

The Role of Agency Problems in the Demise of Silicon Valley Bank

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1. Introduction

In early March 2023, Silicon Valley Bank was captured by the regulator following a run on the bank. To understand why the bank failed, we need to consider the economic background, how accounting rules were applied, and managerial incentives. Linking them together, and introducing the Israeli banking system, for comparison, the case provides a reasonable explanation as to why this failure occurred, and how to reduce the likelihood of future failures.

2. Silicon Valley Bank

Founded in October 1983, Silicon Valley Bank (SVB) is (was) a state-chartered commercial bank headquartered in Santa Clara, California. The bank failed on March 10, 2023, with holdings now managed by the Federal Deposit Insurance Corporation (FDIC). Just before its demise, SVB was the 16th-largest bank in the United States, and the largest bank by deposits in Silicon Valley. The bank is the primary business of SVB Financial Group, a publicly-traded bank holding company, with presence in 13 additional US states and in over a dozen countries, including India and Israel.

SVB primarily services businesses in the technology sector. The bank started by collecting deposits from businesses financed through venture capital. It then expanded into banking and financing venture capitalists, adding services, and assisting clients as they transform from startup to mature phase. Initially, startup founders seeking loans from the bank had to pledge a large chunk of their shares as collateral, but the rate later decreased to a single digit percentage, reflecting a low failure rate and the tendency of founders to pay off the loans to keep control of the company. The bank covered losses by selling the shares to interested investors.

SVB's customers were primarily individuals and companies in the technology, life science, healthcare, private equity, and venture capital. As of December 31, 2022, 56% of its loan portfolio were loans to venture capital firms, and private equity firms, secured by their limited partner commitments and used to make investments in private companies. 14% of its loans were mortgages, and 24% of its loans were to technology and health care companies, 9% of which to early and growth-stage startups. As of February 2023, Forbes listed the bank as #20 of "America's Best Banks" with a 13.8% return on equity. As of March 2023, Moody's Investors Service rated the bank's loan portfolio as conservative and high-performing. The bank's overseas subsidiaries held \$13.9 billion in deposits.

During the 2007–2008 financial crisis, SVB Financial Group received a \$235 million investment from the federal government in exchange for preferred stock and warrants under the Troubled Asset Relief Program (TARP). Over two years, it paid \$10 million in dividends to the U.S. Treasury, then used the proceeds of a \$300 million stock sale to buy back the government's interest.

¹ This case was written by Professor Eli Amir for the purpose of class discussion at London Business School. All rights reserved and use of this case without a written permission of the author is strictly prohibited. The materials used in this case are all from public sources. The comments of Baruch Lev, Gilad Livne, and Eli Talmor are much appreciated.

Important events in the years after the financial crisis included the following: Greg Becker was appointed as CEO in April 2011. In 2012, SVB partnered with Shanghai Pudong Development Bank (SPDB) to create a separate Shanghai-based bank, SPD Silicon Valley Bank. In 2015, the bank stated that it served 65% of all U.S. startups. Its services at the time included syndicated loans and foreign currency management, and it was the only U.S. financial institution then working with virtual currency startups.

SVB was very active in supporting Environmental, Social and Governance (ESG) activities. The Bank's 2022 ESG report outlines several activities and commitments in support of such activities.² While some argue that ESG activities create value, others dismiss such activities, arguing that their cost outweighs their value.³

SVB's involvement in financing acquisitions for startups gave it insider information regarding such acquisitions, and in June 2021 Mounir Gad, a former senior vice president and director at the bank, pleaded guilty to violating insider trading laws in 2015 and 2016 when he tipped off a friend about three startup acquisitions.

3. SVB's Failure

As the preferred bank for the tech sector, SVB's services were in hot demand throughout the pandemic years 2020-2021. As Covid-19 started to die down, the economy warmed up, and consumption of and spending on developing digital services and other tech gadgets increased. Many companies in the technology sector used SVB to hold the cash they used for payroll and other business expenses, leading to an increase in deposits. As commercial banks often do, SVB invested a large portion of the deposits in securities and used another portion to generate loans.

The bank invested heavily in long-term US government bonds, including those backed by mortgages.⁴ The duration of the bond portfolio by 31 December 2022 was above six years, which is unusually high (if not hedged) in times of rising interest rates. The value of bonds has an inverse relationship with interest rates; when rates rise, bond prices fall, and the fall increases with the duration of portfolio. So, when inflation started to rise in 2021, the Federal Reserve started to hike interest rates rapidly to combat inflation. Consequently, SVB's bond portfolio started to lose significant value. If SVB were able to hold those bonds to maturity, then it would recover the value of its investment. In 2022, SVB began to incur losses on the held-to-maturity bond portfolio, following increased interest rates and a major downturn in growth in the tech industry. As of December 31, 2022, SVB had mark-to-market accounting unrealized losses in excess of \$15 billion for bonds held-to-maturity.

Banks only keep a portion of their assets as cash and other liquid assets; hence, they are susceptible to a rush of demand from customers. While SVB's problems stem from its earlier investment decisions, the run was triggered on 8 March 2023, when it announced a capital raising of \$1.75 billion to cover losses on its investment in long-term bonds. Depositors were now aware of the deep financial problems at SVB and started withdrawing money. Unlike a retail bank that caters for business and households, SVB's clients tended to have much larger

² <https://www.svb.com/news/company-news/svb-releases-2022-environmental-social-and-governance-esg-report>.

³ See Demers, Hendrikse, Joos, and Lev (2021)

⁴ See Gara, Temple-West, and Kinder (2023), Financial Times 24.3.2023.

accounts (average of \$4 million). The run on the bank was swift. Use of social media was reported to be a factor in both the initial bank run and its aftermath, with those affected by the potential loss of deposits calling for regulators to ensure that uninsured accounts were made whole.

Depositors are often late in realizing the situation of their bank, but what about the shareholders? Exhibit 1 presents selected share prices and volume for the period 30/12/2022 until 10/3/2023, and a list of top institutional holdings as of 31/12/2022. As Exhibit 1 shows, share price picked at the beginning of February 2023, but then it went down by about 10%. Still, two days before the collapse, the share price was \$280. It seems that even the institutional shareholders were unaware of the bank's financial situation.

Following a run on SVB's deposits, early in the morning of March 10, examiners from the Federal Reserve and the FDIC arrived at the offices of SVB to assess the company's finances. Several hours later, the California Department of Financial Protection and Innovation (DFPI) issued an order taking possession of SVB, due to inadequate liquidity and insolvency, and appointed the FDIC as receiver. On March 12, 2023, the Secretary of the Treasury, Janet L. Yellen, the Federal Reserve Chairman Jerome H. Powell, and FDIC Chairman Martin J. Gruenberg announced that all US depositors at SVB are fully protected and that they will have access to their money, both insured (about 15% of deposits) and uninsured (85% of deposits). The FDIC then established a deposit insurance national bank, the Deposit Insurance National Bank of Santa Clara, to re-open the bank's branches and enable access to insured deposits. On March 13, 2023, the FDIC transferred SVB assets to a new bridge bank, Silicon Valley Bridge Bank, N.A.

The failure of SVB was the largest of any bank since the 2007-2008 financial crisis by assets, and the second-largest in US history behind that of Washington Mutual.⁵ The UK government announced that it was working on a lifeline for British tech firms affected by the collapse of the Bank and its branch in the United Kingdom as a part of the fallout from the parent bank. On March 13, 2023, after a bidding process, it was announced that HSBC UK had agreed to acquire Silicon Valley Bank UK for £1 in a rescue deal, at no cost to the taxpayer and with depositors fully protected.⁶

4. Accounting and Financial Reporting of Investments

Commercial banks receive deposits from individuals and businesses pass the funds to borrowers for interest. Banks' profits are derived primarily from the spread between the interest rate they pay on deposits and interest rate they receive on loans. However, deposits are usually short-termed while loans are usually long-termed. This is why commercial banks must have sufficient liquid sources to meet depositors' demand. As a result, commercial banks manage a relatively large portfolio of marketable securities. The second source of income is the return on the bank's investment portfolio. Banks also provide a variety of financial services for fees and commissions, which constitutes the bank's third source of income.

⁵ Bank failure due to a mismatch of assets and liabilities is by no means a new phenomenon. The Savings and Loan (S&L) crisis of the 1980s is another example of a mismatch between short-term deposits on one side and long-term Loans and risky investments on the other side. As inflation and interest rates increased rapidly in the late 1970s, for many S&Ls the interest expense on deposits was larger than the interest revenue on loans already in place, causing insolvency in many S&Ls. See also Erickson, Mayhew, and Felix (2000).

⁶ Barret (2023)

Exhibit 2 presents common size balance sheets of SVB for the years 2019-2022 in billions of US dollars.⁷ Each line item is presented in absolute dollar value and as a percentage of total assets. In 2022, the bank's investment portfolio constitutes 56.7% of total assets, whereas the loan portfolio constitutes 34.7% of total assets. Further, note that total equity as of 31 December 2022 is \$16.3 billion, which is 7.7% of total assets. Exhibit 3 presents SVB's income statements for the years ended 31 December 2019-2022. At the bottom of the statement, we present two items from the Statement of Comprehensive Income: Net Comprehensive Income and Unrealized Gains/Losses from Available-for-Sale (AFS) bonds.

The focus of this case is on how SVB managed its investment portfolio. Therefore, it is essential to understand the accounting rules for investments under US GAAP. Financial instruments, including investments in marketable securities should be classified into categories according to the Company's ability and intention. The first group is "Held-for-Trading" or "Fair Value Through Income." This category should include marketable debt and equity securities that the company intends to trade and for which fair values are either readily available or can be estimated reliably. These securities are presented on the balance sheet at fair value and unrealized gains/losses should be recognized in the income statement.

The second category is "Available for Sale" securities, or otherwise known as "Fair Value through OCI." Under US GAAP, this category includes only debt securities that the company has no intention to trade. These securities are presented on the balance sheet at fair value and unrealized gains/losses are recognized directly in equity (other comprehensive income) and bypass the income statement.

The third category is Bonds Held-to-Maturity (HTM). This category includes only debt securities that the company intends and able to hold to maturity. Once a debt security is designated as HTM, any reclassifications are prohibited. These securities are presented on the balance sheet at amortized cost, and unrealized gains/losses are disclosed in the notes to the financial statements, but do not affect the income statement.

The fourth category is "Fair Value Election". This category may be used for financial instruments not carried at fair value. Once a company elects to use this option, there is no turning back. These securities are presented on the balance sheet at fair value and unrealized gains and losses are recognized in the income statement. The fifth and last category of financial instruments in "Loans and Receivables", which are generally not fair valued. These instruments are presented at Cost, unless subject to impairment and allowance for credit losses. Any non-marketable equity securities should be presented at Cost unless market values are estimable.

Exhibit 4 presents the cost and fair value of Available-for-Sale securities and the cost and fair value of Held-to-Maturity bonds for each quarter during 2021-2022. In addition, the exhibit presents the income before tax and pre-tax unrealized gains/losses included in OCI.

5. Bond Duration and Yield Curve

Duration of a bond is the weighted average of time it takes to receive (or pay) the cash flows on a fixed-income (debt) instrument according to the debt contract. Duration also measures

⁷ Silicon Value Bank, Financial Statements for the year ended 31.12.2022 (<https://ir.svb.com/financials/annual-reports-and-proxies/default.aspx>).

the sensitivity of the bond price to changes in the bond yield, that is the percentage change in bond price given a one percent change in interest rates. We often measure duration in years (Macaulay duration), but sometimes we measure duration as the price sensitivity - percentage change in bond price given a one percent change in yield (Modified duration). For a coupon bond, the Macaulay duration will be between 0 and the maturity of the bond (T). For a zero-coupon bond that matures in T years, the duration is T. Also, when interest rates are compounded continuously, the Macaulay duration is equal to the Modified duration. Exhibit 5 presents yields on US treasuries maturing in two, five and 10 years.

Since SVB invests heavily in debt instruments, the bank refers to the duration in its financial statements.⁸ In the annual report for the year ended 31 December 2022, the bank says:

“Portfolio duration is a standard measure used to approximate changes in the market value of fixed income instruments due to a change in market interest rates. The measure is an estimate based on the level of current market interest rates, expectations for changes in the path of forward rates and the effect of forward rates on mortgage prepayment speed assumptions. As such, portfolio duration will fluctuate with changes in market interest rates. Changes in portfolio duration are also impacted by changes in the mix of longer versus shorter term-to-maturity securities. The estimated weighted-average duration of our fixed income investment securities portfolio was 5.7 and 4.0 years at December 31, 2022, and December 31, 2021, respectively. The weighted-average duration of our total fixed income securities portfolio including the impact of our fair value swaps was 5.6 years at December 31, 2022, and 3.7 years December 31, 2021. The weighted-average duration of our AFS securities portfolio was 3.6 years at December 31, 2022, and 3.5 years at December 31, 2021. The weighted-average duration of our AFS securities portfolio including the impact of our fair value swaps was 3.6 years and 2.4 year at December 31, 2022, and December 31, 2021, respectively. The weighted-average duration of our HTM securities portfolio was 6.2 years at December 31, 2022, and 4.1 years at December 31, 2021.”

6. The Principal-Agent Problem

When companies fail, the shareholders lose their entire investment. Management, on the other hand, are not usually required to compensate shareholders for bad decisions, unless these decisions are illegal. This asymmetry between shareholders and management is often referred to as the principal-agent problem (PAP). The PAP occurs in a situation where the owner of an asset (Principal) delegates control of the asset to another party (Agent). The risk is that the agent will maximize his/her own utility instead of maximizing the principal's utility. The separation of ownership and control is costly due to ability of the agent to extract benefits on the expense of the principal.⁹

The most relevant example of an agency setting is the case where stockholders (the principal) hire a CEO (agent) to manage the business on their behalf. The agent's mission is to maximize the principal's utility (often measured as the value of the company - the present value of dividends). However, there is a risk that the agent might make decisions that maximize his/her own value instead of maximizing the principal's utility.

⁸ SVB 10-K for 31 December 2022, page 66.

⁹ Jensen and Meckling (1976)

The economic problem is that an agency setting is costly. If the principal could, in theory, monitor all the decisions made by the agent, there would be no problem. But constant monitoring is either impossible or too costly. Therefore, agency costs result in the agent making poor decisions, avoiding responsibilities, or simply acting in a way contrary to the principal's interests. Agency costs may also include the expenses of setting up financial or other incentives to encourage the agent to act in a particular way. It is better for the principal to bear these additional costs if the expected increase in the value of the firm from hiring the agent is greater than the cost of hiring the agent, including the agency costs.

The PAP can be mitigated by improving the flow of information from the agent to the principal and by designing contracts that align the interests of the agent with those of the principal. In particular, the shareholders can write the manager's contract in a way that aligns the incentives of the manager with those of the shareholders. The principal can also require the agent to regularly report results in a form of financial statements or hire outside monitors or auditors to track information. Shareholders can also dismiss the manager if he/she do not perform.

Two significant elements of the contract between the shareholders and the manager are performance evaluation and compensation. Performance evaluation is usually based on financial statements (either using GAAP or adjusted GAAP) or stock price, whereas compensation usually includes elements that are correlated with performance.

Elements of agent compensation include base salary, stock options, restricted stock, deferred-compensation plans, and profit-sharing according to reporting and measurement rules known to the principal and the agent. If the agent performs well, compensation increases; if not, the agent will be hurt financially. Note that the inclusion of performance-based elements provides incentives to take risks; more risk means higher expected compensation. If on the other hand, if the compensation is a fixed salary, the agent has no incentive to take risk.

While many regard performance-based compensation as instruments that help alleviate the agency problem in publicly-listed companies, others view compensation schemes as part of the problem itself.¹⁰ Specifically, when corporate governance mechanisms are weak or when a public corporation has no controlling shareholder, managers have great influence on their own pay and in addition camouflage the performance-insensitivity of their pay. This influence distorts pay arrangements, and allows managers to extract "stealth compensation." But more importantly, the distortions of pay arrangements may cause managers to make bad managerial decisions that could drive the company to its ruin.

7. Executive Compensation at SVB

Executive compensation at SVB includes several components. The first component is a base salary paid to each executive during the fiscal year. This component in includes deferred compensation under the Company's 401(k) Plan. The second component is stock award calculated as the fair value of grants made during the fiscal year (values were computed in accordance with the FASB's Topic 718 ("ASC 718")). However, the amounts disclosed may never be realized as values may differ over time. This component also includes the fair value of grants of certain performance-based restricted stock unit awards reported based on achievement at target level.

¹⁰ Bebchuk, Fried, and Walker (2002); Bebchuk and Fried (2003a); and Bebchuk and Fried (2003b).

The third element is Non-Equity Incentive Compensation Plan (ICP). This element is linked to the Company's Return on Equity (ROE). The Board of Directors approves an annual target of ROE and a pool of funds. If the Company reaches 80% of the target, 50% of the pool is funded. If the company reaches the target ROE, 100% of the pool is funded, and if the Company reaches 140% of the target, 200% of the pool is funded. Actual funding amount is subject to straight line interpolation between threshold and maximum levels. The fourth component is labeled "other compensation", which includes certain perquisites, paid to, or on behalf of, each executive. These benefits are valued on the basis of the aggregate incremental cost to the Company. Exhibit 6 presents the compensation for SVB's five top executives for the years 2020-2022.

8. Putting a cap on salary – The 2016 Israeli law

In March 2016, the Israeli Parliament approved a new law that limits the annual compensation of senior executives in financial companies to 35 times the lowest salary in the organization or to 3.5 million New Israeli Shekels (NIS), which is about \$1 million dollars per year, whichever is lower.¹¹ In addition, any compensation above 2.5 NIS is not tax-deductible. The law applies to the financial sector – banks, insurance companies, and mutual fund managers. The commercial banking system in Israel includes eight banks.

The biggest three are the Israel National Bank (Bank Leumi), the Workers Bank (Bank Hapoalim), and Israel Discount Bank (IDB); these three banks control about 85% of the banking services in Israel. In addition to the Israeli banks, certain foreign banks (e.g., Citibank, HSBC) provide limited services in Israel. Exhibit 7 presents details for the three major Israeli Banks along with some details on SVB.

Generally speaking, government intervention in corporate contracts causes them to be inefficient, which means that share prices should decline. However, if the contract is inefficient to begin with, government intervention could result in a share price increase. Abudy et al. (2020) find positive abnormal returns around the enactment of the new law for companies in the financial industry that are subject to the law, and that the positive market reaction concentrated in companies for which the new cap was effective (those companies with executive compensation above the cap). The interpretation of the findings is that investors believed that compensation before the enactment of the law was excessive, and that lowering compensation increases the value of financial companies. In addition, the study reports that in the three years following the enactment of the law, there was no impairment in the performance of affected companies, and the rate of executives leaving the affected companies did not increase. The conclusion of the study is that compensation contracts in financial companies were inefficient in a way that did not maximize the company's value.¹²

9. Issues for Discussion

The following issues could be discussed:

¹¹ <https://www.reuters.com/article/israel-banks-wages-idUSL5N1713AP>

¹² A recent attempt in the UK to empower shareholders over executive pay did not have much success. From October 2013, UK regulations require periodic binding shareholders' approval of executive directors' compensation policy, and enhanced disclosure in remuneration reports. Chu, Gupta and Livne (2021) argue that the 2013 reform had little or no impact on pay levels, pay-performance sensitivity, the pay gap between the CEO and other employees, the amount of cash returned to shareholders, and dissent voting on the remuneration report.

1. Given the economic situation, was the Bank's investment asset allocation reasonable?
2. Are the accounting rules for investment securities reasonable? Did the bank apply the accounting rules adequately?
3. Conflict of interests between management, depositors, and shareholders – Did they have a significant effect on the bank's failure?
4. Do you believe that SVB's corporate governance was strong?
5. Management compensation – Did it influence the bank's failure?
6. Do you think Greg Becker should go to jail?
7. What should the US regulator do? Bail-out the bank? Save the depositors?
8. Should regulators adopt the Israeli solution?

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Exhibit 1
Selected Share prices and Volume

Date	Open	High	Low	Close	Volume
30/12/2022	229.85	235.00	226.12	230.14	710176
09/01/2023	247.96	254.94	244.53	249.43	1102929
18/01/2023	258.96	265.28	251.55	251.98	997496
26/01/2023	300.00	301.99	291.78	295.62	666697
02/02/2023	322.97	348.06	321.65	333.50	2127346
09/02/2023	324.93	326.15	313.55	315.89	746111
16/02/2023	308.37	310.60	301.82	301.93	450039
23/02/2023	290.59	291.30	282.05	289.01	619173
24/02/2023	281.00	284.52	278.38	282.92	649155
27/02/2023	287.59	289.53	283.96	285.93	583891
28/02/2023	288.50	293.66	286.09	288.11	573215
01/03/2023	284.64	286.97	280.09	283.03	393543
02/03/2023	276.39	278.33	269.43	277.17	746564
03/03/2023	280.34	285.50	277.86	284.41	357199
06/03/2023	284.83	286.52	280.64	283.04	542443
07/03/2023	280.39	283.08	267.07	267.39	830518
08/03/2023	266.86	271.01	264.00	267.83	835185
09/03/2023	176.55	177.75	100.00	106.04	38746481
10/03/2023	106.04	106.04	10.04	106.04	0

Top Institutional Holders – 31 December 2022

Holder	Shares	%	Value
Vanguard Group	6,657,712	11.25%	705,983,786
Blackrock	4,764,351	8.05%	505,211,784
State Street Corp.	3,082,695	5.21%	326,888,980
Alecta Pensions	2,633,100	4.45%	279,213,926
JP Morgan Chase	2,513,307	4.25%	266,511,076
Invesco Ltd.	1,724,702	2.91%	182,887,401
Artisan Partners	1,624,103	2.74%	172,219,883
Morgan Stanley	1,540,231	2.60%	163,326,096
Franklin Resources	1,500,073	2.53%	159,067,742
Geode Capital Management	1,251,764	2.11%	132,737,055

Source: <https://finance.yahoo.com/quote/SIVB/>

Exhibit 2
Silicon Valley Bank – Common Size Balance Sheets for 2019-2022

Assets

<u>\$ in Billions</u>	2022	%	2021	%	2020	%	2019	%
Cash and cash equivalents	13.8	6.5	14.6	6.9	17.7	15.3	6.8	9.6
Available for sale securities	26.1	12.3	27.2	12.9	30.9	26.8	14.0	19.7
Held to Maturity securities	91.3	43.1	98.2	46.5	16.6	14.4	13.8	19.4
Non-marketable & other equity securities	2.7	1.3	2.5	1.2	1.8	1.6	1.2	1.7
Loans	73.6	34.7	65.9	31.2	44.7	38.6	32.9	46.4
Tangible and intangible fixed assets	1.2	0.6	1.1	0.5	0.6	0.5	0.6	0.8
Interest receivable and other assets	3.1	1.5	1.8	0.8	3.2	2.8	1.7	2.4
Total Assets	211.8	100	211.3	100	115.5	100	71.0	100

Liabilities and Equity

<u>\$ in Billions</u>	2022	%	2021	%	2020	%	2019	%
Interest-bearing Deposits	92.4	43.6	63.4	30.0	35.5	30.7	20.9	29.4
Noninterest-bearing Deposits	80.7	38.1	125.8	59.5	66.5	57.6	40.9	57.6
Total Deposits	173.1	81.7	189.2	89.5	102.0	88.3	61.8	87.0
Short-term borrowing	13.6	6.4	0.1	0.0	0.1	0.1	0.1	0.1
Other Liabilities	3.5	1.7	2.8	1.3	4.2	3.6	2.2	3.2
Long-term debt	5.3	2.5	2.6	1.3	0.8	0.7	0.3	0.4
Total liabilities	195.5	92.3	194.7	92.1	107.1	92.7	64.4	90.7
Common & preferred stock	3.6	1.7	3.6	1.7	0.3	0.3	0.3	0.4
Additional paid-in capital	5.3	2.5	5.2	2.5	1.6	1.4	1.5	2.2
Retained earnings	9.0	4.2	7.4	3.5	5.7	4.9	4.6	6.5
Accumulated OCI	(1.9)	(0.8)	0	0.0	0.6	0.5	0.1	0.1
Non-controlling Interests	0.3	0.1	0.4	0.2	0.2	0.2	0.1	0.1
Total Equity	16.3	7.7	16.6	7.9	8.4	7.3	6.6	9.3
Total liabilities and equity	211.8	100	211.3	100	115.5	100	71.0	100

Source: Silicon Valley Bank's Financial Statements for 31 December 2022.

Exhibit 3
Silicon Valley Bank – Common Size Income Statements for 2019-2022

<u>\$ in Billions</u>	<u>2022</u>	<u>2021</u>	<u>2020</u>	<u>2019</u>
Interest revenue	5.67	3.29	2.24	2.31
Interest expense	1.19	0.11	0.08	0.21
Net interest revenue	4.48	3.18	2.16	2.10
Total non-interest revenue	1.73	2.74	1.84	1.22
Total revenue net of interest exp.	6.21	5.92	4.00	3.32
Provision for loan losses	0.42	0.12	0.22	0.11
Operating expenses	3.62	3.07	2.04	1.60
Income before tax	2.17	2.73	1.74	1.61
Income tax expense (revenue)	0.56	0.66	0.45	0.43
Net income from continuing operations	1.61	2.07	1.29	1.18
Net Comprehensive Income (*)	(0.23)	1.20	1.74	1.27
(*) Unrealized losses	(2.50)	(0.64)	0.60	0.19

Source: Silicon Valley Bank's Financial Statements for 31 December 2022.

Exhibit 4 – Investment Composition
Quarterly Reports 2021-2022

	31.3.21	30.6.21	30.9.21	31.12.21	31.3.22	30.6.22	30.9.22	31.12.22
Available for Sale Securities - Cost	26,159	23,776	22,919	27,370	27,287	28,141	29,502	28,602
Available for Sale Securities – Fair Value	25,986	23,876	22,984	27,221	25,991	26,223	26,711	26,069
Held to Maturity Securities - Cost	41,164	59,992	82,365	98,195	98,707	95,814	93,286	91,321
Held to Maturity Securities – Fair Value	41,186	60,107	81,995	97,227	91,667	84,579	77,370	76,169
Income Before Tax	749	801	624	550	715	485	593	379
Unrealized Gains (Losses) in OCI - pretax	(823)	270	30	(121)	(1,027)	(568)	(1,187)	258

Source: Silicon Valley Bank, Quarterly Financial Statements.

**Exhibit 5 – Yield on US Treasuries
Maturities of two, five, and 10 years**

	2	5	10	10Y - 2Y
01/01/2020	1.93	2.17	2.95	1.02
01/04/2020	2.05	2.17	3.21	1.16
01/07/2020	0.59	0.99	2.28	1.69
01/10/2020	0.50	0.85	2.13	1.63
01/01/2021	0.37	0.79	2.03	1.66
01/04/2021	0.44	1.44	2.86	2.42
01/07/2021	0.48	1.22	2.46	1.98
01/10/2021	0.55	1.39	2.58	2.03
01/01/2022	1.05	1.69	2.63	1.58
01/04/2022	2.73	3.13	3.75	1.02
01/07/2022	3.65	4.05	4.74	1.09
01/10/2022	4.96	5.13	5.70	0.74
31/12/2022	5.04	4.96	5.36	0.32

Source: <https://home.treasury.gov/policy-issues/financing-the-government/interest-rate-statistics>

Exhibit 6
Executive Compensation at SVB

Year	Salary (1)	Stock Awards (2)	Stok Option Awards (2)	Non-Equity Incentive Comp. (3)	All Other Comp. (4)	Total
Greg Becker – President and Chief Executive Officer						
2022	1,090,385	5,282,550	2,021,857	1,500,000	19,849	9,914,641
2021	1,040,385	4,238,529	1,622,697	3,000,000	20,561	9,922,132
2020	1,007,692	3,573,032	1,245,305	1,690,000	19,172	7,535,201
Dan Beck – Chief Financial Officer						
2022	740,385	1,584,901	606,515	625,000	19,526	3,576,327
2021	680,769	1,199,285	459,072	1,400,000	20,561	3,759,687
2020	604,616	992,397	345,882	830,000	4,176	2,777,071
Michael Descheneaux - <i>President of Silicon Valley Bank</i>						
2022	795,193	2,112,748	808,616	900,000	31,953	4,648,510
2021	770,193	1,759,027	673,564	1,000,000	20,876	4,823,661
2020	755,769	1,588,055	553,476	1,100,000	18,828	4,016,128
Philip Cox - <i>Chief Operations Officer</i>						
2022	685,577	1,320,049	505,464	325,000	45,744	2,881,834
2021	620,193	1,119,484	428,553	1,200,000	48,026	3,416,256
2020	604,616	992,397	345,882	800,000	296,423	3,039,318
Michael Zuckert - <i>General Counsel</i>						
2022	665,385	990,393	379,098	615,000	19,494	2,669,370
2021	620,193	878,951	336,782	1,075,000	20,561	2,931,487

Notes:

- (1) Source: Silicon Valley Bank proxy statement for the year ended 31 December 2022.
- (2) Salary - Base salary paid to each executive during the fiscal year, including amounts deferred under the Company's 401(k).
- (3) Stock and Option awards - Equity awards reflect the fair value of grants made during the fiscal year. Such values were computed in accordance with FASB Topic 718 ("ASC 718"). The amounts disclosed under the "Stock Awards" column also include the fair value of grants of certain performance-based restricted stock unit awards reported based on achievement at target level.
- (4) Non-Equity Incentive Compensation Plan (ICP) – ROE based bonuses.
- (5) Other Compensation - Perquisites, paid to, or on behalf of, each executive, valued according to the cost to the Company. These include spousal attendance at events, relocation costs, professional fees, and others.

Exhibit 7 Comparison to Major Israeli Banks

	SVB		Bank Leumi		Bank Poalim		Israel Discount Bank	
	2022	2021	2022	2021	2022	2021	2022	2021
For the year ended 31 December								
Cash and cash equivalents	13.8	14.6	186.57	197.40	133.42	189.28	65.71	59.64
AFS bonds	26.0	27.2	61.81	71.43	84.11	58.01	25.86	31.03
HTM bonds – Amortized Cost	91.3	98.2	14.53	8.03	10.12	0.51	14.85	10.20
Other equity securities	0.0	0.0	6.61	7.47	15.49	14.65	4.09	2.65
Total liquid resources	131.1	140.0	269.5	284.3	243.1	262.4	110.51	103.51
HTM bonds – Fair value	76.2	97.2	13.36	8.40	9.47	0.52	13.59	10.38
Percentage of cash	0.10	0.11	0.69	0.69	0.55	0.72	0.60	0.58
Percentage of AFS bonds	0.20	0.19	0.23	0.25	0.35	0.22	0.23	0.30
Percentage of HTM bonds	0.70	0.70	0.05	0.03	0.04	0.01	0.13	0.10
Income before tax	2.17	2.72	10.90	9.24	9.98	7.81	5.32	4.33
Unrealized gains on AFS bonds	-2.52	0.68	-4.27	-0.44	-2.95	-0.58	-2.32	-0.35
Adjusted income before tax	-15.45	2.40	5.46	9.17	6.38	7.24	1.75	4.15
CEO compensation	9.91	9.92	3.54	3.32	3.29	3.32	3.48	3.45

Notes:

1. The three major Israeli banks are Bank Leumi (The National Bank of Israel), Bank Poalim (The Workers Bank), and Israel Discount Bank.
2. AFS is Available for Sale; HTM is Held-to-Maturity; Unrealized gains/losses on AFS bonds are taken from the statement of comprehensive income.
3. Percentage of cash, AFS bonds and HTM bonds from total liquid resources.
4. For SVB figures, except CEO salary, are in billions of US dollars. CEO salary is in millions of US dollars. For Israeli banks, figures are in billions of New Israeli Shekels (NIS); CEO salary is in millions of NIS.
5. As of 31/12/2022, \$1 = 3.51 NIS.
6. Source: Financial statements of the Israeli banks for 31 December 2022.