermott, J.B. (2004). "The market liquidity of DIAMONDS, Q's, and their underlying stocks", Journal of Banking & Finance, 28(5), 1043-1067.

Liebi, L.J. (2020). "The effect of ETFs on financial markets: a literature review", Financial Markets and Portfolio Management, 34(2), 165-178.

Malamud, S. (2016). A dynamic equilibrium model of ETFs.

Staer, A., & Sottile, P. (2018). "Equivalent volume and comovement", The Quarterly Review of Economics and Finance, 68, 143-157.

Sullivan, R.N., & Xiong, J.X. (2012). "How index trading increases market vulnerability", Financial Analysts Journal, 68(2), 70-84.

Wang, G.J., Yao, C.Y., & Yelekenova, A. (2023). "ETF Rebalancing, Hedge Fund Trades, and Capital Market", Available at SSRN 4324054.

5.4.Survey of the Global and Israeli Trends in the Crypto Market[61]

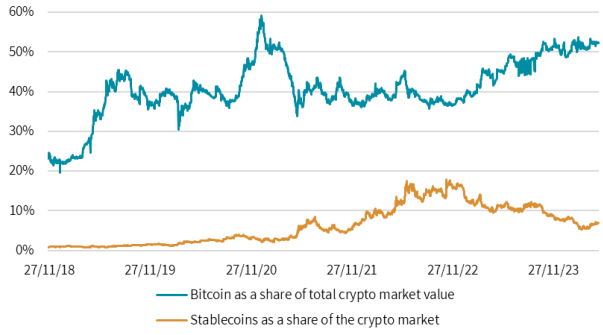
Main Findings

- The Israeli public has shown limited interest in investing in crypto assets thus far, approximating the average extent of investment in developed countries.
- The extent of investment in such assets has risen among Israeli users in view of record Bitcoin prices in recent times, relative to the penultimate record level in 2022.
- The data do not attest to meaningful crypto blockchain activity on a commercial scale that may be attributed to Israeli users.
- It seems, in part, that Israelis also bought "stablecoins" in order to hedge against changes in the NIS-USD exchange rate.

1. Recent global trends

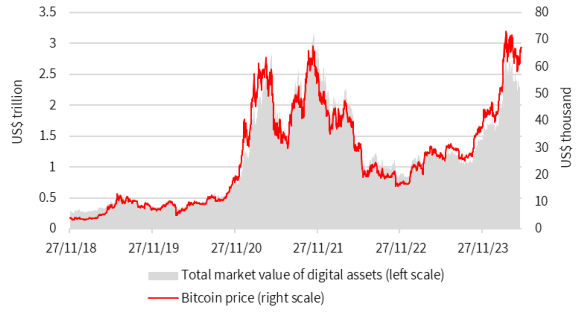
The crypto assets market has been experiencing a positive business cycle since late 2022. Trading volume in this market has been rising in the past half-year in view of the increase in prices of leading crypto assets, foremost Bitcoin (Figure 1). The estimated market value of these assets has doubled since early September 2023 and now exceeds USD 2.75 trillion,[62] matching the value of

Figure 1
Market Value of Bitcoin as a Share of the Total Crypto Market, November 27, 2018–May 19, 2024 (daily data, percent)



SOURCE: Based on CryptoCompare.

Figure 2
Total Crypto Market Value and Bitcoin Price, November 27, 2018–May 19, 2024 (daily data)



SOURCE: Based on CryptoCompare and DeF Lama.

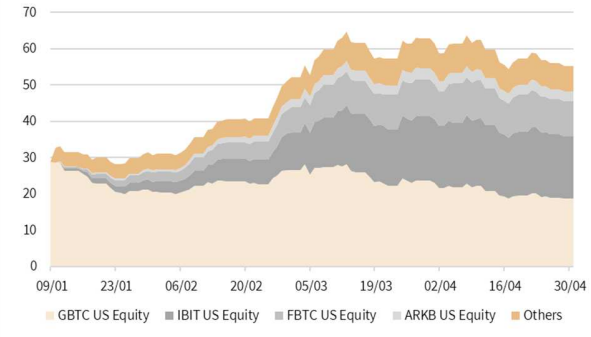
one of the five leading companies in the American stock market (Figure 2). The share of Bitcoin in the total market of crypto assets stands at around one-half. Bitcoin price, however, is highly

[61] Written by Roei Braverman and Ana Sasi-Brodesky.
[62] Market value: USD 1 trillion at the beginning of September 2023 and USD 2.75 trillion as of April 1, 2024. Source: CryptoCompare.

meaningful for the entire market and constitutes a benchmark of sorts. The prices of the other assets move in strong correlation with it, causing total market value to be strongly impacted by the price of Bitcoin.

The positive trend in crypto assets prices is occurring in view of a positive trend in traditional financial assets prices, as the foreign equity indices have seen almost uninterrupted price increases since late 2022. A positive development specific to the crypto market was the U.S. Securities and Exchange Commission's (SEC) approval in January 2024 of the launch of exchange-traded funds (ETFs) that track Bitcoin price. Expectations of this approval may have triggered an increase in trading in this asset in preceding months as well. In early May, assets managed in Bitcoin-tracking ETFs came to USD 55 billion (Figures 3 and 4). Since the ETFs hold the underlying asset directly and in one-to-one value, they contribute to trading in the underlying asset on the blockchain. At the end of May, the SEC also approved the launch of ETFs that track Ether, the currency that has the second-largest market value among crypto assets.

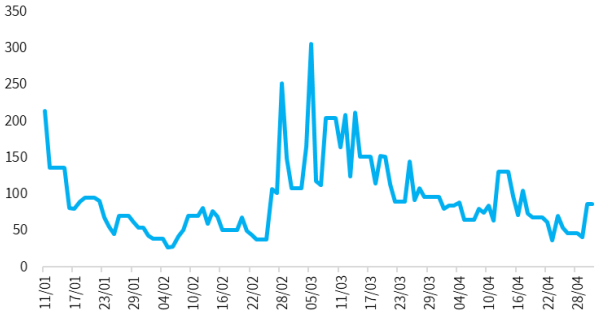
Figure 3
Total Assets Managed by Bitcoin Spot ETFs
January 9, 2024–May 1, 2024 (daily data, $ billion)



SOURCE: Based on Bloomberg.

Most trading in crypto assets takes place on centralized exchanges, i.e., in a manner that is neither transparent nor recorded on the blockchain. This is due to high transaction costs, especially for small operations that take place directly on the network. An additional problem involves concentration among service providers, as more than 40 percent of trading occurs on the leading exchange, Binance (The Block, May 2024). In recent years, the American regulator has been taking action to sue companies that offer crypto asset services while operating outside SEC regulation and failing to comply with American securities laws. A salient example is the

Figure 4
Total Net New Purchases of Bitcoin ETFs,
January 11, 2024–May 1, 2024 (daily data, $ million)



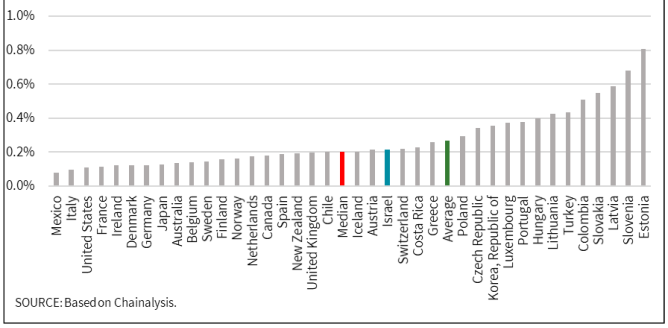
SOURCE: Based on Bloomberg.

proceeding under way against Coinbase, one of the leading centralized exchanges. Binance is not allowed to offer its services in the United States by order of the regulator, but it has a local iteration.

2. Israel residents' investments in crypto assets

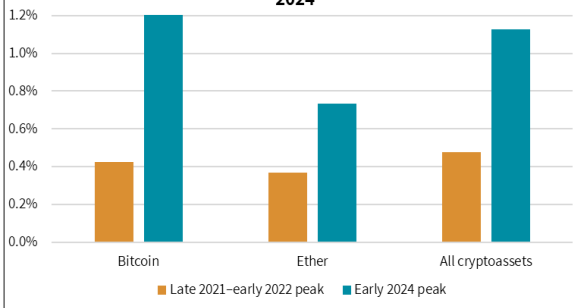
This box presents, for the first time, quantitative data on the Israeli public's interest in crypto assets.[63] The data indicate that Israel ranks slightly below average in its share of investment in these assets among developed countries (Figure 5).

Figure 5
The Holdings in Crypto Assets relative to GDP
January 2024–March 2024 (average data, percent)



SOURCE: Based on Chainalysis.

Figure 6
Israeli Users' Relative Share of Total Cryptoasset Value Held in the OECD, December 2021–February 2022 and January 2024–March 2024



SOURCE: Based on Chainalysis.

In nominal terms, Israelis' holdings are estimated at USD 1 billion. The long-term trend indicates that at times when Bitcoin price was high, the public increased its investment in this asset above and beyond the effect of price on the value of its holdings. That is to say, when the price of Bitcoin was high, domestic interest increased as well. Furthermore, at the current peak period, Israelis have stepped up the extent of their investment relative to the previous peak as compared with the benchmark countries (Figure 6). In absolute terms, however, their exposure remains small.

Today, several licensed service providers in Israel are active in the field of crypto assets (virtual assets), offering trading, custodial, and other services. Users are also able to open and manage personal wallets on the blockchain without using an intermediary.

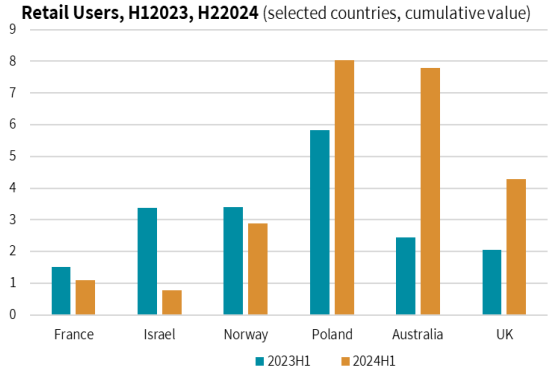
An analysis of personal wallets that have an Israeli affiliation and hold Bitcoin reveals the existence of some 3,000 such wallets, most of which having less than USD 10,000 in assets.[64] Only

[63] The analysis is based largely on data acquired from Chainalysis, Ltd. To estimate the geographic location of the crypto assets that businesses send across the blockchain , the company combines data from the blockchain that it monitors with data that it receives from a third party that yield a specification of the geographic location of these business users on the basis of Internet traffic.

[64] Chainalysis uses various methods of analysis to track wallet activity on the blockchain and to try to identify the characteristics of the wallets' owners, particularly their geographical location.

sixty or so wallets hold a sum exceeding this, possibly attesting to their use by an institutional entity. The number of Israeli wallets has been growing by about 1 percent per month in recent years. It is likely that the number of Israeli wallets is underestimated; as noted above, investors use the wallets of centralized service providers such as exchanges and custodians that are not taken into account in the estimate and due to incomplete identification of Israeli wallets on the blockchain. For these reasons, we avoid presenting analyses based on wallet data in this box and use data based on network traffic.

Figure 7
Received Cryptoassets Volume by "institutional" Entities vs by Retail Users, H12023, H22024 (selected countries, cumulative value)

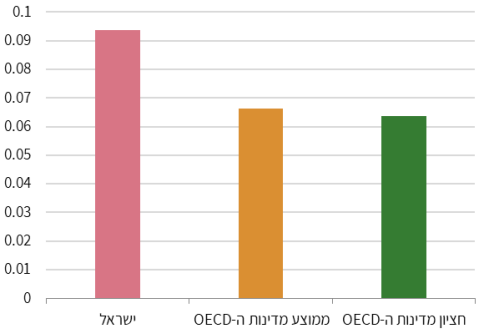


SOURCE: Based on Chainalysis.

In the course of 2023, the division between volume of trading of institutional players[65] and retail investors in Israel resembled that in other countries; in the past few months, however, the volume of activity of large investors has fallen steeply (Figure 7). This outcome, however, may also trace to switching by large investors to new wallets that have not yet been identified as Israeli or to non-Israeli service providers via their wallets or by investing in the new ETFs.

Some 80 percent of Israeli investors' trading in crypto assets takes place on centralized exchanges. The rest is undertaken on decentralized ones (Figure 8), leaving Israel with a relatively high share of the use of decentralized exchanges—twice as large as in other developed economies. Trading on decentralized exchanges entails deeper familiarity with activity on the blockchain; therefore, it stands to reason that retail users make less use of them. Among the centralized exchanges, around 60 percent of Israelis' volume of trade takes place on Binance, surpassing this exchange's global share.

Figure 8
Trading Volume on Distributed Exchanges vs Centralized Exchanges, January 2022–June 2024
(average for period, percent of total trading volume)



SOURCE: Based on Chainalysis.

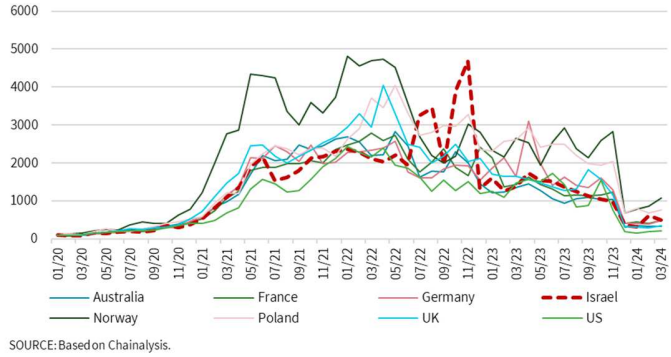
In addition to familiar crypto assets such as Bitcoin and Ether, which are issued directly on the blockchain , use of "stablecoins" has increased in recent years. A "stablecoin" is a digital asset

[65] In the context of this analysis, activity of "Institutional" entities referes to transactions exceeding USD 10,000.

that operates atop a technological infrastructure and maintains a stable value against another asset. The most popular stablecoins in terms of extent of use and holdings, such as the USDT and the USDC, track the USD. Companies that issue such assets undertake to redeem them at their holder's request according to their USD value. Stablecoins are tradable on the blockchain and, in practice, constitute a gateway to the blockchain by pegging their value to a fiat currency. The popularity of stablecoins originates mainly in the acute volatility of unstable cryptocurrencies such as Bitcoin. By converting volatile assets into stablecoins, an investor can "lock in" a value linked to a fiat currency such as the USD without totally leaving the blockchain, thus lowering the transaction cost of further trading and mitigating exposure to volatility.[66]

The market value of stablecoins is less than 10 percent of the total market value of crypto assets. Theoretically, stablecoins may serve both as a non-volatile "transitional" asset on the blockchain, as described above, but may also be used for investment in the asset that they track, such as USD. Thus, investors who live in countries where the economy is unstable and the currency is volatile or at high risk of depreciation, and where foreign-currency purchases through the official financial system may be restricted, may buy stablecoins that track the USD in order to hedge against depreciation of their local currency.

Figure 9
Volume of Stablecoin Holdings, January 1, 2020–March 1, 2024
(index: January 1, 2020=100)



SOURCE: Based on Chainalysis.

Israeli users held around USD 70 million in stablecoins as of March.[67] Generally speaking, the Israeli trend in holding stablecoins corresponds to trends in other selected countries. Israel, however, has experienced deviations from the global trend, most notably in the second half of 2022 (Figure 9).

A simple linear regression that investigates the relation between the rate of monthly change in Israelis' stablecoins holdings between March 2019 and March 2024 against the rate of change

[66] See Bank of Israel, "Principles for 'stablecoin' activity in Israel—document for the public's comments," February 22, 2023, https://boi.org.il/en/communication-and-publications/press-releases/principles-for-stablecoin-activity-in-israel-document-for-the-public-s-comments/

[67] This is apparently an underestimate by Chainalysis.

in American users' stablecoins holdings, the rate of change in the NIS/USD exchange rate, and the rate of change in Bitcoin price, indicates that the relationship is explained largely by the first variable, i.e., the change in the global trend of stablecoin holdings. An additional one-third of the change, however, is explained by changes in the NIS/USD exchange rate.[68] This relation is statistically significant. The effect of the exchange rate acts in the expected direction, namely: an increase in the rate—depreciation of the NIS—is correlated with an increase in the (USD) value of total stablecoins held by Israeli users.

Table 1. OLS regression results - the variables affecting the holdings of Israelis in stablecoins

	Coefficient	**S.D.**	**t - Stat**	**P-value**	**Lower 95%**	**Upper 95%**
Intercept	0.06	0.04	1.42	0.16	-0.02	0.14
Rate of change in U.S. stablecoin holdings	0.58	0.15	3.85	0.00	0.28	0.88
Rate of change in NIS/USD exchange rate	4.82	1.58	3.06	0.00	1.66	7.97
Rate of change in Bitcoin price	0.18	0.19	0.97	0.34	-0.20	0.57
Regression Statistics						
R Square	0.33					
Adjusted R Square	0.29					
Standard Error	0.30					
Observations	60					

[68] The rate of change in the NIS/USD exchange rate in the regression coincides with the rate of change in stablecoin holdings, i.e., relates to the same month. Given the small likelihood that Israelis' holdings of stablecoin affecting the exchange rate, concern about endogeneity is small. In contrast, change in the exchange rate is likely to affect the purchase of stablecoin at a lag. However, since the data are monthly, the use of a one-month lag for exchange-rate change is excessively long relative to the reasonable time of response in the foreign-currency market. Indeed, use of a one-month lag in the rate of exchange-rate change in the regression yields an insignificant result relative to the dependent variable.