Financing Characteristics of High-Tech Companies in Israel

- Relative to its size, Israel's share of the global venture capital funds market is substantial, with Israeli high-tech companies accounting for approximately 4 percent of global venture capital investment—ten times Israel's share of global output and of business credit.
- In recent years, the total amount of venture capital investment in late-stage companies has grown in Israel, as it has across the world. These companies naturally require relatively large investments. In 2019, venture capital funds invested a total of approximately $9 billion in Israeli high-tech companies.
- Venture capital activity brings foreign currency into Israel. The Israeli economy sells the future returns of the high-tech sector abroad, but at the same time eliminates the risk embodied in it. The coronavirus crisis highlights how the reliance of a key sector in the Israeli GDP on a single source of financing—which is correlated with global activity—can make it difficult for Israeli high-tech companies to continue to obtain financing during a global recession.
- Indeed, as a result of the coronavirus crisis, there are indications that the activity of the high-tech sector has been adversely impacted, as has been the ability of the sector to raise capital. The greatest difficulties are currently experienced by early-stage companies.

Due to the increasing importance of the high-tech (high technology) sector, we will discuss the unique characteristics of this sector's financing. First, we will briefly review how high-tech companies fund their operations; we will then present the scope of these companies' financing in the Israeli economy and discuss the unique characteristics of the sector's financing and their impact on the economy; finally, we will discuss the impact of the coronavirus crisis on the sector's financing.

A. Background - Financing of the High-Tech Industry around the World[1]

In broad terms, there are 3 life stages in the high-tech sector: (1) Early stage companies (also called start-ups) are companies that are at the initial stage of

[1] A. Metrick and A. Yasuda (2010). "Venture Capital and the Finance of Innovation". *Venture Capital and the Finance of Innovation,* 2nd Edition, Andrew Metrick and Ayako Yasuda (eds.), John Wiley and Sons, Inc.

M. Da Rin, and T. Hellmann (2020). *Fundamentals of Entrepreneurial Finance*, Oxford University Press.

M. Da Rin, T. Hellmann and M. Puri (2013). "A Survey of Venture Capital Research." In *Handbook of the Economics of Finance*, vol. 2, pp. 648573. Elsevier. M. Ueda (2004). "Banks versus Venture Capital: Project Evaluation, Screening, and Expropriation", *The Journal of Finance*, *59*(2), 601–621.

A. Winton and V. Yerramilli (2008). "Entrepreneurial Finance: Banks versus Venture Capital", *Journal of Financial Economics*, 88(1), 51–79.

W. Drover, L. Busenitz, S. Matusik, D. Townsend, A. Anglin and G. Dushnitsky (2017). "A Review and Road Map of Entrepreneurial Equity Financing Research", *Journal of Management,* 43 (6). 1820–1853. ISSN 0149-2063 DOI: https://doi.org/10.1177/0149206317690584

T. Nicholas (2019). "*VC: An American History*". Harvard University Press.

developing a product or service, and even if they already have initial revenues, are still in the early stages of developing their business model. (2) Mid-stage (also known as expansion-stage) companies are companies that already have a relatively well-formed product or service, which they are already selling, and are working to expand their business activity in order to attain profitability or obtain a significant market share. (3) Late-stage companies are companies that produce or offer a proven product or service, which are already profitable or are well on their way to profitability.

In the various life stages - especially in the first and second stages - investment in high-tech companies is characterized by significant uncertainty and asymmetric information between entrepreneurs and investors regarding the quality of the company; in addition, the incentives of the entrepreneur and those of the funding entity are difficult to match. These difficulties are resolved, inter alia, by staging investments and through non-standard contracts between the entrepreneur and the investor, which enable both sides to obtain non-monotonous returns. High-tech companies are mostly funded by venture capital funds and private investors (also known as "angels").[2] Venture capital funds (VCs) are a partnership of professional investors who manage and invest the funds of institutional entities (such as pension funds, insurance companies and endowment funds of US universities).[3] There are also corporate venture capital funds (CVCs), which are managed and funded by large corporations (such as Google and Samsung). Private investors, in contrast, are people who invest their own funds directly or as part of a group of investors. They tend to invest in early-stage companies, while later-stage companies are mostly funded by venture capital funds.

According to the literature, high-tech companies that receive funding from venture capital funds and private investors enjoy several advantages over other companies in terms of short-term and long-term performance. These benefits stem from the funding, which both enables the company to continue to develop[4] and sends a positive signal due to the very fact that it has been able to raise capital, which further increases the likelihood of additional investments. Furthermore, venture capital funds contribute directly to improving companies' performance: The companies benefit from the managerial expertise that investors bring to the table, since the latter choose to intervene in their portfolio companies' management, and thanks to their connections. Theoretical papers show the differences between VCs and banks, arguing that while VCs are better at understanding and pricing start-up companies, they also charge them higher rents. The papers show that venture capital funding is optimal if a company is

[2] For more information on the development of these financing tools to finance high-tech companies, please see Box 4.1 "Financing of Start-Up Companies" in Chapter 4 of the Bank of Israel's 2014 Annual Report.

[3] For more information on the venture capital mechanism, please see Box 4.1, "Investment of Financial Institutions in Israel in Private Equity and Venture Capital Funds," in the Bank of Israel's 2017 Annual Report.

[4] Most early stage high-tech companies lack other significant means of funding.

unable to put up collateral and if the probability of success is low but the return on investment in case of success would be high.

The development of investment by venture capital funds around the world was gradual, and was affected by technological advances and regulatory changes that took place in Israel and around the world.[5] In the 1980s, venture capital funding was mainly provided to early-stage start-up companies. By the late 1990s, when the market had matured and venture capital funds had grown, most of their activity was directed towards mid-stage companies. Later on, the 2000s bubble burst, followed by the financial crisis of 2008. Currently, venture capital funds mostly invest in mature, later-stage companies. Although there are still numerous VCs specializing in earlier-stage companies, due to their relative small size (since a single investment in an early-stage company is relatively small), their percentage of total activity has declined. In recent years, with the diversion of VC funding to later-stage companies, private investors have become more active, taking up an increasingly greater share of the investments in the earlier stage companies. According to some estimates, private investors' share in worldwide investments currently equals that of venture capital investments.[6] In the past, once the development stage of a product or service was concluded successfully, mature high-tech companies continued to finance their activity and provide returns to investors through initial public offerings (IPOs) (mainly in the US) or an "exit" via a sale to another company.[7] In recent years, companies remain private for longer periods of time and the time to exit (whether by acquisition or IPO) is deferred. Since the life of an average venture capital fund is up to 10 years—and in order to provide investors with an exit even before an acquisition or IPO—since the mid-2000s dedicated venture capital funds have emerged, aimed at acquiring investments directly from other VCs and funding relatively later stage companies.

Below, when we review VC capital investments in Israel and worldwide, we also include data on capital investment from private investors.

B. High-Tech Financing in Israel vs. the Rest of the World[8]

The Israeli high-tech sector has grown in recent years, and its share in the economy is increasing. As of the end of 2019, the ICT sector (the sector representing most of the high-tech companies) accounted for 11 percent of GDP and 14 percent of business sector product. By international comparison, the uniqueness of the sector's share in

[5] For example, change in the investment laws of pension funds in the late 1970s allowed institutional investors to start investing widely in venture capital funds. And in Israel, the Yozma Funds - which were established in the early 1990s contributed to the development of the local VC market.

[6] VC capital investment data are usually partial, since as private entities, the companies and investors are not bound by reporting requirements. Data on angels' investments—which are small and diverse in nature—are even more partial.

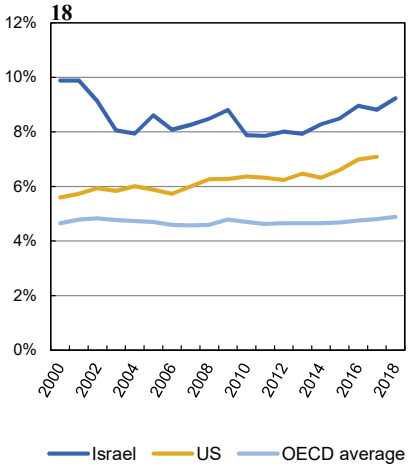
[7] In recent years, the more common "exit" method has been selling a start-up to another company, rather than by way of IPO.

[8] Analysis of the characteristics of venture capital and private investors' investments in Israel is based on dedicated databases of IVC and Startup Nation Central (SNC), which contain information about investments in Israeli companies from 1998 to the first quarter of 2020.

Israel's GDP is obvious (Figure 1).[9] For more information regarding the effect of the high-tech sector on the current account and structural change in the economy, please see Chapters 1 and 2 in the Bank of Israel's 2019 Annual Report.[10]

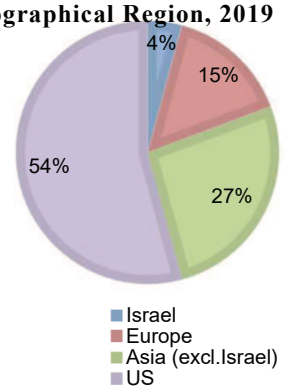
Israel is also a significant player in the global venture capital market, with Israeli high-tech companies accounting for approximately 4 percent of global venture capital investment (Figure 2)—ten times Israel's share of global output and of business credit.[11]

Figure 1
Share of ICT Industry in GDP, International Comparison[a], 2000–18



SOURCE: Based on OECD data.

Figure 2
Distribution of Venture Capital Raised, by Geographical Region, 2019



SOURCE: Based on CBinsights MoneyTree report 2019 ,IVC ,SNC.

Since Israel is a major player in the field, global trends are also reflected in its capital investments. As a result, in Israel too, most of the VCs' money is invested in relatively mature companies. As of 2019, about 65 percent of companies that raised capital from VCs are defined as mid- to late-stage companies and are not classical start-ups (Figure 3). High-tech companies worldwide and in Israel raise venture capital in "rounds". Early stage investments are called pre-seed or seed rounds. Later financing rounds are assigned letters: Round A, Round B, Round C, etc.[12] The financing rounds are not necessarily in line with a Company's growth stage - mature companies may raise early rounds while start-ups may raise A, B or C rounds. There

[9] Only in Ireland is the share of the ICT sector in GDP is higher than in Israel.

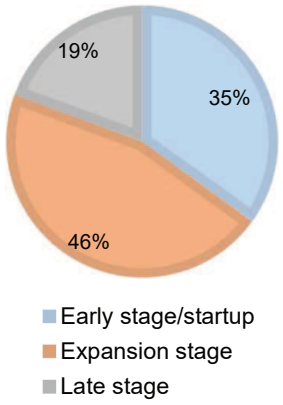
[10] For more information about exports of high-tech companies, please see Chapter 7 of the Bank of Israel's 2017 Annual Report.

[11] In 2018, Israel's share of global output was 0.4 percent (according to World Bank data) and its business credit amounted to 0.3 percent of global credit (according to BIS data).

[12] There are also some types of other VC investments that are not structured in funding rounds. They are mostly aimed at funding specific processes or bridging financing gaps between rounds.

is, however, a correlation between the stages: Mature companies mostly raise venture capital in later rounds, after having funded their early activity through previous financing rounds. In line with the trend—both worldwide and in Israel—of funding later-stage companies, the number and dollar amount of late-stage funding transactions has risen (Figure 4). The time-to-exit of Israeli companies has also risen—from an average of 9 years in 2019 to an average of 11 years in 2018—a development that is in line with the general trend of financing mostly companies at relatively later stages.[13]

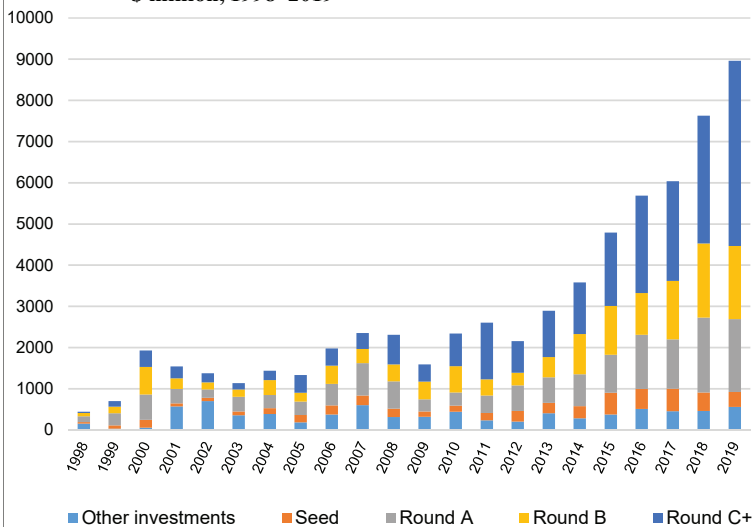
Figure 3
Distribution of lifestages of companies that raised venture capital in Israel in 2019



SOURCE: Based on IVC and SNC data.

With the increase in the number of high-tech venture capital transactions—especially in the later stages of their development—the share of this type of funding out of the total funding in the Israeli economy has grown. In 2019, Israeli

Figure 4
Amounts Raised in Venture Capital in Israel, $ million, 1998–2019

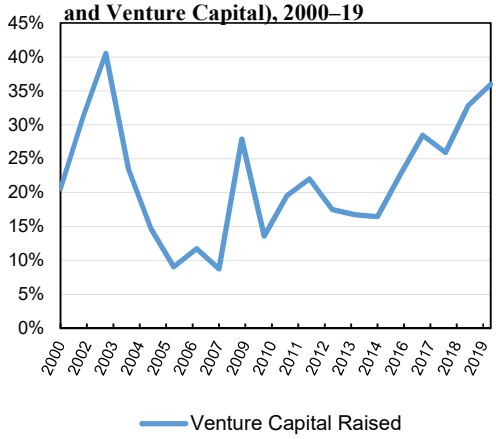


SOURCE: Based on IVC and SNC data.

[13] Source: https://www.ivc-online.com/Portals/0/RC/Survey/IVC-Meitar%20Exit%20Report%20-%202018%20-%20final.pdf

high-tech companies raised a total of approximately $9 billion (approximately NIS 31.5 billion) in venture capital. To illustrate the sheer scale, note that venture capital-raising in 2019 accounted for approximately 36 percent of the Israeli business sector's total fund raising (bond issues, equities, and venture capital) (Figure 5). In the US, the country where most of the high-tech activity is conducted, VC's capital investment constitutes only 1.5 percent of GDP, compared with 2 percent of GDP in Israel.[14]

Figure 5
Venture Capital Raised out of Total Funds Raised by Companies in Israel (Bond Issues, Equity Issued in Israel and Abroad, and Venture Capital), 2000–19



Equity issues abroad includes issued by Israeli firms in foreign currency on exchanges abroad.

SOURCE: Based on IVC, SNC, and Bloomberg data.

C. Characteristics of Venture Capital Funding and their Impact on the Israeli Economy

The large amount of capital invested in the high-tech sector through venture capital funds and its unique characteristics may have a macroeconomic effect on the Israeli economy.

First, venture capital funding is primarily foreign in origin. Most of the money comes from foreign venture capital funds,[15] and even the local VC funds are largely financed by foreign investment. For more information about the low percentage of investment by Israeli financial institutions in the high-tech industry, please see Box 4.1 in the 2017 Bank of Israel Annual Report.[16] The fact that a significant amount of the continually growing financing amount comes from foreign sources raises questions about the impact of such financing on Israel's financial account. The funding of the high-tech sector by venture capital is classified as direct investment by nonresidents under direct equity investments. While the volume of financing activity of venture capital grew, as described above, direct investments of nonresidents in the Israeli economy through equity investments grew substantially and uncharacteristically (Figure 6). In 2019,

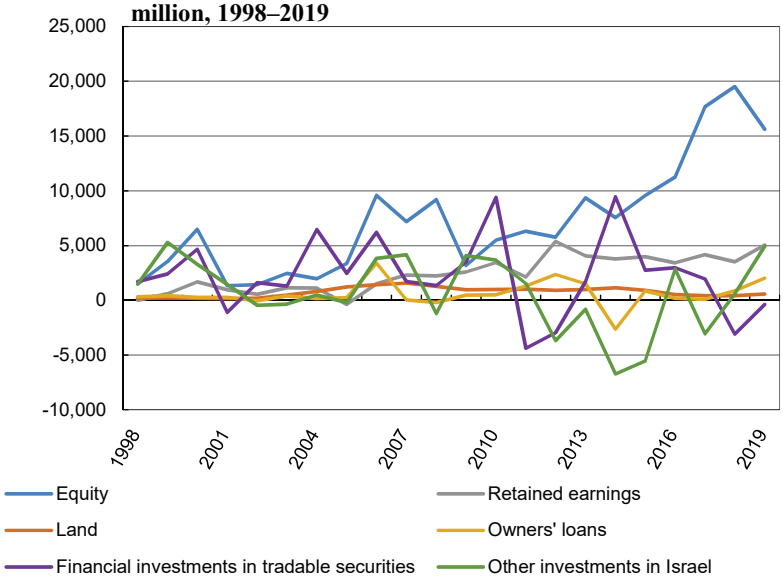
[14] According to CB Insights. The share of total VC capital investments out of global output is less than 1 percent.

[15] According to IVC data, the percentage of foreign venture capital funds leading a round of funding out of total rounds for which there is information on the entity leading the round has been on the rise since the early 2000s, and has exceeded 65 percent of the transaction dollar amount since 2013.

[16] Regarding the Box, we shall emphasize that the taxation of venture capital fund managers depends on the taxation scheme of their investors. The fact that foreign investors enjoy exemptions from local capital gains tax and VAT encourages fund managers to raise money from them.

capital investment from VCs accounted for 85 percent of new equity investments[17] in the Israeli economy (Figure 7). The increase in direct investment in the Israeli economy is indicative of the increase in foreign residents' investment therein and the attractiveness of investing in Israel, especially in the local high-tech sector. The fact that the effect of the high-tech sector is reflected in the balance of payments in both the financial account and current account through exports—as described in Chapters 1 and 2 of the Bank of Israel's 2019 Annual Report—is a unique case of an activity attracting inflows of foreign currency into the economy on both ends of the balance of payments.

Figure 6
Nonresidents' investments in Israel, the financial account—main sections, and details on components of direct investment, $ million, 1998–2019

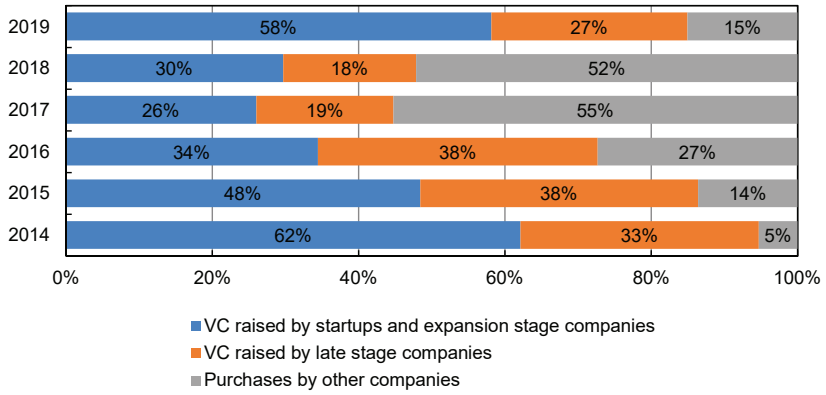


SOURCE: Bank of Israel.

Venture capital is a financial tool for funding companies' activity. Therefore, when it comes to acquisitions and especially to paying salaries, venture capital investments must be converted from foreign currency to shekels. Note that despite substantial media attention to "exits" (transferring ownership in the form of a sale, corporate merger or stock exchange offering), their direct economic impact appears to be lower than that of venture capital investments. Unlike venture capital investments, in an "exit", some of the money remains overseas, and ownership is transferred, at least in part, between foreign entities. The "exit" activity in the Israeli economy is depicted

[17] Direct equity investment net of retained earnings. Retained earnings are gains in nonresident-owned companies which have not been withdrawn. They are defined as direct investment in the economy, although there has been no transfer of funds between the Israeli economy and a foreign country. For more information, please see the Statistical Bulletin for 2019.

Figure 7
Distribution of New Investments out of Direct Investments Flowing into the Economy, 2014–19



[a] New investments in the economy include incoming new direct investment in equity. They do not include retained earnings that were not distributed to investors and are defined as new investment in the economy, even though they are classified as equity and as direct investment in the economy. New investments do not include investments in land or owners' loans. The data do include investments in tradable and nontradable stocks, and nontradable venture capital investments.
[b] The definitions of startup companies and expansion stage companies in this figure also include high tech companies at later stages of initial funding (up to Round A).
[c] Purchases by other companies primarily includes "exits": mergers and acquisitions, and investments in tradable securities. About 95 percent of new investments are not tradable.

SOURCE: Based on IVC and SNC data.

in Figure 7 under "Acquisition by other companies", which includes "exits" of high-tech companies by way of their acquisition or through an IPO, but also acquisitions, mergers and investments of private equity in companies outside the high-tech sector.

Another aspect of nonresident investment in the high-tech sector is its contribution to diversifying risk in the Israeli economy, particularly with high-tech investment being high-risk. Venture capital investment is an equity investment, which transfers ownership (unlike debt issuance), and has two components: the bringing forward, to an earlier point in time, the receipt of expected cash flows from the high-tech company's future activity, and the sale of the risk and uncertainty embodied in the activity to other entities. The first component implies that the VC funding amount is impacted by an assessment of future economic activity embodied by a high level of uncertainty. The second component mitigates the risk to the economy and helps in smoothing the high-tech sector's volatility: In case of an adverse shock to the high-tech sector, the loss would be partly incorporated in the value of nonresidents' holdings. (However, if the investment were to succeed and significant gains would be achieved, the economy would not enjoy the full profits.) This manner of financing increases the economy's resilience to idiosyncratic shocks to the high-tech sector. Moreover, since venture capital funds' money is unrelated to the rest of the financial system in Israel, and there is no risk of interconnectedness and contagion, in the event of a temporary crisis in the high-tech sector, the impact on other sources of financing in the economy will be lower. The risk mitigation is especially important in light of the significant exposure of the Israeli economy to the high-tech sector.

However, VC capital investments in Israel and around the world are highly impacted by the global financial cycle.[18] During global economic downturns, capital investment for Israeli high-tech companies declines, hurting these companies' growth and development. There is concern that, in case of a global economic downturn, capital investment in the high-tech sector will come to a halt, since Israeli companies have no alternative funding sources. Since funding for the high-tech sector is mainly based on foreign sources, during a crisis, it will be difficult for the Bank of Israel and the government to encourage investment in this sector. Quantitative easing and the expansion of domestic credit from banks are not relevant to financing the high-tech sector, and the impact of fiscal intervention is limited: If venture capital funds do not have independent sources of investment due to the crisis, government guarantees of investments will not change the situation; moreover, providing government guarantees to foreign funds is technically difficult. Direct government investment in the high-tech sector presents difficulties as well, including the inability to place the brunt of the financing costs on the private sector, the need for underwriting and investment management, compounded by the very fact that the government will become an owner of the companies.

D. The Coronavirus Crisis

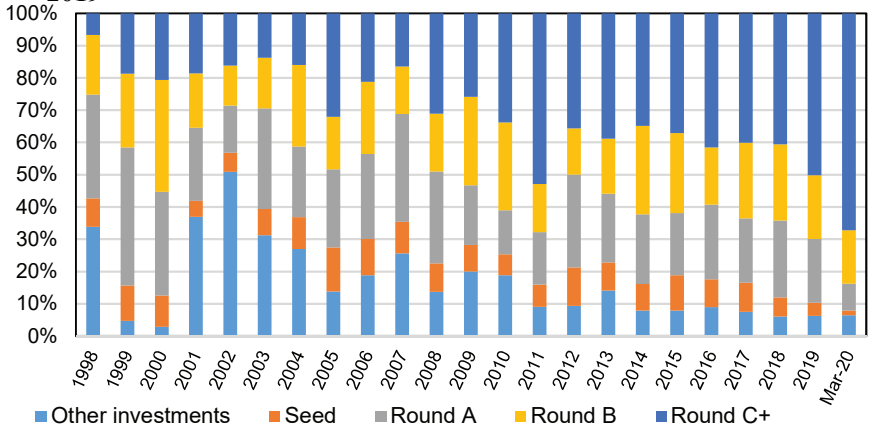
The coronavirus crisis, which erupted towards the end of the first quarter of 2020, has had a worldwide impact. The Central Bureau of Statistics' Business Tendency Survey and the Survey of Businesses in Israel during the Coronavirus Crisis indicate that the negative impact on high-tech companies' activity at the height of the crisis was relatively moderate, since employees are able to telecommute and some companies have no sales to date and therefore have not experienced a drop in revenues. As of May, the average decline in high-tech companies' revenue was 14 percent, while the average for all companies was 20 percent. In the high-tech sector, the percentage of active employees did not fall below 80 percent during the entire period (compared with a 60 percent average for all companies in March and April, during the height of the first lockdown in Israel). As of early June, 34 percent of high-tech employees work from home (compared to an average of 10 percent for all companies). Yet in contrast, there are early indications that the adverse impact on employment in this sector is higher than in others: As of May, approximately 4.2 percent of employees in the high-tech sector were laid off due to the virus (compared to an average of 3.8 percent for all companies), and companies that employ 26 percent of those employed in the industry reduced wages (compared to an average of 18 percent for all companies). The surveys also show that only 23 percent of the companies in the industry received government support[19] (compared to an average of 41 percent for all companies).

[18] Weekly Economic Review of the Chief Economist Department of the Ministry of Finance, published on December 30, 2019.

[19] Grants, loans or other types of support.

It appears that as early as the first quarter of 2020, venture capital investment was affected by the crisis as described above. Although the amount of venture capital invested in the first quarter of 2020 was high—$2.7 billion—the mix of investments in the quarter was different than in previous years and even than in previous crisis periods (Figure 8). In the first quarter of 2020, the number of transactions and the percentage of investment in late-stage companies (Round C and later) increased significantly compared to a decrease in the percentage of invested funds and the number of transactions in early investment rounds (seed to Round A). It appears that the reason for the decline is that VCs with available funds save their money for follow-on investment in their portfolio companies, to help companies under their control survive the crisis and avoid further risks. In addition, some VCs may already be having trouble raising funds during this period, and therefore do not have any available money to invest. The decline in investments in early-stage companies will affect their ability to develop in the coming years.

Figure 8
Distribution of Amounts Raised in Venture Capital, 1998–2019



SOURCE: Based on IVC and SNC data.

It is interesting to note another difference between the current mix of investments and their mix during previous crises. In the early 2000s, and even less so in 2009, the percentage of "other investments"—which include investments that provide liquidity to companies between rounds of capital investment—was up. During crisis periods, such type of funding is expected to increase, but it is too early to see evidence to that effect in Israel.

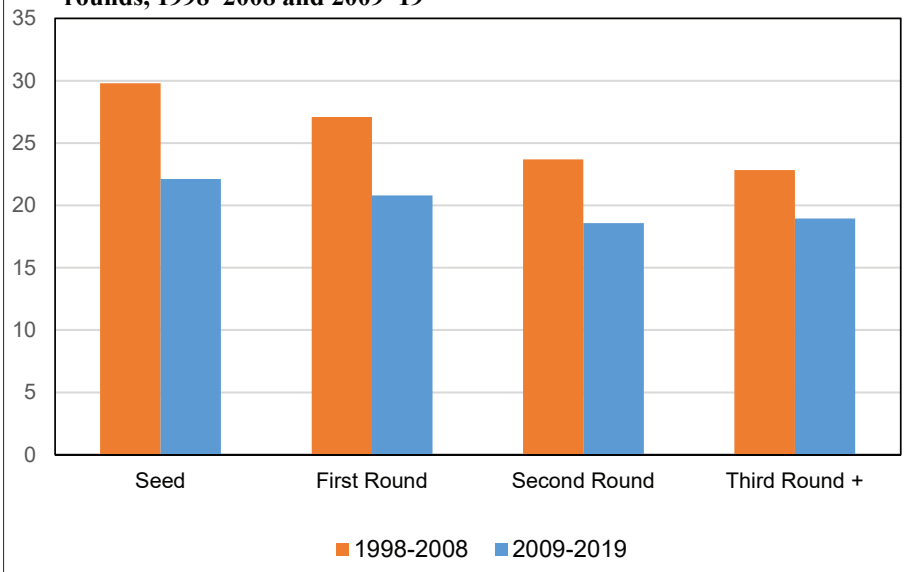
Figure 9 shows that the time between rounds of capital investment by high-tech companies is decreasing. Today, companies require an additional funding round in less than two years (approximately 20 months) to continue their activity. If we rule out seasonality, every four months an average 20% of the rounds take place. Thus, the

longer the crisis continues, especially in the US, the greater the expected damage to the financing and profitability of companies, even ones in more advanced stages of development.

Due to the crisis, the Israel Innovation Authority received a budget of NIS 600 million for general grants and another NIS 50 million for grants to high-tech companies whose products will help fight the coronavirus. In addition, the Authority guarantees the establishment of domestic investment funds for a total of NIS 500 million. The guarantee will be up to a loss of 30 percent of financial institutions' nostro (own) funds and up to 50 percent of savers' funds managed by institutional investors, such as pension and provident funds savings. In return, the government will receive a portion of the excess return over government bond yield, if there is any (10 percent and 15 percent of the excess return on the funds of financial institutions and savers' funds, respectively). The funds will be required to provide funding to companies over the next year and a half. The objective of the program is to diversify financing sources for Israeli high-tech companies by creating new local sources of finance, alternatives that will be relevant even after the crisis. The problem with the program is that its structure mainly encourages investment in mature companies and it is not aimed at the shortage of funding for companies in early stages that has resulted from the crisis.

In summary, the importance of the high-tech sector to the Israeli economy has increased in recent years, as has the importance of its financing and sources. The fact that large volumes of venture capital account for a significant part of the financing of Israeli companies, and that most of it comes from foreign sources, is reflected in the financial account of the Israeli economy. Moreover, the growth trend in high-tech financing—financing that focuses on the relatively late stages of corporate life and therefore involves large sums—is expected to increase the impact on the financial account. As a result of the coronavirus crisis, there are indications that the activity of the high-tech sector has been adversely impacted, as was the ability of the sector to raise capital. The greatest difficulties are currently experienced by early-stage companies. Later-stage companies continued to raise funds at high rates even in the first quarter of 2020. The negative impact on activity and the lack of capital investments of early-stage companies may hurt these companies' growth and ability to develop in coming years. The longer the crisis, the greater the damage to the financing ability of high-tech companies and the greater the chances it will spread to other companies, even later-stage ones.

Figure 9
Average number of months between venture capital funding rounds, 1998–2008 and 2009–19



SOURCE: Based on IVC and SNC data.