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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-Q

QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the quarterly period ended September 30, 2019
OR
TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the transition period from _____ to _____

Commission File Number: 000-15637

SVB FINANCIAL GROUP

(Exact name of registrant as specified in its charter)

Delaware	**91-1962278**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

3003 Tasman Drive, Santa Clara, California 95054-1191
(Address of principal executive offices) (Zip Code)

(408) 654-7400
(Registrant's telephone number, including area code)

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company," in Rule 12b-2 of the Exchange Act.

Large accelerated filer	Accelerated filer
Non-accelerated filer	Smaller reporting company
Emerging growth company	

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes No

Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class	**Trading Symbol**	**Name of Exchange on Which Registered**
Common Stock, par value $0.001 per share	SIVB	NASDAQ Global Select Market

At October 31, 2019, 51,568,010 shares of the registrant's common stock ($0.001 par value) were outstanding.

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Glossary of Acronyms that may be used in this Report

AFS— Available-for-Sale

APIC— Additional Paid-in Capital

ASC— Accounting Standards Codification

ASU— Accounting Standards Update

CET— Common Equity Tier

EHOP— Employee Home Ownership Program of the Company

EPS— Earnings Per Share

ERI— Energy and Resource Innovation

ESOP— Employee Stock Ownership Plan of the Company

ESPP— 1999 Employee Stock Purchase Plan of the Company

FASB— Financial Accounting Standards Board

FDIC— Federal Deposit Insurance Corporation

FHLB— Federal Home Loan Bank

FRB— Federal Reserve Bank

FTE— Full-Time Employee

FTP— Funds Transfer Pricing

GAAP— Accounting principles generally accepted in the United States of America

HTM— Held-to-Maturity

IASB— International Accounting Standards Board

IPO— Initial Public Offering

IRS— Internal Revenue Service

IT— Information Technology

LIBOR— London Interbank Offered Rate

M&A— Merger and Acquisition

OTTI— Other Than Temporary Impairment

SEC— Securities and Exchange Commission

SPD-SVB— SPD Silicon Valley Bank Co., Ltd. (the Bank's joint venture bank in China)

TDR— Troubled Debt Restructuring

UK— United Kingdom

VIE— Variable Interest Entity

PART I - FINANCIAL INFORMATION

ITEM 1. INTERIM CONSOLIDATED FINANCIAL STATEMENTS

SVB FINANCIAL GROUP AND SUBSIDIARIES
INTERIM CONSOLIDATED BALANCE SHEETS (UNAUDITED)

(Dollars in thousands, except par value and share data)	September 30, 2019	December 31, 2018
Assets:		
Cash and cash equivalents	$ 6,946,196	$ 3,571,539
Available-for-sale securities, at fair value (cost of $12,699,542 and $7,862,311, respectively)	12,866,857	7,790,043
Held-to-maturity securities, at cost (fair value of $14,698,802 and $15,188,236, respectively)	14,407,078	15,487,442
Non-marketable and other equity securities	1,150,094	941,104
Total investment securities	28,424,029	24,218,589
Loans, net of unearned income	31,063,994	28,338,280
Allowance for loan losses	(304,410)	(280,903)
Net loans	30,759,584	28,057,377
Premises and equipment, net of accumulated depreciation and amortization	146,713	129,213
Goodwill	137,823	—
Other intangible assets, net	52,288	—
Lease right-of-use assets	178,532	—
Accrued interest receivable and other assets	1,586,068	951,261
Total assets	$ 68,231,233	$ 56,927,979
Liabilities and total equity:		
Liabilities:		
Noninterest-bearing demand deposits	$ 40,480,610	$ 39,103,422
Interest-bearing deposits	19,062,264	10,225,478
Total deposits	59,542,874	49,328,900
Short-term borrowings	18,898	631,412
Lease liabilities	192,543	—
Other liabilities	1,731,222	1,006,359
Long-term debt	697,227	696,465
Total liabilities	62,182,764	51,663,136
Commitments and contingencies (Note 16 and Note 19)		
SVBFG stockholders' equity:		
Preferred stock, $0.001 par value, 20,000,000 shares authorized; no shares issued and outstanding	—	—
Common stock, $0.001 par value, 150,000,000 shares authorized; 51,555,831shares and 52,586,498 shares issued and outstanding, respectively	52	53
Additional paid-in capital	1,441,730	1,378,438
Retained earnings	4,312,745	3,791,838
Accumulated other comprehensive income (loss)	136,153	(54,120)
Total SVBFG stockholders' equity	5,890,680	5,116,209
Noncontrolling interests	157,789	148,634
Total equity	6,048,469	5,264,843
Total liabilities and total equity	$ 68,231,233	$ 56,927,979

See accompanying notes to interim consolidated financial statements (unaudited).

SVB FINANCIAL GROUP AND SUBSIDIARIES
INTERIM CONSOLIDATED STATEMENTS OF INCOME (UNAUDITED)

	Three months ended September 30,		Nine months ended September 30,	
(Dollars in thousands, except per share amounts)	**2019**	**2018**	**2019**	**2018**
Interest income:				
Loans	$ 394,246	$ 352,353	$ 1,202,467	$ 979,724
Investment securities:				
Taxable	149,656	142,075	410,768	403,702
Non-taxable	11,123	10,748	32,991	23,506
Federal funds sold, securities purchased under agreements to resell and other short-term investment securities	28,867	8,137	74,447	20,080
Total interest income	583,892	513,313	1,720,673	1,427,012
Interest expense:				
Deposits	55,106	8,042	130,163	18,409
Borrowings	8,142	12,049	27,577	29,075
Total interest expense	63,248	20,091	157,740	47,484
Net interest income	520,644	493,222	1,562,933	1,379,528
Provision for credit losses	36,536	17,174	89,033	74,226
Net interest income after provision for credit losses	484,108	476,048	1,473,900	1,305,302
Noninterest income:				
Gains on investment securities, net	29,849	32,193	106,575	77,365
Gains on equity warrant assets, net	37,561	34,141	107,213	72,393
Client investment fees	46,679	36,265	136,905	88,592
Foreign exchange fees	40,309	32,656	116,863	100,560
Credit card fees	30,158	24,121	86,431	68,739
Deposit service charges	22,482	19,588	65,496	56,081
Lending related fees	11,707	10,675	36,857	30,938
Letters of credit and standby letters of credit fees	10,842	8,409	31,205	24,938
Investment banking revenue	38,516	—	137,005	—
Commissions	12,275	—	40,812	—
Other	13,631	12,022	42,773	38,671
Total noninterest income	294,009	210,070	908,135	558,277
Noninterest expense:				
Compensation and benefits	233,840	195,437	715,073	543,198
Professional services	55,202	36,542	133,018	112,080
Premises and equipment	26,775	19,858	72,386	57,576
Net occupancy	16,981	13,694	49,716	40,598
Business development and travel	19,539	12,712	51,915	35,998
FDIC and state assessments	4,881	9,550	13,343	29,306
Other	34,106	21,652	105,059	61,845
Total noninterest expense	391,324	309,445	1,140,510	880,601
Income before income tax expense	386,793	376,673	1,241,525	982,978
Income tax expense	105,075	95,308	331,624	246,561
Net income before noncontrolling interests	281,718	281,365	909,901	736,417
Net income attributable to noncontrolling interests	(14,437)	(6,548)	(35,901)	(28,841)
Net income available to common stockholders	$ 267,281	$ 274,817	$ 874,000	$ 707,576
Earnings per common share—basic	$ 5.19	$ 5.16	$ 16.80	$ 13.33
Earnings per common share—diluted	5.15	5.10	16.67	13.15

See accompanying notes to interim consolidated financial statements (unaudited).

SVB FINANCIAL GROUP AND SUBSIDIARIES
INTERIM CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (UNAUDITED)

(Dollars in thousands)	Three months ended September 30, 2019	Three months ended September 30, 2018	Nine months ended September 30, 2019	Nine months ended September 30, 2018
Net income before noncontrolling interests	$ 281,718	$ 281,365	$ 909,901	$ 736,417
Other comprehensive income (loss), net of tax:				
Change in foreign currency cumulative translation gains and losses:				
Foreign currency translation losses	(6,213)	(3,259)	(6,307)	(5,337)
Related tax benefit	1,731	905	1,757	1,482
Change in unrealized gains and losses on available-for-sale securities:				
Unrealized holding gains (losses)	70,185	(24,902)	236,203	(98,032)
Related tax (expense) benefit	(19,547)	6,994	(65,786)	27,269
Reclassification adjustment for losses included in net income	—	—	3,905	—
Related tax benefit	—	—	(1,087)	—
Reclassification of unrealized gains on equity securities to retained earnings for ASU 2016-01	—	—	—	(40,316)
Related tax expense	—	—	—	11,145
Amortization of unrealized holding gains on securities transferred from available-for-sale to held-to-maturity	(374)	(1,777)	(1,767)	(3,915)
Related tax benefit	104	494	492	1,085
Reclassification of stranded tax effect to retained earnings for ASU 2018-02	—	—	—	(319)
Change in unrealized gains and losses on cash flow hedges:				
Unrealized gains	9,810	—	28,466	—
Related tax expense	(2,733)	—	(7,930)	—
Reclassification adjustment for losses included in net income	2,713	—	3,224	—
Related tax benefit	(755)	—	(897)	—
Other comprehensive income (loss), net of tax	54,921	(21,545)	190,273	(106,938)
Comprehensive income	336,639	259,820	1,100,174	629,479
Comprehensive income attributable to noncontrolling interests	(14,437)	(6,548)	(35,901)	(28,841)
Comprehensive income attributable to SVBFG	$ 322,202	$ 253,272	$ 1,064,273	$ 600,638

See accompanying notes to interim consolidated financial statements (unaudited).

SVB FINANCIAL GROUP AND SUBSIDIARIES
INTERIM CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY (UNAUDITED)

(Dollars in thousands)	Common Stock Shares	Common Stock Amount	Additional Paid-in Capital	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Total SVBFG Stockholders' Equity	Noncontrolling Interests	Total Equity
Balance at December 31, 2017	**52,835,188**	**$ 53**	**$ 1,314,377**	**$ 2,866,837**	**$ (1,472)**	**$ 4,179,795**	**$ 139,620**	**$ 4,319,415**
Cumulative adjustment for adoption of the revenue standard (ASU 2014-09), net of tax	—	—	—	(5,802)	—	(5,802)	—	(5,802)
Cumulative adjustment for adoption of financial instruments (ASU 2016-01), net of tax	—	—	—	103,766	(29,171)	74,595	—	74,595
Reclassification of stranded tax effect for ASU 2018-02	—	—	—	319	(319)	—	—	—
Common stock issued under employee benefit plans, net of restricted stock cancellations	405,395	—	9,108	—	—	9,108	—	9,108
Common stock issued under ESOP	9,672	—	2,577	—	—	2,577	—	2,577
Net income	—	—	—	707,576	—	707,576	28,841	736,417
Capital calls and distributions, net	—	—	—	—	—	—	(22,785)	(22,785)
Net change in unrealized gains and losses on AFS securities, net of tax	—	—	—	—	(70,763)	(70,763)	—	(70,763)
Amortization of unrealized holding gains on securities transferred from AFS to HTM, net of tax	—	—	—	—	(2,830)	(2,830)	—	(2,830)
Foreign currency translation adjustments, net of tax	—	—	—	—	(3,855)	(3,855)	—	(3,855)
Share-based compensation, net	—	—	33,968	—	—	33,968	—	33,968
Balance at September 30, 2018	**53,250,255**	**$ 53**	**$ 1,360,030**	**$ 3,672,696**	**$ (108,410)**	**$ 4,924,369**	**$ 145,676**	**$ 5,070,045**
Balance at December 31, 2018	**52,586,498**	**$ 53**	**$ 1,378,438**	**$ 3,791,838**	**$ (54,120)**	**$ 5,116,209**	**$ 148,634**	**$ 5,264,843**
Cumulative adjustment for the adoption of premium amortization on purchased callable debt securities (ASU 2017-08) (1)	—	—	—	(583)	—	(583)	—	(583)
Acquisition of SVB Leerink	—	—	—	—	—	—	5,256	5,256
Common stock issued under employee benefit plans, net of restricted stock cancellations	487,101	—	9,236	—	—	9,236	—	9,236
Common stock issued under ESOP	14,442	—	3,506	—	—	3,506	—	3,506
Net income	—	—	—	874,000	—	874,000	35,901	909,901
Capital calls and distributions, net	—	—	—	—	—	—	(32,002)	(32,002)
Net change in unrealized gains and losses on AFS securities, net of tax	—	—	—	—	173,235	173,235	—	173,235
Amortization of unrealized holding gains on securities transferred from AFS to HTM, net of tax	—	—	—	—	(1,275)	(1,275)	—	(1,275)
Foreign currency translation adjustments, net of tax	—	—	—	—	(4,550)	(4,550)	—	(4,550)
Net change in unrealized gains and losses on cash flow hedges, net of tax	—	—	—	—	22,863	22,863	—	22,863
Share-based compensation, net	—	—	50,550	—	—	50,550	—	50,550
Common stock repurchases	(1,532,210)	(1)	—	(352,510)	—	(352,511)	—	(352,511)
Balance at September 30, 2019	**51,555,831**	**$ 52**	**$ 1,441,730**	**$ 4,312,745**	**$ 136,153**	**$ 5,890,680**	**$ 157,789**	**$ 6,048,469**

(1) See "Adoption of New Accounting Standards" in Note 1—"Basis of Presentation" of the "Notes to Interim Consolidated Financial Statements (unaudited)" under Part I, Item 1 of this report for additional details.

See accompanying notes to interim consolidated financial statements (unaudited).

SVB FINANCIAL GROUP AND SUBSIDIARIES
INTERIM CONSOLIDATED STATEMENTS OF CASH FLOWS (UNAUDITED)

(Dollars in thousands)	Nine months ended September 30, 2019	2018
Cash flows from operating activities:		
Net income before noncontrolling interests	$ 909,901	$ 736,417
Adjustments to reconcile net income to net cash provided by operating activities:		
Provision for credit losses	89,033	74,226
Changes in fair values of equity warrant assets, net of proceeds from exercises	12,801	(24,462)
Changes in fair values of derivatives, net	(29,472)	2,964
Gains on investment securities, net	(106,575)	(77,365)
Distributions of earnings from non-marketable and other equity securities	77,584	54,605
Depreciation and amortization	60,408	43,389
Amortization of premiums and discounts on investment securities, net	9,646	(252)
Amortization of share-based compensation	50,550	33,968
Amortization of deferred loan fees	(112,383)	(94,771)
Deferred income tax benefit	(1,720)	(16,532)
Excess tax benefit from exercise of stock options and vesting of restricted shares	(7,931)	(17,543)
Losses from the write-off of premises and equipment	185	7,117
Changes in other assets and liabilities:		
Accrued interest receivable and payable, net	(10,429)	(51,521)
Accounts receivable and payable, net	(18,278)	1,697
Income tax receivable and payable, net	(59,527)	(12,962)
Accrued compensation	(109,837)	5,505
Foreign exchange spot contracts, net	34,304	86,298
Other, net	(78,516)	(46,874)
Net cash provided by operating activities	709,744	703,904
Cash flows from investing activities:		
Purchases of available-for-sale securities	(7,832,282)	(662,458)
Proceeds from sales of available-for-sale securities	2,189,087	—
Proceeds from maturities and paydowns of available-for-sale securities	801,605	2,529,666
Purchases of held-to-maturity securities	(408,479)	(4,726,595)
Proceeds from maturities and paydowns of held-to-maturity securities	1,516,340	1,482,204
Purchases of non-marketable and other equity securities	(100,068)	(56,435)
Proceeds from sales and distributions of capital of non-marketable and other equity securities	90,371	83,020
Net increase in loans	(2,685,151)	(4,356,980)
Purchases of premises and equipment	(33,871)	(28,718)
Acquisition of SVB Leerink, net of cash acquired	(102,328)	—
Net cash used for investing activities	(6,564,776)	(5,736,296)
Cash flows from financing activities:		
Net increase in deposits	10,213,974	4,342,036
Net (decrease) increase in short-term borrowings	(612,514)	1,597,522
(Distributions to noncontrolling interests), net of contributions from noncontrolling interests	(32,002)	(22,785)
Common stock repurchases	(352,511)	—
Proceeds from issuance of common stock, ESPP and ESOP	12,742	11,685
Net cash provided by financing activities	9,229,689	5,928,458
Net increase in cash and cash equivalents	3,374,657	896,066
Cash and cash equivalents at beginning of period	3,571,539	2,923,075
Cash and cash equivalents at end of period	**$ 6,946,196**	**$ 3,819,141**
Supplemental disclosures:		
Cash paid during the period for:		
Interest	$ 164,503	$ 54,681
Income taxes	379,579	277,388
Noncash items during the period:		
Changes in unrealized gains and losses on available-for-sale securities, net of tax	$ 173,235	$ (70,763)
Distributions of stock from investments	7,770	4,368

See accompanying notes to interim consolidated financial statements (unaudited).

SVB FINANCIAL GROUP AND SUBSIDIARIES
NOTES TO INTERIM CONSOLIDATED FINANCIAL STATEMENTS (UNAUDITED)

1. Basis of Presentation

SVB Financial Group is a diversified financial services company, as well as a bank holding company and a financial holding company. SVB Financial was incorporated in the state of Delaware in March 1999. Through our various subsidiaries and divisions, we offer a diverse set of banking and financial products and services to support our clients of all sizes and stages throughout their life cycles. In these notes to our unaudited interim consolidated financial statements, when we refer to "SVB Financial Group," "SVBFG," the "Company," "we," "our," "us" or use similar words, we mean SVB Financial Group and all of its subsidiaries collectively, including Silicon Valley Bank (the "Bank"), unless the context requires otherwise. When we refer to "SVB Financial" or the "Parent" we are referring only to the parent company, SVB Financial Group (not including subsidiaries).

The accompanying unaudited interim consolidated financial statements reflect all adjustments of a normal and recurring nature that are, in the opinion of management, necessary to fairly present our financial position, results of operations and cash flows in accordance with GAAP. Such unaudited interim consolidated financial statements have been prepared in accordance with the instructions to Form 10-Q pursuant to the rules and regulations of the SEC. Certain information and footnote disclosures normally included in financial statements prepared in accordance with GAAP have been condensed or omitted pursuant to such rules and regulations. The results of operations for the three and nine months ended September 30, 2019 are not necessarily indicative of results to be expected for any future periods. These unaudited interim consolidated financial statements should be read in conjunction with our Annual Report on Form 10-K for the year ended December 31, 2018 ("2018 Form 10-K").

The accompanying unaudited interim consolidated financial statements have been prepared on a consistent basis with the accounting policies described in Consolidated Financial Statements and Supplementary Data—Note 2—"Summary of Significant Accounting Policies" under Part II, Item 8 of our 2018 Form 10-K.

The preparation of unaudited interim consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates. Estimates may change as new information is obtained. Significant items that are subject to such estimates include measurements of fair value, the valuation of non-marketable and other equity securities, the valuation of equity warrant assets and the adequacy of the allowance for loan losses and allowance for unfunded credit commitments.

Principles of Consolidation and Presentation

Our unaudited interim consolidated financial statements include the accounts of SVB Financial Group and consolidated entities. We consolidate voting entities in which we have control through voting interests or entities through which we have a controlling financial interest in a variable interest entity ("VIE"). We determine whether we have a controlling financial interest in a VIE by determining if we have: (a) the power to direct the activities of the VIE that most significantly impact the entity's economic performance, (b) the obligation to absorb the expected losses, or (c) the right to receive the expected returns of the entity. Generally, we have significant variable interests if our commitments to a limited partnership investment represent a significant amount of the total commitments to the entity. We also evaluate the impact of related parties on our determination of variable interests in our consolidation conclusions. We consolidate VIEs in which we are the primary beneficiary based on a controlling financial interest. If we are not the primary beneficiary of a VIE, we record our pro-rata interests based on our ownership percentage.

VIEs are entities where investors lack sufficient equity at risk for the entity to finance its activities without additional subordinated financial support or equity investors, as a group, lack one of the following characteristics: (a) the power to direct the activities that most significantly impact the entity's economic performance, (b) the obligation to absorb the expected losses of the entity, or (c) the right to receive the expected returns of the entity. We assess VIEs to determine if we are the primary beneficiary of a VIE. A primary beneficiary is defined as a variable interest holder that has a controlling financial interest. A controlling financial interest requires both: (a) the power to direct the activities that most significantly impact the VIE's economic performance, and (b) obligation to absorb losses or receive benefits of a VIE that could potentially be significant to a VIE. Under this analysis, we also evaluate kick-out rights and other participating rights, which could provide us a controlling financial interest. The primary beneficiary of a VIE is required to consolidate the VIE.

We also evaluate fees paid to managers of our limited partnership investments. We exclude those fee arrangements that are not deemed to be variable interests from the analysis of our interests in our investments in VIEs and the determination of a primary beneficiary, if any. Fee arrangements based on terms that are customary and commensurate with the services provided are deemed not to be variable interests and are, therefore, excluded.

All significant intercompany accounts and transactions with consolidated entities have been eliminated. We have not provided financial or other support during the periods presented to any VIE that we were not previously contractually required to provide.

Adoption of New Accounting Standards

In February 2016, the FASB issued a new accounting standard update (ASU 2016-02, Leases (Topic 842)), which requires for all operating leases the recognition of a right-of-use ("ROU") asset and a corresponding lease liability, in the statement of financial position. For short term leases (term of 12 months or less), a lessee is permitted to make an accounting election not to recognize lease assets and lease liabilities. The lease cost will be allocated over the lease term on a straight-line basis. There were further amendments, including practical expedients, with the issuance of ASU 2018-01, “Leases (Topic 842): Land Easement Practical Expedient for Transition to Topic 842” in January 2018. In July 2018 the FASB issued ASU No. 2018-11, "Leases (Topic 842): Targeted Improvements", which provides us with the option to apply the new leasing standard to all open leases as of the adoption date, on a prospective basis.

On January 1, 2019, we adopted the new accounting standard ASU 2016-02, Leases (Topic 842) and all the related amendments ("new lease standard", "ASC 842" or "ASU 2016-02") utilizing the practical expedient to apply the new lease standard as of January 1, 2019 on a prospective basis. We also elected the "package of expedients" and elected as an accounting policy to exclude recording ROU assets and lease liabilities for leases that meet the definition of short-term leases. In addition to excluding short-term leases, we have implemented an accounting policy in which non-lease components are not separated from lease components in the measurement of ROU assets and lease liabilities for all lease contracts. The "package of expedients" allowed us to continue to account for existing leases for which the commencement date is before January 1, 2019, in accordance with the previous guidance, Leases (Topic 840), throughout the lease term, including periods after adoption of the new guidance. We recognized $146 million in ROU assets and $178 million in lease liabilities as a result of applying the new lease standard as an adjustment to our opening consolidated balance sheet on January 1, 2019. The comparative information has not been restated and continues to be reported under the accounting standards in effect for those periods. See Note 9—"Leases" of the “Notes to Interim Consolidated Financial Statements (unaudited)” under Part I, Item 1 of this report for additional disclosures related to our leases.

In March 2017, the FASB issued ASU No. 2017-08, Receivables—Nonrefundable Fees and Other Costs (Subtopic 310-20): Premium Amortization on Purchased Callable Debt Securities, which amends the amortization period for certain purchased callable debt securities held at a premium. The ASU requires entities to amortize premiums on debt securities by the first call date when the securities have fixed and determinable call dates and prices. The scope of the ASU includes all accounting premiums, such as purchase premiums and cumulative fair value hedge adjustments. The ASU does not change the accounting for discounts, which continue to be recognized over the contractual life of a security. Adoption of the ASU is on a modified retrospective basis through a cumulative effect adjustment to retained earnings as of the beginning of the year of adoption. Adoption of the ASU primarily affected our HTM portfolio of callable state and municipal debt securities. On January 1, 2019, we adopted the ASU and recognized a net reduction to retained earnings of $583 thousand.

Recent Accounting Pronouncements

In June 2016, the FASB issued a new accounting standard update (ASU 2016-13, Financial Instruments- Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments) (”ASU 2016-13”), which amends the incurred loss impairment methodology under current GAAP with a methodology that reflects a current expected credit loss ("CECL") measurement to estimate the allowance for credit losses over the contractual life of the financial assets (including loans, HTM debt securities and off-balance sheet commitments) and requires consideration of a broader range of reasonable and supportable information to inform credit loss estimates. While the CECL model does not apply to available-for-sale debt securities, ASU 2016-13 does require entities to record an allowance when recognizing credit losses for available-for-sale securities, rather than reduce the amortized cost of the securities by direct write-offs, which allows for reversal of credit impairments in future periods based on improvements in credit. This guidance will be effective January 1, 2020, on a modified retrospective approach. We will adopt the guidance in the first quarter of 2020.

Our implementation process, which will continue throughout 2019, includes loss forecasting model development, evaluation of technical accounting topics, updates to our allowance accounting policies, reporting processes and related internal controls, overall operational readiness for our adoption of CECL as well as parallel runs for CECL alongside our current allowance process. Key remaining project implementation activities include the finalization of loss forecasting models and qualitative factors, reporting processes, production processes, completion of documentation, policies and disclosures, development of supporting analytics and control design and operating effectiveness. We provide quarterly updates to senior management and to the Audit and Credit Committees of the Board of Directors. These communications provide an update on the status of the implementation as discussed above.

Based on our loan and unfunded credit commitments portfolio composition at September 30, 2019, and the current economic environment, we currently estimate the day 1 combined impact of CECL on our allowance for loan losses and allowance for unfunded credit commitments to be an increase of approximately $25 million to $60 million (on a pre-tax basis) or approximately 7% to 16% of the total combined allowance compared to our reported amount at September 30, 2019. Based on the credit quality of our existing debt securities portfolio, we do not expect a material allowance for our held-to-maturity and available-for-sale debt security portfolios. We will continue to evaluate and refine the results of our loss estimates through the end of 2019. The actual effect of CECL on our allowance for loan losses and our allowance for unfunded credit commitments will depend on a variety of factors as of the date of adoption, including the size and composition of our portfolios, the portfolios' credit quality, current and forecasted economic conditions and management adjustments. In addition, the actual adjustment amount to our allowances will be subject to any necessary changes to our models, methodology and assumptions or other adjustments.

At adoption, we will have a cumulative-effect adjustment to retained earnings for our change in the allowance for credit losses for our loans, unfunded credit commitments and debt securities, which will impact our capital. An increase in our allowance will result in a decrease to our regulatory capital amounts and ratios. Federal banking regulatory agencies have provided relief for an initial capital decrease at adoption by allowing the impact to be phased-in over three years on a straight-line basis.

In August 2018, the FASB issued a new accounting standard update (ASU No. 2018-13, Fair Value Measurement (Topic 820): Disclosure Framework - Changes to the Disclosure Requirements for Fair Value Measurement). The ASU primarily modifies certain disclosures with respect to Level 3 fair value measurements. This guidance will be effective January 1, 2020. We will adopt the guidance in the first quarter of 2020, however, the adoption will not have an impact on our consolidated financial position or results of operations and we do not expect the adoption of this standard to have a material impact on the disclosures in our Notes to the Consolidated Financial Statements.

Reclassifications

Certain prior period amounts related to presentation changes to our financial statement line items have been reclassified to conform to current period presentations.

2. Business Combination

On January 4, 2019, we completed the acquisition of Leerink Holdings LLC, the Boston-based parent company of healthcare and life science investment bank Leerink Partners LLC, now SVB Leerink Holdings LLC ("SVB Leerink"). The acquisition was previously announced on November 13, 2018. SVB Leerink is an investment bank specializing in Equity & Convertible Capital Markets, Mergers & Acquisitions, Equity Research and Sales & Trading for growth and innovation-minded healthcare and life science companies and operates as a wholly-owned subsidiary of SVB Financial.

The acquisition was accounted for as a business combination and accordingly, the results of SVB Leerink's operations have been included in the Company's unaudited interim consolidated financial statements at and for the three and nine months ended September 30, 2019 from the date of acquisition. We acquired SVB Leerink for approximately $273.2 million comprised of cash and share-based replacement award liabilities. In addition, we provided a retention pool for employees of $60.0 million to be paid over five years comprised of a mix of cash and equity issued under the Company's current Equity Incentive Plan. Refer to Note 4—"Share-Based Compensation" of the "Notes to Interim Consolidated Financial Statements (unaudited)" under Part I, Item 1 of this report for more information. The following table summarizes the allocation of the purchase price to the net assets of SVB Leerink as of January 4, 2019:

(Dollars in thousands)	January 4, 2019
Cash paid	$ 265,601
Replacement award liabilities (1)	7,629
Total purchase consideration	$ 273,230
Fair value of net assets acquired	135,407
Goodwill	$ 137,823

(1) The replacement award liabilities recognized as part of the total purchase consideration and the post-combination expenses of $9.1 million related to share-based replacement awards will be paid out in cash in accordance with SVB Leerink's original grant date vesting schedules.

The following table summarizes the estimated fair value of assets acquired and liabilities assumed upon the finalization of the purchase:

(Dollars in thousands)	January 4, 2019
Assets acquired:	
Cash and cash equivalents	$ 163,273
Investment securities	33,644
Accounts receivable	36,538
Intangible assets	60,900
Other assets	35,128
Total assets acquired	329,483
Liabilities assumed:	
Accrued compensation	137,206
Due to broker-dealers	18,483
Other liabilities	33,131
Noncontrolling interests	5,256
Total liabilities assumed	194,076
Fair value of net assets acquired	$ 135,407

The Company recognized identifiable intangible assets of $60.9 million and goodwill of $137.8 million as a result of the acquisition. Intangible assets of $60.9 million are subject to amortization over their estimated useful lives. The goodwill recorded includes revenue generating synergies expected from collaboration between SVB Leerink and the Company. All reported goodwill amounts have been allocated to the SVB Leerink reporting segment and are expected to be deductible for tax purposes. The fair value of the noncontrolling interests in SVB Leerink Holdings LLC represents the noncontrolling ownership percentage for SVB Leerink's consolidated VIE investment securities which are measured at net asset value.

The following table summarizes the fair value and estimated useful lives of the other intangible assets at the date of acquisition:

(Dollars in thousands)	Estimated Fair Value	Weighted Average Estimated Useful Life - in Years
Other intangible assets:		
Customer relationships	$ 42,000	11.0
Other	18,900	9.9
Total other intangible assets	$ 60,900	

SVB Leerink's net income from January 4, 2019 through September 30, 2019 was approximately $8.2 million. Supplementary pro forma financial information related to the acquisition is not included because the impact to the Company's unaudited interim consolidated statements of income is not material. The following table represents the amount of revenue and earnings attributable to SVB Leerink that is included in our financial results for the three and nine months ended September 30, 2019:

(Dollars in thousands)	Three months ended September 30, 2019	Nine months ended September 30, 2019
Net interest income	$ 277	$ 961
Noninterest income	53,773	188,925
Noninterest expense	55,200	177,675
(Loss) income before income tax expense	(1,150)	12,211
Income tax (benefit) expense	(558)	3,121
Net income attributable to noncontrolling interests	826	861
Net (loss) income available to common stockholders	$ (1,418)	$ 8,229

The following table shows the components of acquisition-related activities expense for the three and nine months ended September 30, 2019:

(Dollars in thousands)	Three months ended September 30, 2019	Nine months ended September 30, 2019
Professional fees	$ 260	$ 911
Other	94	367
Total acquisition-related expenses	$ 354	$ 1,278

3. Stockholders' Equity and EPS

Accumulated Other Comprehensive Income

The following table summarizes the items reclassified out of accumulated other comprehensive income into the Consolidated Statements of Income (unaudited) for the three and nine months ended September 30, 2019 and 2018:

		Three months ended September 30,		Nine months ended September 30,	
(Dollars in thousands)	Income Statement Location	2019	2018	2019	2018
Reclassification adjustment for losses on available-for-sale securities included in net income	Gains on investment securities, net	$ —	$ —	$ 3,905	$ —
Related tax benefit	Income tax expense	—	—	(1,087)	—
Reclassification adjustment for losses on cash flow hedges included in net income	Net interest income	2,713	—	3,224	—
Related tax benefit	Income tax expense	(755)	—	(897)	—
Total reclassification adjustment for losses included in net income, net of tax		$ 1,958	$ —	$ 5,145	$ —

The table below summarizes the activity relating to net gains and losses on our cash flow hedges included in accumulated other comprehensive income for the three and nine months ended September 30, 2019 and 2018. Over the next 12 months, we expect that approximately $1.9 million in accumulated other comprehensive income ("AOCI") at September 30, 2019, related to our cash flow hedges will be reclassified out of AOCI and recognized in net income.

	Three months ended September 30,		Nine months ended September 30,	
(Dollars in thousands)	2019	2018	2019	2018
Balance, beginning of period, net of tax	$ 13,828	$ —	$ —	$ —
Net increase in fair value, net of tax	7,077	—	20,536	—
Net realized loss reclassified to net income, net of tax	1,958	—	2,327	—
Balance, end of period, net of tax	$ 22,863	$ —	$ 22,863	$ —

EPS

Basic EPS is the amount of earnings available to each share of common stock outstanding during the reporting period. Diluted EPS is the amount of earnings available to each share of common stock outstanding during the reporting period adjusted to include the effect of potentially dilutive common shares. Potentially dilutive common shares include incremental shares issuable for stock options and restricted stock unit awards outstanding under our 2006 Equity Incentive Plan and our ESPP. Potentially dilutive common shares are excluded from the computation of dilutive EPS in periods in which the effect would be antidilutive. The following is a reconciliation of basic EPS to diluted EPS for the three and nine months ended September 30, 2019 and 2018:

(Dollars and shares in thousands, except per share amounts)	Three months ended September 30, 2019	Three months ended September 30, 2018	Nine months ended September 30, 2019	Nine months ended September 30, 2018
Numerator:				
Net income available to common stockholders	$ 267,281	$ 274,817	$ 874,000	$ 707,576
Denominator:				
Weighted average common shares outstanding—basic	51,545	53,235	52,025	53,062
Weighted average effect of dilutive securities:				
Stock options and ESPP	203	383	238	404
Restricted stock units and awards	110	301	168	334
Weighted average common shares outstanding—diluted	51,858	53,919	52,431	53,800
Earnings per common share:				
Basic	$ 5.19	$ 5.16	$ 16.80	$ 13.33
Diluted	5.15	5.10	16.67	13.15

The following table summarizes the weighted-average common shares excluded from the diluted EPS calculation due to the antidilutive effect for the three and nine months ended September 30, 2019 and 2018:

(Shares in thousands)	Three months ended September 30, 2019	Three months ended September 30, 2018	Nine months ended September 30, 2019	Nine months ended September 30, 2018
Stock options	213	86	154	49
Restricted stock units	432	5	294	71
Total	645	91	448	120

Stock Repurchase Program

On November 13, 2018, the Company announced a program to repurchase up to $500 million of our outstanding common stock (the "Stock Repurchase Program"). For the three months ended September 30, 2019, we repurchased 25,562 shares of our outstanding common stock for $5.7 million under the Stock Repurchase Program. As of September 30, 2019, we had repurchased 2.2 million shares of our outstanding common stock for $499.6 million under the Stock Repurchase Program. The Stock Repurchase Program was completed on July 1, 2019.

Consolidated Statement of Changes in Equity

The following table summarizes the changes in our consolidated equity for the three months ended September 30, 2019 and 2018:

(Dollars in thousands)	Common Stock Shares	Common Stock Amount	Additional Paid-in Capital	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Total SVBFG Stockholders' Equity	Noncontrolling Interests	Total Equity
Balance at June 30, 2018	**53,210,627**	**$ 53**	**$ 1,346,586**	**$ 3,397,879**	**$ (86,865)**	**$ 4,657,653**	**$ 147,188**	**$ 4,804,841**
Common stock issued under employee benefit plans, net of restricted stock cancellations	39,628	—	1,943	—	—	1,943	—	1,943
Net income	—	—	—	274,817	—	274,817	6,548	281,365
Capital calls and distributions, net	—	—	—	—	—	—	(8,060)	(8,060)
Net change in unrealized gains and losses on AFS securities, net of tax	—	—	—	—	(17,908)	(17,908)	—	(17,908)
Amortization of unrealized holding gains on securities transferred from AFS to HTM, net of tax	—	—	—	—	(1,283)	(1,283)	—	(1,283)
Foreign currency translation adjustments, net of tax	—	—	—	—	(2,354)	(2,354)	—	(2,354)
Share-based compensation, net	—	—	11,501	—	—	11,501	—	11,501
Balance at September 30, 2018	**53,250,255**	**$ 53**	**$ 1,360,030**	**$ 3,672,696**	**$ (108,410)**	**$ 4,924,369**	**$ 145,676**	**$ 5,070,045**
Balance at June 30, 2019	**51,561,719**	**$ 52**	**$ 1,421,565**	**$ 4,051,194**	**$ 81,232**	**$ 5,554,043**	**$ 152,132**	**$ 5,706,175**
Common stock issued under employee benefit plans, net of restricted stock cancellations	19,674	—	1,383	—	—	1,383	—	1,383
Net income	—	—	—	267,281	—	267,281	14,437	281,718
Capital calls and distributions, net	—	—	—	—	—	—	(8,780)	(8,780)
Net change in unrealized gains and losses on AFS securities, net of tax	—	—	—	—	50,638	50,638	—	50,638
Amortization of unrealized holding gains on securities transferred from AFS to HTM, net of tax	—	—	—	—	(270)	(270)	—	(270)
Foreign currency translation adjustments, net of tax	—	—	—	—	(4,482)	(4,482)	—	(4,482)
Net change in unrealized gains and losses on cash flow hedges, net of tax	—	—	—	—	9,035	9,035	—	9,035
Share-based compensation, net	—	—	18,782	—	—	18,782	—	18,782
Common stock repurchases	(25,562)	—	—	(5,730)	—	(5,730)	—	(5,730)
Balance at September 30, 2019	**51,555,831**	**$ 52**	**$ 1,441,730**	**$ 4,312,745**	**$ 136,153**	**$ 5,890,680**	**$ 157,789**	**$ 6,048,469**

4. Share-Based Compensation

For the three and nine months ended September 30, 2019 and 2018, we recorded share-based compensation and related tax benefits as follows:

	Three months ended September 30,		Nine months ended September 30,	
(Dollars in thousands)	2019	2018	2019	2018
Share-based compensation expense	$ 18,782	$ 11,501	$ 50,550	$ 33,968
Income tax benefit related to share-based compensation expense	(4,883)	(2,895)	(12,028)	(7,955)

Unrecognized Compensation Expense

As of September 30, 2019, unrecognized share-based compensation expense was as follows:

(Dollars in thousands)	Unrecognized Expense	Weighted Average Expected Recognition Period - in Years
Stock options	$ 15,837	2.69
Restricted stock units and awards	116,952	2.83
Total unrecognized share-based compensation expense	$ 132,789	

Share-Based Payment Award Activity

The table below provides stock option information related to the 2006 Equity Incentive Plan for the nine months ended September 30, 2019:

	Options	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life - in Years	Aggregate Intrinsic Value of In-The-Money Options
Outstanding at December 31, 2018	679,659	$ 137.19		
Granted	121,669	249.64		
Exercised	(104,576)	85.38		
Forfeited	(20,180)	211.23		
Expired	(720)	64.37		
Outstanding at September 30, 2019	675,852	163.32	3.68	$ 43,542,167
Vested and expected to vest at September 30, 2019	657,968	161.08	3.62	43,364,465
Exercisable at September 30, 2019	411,981	120.57	2.46	38,394,292

The aggregate intrinsic value of outstanding options shown in the table above represents the pre-tax intrinsic value based on our closing stock price of $208.95 as of September 30, 2019. The total intrinsic value of options exercised during the three and nine months ended September 30, 2019 was $1.6 million and $16.0 million, respectively, compared to $8.5 million and $39.5 million for the comparable 2018 periods.

The table below provides information for restricted stock units and awards under the 2006 Equity Incentive Plan for the nine months ended September 30, 2019:

	Shares	Weighted Average Grant Date Fair Value
Nonvested at December 31, 2018	597,296	$ 194.48
Granted (1)	539,266	243.70
Vested	(217,705)	151.40
Forfeited	(53,905)	188.07
Nonvested at September 30, 2019	864,952	236.41

(1) On February 1, 2019, we granted 125,160 restricted stock awards to SVB Leerink employees at a market price of $238.28 under the retention plan previously announced on November 13, 2018. The restricted stock awards will vest over a five-year period.

5. Variable Interest Entities

Our involvement with VIEs includes our investments in venture capital and private equity funds, debt funds, private and public portfolio companies and qualified affordable housing projects.

The following table presents the carrying amounts and classification of significant variable interests in consolidated and unconsolidated VIEs as of September 30, 2019 and December 31, 2018:

(Dollars in thousands)	Consolidated VIEs	Unconsolidated VIEs	Maximum Exposure to Loss in Unconsolidated VIEs
September 30, 2019:			
Assets:			
Cash and cash equivalents	$ 21,418	$ —	$ —
Non-marketable and other equity securities (1)	254,962	655,278	655,278
Accrued interest receivable and other assets	708	—	—
Total assets	$ 277,088	$ 655,278	$ 655,278
Liabilities:			
Other liabilities (1)	3,077	276,940	—
Total liabilities	$ 3,077	$ 276,940	$ —
December 31, 2018:			
Assets:			
Cash and cash equivalents	$ 9,058	$ —	$ —
Non-marketable and other equity securities (1)	221,646	568,272	568,272
Accrued interest receivable and other assets	228	—	—
Total assets	$ 230,932	$ 568,272	$ 568,272
Liabilities:			
Other liabilities (1)	919	205,685	—
Total liabilities	$ 919	$ 205,685	$ —

(1) Included in our unconsolidated non-marketable and other equity securities portfolio at September 30, 2019 and December 31, 2018 are investments in qualified affordable housing projects of $419.0 million and $318.6 million, respectively, and related other liabilities consisting of unfunded credit commitments of $276.9 million and $205.7 million, respectively.

Non-marketable and other equity securities

Our non-marketable and other equity securities portfolio primarily represents investments in venture capital and private equity funds, SPD Silicon Valley Bank Co., Ltd. (the Bank's joint venture bank in China ("SPD-SVB")), debt funds, private and public

portfolio companies and qualified affordable housing projects. A majority of these investments are through third- party funds held by SVB Financial in which we do not have controlling or significant variable interests. These investments represent our unconsolidated VIEs in the table above. Our non-marketable and other equity securities portfolio also includes investments from SVB Capital. SVB Capital is the funds management business of SVB Financial Group, which focuses primarily on venture capital investments. The SVB Capital family of funds is comprised of direct venture funds that invest in companies and funds of funds that invest in other venture capital funds. We have a controlling and significant variable interest in four of these SVB Capital funds and consolidate these funds for financial reporting purposes.

All investments are generally nonredeemable and distributions are expected to be received through the liquidation of the underlying investments throughout the life of the investment fund. Investments may only be sold or transferred subject to the notice and approval provisions of the underlying investment agreement. Subject to applicable regulatory requirements, including the Volcker Rule, we also make commitments to invest in venture capital and private equity funds. For additional details, see Note 16—"Off-Balance Sheet Arrangements, Guarantees and Other Commitments" of the "Notes to Interim Consolidated Financial Statements (unaudited)" under Part I, Item 1 of this report.

The Bank also has variable interests in low income housing tax credit funds, in connection with fulfilling its responsibilities under the Community Reinvestment Act ("CRA"), that are designed to generate a return primarily through the realization of federal tax credits. These investments are typically limited partnerships in which the general partner, other than the Bank, holds the power over significant activities of the VIE; therefore, these investments are not consolidated. For additional information on our investments in qualified affordable housing projects, see Note 7—"Investment Securities" of the "Notes to Interim Consolidated Financial Statements (unaudited)" under Part I, Item 1 of this report.

As of September 30, 2019, our exposure to loss with respect to the consolidated VIEs is limited to our net assets of $274.0 million and our exposure to loss for our unconsolidated VIEs is equal to our investment in these assets of $655.3 million.

6. Cash and Cash Equivalents

The following table details our cash and cash equivalents at September 30, 2019 and December 31, 2018:

(Dollars in thousands)	September 30, 2019	December 31, 2018
Cash and due from banks (1)	$ 6,557,085	$ 3,444,971
Securities purchased under agreements to resell (2)	387,119	123,611
Other short-term investment securities	1,992	2,957
Total cash and cash equivalents	$ 6,946,196	$ 3,571,539

(1) At September 30, 2019 and December 31, 2018, $4.1 billion and $1.7 billion, respectively, of our cash and due from banks was deposited at the Federal Reserve Bank and was earning interest at the Federal Funds target rate, and interest-earning deposits in other financial institutions were $1.9 billion and $1.2 billion, respectively.

(2) At September 30, 2019 and December 31, 2018, securities purchased under agreements to resell were collateralized by U.S. Treasury securities and U.S. agency securities with aggregate fair values of $395.2 million and $126.2 million, respectively. None of these securities were sold or repledged as of September 30, 2019 and December 31, 2018.

7. Investment Securities

Our investment securities portfolio consists of: (i) an available-for-sale securities portfolio and a held-to-maturity securities portfolio, both of which represent interest-earning investment securities, and (ii) a non-marketable and other equity securities portfolio, which primarily represents investments managed as part of our funds management business as well as public equity securities held as a result of equity warrant assets exercised.

Available-for-Sale Securities

The major components of our available-for-sale investment securities portfolio at September 30, 2019 and December 31, 2018 are as follows:

	September 30, 2019			
(Dollars in thousands)	Amortized Cost	Unrealized Gains	Unrealized Losses	Carrying Value
Available-for-sale securities, at fair value:				
U.S. Treasury securities	$ 6,233,957	$ 103,821	$ (2,930)	$ 6,334,848
U.S. agency debentures	100,000	—	—	100,000
Foreign government debt securities	8,837	10	—	8,847
Residential mortgage-backed securities:				
Agency-issued mortgage-backed securities	4,108,235	40,584	(119)	4,148,700
Agency-issued collateralized mortgage obligations—fixed rate	1,658,443	21,222	(1)	1,679,664
Agency-issued commercial mortgage-backed securities	590,070	4,929	(201)	594,798
Total available-for-sale securities	$ 12,699,542	$ 170,566	$ (3,251)	$ 12,866,857

	December 31, 2018			
(Dollars in thousands)	Amortized Cost	Unrealized Gains	Unrealized Losses	Carrying Value
Available-for-sale securities, at fair value:				
U.S. Treasury securities	$ 4,762,182	$ 11,638	$ (35,562)	$ 4,738,258
U.S. agency debentures	1,090,426	61	(6,370)	1,084,117
Foreign government debt securities	5,815	—	(3)	5,812
Residential mortgage-backed securities:				
Agency-issued collateralized mortgage obligations—fixed rate	1,922,618	—	(42,400)	1,880,218
Agency-issued collateralized mortgage obligations—variable rate	81,270	383	(15)	81,638
Total available-for-sale securities	$ 7,862,311	$ 12,082	$ (84,350)	$ 7,790,043

The following table summarizes sale activity of available-for-sale securities during the three and nine months ended September 30, 2019 and 2018 as recorded in the line item “Gains on investment securities, net," a component of noninterest income:

	Three months ended September 30,		Nine months ended September 30,	
(Dollars in thousands)	2019	2018	2019	2018
Sales proceeds	$ —	$ —	$ 2,189,087	$ —
Net realized gains and losses:				
Gross realized gains	—	—	1,250	—
Gross realized losses	—	—	(5,155)	—
Net realized losses	$ —	$ —	$ (3,905)	$ —

The following tables summarize our unrealized losses on our available-for-sale securities portfolio into categories of less than 12 months, or 12 months or longer as of September 30, 2019 and December 31, 2018:

	September 30, 2019					
	Less than 12 months		12 months or longer (1)		Total	
(Dollars in thousands)	Fair Value of Investments	Unrealized Losses	Fair Value of Investments	Unrealized Losses	Fair Value of Investments	Unrealized Losses
Available-for-sale securities:						
U.S. Treasury securities	$ 485,917	$ (973)	$ 1,647,699	$ (1,957)	$ 2,133,616	$ (2,930)
Residential mortgage-backed securities:						
Agency-issued mortgage-backed securities	305,208	(119)	—	—	305,208	(119)
Agency-issued collateralized mortgage obligations—fixed rate	—	—	350	(1)	350	(1)
Agency-issued commercial mortgage-backed securities	144,892	(201)	—	—	144,892	(201)
Total temporarily impaired securities (1)	$ 936,017	$ (1,293)	$ 1,648,049	$ (1,958)	$ 2,584,066	$ (3,251)

(1) As of September 30, 2019, we identified a total of 59 investments that were in unrealized loss positions, of which 37 investments totaling $1.6 billion with unrealized losses of $2.0 million have been in an impaired position for a period of time greater than 12 months. As of September 30, 2019, we do not intend to sell any of our impaired securities prior to recovery of our adjusted cost basis, and it is more likely than not that we will not be required to sell any of our securities prior to recovery of our adjusted cost basis. Based on our analysis as of September 30, 2019, we deem all impairments to be temporary, and therefore changes in value for our temporarily impaired securities as of the same date are included in other comprehensive income. Market valuations and impairment analyses on assets in the available-for-sale securities portfolio are reviewed and monitored on a quarterly basis.

	December 31, 2018					
	Less than 12 months		12 months or longer (1)		Total	
(Dollars in thousands)	Fair Value of Investments	Unrealized Losses	Fair Value of Investments	Unrealized Losses	Fair Value of Investments	Unrealized Losses
Available-for-sale securities:						
U.S. Treasury securities	$ 494,287	$ (3,785)	$ 3,568,119	$ (31,777)	$ 4,062,406	$ (35,562)
U.S. agency debentures	443,790	(1,602)	591,216	(4,768)	1,035,006	(6,370)
Foreign government debt securities	5,812	(3)	—	—	5,812	(3)
Residential mortgage-backed securities:						
Agency-issued collateralized mortgage obligations—fixed rate	13,430	(22)	1,866,788	(42,378)	1,880,218	(42,400)
Agency-issued collateralized mortgage obligations—variable rate	—	—	13,516	(15)	13,516	(15)
Total temporarily impaired securities (1)	$ 957,319	$ (5,412)	$ 6,039,639	$ (78,938)	$ 6,996,958	$ (84,350)

(1) As of December 31, 2018, we identified a total of 200 investments that were in unrealized loss positions, of which 162 investments totaling $6.0 billion with unrealized losses of $78.9 million have been in an impaired position for a period of time greater than 12 months.

The following table summarizes the fixed income securities, carried at fair value, classified as available-for-sale as of September 30, 2019 by the remaining contractual principal maturities. For U.S. Treasury securities, U.S. agency debentures and foreign government debt securities, the expected maturity is the actual contractual maturity of the notes. Expected maturities for mortgage-backed securities may differ significantly from their contractual maturities because mortgage borrowers have the right to prepay outstanding loan obligations with or without penalties. Mortgage-backed securities classified as available-for-sale typically have original contractual maturities from 10 to 30 years whereas expected average lives of these securities tend to be significantly shorter and vary based upon structure and prepayments in lower interest rate environments.

	September 30, 2019				
(Dollars in thousands)	Total	One Year or Less	After One Year to Five Years	After Five Years to Ten Years	After Ten Years
U.S. Treasury securities	$ 6,334,848	$ 2,007,267	$ 1,710,316	$ 2,617,265	$ —
U.S. agency debentures	100,000	—	—	100,000	—
Foreign government debt securities	8,847	—	8,847	—	—
Residential mortgage-backed securities:					
Agency-issued mortgage-backed securities	4,148,700	—	—	—	4,148,700
Agency-issued collateralized mortgage obligations—fixed rate	1,679,664	—	—	3,131	1,676,533
Agency-issued commercial mortgage-backed securities	594,798	—	—	300,208	294,590
Total	$ 12,866,857	$ 2,007,267	$ 1,719,163	$ 3,020,604	$ 6,119,823

Held-to-Maturity Securities

The components of our held-to-maturity investment securities portfolio at September 30, 2019 and December 31, 2018 are as follows:

	September 30, 2019			
(Dollars in thousands)	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
Held-to-maturity securities, at cost:				
U.S. agency debentures (1)	$ 518,841	$ 10,528	$ (22)	$ 529,347
Residential mortgage-backed securities:				
Agency-issued mortgage-backed securities	7,376,458	135,996	(4,190)	7,508,264
Agency-issued collateralized mortgage obligations—fixed rate	1,754,498	2,254	(10,094)	1,746,658
Agency-issued collateralized mortgage obligations—variable rate	188,120	105	(373)	187,852
Agency-issued commercial mortgage-backed securities	2,826,344	75,422	(3,046)	2,898,720
Municipal bonds and notes	1,742,817	86,112	(968)	1,827,961
Total held-to-maturity securities	$ 14,407,078	$ 310,417	$ (18,693)	$ 14,698,802

(1) Consists of pools of Small Business Investment Company debentures issued and guaranteed by the U.S. Small Business Administration, an independent agency of the United States.

(Dollars in thousands)	December 31, 2018 Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
Held-to-maturity securities, at cost:				
U.S. agency debentures (1)	$ 640,990	$ 2,148	$ (4,850)	$ 638,288
Residential mortgage-backed securities:				
Agency-issued mortgage-backed securities	8,103,638	5,011	(157,767)	7,950,882
Agency-issued collateralized mortgage obligations—fixed rate	2,183,204	—	(62,272)	2,120,932
Agency-issued collateralized mortgage obligations—variable rate	214,483	608	(14)	215,077
Agency-issued commercial mortgage-backed securities	2,769,706	6,969	(64,374)	2,712,301
Municipal bonds and notes	1,575,421	2,304	(26,969)	1,550,756
Total held-to-maturity securities	$ 15,487,442	$ 17,040	$ (316,246)	$ 15,188,236

(1) Consists of pools of Small Business Investment Company debentures issued and guaranteed by the U.S. Small Business Administration, an independent agency of the United States.

The following tables summarize our unrealized losses on our held-to-maturity securities portfolio into categories of less than 12 months and 12 months or longer as of September 30, 2019 and December 31, 2018:

(Dollars in thousands)	September 30, 2019 Less than 12 months Fair Value of Investments	Less than 12 months Unrealized Losses	12 months or longer (1) Fair Value of Investments	12 months or longer (1) Unrealized Losses	Total Fair Value of Investments	Total Unrealized Losses
Held-to-maturity securities:						
U.S. agency debentures	$ 50,131	$ (22)	$ —	$ —	$ 50,131	$ (22)
Residential mortgage-backed securities:						
Agency-issued mortgage-backed securities	962,390	(2,520)	197,721	(1,670)	1,160,111	(4,190)
Agency-issued collateralized mortgage obligations—fixed rate	244,020	(1,226)	1,220,827	(8,868)	1,464,847	(10,094)
Agency-issued collateralized mortgage obligations—variable rate	149,910	(367)	4,856	(6)	154,766	(373)
Agency-issued commercial mortgage-backed securities	86,087	(423)	456,168	(2,623)	542,255	(3,046)
Municipal bonds and notes	106,335	(966)	1,329	(2)	107,664	(968)
Total temporarily impaired securities (1)	$ 1,598,873	$ (5,524)	$ 1,880,901	$ (13,169)	$ 3,479,774	$ (18,693)

(1) As of September 30, 2019, we identified a total of 310 investments that were in unrealized loss positions, of which 164 investments totaling $1.9 billion with unrealized losses of $13.2 million have been in an impaired position for a period of time greater than 12 months. As of September 30, 2019, we do not intend to sell any of our impaired securities prior to recovery of our adjusted cost basis, and it is more likely than not that we will not be required to sell any of our securities prior to recovery of our adjusted cost basis, which is consistent with our classification of these securities. Based on our analysis as of September 30, 2019, we deem all impairments to be temporary. Market valuations and impairment analyses on assets in the held-to-maturity securities portfolio are reviewed and monitored on a quarterly basis.

	December 31, 2018					
	Less than 12 months		12 months or longer (1)		Total	
(Dollars in thousands)	Fair Value of Investments	Unrealized Losses	Fair Value of Investments	Unrealized Losses	Fair Value of Investments	Unrealized Losses
Held-to-maturity securities:						
U.S. agency debentures	$ 291,432	$ (2,915)	$ 66,624	$ (1,935)	$ 358,056	$ (4,850)
Residential mortgage-backed securities:						
Agency-issued mortgage-backed securities	2,493,156	(34,956)	3,972,690	(122,811)	6,465,846	(157,767)
Agency-issued collateralized mortgage obligations—fixed rate	16,952	(109)	2,103,980	(62,163)	2,120,932	(62,272)
Agency-issued collateralized mortgage obligations—variable rate	3,364	(1)	8,101	(13)	11,465	(14)
Agency-issued commercial mortgage-backed securities	177,697	(1,580)	1,600,277	(62,794)	1,777,974	(64,374)
Municipal bonds and notes	868,751	(17,075)	340,413	(9,894)	1,209,164	(26,969)
Total temporarily impaired securities (1)	$ 3,851,352	$ (56,636)	$ 8,092,085	$ (259,610)	$ 11,943,437	$ (316,246)

(1) As of December 31, 2018, we identified a total of 1,244 investments that were in unrealized loss positions, of which 695 investments totaling $8.1 billion with unrealized losses of $259.6 million have been in an impaired position for a period of time greater than 12 months.

The following table summarizes the remaining contractual principal maturities on fixed income investment securities classified as held-to-maturity as of September 30, 2019. For U.S. agency debentures, the expected maturity is the actual contractual maturity of the notes. Expected remaining maturities for certain U.S. agency debentures may occur earlier than their contractual maturities because the note issuers have the right to call outstanding amounts ahead of their contractual maturity. Expected maturities for mortgage-backed securities may differ significantly from their contractual maturities because mortgage borrowers have the right to prepay outstanding loan obligations with or without penalties. Mortgage-backed securities classified as held-to-maturity typically have original contractual maturities from 10 to 30 years whereas expected average lives of these securities tend to be significantly shorter and vary based upon structure and prepayments in lower interest rate environments.

	September 30, 2019									
	Total		One Year or Less		After One Year to Five Years		After Five Years to Ten Years		After Ten Years	
(Dollars in thousands)	Amortized Cost	Fair Value	Amortized Cost	Fair Value	Amortized Cost	Fair Value	Amortized Cost	Fair Value	Amortized Cost	Fair Value
U.S. agency debentures	$ 518,841	$ 529,347	$ —	$ —	$ 123,205	$ 124,646	$ 395,636	$ 404,701	$ —	$ —
Residential mortgage-backed securities:										
Agency-issued mortgage-backed securities	7,376,458	7,508,264	—	—	94,514	94,745	771,670	769,409	6,510,274	6,644,110
Agency-issued collateralized mortgage obligations—fixed rate	1,754,498	1,746,658	—	—	—	—	635,235	630,472	1,119,263	1,116,186
Agency-issued collateralized mortgage obligations—variable rate	188,120	187,852	—	—	—	—	—	—	188,120	187,852
Agency-issued commercial mortgage-backed securities	2,826,344	2,898,720	—	—	—	—	—	—	2,826,344	2,898,720
Municipal bonds and notes	1,742,817	1,827,961	14,002	14,007	82,708	83,714	369,911	385,458	1,276,196	1,344,782
Total	$14,407,078	$14,698,802	$ 14,002	$ 14,007	$ 300,427	$ 303,105	$2,172,452	$2,190,040	$11,920,197	$12,191,650

Non-marketable and Other Equity Securities

The major components of our non-marketable and other equity securities portfolio at September 30, 2019 and December 31, 2018 are as follows:

(Dollars in thousands)	September 30, 2019	December 31, 2018
Non-marketable and other equity securities:		
Non-marketable securities (fair value accounting):		
Consolidated venture capital and private equity fund investments (1)	$ 92,010	$ 118,333
Unconsolidated venture capital and private equity fund investments (2)	181,550	201,098
Other investments without a readily determinable fair value (3)	43,524	25,668
Other equity securities in public companies (fair value accounting) (4)	56,081	20,398
Non-marketable securities (equity method accounting) (5):		
Venture capital and private equity fund investments	196,425	129,485
Debt funds	7,153	5,826
Other investments	154,323	121,721
Investments in qualified affordable housing projects, net (6)	419,028	318,575
Total non-marketable and other equity securities	$ 1,150,094	$ 941,104

(1) The following table shows the amounts of venture capital and private equity fund investments held by the following consolidated funds and our ownership percentage of each fund at September 30, 2019 and December 31, 2018 (fair value accounting):

	September 30, 2019		December 31, 2018	
(Dollars in thousands)	Amount	Ownership %	Amount	Ownership %
Strategic Investors Fund, LP	$ 6,829	12.6%	$ 12,452	12.6%
Capital Preferred Return Fund, LP	46,691	20.0	53,957	20.0
Growth Partners, LP	38,356	33.0	50,845	33.0
CP I, LP	134	10.7	1,079	10.7
Total consolidated venture capital and private equity fund investments	$ 92,010		$ 118,333	

(2) The carrying value represents investments in 211 and 213 funds (primarily venture capital funds) at September 30, 2019 and December 31, 2018, respectively, where our ownership interest is typically less than 5% of the voting interests of each such fund and in which we do not have the ability to exercise significant influence over the partnerships operating activities and financial policies. We carry our unconsolidated venture capital and private equity fund investments at fair value based on the fund investments' net asset values per share as obtained from the general partners of the investments. For each fund investment, we adjust the net asset value per share for differences between our measurement date and the date of the fund investment's net asset value by using the most recently available financial information from the investee general partner, for example June 30th for our September 30th consolidated financial statements, adjusted for any contributions paid, distributions received from the investment, and significant fund transactions or market events during the reporting period.

(3) These investments include direct equity investments in private companies. The carrying value is based on the price at which the investment was acquired plus or minus changes resulting from observable price changes in orderly transactions for identical or similar investments. We consider a range of factors when adjusting the fair value of these investments, including, but not limited to, the term and nature of the investment, local market conditions, values for comparable securities, current and projected operating performance, exit strategies, financing transactions subsequent to the acquisition of the investment and a discount for certain investments that have lock-up restrictions or other features that indicate a discount to fair value is warranted.

The following table shows the changes to the carrying amount of other investments without a readily determinable fair value for the nine months ended September 30, 2019:

(Dollars in thousands)	Nine months ended September 30, 2019	Cumulative Adjustments
Measurement alternative:		
Carrying value at September 30, 2019	$ 43,524	
Carrying value adjustments:		
Impairment	$ —	$ —
Upward changes for observable prices	2,605	3,104
Downward changes for observable prices	(2,670)	(4,285)

(4) Investments classified as other equity securities (fair value accounting) represent shares held in public companies as a result of exercising public equity warrant assets and direct equity investments in public companies held by our consolidated funds. Changes in equity securities measured at fair value are recognized through net income.

(5) The following table shows the carrying value and our ownership percentage of each investment at September 30, 2019 and December 31, 2018 (equity method accounting):

	September 30, 2019		December 31, 2018	
(Dollars in thousands)	**Amount**	**Ownership %**	**Amount**	**Ownership %**
Venture capital and private equity fund investments:				
Strategic Investors Fund II, LP	$ 4,501	8.6%	$ 4,670	8.6%
Strategic Investors Fund III, LP	15,279	5.9	17,396	5.9
Strategic Investors Fund IV, LP	28,549	5.0	28,974	5.0
Strategic Investors Fund V funds	37,233	Various	28,189	Various
CP II, LP (i)	7,333	5.1	7,122	5.1
Other venture capital and private equity fund investments	103,530	Various	43,134	Various
Total venture capital and private equity fund investments	$ 196,425		$ 129,485	
Debt funds:				
Gold Hill Capital 2008, LP (ii)	$ 5,323	15.5%	$ 3,901	15.5%
Other debt funds	1,830	Various	1,925	Various
Total debt funds	$ 7,153		$ 5,826	
Other investments:				
SPD Silicon Valley Bank Co., Ltd.	$ 73,918	50.0%	$ 76,412	50.0%
Other investments	80,405	Various	45,309	Various
Total other investments	$ 154,323		$ 121,721	

(i) Our ownership includes direct ownership interest of 1.3 percent and indirect ownership interest of 3.8 percent through our investments in Strategic Investors Fund II, LP.

(ii) Our ownership includes direct ownership interest of 11.5 percent in the fund and an indirect interest in the fund through our investment in Gold Hill Capital 2008, LLC of 4.0 percent.

(6) The following table presents the balances of our investments in qualified affordable housing projects and related unfunded commitments included as a component of “Other liabilities” on our consolidated balance sheets at September 30, 2019 and December 31, 2018:

(Dollars in thousands)	**September 30, 2019**	**December 31, 2018**
Investments in qualified affordable housing projects, net	$ 419,028	$ 318,575
Other liabilities	276,940	205,685

The following table presents other information relating to our investments in qualified affordable housing projects for the three and nine months ended September 30, 2019 and 2018:

	Three months ended September 30,		Nine months ended September 30,	
(Dollars in thousands)	**2019**	**2018**	**2019**	**2018**
Tax credits and other tax benefits recognized	$ 8,705	$ 6,283	$ 28,950	$ 16,912
Amortization expense included in provision for income taxes (i)	6,042	4,773	20,436	14,269

(i) All investments are amortized using the proportional amortization method and amortization expense is included in the provision for income taxes.

The following table presents the net gains and losses on non-marketable and other equity securities for the three and nine months ended September 30, 2019 and 2018 as recorded in the line item “Gains on investment securities, net," a component of noninterest income:

	Three months ended September 30,		Nine months ended September 30,	
(Dollars in thousands)	2019	2018	2019	2018
Net gains (losses) on non-marketable and other equity securities:				
Non-marketable securities (fair value accounting):				
Consolidated venture capital and private equity fund investments	$ 4,555	$ 2,928	$ 22,674	$ 18,971
Unconsolidated venture capital and private equity fund investments	8,530	6,240	26,688	37,095
Other investments without a readily determinable fair value	(471)	2,509	4,701	4,310
Other equity securities in public companies (fair value accounting)	(11,979)	4,407	106	(17,786)
Non-marketable securities (equity method accounting):				
Venture capital and private equity fund investments	29,049	11,341	54,189	30,122
Debt funds	187	1,473	1,529	(100)
Other investments	(22)	3,295	593	4,753
Total net gains on non-marketable and other equity securities	$ 29,849	$ 32,193	$ 110,480	$ 77,365
Less: realized net gains (losses) on sales of securities (1)	277	357	12,637	(20,806)
Net gains on non-marketable and other equity securities still held	$ 29,572	$ 31,836	$ 97,843	$ 98,171

(1) Realized gains and losses include sales of non-marketable and other equity securities. No OTTI was recorded during the three and nine months ended September 30, 2019 and 2018.

8. Loans, Allowance for Loan Losses and Allowance for Unfunded Credit Commitments

We serve a variety of commercial clients in the technology, life science/healthcare, private equity/venture capital and premium wine industries. Our technology clients generally tend to be in the industries of hardware (semiconductors, communications, data, storage, and electronics), software/internet (such as infrastructure software, applications, software services, digital content and advertising technology), and energy and resource innovation (“ERI”). Because of the diverse nature of ERI products and services, for our loan-related reporting purposes, ERI-related loans are reported under our hardware, software/internet, life science/healthcare and other commercial loan categories, as applicable. Our life science/healthcare clients primarily tend to be in the industries of biotechnology, medical devices, healthcare information technology and healthcare services. Loans made to private equity/venture capital firm clients typically enable them to fund investments prior to their receipt of funds from capital calls. Loans to the premium wine industry focus on vineyards and wineries that produce grapes and wines of high quality.

In addition to commercial loans, we make consumer loans through SVB Private Bank and provide real estate secured loans to eligible employees through our EHOP. Our private banking clients are primarily private equity/venture capital professionals and executive leaders in the innovation companies they support. These products and services include real estate secured home equity lines of credit, which may be used to finance real estate investments and loans used to purchase, renovate or refinance personal residences. These products and services also include restricted stock purchase loans and capital call lines of credit.

We also provide community development loans made as part of our responsibilities under the Community Reinvestment Act. These loans are included within “Construction loans” below and are primarily secured by real estate.

The composition of loans, net of unearned income of $165 million and $173 million at September 30, 2019 and December 31, 2018, respectively, is presented in the following table:

(Dollars in thousands)	September 30, 2019	December 31, 2018
Commercial loans:		
Software/internet	$ 6,009,518	$ 6,154,755
Hardware	1,357,617	1,234,557
Private equity/venture capital	16,293,556	14,110,560
Life science/healthcare	2,381,822	2,385,612
Premium wine	234,555	249,266
Other	385,013	321,978
Total commercial loans	26,662,081	24,456,728
Real estate secured loans:		
Premium wine (1)	749,259	710,397
Consumer loans (2)	3,015,396	2,612,971
Other	39,332	40,435
Total real estate secured loans	3,803,987	3,363,803
Construction loans	116,854	97,077
Consumer loans	481,072	420,672
Total loans, net of unearned income (3)	$ 31,063,994	$ 28,338,280

(1) Included in our premium wine portfolio are gross construction loans of $96 million and $99 million at September 30, 2019 and December 31, 2018, respectively.
(2) Consumer loans secured by real estate at September 30, 2019 and December 31, 2018 were comprised of the following:

(Dollars in thousands)	September 30, 2019	December 31, 2018
Loans for personal residence	$ 2,577,623	$ 2,251,292
Loans to eligible employees	380,677	290,194
Home equity lines of credit	57,096	71,485
Consumer loans secured by real estate	$ 3,015,396	$ 2,612,971

(3) Included within our total loan portfolio are credit card loans of $396 million and $335 million at September 30, 2019 and December 31, 2018, respectively.

Credit Quality

The composition of loans, net of unearned income of $165 million and $173 million at September 30, 2019 and December 31, 2018, respectively, broken out by portfolio segment and class of financing receivable, is as follows:

(Dollars in thousands)	September 30, 2019	December 31, 2018
Commercial loans:		
Software/internet	$ 6,009,518	$ 6,154,755
Hardware	1,357,617	1,234,557
Private equity/venture capital	16,293,556	14,110,560
Life science/healthcare	2,381,822	2,385,612
Premium wine	983,814	959,663
Other	541,199	459,490
Total commercial loans	27,567,526	25,304,637
Consumer loans:		
Real estate secured loans	3,015,396	2,612,971
Other consumer loans	481,072	420,672
Total consumer loans	3,496,468	3,033,643
Total loans, net of unearned income	$ 31,063,994	$ 28,338,280

The following table summarizes the aging of our gross loans, broken out by portfolio segment and class of financing receivable as of September 30, 2019 and December 31, 2018:

(Dollars in thousands)	30 - 59 Days Past Due	60 - 89 Days Past Due	Equal to or Greater Than 90 Days Past Due	Total Past Due	Current	Loans Past Due 90 Days or More Still Accruing Interest
September 30, 2019:						
Commercial loans:						
Software/internet	$ 11,314	$ 6,760	$ 806	$ 18,880	$ 5,967,307	$ 806
Hardware	2,934	342	—	3,276	1,354,693	—
Private equity/venture capital	21,493	92	—	21,585	16,288,499	—
Life science/healthcare	6,645	453	58	7,156	2,400,516	58
Premium wine	5,846	—	—	5,846	976,903	—
Other	13	8,050	—	8,063	546,943	—
Total commercial loans	48,245	15,697	864	64,806	27,534,861	864
Consumer loans:						
Real estate secured loans	599	2,117	—	2,716	3,002,256	—
Other consumer loans	147	—	—	147	481,277	—
Total consumer loans	746	2,117	—	2,863	3,483,533	—
Total gross loans excluding impaired loans	48,991	17,814	864	67,669	31,018,394	864
Impaired loans	2,000	39,135	3,059	44,194	98,746	—
Total gross loans	$ 50,991	$ 56,949	$ 3,923	$ 111,863	$ 31,117,140	$ 864
December 31, 2018:						
Commercial loans:						
Software/internet	$ 28,134	$ 6,944	$ 378	$ 35,456	$ 6,059,672	$ 378
Hardware	300	34	4	338	1,233,956	4
Private equity/venture capital	59,481	11	—	59,492	14,054,940	—
Life science/healthcare	16,082	817	19	16,918	2,410,091	19
Premium wine	2,953	14	—	2,967	956,285	—
Other	7,391	163	1	7,555	477,442	1
Total commercial loans	114,341	7,983	402	122,726	25,192,386	402
Consumer loans:						
Real estate secured loans	3,598	1,750	1,562	6,910	2,598,496	1,562
Other consumer loans	361	—	—	361	420,359	—
Total consumer loans	3,959	1,750	1,562	7,271	3,018,855	1,562
Total gross loans excluding impaired loans	118,300	9,733	1,964	129,997	28,211,241	1,964
Impaired loans	2,843	1,181	25,092	29,116	140,958	—
Total gross loans	$ 121,143	$ 10,914	$ 27,056	$ 159,113	$ 28,352,199	$ 1,964

The following table summarizes our impaired loans as they relate to our allowance for loan losses, broken out by portfolio segment and class of financing receivable as of September 30, 2019 and December 31, 2018:

(Dollars in thousands)	Impaired loans for which there is a related allowance for loan losses	Impaired loans for which there is no related allowance for loan losses	Total carrying value of impaired loans	Total unpaid principal of impaired loans
September 30, 2019:				
Commercial loans:				
Software/internet	$ 55,892	$ 25,588	$ 81,480	$ 91,126
Hardware	5,441	4,482	9,923	10,175
Life science/healthcare	32,634	6,887	39,521	76,305
Premium wine	393	1,946	2,339	2,424
Other	2,589	—	2,589	2,639
Total commercial loans	96,949	38,903	135,852	182,669
Consumer loans:				
Real estate secured loans	3,315	3,760	7,075	10,871
Other consumer loans	13	—	13	13
Total consumer loans	3,328	3,760	7,088	10,884
Total	$ 100,277	$ 42,663	$ 142,940	$ 193,553
December 31, 2018:				
Commercial loans:				
Software/internet	$ 49,625	$ 65,225	$ 114,850	$ 131,858
Hardware	1,256	10,250	11,506	12,159
Private equity/venture capital	—	3,700	3,700	3,700
Life science/healthcare	17,791	16,276	34,067	44,446
Premium wine	—	1,301	1,301	1,365
Other	411	—	411	411
Total commercial loans	69,083	96,752	165,835	193,939
Consumer loans:				
Real estate secured loans	3,919	320	4,239	5,969
Other consumer loans	—	—	—	—
Total consumer loans	3,919	320	4,239	5,969
Total	$ 73,002	$ 97,072	$ 170,074	$ 199,908

The following tables summarize our average impaired loans and interest income recognized on impaired loans, broken out by portfolio segment and class of financing receivable for the three and nine months ended September 30, 2019 and 2018:

Three months ended September 30,	Average impaired loans		Interest income recognized on impaired loans	
(Dollars in thousands)	2019	2018	2019	2018
Commercial loans:				
Software/internet	$ 59,336	$ 118,840	$ 507	$ 607
Hardware	10,617	27,922	70	410
Private equity/venture capital	—	1,233	—	—
Life science/healthcare	42,242	38,545	192	365
Premium wine	2,308	2,384	41	35
Other	3,404	—	—	—
Total commercial loans	117,907	188,924	810	1,417
Consumer loans:				
Real estate secured loans	7,113	4,330	—	4
Other consumer loans	9	—	—	—
Total consumer loans	7,122	4,330	—	4
Total average impaired loans	$ 125,029	$ 193,254	$ 810	$ 1,421

Nine months ended September 30,	Average impaired loans		Interest income recognized on impaired loans	
(Dollars in thousands)	2019	2018	2019	2018
Commercial loans:				
Software/internet	$ 88,487	$ 112,576	$ 2,275	$ 991
Hardware	14,188	34,469	417	499
Private equity/venture capital	3,019	536	—	—
Life science/healthcare	47,208	27,671	785	376
Premium wine	1,538	2,586	141	103
Other	1,541	130	—	—
Total commercial loans	155,981	177,968	3,618	1,969
Consumer loans:				
Real estate secured loans	7,379	3,953	54	12
Other consumer loans	9	477	—	—
Total consumer loans	7,388	4,430	54	12
Total average impaired loans	$ 163,369	$ 182,398	$ 3,672	$ 1,981

The following tables summarize the activity relating to our allowance for loan losses for the three and nine months ended September 30, 2019 and 2018, broken out by portfolio segment:

Three months ended September 30, 2019 (Dollars in thousands)	Beginning Balance June 30, 2019	Charge-offs	Recoveries	Provision for (Reduction of) Loan Losses	Foreign Currency Translation Adjustments	Ending Balance September 30, 2019
Commercial loans:						
Software/internet	$ 101,998	$ (27,128)	$ 988	$ 22,679	$ (335)	$ 98,202
Hardware	26,932	(331)	1,669	(4,290)	64	24,044
Private equity/venture capital	105,524	—	1,200	1,834	(27)	108,531
Life science/healthcare	40,206	(9,361)	15	13,836	(204)	44,492
Premium wine	3,998	—	—	46	(1)	4,043
Other	4,291	—	—	(30)	—	4,261
Total commercial loans	282,949	(36,820)	3,872	34,075	(503)	283,573
Total consumer loans	18,939	—	16	1,910	(28)	20,837
Total allowance for loan losses	$ 301,888	$ (36,820)	$ 3,888	$ 35,985	$ (531)	$ 304,410

Three months ended September 30, 2018 (Dollars in thousands)	Beginning Balance June 30, 2018	Charge-offs	Recoveries	Provision for (Reduction of) Loan Losses	Foreign Currency Translation Adjustments	Ending Balance September 30, 2018
Commercial loans:						
Software/internet	$ 102,648	$ (6,304)	$ 841	$ 16,640	$ (335)	$ 113,490
Hardware	34,695	(12,697)	227	(1,763)	36	20,498
Private equity/venture capital	89,409	—	3	1,632	(33)	91,011
Life science/healthcare	35,064	(2,076)	189	2,322	(47)	35,452
Premium wine	3,438	—	—	125	(3)	3,560
Other	2,896	(1,128)	771	118	(2)	2,655
Total commercial loans	268,150	(22,205)	2,031	19,074	(384)	266,666
Total consumer loans	18,559	—	133	362	(7)	19,047
Total allowance for loan losses	$ 286,709	$ (22,205)	$ 2,164	$ 19,436	$ (391)	$ 285,713

Nine months ended September 30, 2019 (Dollars in thousands)	Beginning Balance December 31, 2018	Charge-offs	Recoveries	Provision for Loan Losses	Foreign Currency Translation Adjustments	Ending Balance September 30, 2019
Commercial loans:						
Software/internet	$ 103,567	$ (38,319)	$ 8,758	$ 24,667	$ (471)	$ 98,202
Hardware	19,725	(3,576)	4,738	2,962	195	24,044
Private equity/venture capital	98,581	(2,047)	1,200	11,305	(508)	108,531
Life science/healthcare	32,180	(26,879)	196	38,397	598	44,492
Premium wine	3,355	—	—	681	7	4,043
Other	3,558	(415)	—	1,163	(45)	4,261
Total commercial loans	260,966	(71,236)	14,892	79,175	(224)	283,573
Total consumer loans	19,937	(1,019)	241	1,779	(101)	20,837
Total allowance for loan losses	$ 280,903	$ (72,255)	$ 15,133	$ 80,954	$ (325)	$ 304,410

Nine months ended September 30, 2018 (Dollars in thousands)	Beginning Balance December 31, 2017	Charge-offs	Recoveries	Provision for (Reduction of) Loan Losses	Foreign Currency Translation Adjustments	Ending Balance September 30, 2018
Commercial loans:						
Software/internet	$ 96,104	$ (26,377)	$ 1,818	$ 42,620	$ (675)	$ 113,490
Hardware	27,614	(16,111)	1,458	7,788	(251)	20,498
Private equity/venture capital	82,468	(112)	13	8,200	442	91,011
Life science/healthcare	24,924	(2,940)	245	13,829	(606)	35,452
Premium wine	3,532	—	—	42	(14)	3,560
Other	3,941	(2,391)	1,874	(775)	6	2,655
Total commercial loans	238,583	(47,931)	5,408	71,704	(1,098)	266,666
Total consumer loans	16,441	(289)	470	2,384	41	19,047
Total allowance for loan losses	$ 255,024	$ (48,220)	$ 5,878	$ 74,088	$ (1,057)	$ 285,713

The following table summarizes the activity relating to our allowance for unfunded credit commitments for the three and nine months ended September 30, 2019 and 2018:

	Three months ended September 30,		Nine months ended September 30,	
(Dollars in thousands)	2019	2018	2019	2018
Allowance for unfunded credit commitments, beginning balance	$ 62,664	$ 54,104	$ 55,183	$ 51,770
Provision for unfunded credit commitments	551	(2,262)	8,079	138
Foreign currency translation adjustments	(107)	(34)	(154)	(100)
Allowance for unfunded credit commitments, ending balance (1)	$ 63,108	$ 51,808	$ 63,108	$ 51,808

(1) See Note 16—"Off-Balance Sheet Arrangements, Guarantees and Other Commitments" of the "Notes to Interim Consolidated Financial Statements (unaudited)" under Part I, Item 1 of this report for additional disclosures related to our commitments to extend credit.

The following table summarizes the allowance for loan losses individually and collectively evaluated for impairment as of September 30, 2019 and December 31, 2018, broken out by portfolio segment:

	September 30, 2019				December 31, 2018			
	Individually Evaluated for Impairment		Collectively Evaluated for Impairment		Individually Evaluated for Impairment		Collectively Evaluated for Impairment	
(Dollars in thousands)	Allowance for loan losses	Recorded investment in loans	Allowance for loan losses	Recorded investment in loans	Allowance for loan losses	Recorded investment in loans	Allowance for loan losses	Recorded investment in loans
Commercial loans:								
Software/internet	$ 24,882	$ 81,480	$ 73,320	$ 5,928,038	$ 28,527	$ 114,850	$ 75,040	$ 6,039,905
Hardware	5,230	9,923	18,814	1,347,694	1,253	11,506	18,472	1,223,051
Private equity/venture capital	—	—	108,531	16,293,556	—	3,700	98,581	14,106,860
Life science/healthcare	22,161	39,521	22,331	2,342,301	7,484	34,067	24,696	2,351,545
Premium wine	394	2,339	3,649	981,475	—	1,301	3,355	958,362
Other	910	2,589	3,351	538,610	411	411	3,147	459,079
Total commercial loans	53,577	135,852	229,996	27,431,674	37,675	165,835	223,291	25,138,802
Total consumer loans	151	7,088	20,686	3,489,380	266	4,239	19,671	3,029,404
Total	$ 53,728	$ 142,940	$ 250,682	$ 30,921,054	$ 37,941	$ 170,074	$ 242,962	$ 28,168,206

Credit Quality Indicators

For each individual client, we establish an internal credit risk rating for that loan, which is used for assessing and monitoring credit risk as well as performance of the loan and the overall portfolio. Our internal credit risk ratings are also used to summarize the risk of loss due to failure by an individual borrower to repay the loan. For our internal credit risk ratings, each individual loan is given a risk rating of 1 through 10. Loans risk-rated 1 through 4 are performing loans and translate to an internal rating of “Pass," with loans risk-rated 1 being cash secured. Loans risk-rated 5 through 7 are performing loans; however, we consider them as demonstrating higher risk, which requires more frequent review of the individual exposures; these translate to an internal rating of “Performing (Criticized)." When full repayment of a criticized loan has been deemed improbable under the original contractual terms but full repayment remains probable overall, the loan is considered to be a “Performing Impaired (Criticized)” loan. All of our nonaccrual loans are risk-rated 8 or 9 and are classified under the nonperforming impaired category. (For further description of nonaccrual loans, refer to Note 2—“Summary of Significant Accounting Policies” under Part II, Item 8 of our 2018 Form 10-K). Loans rated 10 are charged-off and are not included as part of our loan portfolio balance. We review our credit quality indicators for performance and appropriateness of risk ratings as part of our evaluation process for our allowance for loan losses.

The following table summarizes the credit quality indicators, broken out by portfolio segment and class of financing receivables as of September 30, 2019 and December 31, 2018:

(Dollars in thousands)	Pass	Performing (Criticized)	Performing Impaired (Criticized)	Nonperforming Impaired (Nonaccrual)	Total
September 30, 2019:					
Commercial loans:					
Software/internet	$ 5,454,896	$ 531,291	$ 25,588	$ 55,892	$ 6,067,667
Hardware	1,251,074	106,895	4,482	5,441	1,367,892
Private equity/venture capital	16,310,056	28	—	—	16,310,084
Life science/healthcare	2,258,771	148,901	6,879	32,642	2,447,193
Premium wine	928,817	53,932	1,946	393	985,088
Other	537,852	17,154	—	2,589	557,595
Total commercial loans	26,741,466	858,201	38,895	96,957	27,735,519
Consumer loans:					
Real estate secured loans	2,994,694	10,278	—	7,075	3,012,047
Other consumer loans	481,424	—	—	13	481,437
Total consumer loans	3,476,118	10,278	—	7,088	3,493,484
Total gross loans	$ 30,217,584	$ 868,479	$ 38,895	$ 104,045	$ 31,229,003
December 31, 2018:					
Commercial loans:					
Software/internet	$ 5,574,332	$ 520,796	$ 48,069	$ 66,781	$ 6,209,978
Hardware	1,146,985	87,309	10,250	1,256	1,245,800
Private equity/venture capital	14,098,281	16,151	—	3,700	14,118,132
Life science/healthcare	2,291,356	135,653	16,276	17,791	2,461,076
Premium wine	909,965	49,287	1,017	284	960,553
Other	467,653	17,344	—	411	485,408
Total commercial loans	24,488,572	826,540	75,612	90,223	25,480,947
Consumer loans:					
Real estate secured loans	2,584,261	21,145	320	3,919	2,609,645
Other consumer loans	419,771	949	—	—	420,720
Total consumer loans	3,004,032	22,094	320	3,919	3,030,365
Total gross loans	$ 27,492,604	$ 848,634	$ 75,932	$ 94,142	$ 28,511,312

Troubled Debt Restructurings

As of September 30, 2019, we had 20 TDRs with a total carrying value of $105.2 million where concessions have been granted to borrowers experiencing financial difficulties, in an attempt to maximize collection. There were $3.8 million of unfunded commitments available for funding to the clients associated with these TDRs as of September 30, 2019.

The following table summarizes our loans modified in TDRs, broken out by portfolio segment and class of financing receivables at September 30, 2019 and December 31, 2018:

(Dollars in thousands)	September 30, 2019	December 31, 2018
Loans modified in TDRs:		
Commercial loans:		
Software/internet	$ 80,704	$ 58,089
Hardware	—	9,665
Life science/healthcare	18,689	12,738
Premium wine	3,712	2,883
Total commercial loans	103,105	83,375
Consumer loans:		
Other consumer loans	2,140	320
Total loans modified in TDRs	$ 105,245	$ 83,695

The following table summarizes the recorded investment in loans modified in TDRs, broken out by portfolio segment and class of financing receivable, for modifications made during the three and nine months ended September 30, 2019 and 2018:

	Three months ended September 30,		Nine months ended September 30,	
(Dollars in thousands)	2019	2018	2019	2018
Loans modified in TDRs during the period:				
Commercial loans:				
Software/internet	$ 8,566	$ —	$ 60,650	$ 14,069
Hardware	—	10,398	—	12,347
Life science/healthcare	—	—	10,963	5,909
Total commercial loans	8,566	10,398	71,613	32,325
Consumer loans:				
Other consumer loans	—	—	1,826	322
Total loans modified in TDRs during the period (1)	$ 8,566	$ 10,398	$ 73,439	$ 32,647

(1) There were $3.7 million and $9.2 million of partial charge-offs for the three and nine months ended September 30, 2019, respectively, and $13.0 million and $21.5 million of partial charge-offs for the three and nine months ended September 30, 2018, respectively.

During the three and nine months ended September 30, 2019, $6.4 million and $69.4 million, respectively, were modified through payment deferrals granted to our clients. During the three and nine months ended September 30, 2019, $2.2 million and $4.0 million, respectively, were modified through partial forgiveness of principal. During the three and nine months ended September 30, 2018, all new TDRs of $10.4 million and $32.6 million, respectively, were modified through payment deferrals granted to our clients.

The related allowance for loan losses for the majority of our TDRs is determined on an individual basis by comparing the carrying value of the loan to the present value of the estimated future cash flows, discounted at the pre-modification contractual interest rate. For certain TDRs, the related allowance for loan losses is determined based on the fair value of the collateral if the loan is collateral dependent.

The following table summarizes the recorded investment in loans modified in TDRs within the previous 12 months that subsequently defaulted during the three and nine months ended September 30, 2019 and 2018:

	Three months ended September 30,		Nine months ended September 30,	
(Dollars in thousands)	2019	2018	2019	2018
TDRs modified within the previous 12 months that defaulted during the period:				
Commercial loans:				
Software/internet	$ 37,294	$ 18,911	$ 37,294	$ 41,568
Hardware	—	2,100	—	5,549
Life science/healthcare	10,963	5,909	10,963	7,139
Total TDRs modified within the previous 12 months that defaulted in the period	$ 48,257	$ 26,920	$ 48,257	$ 54,256

Charge-offs and defaults on previously restructured loans are evaluated to determine the impact to the allowance for loan losses, if any. The evaluation of these defaults may impact the assumptions used in calculating the reserve on other TDRs and impaired loans as well as management's overall outlook of macroeconomic factors that affect the reserve on the loan portfolio as a whole. After evaluating the charge-offs and defaults experienced on our TDRs we determined that no change to our reserving methodology for TDRs was necessary to determine the allowance for loan losses as of September 30, 2019.

9. Leases

We have operating leases for our corporate offices, data centers and certain equipment utilized at those properties. We are obligated under a number of noncancelable operating leases for premises and equipment that expire at various dates, through 2030, and in most instances, include options to renew or extend at market rates and terms. Such leases may provide for periodic adjustments of rentals during the term of the lease based on changes in various economic indicators.

At the inception of the lease, the lease is evaluated to determine whether the lease will be accounted for as an operating or a finance lease. There were no significant assumptions or judgments required upon applying the new lease standard. Operating lease ROU assets and operating lease liabilities are included in our consolidated balance sheets. We have no leases that meet the definition of a finance lease under ASC 842 and our lessor accounting treatment for subleases is not material. The comparative information has not been restated and continues to be reported under the accounting standards in effect for those periods.

Total recorded balances for the lease assets and liabilities are as follows:

(Dollars in thousands)	September 30, 2019
Assets:	
Right-of-use assets - operating leases (1)	$ 178,532
Liabilities:	
Lease liabilities - operating leases (1)	192,543

(1) Included in these amounts are $22.8 million and $31.4 million of ROU assets and lease liabilities, respectively, attributable to the inclusion of SVB Leerink in our financial results at September 30, 2019.

The components of our lease cost and supplemental cash flow information related to leases for the three and nine months ended September 30, 2019 were as follows:

(Dollars in thousands)	Three months ended September 30, 2019	Nine months ended September 30, 2019
Operating lease cost	$ 10,120	$ 29,099
Short-term lease cost	370	1,214
Variable lease cost	903	2,683
Less: sublease income	(1,140)	(3,363)
Total lease cost, net	$ 10,253	$ 29,633
Supplemental cash flows information:		
Cash paid for amounts included in the measurement of lease liabilities:		
Cash paid for operating leases	$ 11,514	$ 32,752
Noncash items during the period:		
Lease obligations in exchange for obtaining Right-of-use assets		
Operating leases	$ 7,770	$ 7,770

The table below presents additional information related to the Company's leases as of September 30, 2019:

	September 30, 2019
Weighted-average remaining term (in years) - operating leases	6.15
Weighted-average discount rate - operating leases (1)	3.15%

(1) The incremental borrowing rate used to calculate the lease liability was determined based on the facts and circumstances of the economic environment and the Company's credit standing as of the effective date of ASC 842. Additionally, the total lease term and total lease payments were also considered in determining the rate. Based on these considerations the Company identified credit terms available under its existing credit lines which represent a collateralized borrowing rate that has varying credit terms that could be matched to total lease terms and total lease payments in ultimately determining the implied borrowing rate in each lease contract.

The following table presents our undiscounted future cash payments for our operating lease liabilities as of September 30, 2019:

Years ended December 31, (Dollars in thousands)	Operating Leases
2019 (excluding the nine months ended September 30, 2019)	$ 10,994
2020	41,197
2021	38,325
2022	32,830
2023	31,033
2024 and thereafter	41,792
Total future lease payments (1)	$ 196,171
Less: imputed interest	(3,628)
Total lease liabilities	$ 192,543

(1) As of September 30, 2019, we have additional leases that have not yet commenced. We estimate that we will record additional lease liabilities of $35.4 million upon commencement. These leases will commence by 2020 with lease terms of one to ten years.

The following table presents minimum future payments under noncancelable operating leases under ASC 840, as of December 31, 2018:

(Dollars in thousands)	Amount
2019	$ 38,609
2020	37,575
2021	35,854
2022	31,659
2023	30,904
2024 and thereafter	49,071
Total minimum future payments	$ 223,672

10. Goodwill and Other Intangible Assets

Goodwill

On January 4, 2019, we completed the acquisition of Leerink Holdings LLC, the Boston-based parent company of healthcare and life science investment bank Leerink Partners LLC, now SVB Leerink. We recognized identifiable intangible assets of $60.9 million and goodwill of $137.8 million as a result of the acquisition. For additional information, refer to Note 2—"Business Combination" of the "Notes to Interim Consolidated Financial Statements (unaudited)" under Part I, Item 1 of this report. The goodwill of $137.8 million includes revenue generating synergies expected from collaboration between SVB Leerink and the Company.

The changes in goodwill were as follows for the nine months ended September 30, 2019:

(Dollars in thousands)	Goodwill
Beginning balance at December 31, 2018	$ —
Acquisitions (1)	137,823
Ending balance at September 30, 2019	$ 137,823

(1) All reported goodwill amounts have been allocated to the SVB Leerink reporting segment and are expected to be deductible for tax purposes. Refer to Note 15—"Segment Reporting" of the "Notes to Interim Consolidated Financial Statements (unaudited)" under Part I, Item 1 of this report for additional information.

Other Intangible Assets

The components of net other intangible assets related to the acquisition of SVB Leerink were as follows:

	September 30, 2019		
(Dollars in thousands)	Gross Amount	Accumulated Amortization	Net Carrying Amount
Other intangible assets:			
Customer relationships	$ 42,000	$ 2,864	$ 39,136
Other	18,900	5,748	13,152
Total other intangible assets	$ 60,900	$ 8,612	$ 52,288

For the nine months ended September 30, 2019, we recorded amortization expense of $8.6 million. Assuming no future impairments of other intangible assets or additional acquisitions or dispositions, the following table presents the Company's future expected amortization expense for other intangible assets that will continue to be amortized as of September 30, 2019:

Years ended December 31, (Dollars in thousands)	Other Intangible Assets
2019 (excluding the nine months ended September 30, 2019)	$ 2,872
2020	5,382
2021	4,732
2022	4,732
2023	4,732
2024 and thereafter	29,838
Total future amortization expense	$ 52,288

11. Short-Term Borrowings and Long-Term Debt

The following table represents outstanding short-term borrowings and long-term debt at September 30, 2019 and December 31, 2018:

			Carrying Value	
(Dollars in thousands)	Maturity	Principal value at September 30, 2019	September 30, 2019	December 31, 2018
Short-term borrowings:				
Short-term FHLB advances			$ —	$ 300,000
Securities sold under agreement to repurchase	(1)		—	319,414
Other short-term borrowings	(2)	$ 18,898	18,898	11,998
Total short-term borrowings			$ 18,898	$ 631,412
Long-term debt:				
3.50% Senior Notes	January 29, 2025	$ 350,000	$ 347,899	$ 347,639
5.375% Senior Notes	September 15, 2020	350,000	349,328	348,826
Total long-term debt			$ 697,227	$ 696,465

(1) Securities sold under repurchase agreements are effectively short-term borrowings collateralized by U.S. Treasury securities.
(2) Represents cash collateral received from certain counterparties in relation to market value exposures of derivative contracts in our favor.

Interest expense related to short-term borrowings and long-term debt was $8.1 million and $27.6 million for the three and nine months ended September 30, 2019, respectively, and $12.0 million and $29.1 million for the three and nine months ended September 30, 2018, respectively. The weighted average interest rate associated with our overnight short-term borrowings was 2.62 percent as of December 31, 2018. There were no overnight short-term borrowings as of September 30, 2019.

Short-term Borrowings

We have certain facilities in place to enable us to access short-term borrowings on a secured and unsecured basis. Our secured facilities include collateral pledged to the FHLB of San Francisco and the discount window at the FRB (using both fixed income securities and loans as collateral). Our unsecured facility consists of our uncommitted federal funds lines. As of September 30, 2019, collateral pledged to the FHLB of San Francisco was comprised primarily of fixed income investment securities and loans and had a carrying value of $4.5 billion, of which $4.1 billion was available to support additional borrowings. As of September 30, 2019, collateral pledged to the discount window at the FRB was comprised of fixed income investment securities and had a carrying value of $1.0 billion, all of which was unused and available to support additional borrowings. Our total unused and available borrowing capacity for our uncommitted federal funds lines totaled $1.9 billion at September 30, 2019. Our total unused and available borrowing capacity under our master repurchase agreements with various financial institutions totaled $3.3 billion at September 30, 2019.

12. Derivative Financial Instruments

We primarily use derivative financial instruments to manage interest rate risk, currency exchange rate risk and to assist customers with their risk management objectives, which may include currency exchange rate risks and interest rate risks. Also, in connection with negotiating credit facilities and certain other services, we often obtain equity warrant assets giving us the right to acquire stock in private, venture-backed companies in the technology and life science/healthcare industries.

Interest Rate Risk

Interest rate risk is our primary market risk and can result from timing and volume differences in the repricing of our interest rate sensitive assets and liabilities and changes in market interest rates. To manage interest rate risk on our variable-interest rate loan portfolio, we enter into interest rate swap contracts to hedge against future changes in interest rates by using hedging instruments to lock in future cash inflows that would otherwise be impacted by movements in the market interest rates. We designate these interest rate swap contracts as cash flow hedges that qualify for hedge accounting under ASC 815, *Derivatives and Hedging* ("ASC 815"), and record them in other assets and other liabilities. For qualifying cash flow hedges, changes in the fair value of the derivative are recorded in accumulated other comprehensive income and recognized in earnings as the hedged item affects earnings. Derivative amounts affecting earnings are recognized consistent with the classification of the hedged item in the line item "Loans" as part of interest income, a component of consolidated net income.

We assess hedge effectiveness under ASC 815 on a quarterly basis to ensure all hedges remain highly effective to ensure hedge accounting under ASC 815 can be applied. If the hedging relationship no longer exists or no longer qualifies as a hedge per ASC 815, any amounts remaining as gain or loss in accumulated other comprehensive income are reclassified into earnings in the line item "Loans" as part of interest income, a component of consolidated net income. As of September 30, 2019, no derivatives classified as hedges were terminated or were disqualified for hedge accounting. The maximum length of time over which the forecasted transactions are hedged is approximately six years.

Currency Exchange Risk

We enter into foreign exchange forward contracts to economically reduce our foreign exchange exposure risk associated with the net difference between foreign currency denominated assets and liabilities. We do not designate any foreign exchange forward contracts as derivative instruments that qualify for hedge accounting. Gains or losses from changes in currency rates on foreign currency denominated instruments are recorded in the line item “Other” as part of noninterest income, a component of consolidated net income. We may experience ineffectiveness in the economic hedging relationship, because the instruments are revalued based upon changes in the currency’s spot rate on the principal value, while the forwards are revalued on a discounted cash flow basis. We record forward agreements in gain positions in other assets and loss positions in other liabilities, while net changes in fair value are recorded in the line item “Other” as part of noninterest income, a component of consolidated net income.

Other Derivative Instruments

Also included in our derivative instruments are equity warrant assets and client forward and option contracts, and client interest rate contracts. For further description of these other derivative instruments, refer to Note 2-“Summary of Significant Accounting Policies" under Part II, Item 8 of our 2018 Form 10-K.

Counterparty Credit Risk

We are exposed to credit risk if counterparties to our derivative contracts do not perform as expected. We mitigate counterparty credit risk through credit approvals, limits, monitoring procedures and obtaining collateral, as appropriate. With respect to measuring counterparty credit risk for derivative instruments, we measure the fair value of a group of financial assets and financial liabilities on a net risk basis by counterparty portfolio.

The total notional or contractual amounts and fair value of our derivative financial instruments at September 30, 2019 and December 31, 2018 were as follows:

	September 30, 2019			December 31, 2018		
	Notional or Contractual Amount	Fair Value		Notional or Contractual Amount	Fair Value	
(Dollars in thousands)		Derivative Assets (1)	Derivative Liabilities (1)		Derivative Assets (1)	Derivative Liabilities (1)
Derivatives designated as hedging instruments:						
Interest rate risks:						
Interest rate swaps	$ 2,000,000	$ 40,976	$ —	$ —	$ —	$ —
Interest rate swaps	2,000,000	—	9,286	—	—	—
Derivatives not designated as hedging instruments:						
Currency exchange risks:						
Foreign exchange forwards	255,228	4,303	—	263,733	4,767	—
Foreign exchange forwards	—	—	—	178,310	—	1,094
Other derivative instruments:						
Equity warrant assets	223,383	149,113	—	223,532	149,238	—
Client foreign exchange forwards	3,921,970	116,492	—	2,759,878	93,876	—
Client foreign exchange forwards	3,876,021	—	100,244	2,568,085	—	85,706
Client foreign currency options	125,531	1,485	—	93,556	1,759	—
Client foreign currency options	125,531	—	1,485	93,579	—	1,759
Client interest rate derivatives (2)	1,230,782	25,608	—	1,020,416	8,499	—
Client interest rate derivatives (2)	1,310,689	—	37,525	1,337,328	—	9,491
Total derivatives not designated as hedging instruments		297,001	139,254		258,139	98,050
Total derivatives		$ 337,977	$ 148,540		$ 258,139	$ 98,050

(1) Derivative assets and liabilities are included in "Accrued interest receivable and other assets" and "Other liabilities", respectively, on our consolidated balance sheets.

(2) The amount reported for September 30, 2019 reflects rule changes implemented by two central clearing houses that require entities to treat derivative assets, liabilities and the related variation margin as settlement of the related derivative fair values for legal and accounting purposes, as opposed to presenting gross derivative assets and liabilities. As a result, client interest rate derivatives reflect reductions of approximately $7.8 million and $0.4 million of derivative assets at September 30, 2019 and December 31, 2018, respectively.

A summary of our derivative activity and the related impact on our consolidated statements of income for the three and nine months ended September 30, 2019 and 2018 is as follows:

		Three months ended September 30,		Nine months ended September 30,	
(Dollars in thousands)	**Statement of income location**	**2019**	**2018**	**2019**	**2018**
Derivatives designated as hedging instruments:					
Interest rate risks:					
Amounts reclassified from accumulated other comprehensive income into income	Interest income—loans	$ (2,713)	$ —	$ (3,224)	$ —
Derivatives not designated as hedging instruments:					
Currency exchange risks:					
(Losses) gains on revaluations of internal foreign currency instruments, net	Other noninterest income	$ (8,724)	$ 5,412	$ (5,183)	$ 8,019
Gains (losses) on internal foreign exchange forward contracts, net	Other noninterest income	8,660	(5,002)	4,917	(8,055)
Net (losses) gains associated with internal currency risk		$ (64)	$ 410	$ (266)	$ (36)
Other derivative instruments:					
(Losses) gains on revaluations of client foreign currency instruments, net	Other noninterest income	$ (2,181)	$ (1,187)	$ (14,793)	$ 3,718
Gains (losses) on client foreign exchange forward contracts, net	Other noninterest income	2,167	1,573	15,232	(2,697)
Net (losses) gains associated with client currency risk		$ (14)	$ 386	$ 439	$ 1,021
Net gains on equity warrant assets	Gains on equity warrant assets, net	$ 37,561	$ 34,141	$ 107,213	$ 72,393
Net (losses) gains on other derivatives	Other noninterest income	$ (1,123)	$ 222	$ (2,619)	$ 643

Balance Sheet Offsetting

Certain of our derivative and other financial instruments are subject to enforceable master netting arrangements with our counterparties. These agreements provide for the net settlement of multiple contracts with a single counterparty through a single payment, in a single currency, in the event of default on or termination of any one contract.

The following table summarizes our assets subject to enforceable master netting arrangements as of September 30, 2019 and December 31, 2018:

(Dollars in thousands)	Gross Amounts of Recognized Assets	Gross Amounts offset in the Statement of Financial Position	Net Amounts of Assets Presented in the Statement of Financial Position	Gross Amounts Not Offset in the Statement of Financial Position but Subject to Master Netting Arrangements		Net Amount
				Financial Instruments	Cash Collateral Received (1)	
September 30, 2019						
Derivative assets:						
Interest rate swaps	$ 40,976	$ —	$ 40,976	$ (9,286)	$ (13)	$ 31,677
Foreign exchange forwards	120,795	—	120,795	(60,525)	(18,586)	41,684
Foreign currency options	1,485	—	1,485	(848)	(299)	338
Client interest rate derivatives	25,608	—	25,608	(25,608)	—	—
Total derivative assets	188,864	—	188,864	(96,267)	(18,898)	73,699
Reverse repurchase, securities borrowing, and similar arrangements	387,119	—	387,119	(387,119)	—	—
Total	$ 575,983	$ —	$ 575,983	$ (483,386)	$ (18,898)	$ 73,699
December 31, 2018						
Derivative assets:						
Foreign exchange forwards	$ 98,643	$ —	$ 98,643	$ (38,213)	$ (11,825)	$ 48,605
Foreign currency options	1,759	—	1,759	(613)	(90)	1,056
Client interest rate derivatives	8,499	—	8,499	(8,416)	(83)	—
Total derivative assets	108,901	—	108,901	(47,242)	(11,998)	49,661
Reverse repurchase, securities borrowing, and similar arrangements	123,611	—	123,611	(123,611)	—	—
Total	$ 232,512	$ —	$ 232,512	$ (170,853)	$ (11,998)	$ 49,661

(1) Cash collateral received from our counterparties in relation to market value exposures of derivative contracts in our favor is recorded as a component of "Short-term borrowings" on our consolidated balance sheets.

The following table summarizes our liabilities subject to enforceable master netting arrangements as of September 30, 2019 and December 31, 2018:

(Dollars in thousands)	Gross Amounts of Recognized Liabilities	Gross Amounts offset in the Statement of Financial Position	Net Amounts of Liabilities Presented in the Statement of Financial Position	Gross Amounts Not Offset in the Statement of Financial Position but Subject to Master Netting Arrangements		Net Amount
				Financial Instruments	Cash Collateral Pledged (1)	
September 30, 2019						
Derivative liabilities:						
Interest rate swaps	$ 9,286	$ —	$ 9,286	$ (9,286)	$ —	$ —
Foreign exchange forwards	100,244	—	100,244	(44,565)	(5,010)	50,669
Foreign currency options	1,485	—	1,485	(802)	—	683
Client interest rate derivatives	37,525	—	37,525	—	(37,220)	305
Total derivative liabilities	148,540	—	148,540	(54,653)	(42,230)	51,657
Repurchase, securities lending, and similar arrangements	—	—	—	—	—	—
Total	$ 148,540	$ —	$ 148,540	$ (54,653)	$ (42,230)	$ 51,657
December 31, 2018						
Derivative liabilities:						
Foreign exchange forwards	$ 86,800	$ —	$ 86,800	$ (24,778)	$ (20,732)	$ 41,290
Foreign currency options	1,759	—	1,759	(1,054)	—	705
Client interest rate derivatives	9,491	—	9,491	—	(9,207)	284
Total derivative liabilities	98,050	—	98,050	(25,832)	(29,939)	42,279
Repurchase, securities lending, and similar arrangements	319,414	—	319,414	—	—	319,414
Total	$ 417,464	$ —	$ 417,464	$ (25,832)	$ (29,939)	$ 361,693

(1) Cash collateral pledged to our counterparties in relation to market value exposures of derivative contracts in a liability position and repurchase agreements are recorded as a component of "Cash and cash equivalents" on our consolidated balance sheets.

13. Noninterest Income

On January 1, 2018, we adopted accounting standard ASU 2014-09, Revenue from Contracts with Customers and all the related amendments ("ASC 606" or "ASU 2014-09"). Included below is a summary of noninterest income for the three and nine months ended September 30, 2019 and 2018:

	Three months ended September 30,		Nine months ended September 30,	
(Dollars in thousands)	2019	2018	2019	2018
Noninterest income:				
Gains on investment securities, net	$ 29,849	$ 32,193	$ 106,575	$ 77,365
Gains on equity warrant assets, net	37,561	34,141	107,213	72,393
Client investment fees	46,679	36,265	136,905	88,592
Foreign exchange fees	40,309	32,656	116,863	100,560
Credit card fees	30,158	24,121	86,431	68,739
Deposit service charges	22,482	19,588	65,496	56,081
Lending related fees	11,707	10,675	36,857	30,938
Letters of credit and standby letters of credit fees	10,842	8,409	31,205	24,938
Investment banking revenue	38,516	—	137,005	—
Commissions	12,275	—	40,812	—
Other	13,631	12,022	42,773	38,671
Total noninterest income	$ 294,009	$ 210,070	$ 908,135	$ 558,277

Gains on investment securities, net

Net gains on investment securities include both gains and losses from our non-marketable and other equity securities, which include public equity securities held as a result of exercised equity warrant assets, gains and losses from sales of our AFS debt securities portfolio, when applicable, and carried interest.

Our non-marketable and other equity securities portfolio primarily represents investments in venture capital and private equity funds, our China Joint Venture, debt funds, private and public portfolio companies, which include public equity securities held as a result of exercised equity warrant assets and qualified affordable housing projects. We experience variability in the performance of our non-marketable and other equity securities from period to period, which results in net gains or losses on investment securities (both realized and unrealized). This variability is due to a number of factors, including unrealized changes in the values of our investments, changes in the amount of realized gains from distributions, changes in liquidity events and general economic and market conditions. Unrealized gains from non-marketable and other equity securities for any single period are typically driven by valuation changes.

The extent to which any unrealized gains or losses will become realized is subject to a variety of factors, including, among other things, the expiration of certain sales restrictions to which these equity securities may be subject to (i.e., lock-up agreements), changes in prevailing market prices, market conditions, the actual sales or distributions of securities, and the timing of such actual sales or distributions, which, to the extent such securities are managed by our managed funds, are subject to our funds' separate discretionary sales/distributions and governance processes.

Carried interest is comprised of preferential allocations of profits recognizable when the return on assets of our individual managed fund of funds and direct venture funds exceeds certain performance targets and is payable to us, as the general partners of the managed funds. The carried interest we earn is often shared with employees, who are also members of the general partner entities. We record carried interest on a quarterly basis by measuring fund performance to date versus the performance target. For our unconsolidated managed funds, carried interest is recorded as gains on investment securities, net. For our consolidated managed funds, it is recorded as a component of net income attributable to noncontrolling interests. Carried interest allocated to others is recorded as a component of net income attributable to noncontrolling interests. Any carried interest paid to us (or our employees) may be subject to reversal to the extent fund performance declines to a level where inception to date carried interest is lower than actual payments made by the funds. The limited partnership agreements for our funds provide that carried interest is generally not paid to the general partners until the funds have provided a full return of contributed capital to the limited partners. Accrued, but unpaid carried interest may be subject to reversal to the extent that the fund performance declines

to a level where inception-to-date carried interest is less than prior amounts recognized. Carried interest income is accounted for under an ownership model based on *ASC 323 — Equity Method of Accounting* and *ASC 810 — Consolidation.*

Our available-for-sale securities portfolio is a fixed income investment portfolio that is managed with the objective of earning an appropriate portfolio yield over the long-term while maintaining sufficient liquidity and credit diversification as well as addressing our asset/liability management objectives. Though infrequent, sales of debt securities in our AFS securities portfolio may result in net gains or losses and are conducted pursuant to the guidelines of our investment policy related to the management of our liquidity position and interest rate risk.

Gains on investment securities are recognized outside of the scope of ASC 606 as it explicitly excludes noninterest income earned from our investment-related activities. A summary of gains and losses on investment securities for the three and nine months ended September 30, 2019 and 2018 is as follows:

	Three months ended September 30,		Nine months ended September 30,	
(Dollars in thousands)	2019	2018	2019	2018
Gains on non-marketable and other equity securities, net	$ 29,849	$ 32,193	$ 110,480	$ 77,365
Losses on sales of available-for-sale securities, net	—	—	(3,905)	—
Total gains on investment securities, net	$ 29,849	$ 32,193	$ 106,575	$ 77,365

Gains on equity warrant assets, net

In connection with negotiating credit facilities and certain other services, we often obtain rights to acquire stock in the form of equity warrant assets in primarily private, venture-backed companies in the technology and life science/healthcare industries. Any changes in fair value from the grant date fair value of equity warrant assets will be recognized as increases or decreases to other assets on our balance sheet and as net gains or losses on equity warrant assets, in noninterest income, a component of consolidated net income. Gains on equity warrant assets are recognized outside of the scope of ASC 606 as it explicitly excludes noninterest income earned from our derivative-related activities. A summary of net gains on equity warrant assets for the three and nine months ended September 30, 2019 and 2018 is as follows:

	Three months ended September 30,		Nine months ended September 30,	
(Dollars in thousands)	2019	2018	2019	2018
Equity warrant assets:				
Gains on exercises, net	$ 30,047	$ 18,287	$ 90,357	$ 42,808
Terminations	(481)	(1,432)	(2,931)	(3,158)
Changes in fair value, net	7,995	17,286	19,787	32,743
Total net gains on equity warrant assets	$ 37,561	$ 34,141	$ 107,213	$ 72,393

Client investment fees

Client investment fees include fees earned from discretionary investment management services for substantially all clients, managing clients' portfolios based on their investment policies, strategies and objectives and investment advisory fees. Revenue is recognized on a monthly basis upon completion of our performance obligation and consideration is typically received in the subsequent month. Included in our sweep money market fees are Rule 12(b)-1 fees, revenue sharing and customer transactional-based fees. Rule 12(b)-1 fees and revenue sharing are recognized as earned based on client funds that are invested in the period, typically monthly. Transactional based fees are earned and recognized on fixed income securities when the transaction is executed on the clients' behalf. Amounts paid to third-party service providers are predominantly expensed, such that client investment fees are recorded gross of payments made to third parties. A summary of client investment fees by instrument type for the three and nine months ended September 30, 2019 and 2018 is as follows:

	Three months ended September 30,		Nine months ended September 30,	
(Dollars in thousands)	2019	2018	2019	2018
Client investment fees by type:				
Sweep money market fees	$ 26,202	$ 21,105	$ 79,698	$ 50,605
Asset management fees (1)	7,256	6,358	20,883	17,447
Repurchase agreement fees	13,221	8,802	36,324	20,540
Total client investment fees (2)	$ 46,679	$ 36,265	$ 136,905	$ 88,592

(1) Represents fees earned from investments in third-party money market mutual funds and fixed-income securities managed by SVB Asset Management.
(2) Represents fees earned on client investment funds which are maintained at third-party financial institutions and are not recorded on our balance sheet.

Foreign exchange fees

Foreign exchange fees represent the income differential between purchases and sales of foreign currency on behalf of our clients, primarily from spot contracts. Foreign exchange spot contract fees are recognized upon the completion of the single performance obligation, the execution of a spot trade in exchange for a fee. In line with customary business practice, the legal right transfers to the client upon execution of a foreign exchange contract on the trade date, and as such, we currently recognize our fees based on the trade date and are typically settled within two business days.

Forward contract and option premium fees are recognized outside of the scope of ASC 606 as it explicitly excludes noninterest income earned from our derivative-related activities. A summary of foreign exchange fee income by instrument type for the three and nine months ended September 30, 2019 and 2018 is as follows:

	Three months ended September 30,		Nine months ended September 30,	
(Dollars in thousands)	2019	2018	2019	2018
Foreign exchange fees by instrument type:				
Spot contract commissions	$ 36,836	$ 30,041	$ 106,561	$ 92,791
Forward contract commissions	3,371	2,534	10,144	7,474
Option premium fees	102	81	158	295
Total foreign exchange fees	$ 40,309	$ 32,656	$ 116,863	$ 100,560

Credit card fees

Credit card fees include interchange income from credit and debit cards and fees earned from processing transactions for merchants. Interchange income is earned after satisfying our performance obligation of providing nightly settlement services to a payment network. Costs related to rewards programs are recorded when the rewards are earned by the customer and presented as a reduction to interchange fee income. Rewards programs continue to be accounted for under ASC 310 - *Receivables*. Our performance obligations for merchant service fees are to transmit data and funds between the merchant and the payment network. Credit card interchange and merchant service fees are earned daily upon completion of transaction settlement services.

Annual card service fees are recognized on a straight-line basis over a 12-month period and continue to be accounted for under ASC 310 - *Receivables*.

A summary of credit card fees by instrument type for the three and nine months ended September 30, 2019 and 2018 is as follows:

	Three months ended September 30,		Nine months ended September 30,	
(Dollars in thousands)	2019	2018	2019	2018
Credit card fees by instrument type:				
Card interchange fees, net	$ 24,560	$ 18,849	$ 68,808	$ 54,547
Merchant service fees	3,943	3,679	12,763	10,010
Card service fees	1,655	1,593	4,860	4,182
Total credit card fees	$ 30,158	$ 24,121	$ 86,431	$ 68,739

Deposit service charges

Deposit service charges include fees earned from performing cash management activities and other deposit account services. Deposit services include, but are not limited to, the following: receivables services, which include merchant services, remote capture, lockbox, electronic deposit capture, and fraud control services. Payment and cash management products and services include wire transfer and automated clearing house payment services to enable clients to transfer funds more quickly, as well as business bill pay, business credit and debit cards, account analysis, and disbursement services. Deposit service charges are recognized over the period in which the related performance obligation is provided, generally on a monthly basis, and are presented in the *"Disaggregation of revenue from contracts with customers"* table below.

Lending related fees

Unused commitment fees, minimum finance fees and unused line fees are recognized as earned on a monthly basis. Fees that qualify for syndication treatment are recognized at the completion of the syndicated loan deal for which the fees were received. Lending related fees are recognized outside of the scope of ASC 606 as it explicitly excludes noninterest income earned from our lending-related activities. A summary of lending related fees by instrument type for the three and nine months ended September 30, 2019 and 2018 is as follows:

	Three months ended September 30,		Nine months ended September 30,	
(Dollars in thousands)	**2019**	**2018**	**2019**	**2018**
Lending related fees by instrument type:				
Unused commitment fees	$ 8,339	$ 8,410	$ 25,060	$ 24,994
Other	3,368	2,265	11,797	5,944
Total lending related fees	$ 11,707	$ 10,675	$ 36,857	$ 30,938

Letters of credit and standby letters of credit fees

Commercial and standby letters of credit represent conditional commitments issued by us on behalf of a client to guarantee the performance of the client to a third party when certain specified future events have occurred. Fees generated from letters of credit and standby letters of credit are deferred as a component of other liabilities and recognized in noninterest income over the commitment period using the straight-line method, based on the likelihood that the commitment being drawn down will be remote. Letters of credit and standby letters of credit fees are recognized outside of the scope of ASC 606 as it explicitly excludes noninterest income earned from our lending related activities.

Investment banking revenue

The Company earns investment banking revenue from clients for providing services related to securities underwriting, private placements and advisory services on strategic matters such as mergers and acquisitions. Underwriting fees are attributable to public and private offerings of equity and debt securities and are recognized at the point in time when the offering has been deemed to be completed by the lead manager of the underwriting group. Once the offering is completed, the performance obligation has been satisfied and the Company recognizes the applicable management fee as well the underwriting fee, net of consideration payable to customers. The Company recognizes private placement fees at the point in time when the private placement is completed, which is generally when the client accepts capital from the fund raise. Advisory fees from mergers and acquisitions engagements are generally recognized at the point in time when the related transaction is completed. Expenses are deferred only to the extent they are explicitly reimbursable by the client and the related revenue is recognized at a point in time. All other deal-related expenses are expensed as incurred. The Company has determined that it acts as principal in the majority of these transactions and therefore presents expenses gross within other operating expenses.

A summary of investment banking revenue by instrument type for the three and nine months ended September 30, 2019 and 2018 is as follows:

	Three months ended September 30,		Nine months ended September 30,	
(Dollars in thousands)	**2019**	**2018**	**2019**	**2018**
Investment banking revenue:				
Underwriting fees	$ 31,016	$ —	$ 109,371	$ —
Advisory fees	5,200	—	22,789	—
Private placements and other	2,300	—	4,845	—
Total investment banking revenue	$ 38,516	$ —	$ 137,005	$ —

Commissions

Commissions include commissions received from customers for the execution of agency-based brokerage transactions in listed and over-the-counter equities. The execution of each trade order represents a distinct performance obligation and the transaction price is fixed at the point in time or trade order execution. Trade execution is satisfied at the point in time that the customer has control of the asset and as such, fees are recorded on a trade date basis. Commission are presented in the *"Disaggregation of revenue from contracts with customers"* table below.

Other

Other noninterest income primarily includes income from fund management fees and service revenue. Fund management fees are comprised of fees charged directly to our managed funds of funds and direct venture funds. Fund management fees are based upon the contractual terms of the limited partnership agreements and are generally recognized as earned over the specified contract period, which is generally equal to the life of the individual fund. Fund management fees are calculated as a percentage of committed capital and collected in advance and are received quarterly. Fund management fees for certain of our limited partnership agreements are calculated as a percentage of distributions made by the funds and revenue is recorded only at the time of a distribution event. As distribution events are not predetermined for these certain funds, management fees are considered variable and constrained under ASC 606.

Other service revenue primarily consists of dividend income on FHLB/FRB stock, correspondent bank rebate income, incentive fees related to carried interest and other fee income. We recognize revenue when our performance obligations are met and record revenues on a daily/monthly basis, quarterly, semi-annually or annual basis. For event driven revenue sources, we recognize revenue when: (i) persuasive evidence of an arrangement exists, (ii) we have performed the service, provided we have no other remaining obligations to the customer, (iii) the fee is fixed or determinable and (iv) collectability is probable.

A summary of other noninterest income by instrument type for the three and nine months ended September 30, 2019 and 2018 is as follows:

	Three months ended September 30,		Nine months ended September 30,	
(Dollars in thousands)	**2019**	**2018**	**2019**	**2018**
Other noninterest income by instrument type:				
Fund management fees	$ 8,493	$ 5,479	$ 24,292	$ 17,144
Net (losses) gains on revaluation of foreign currency instruments, net of foreign exchange forward contracts (1)	(78)	796	173	985
Other service revenue	5,216	5,747	18,308	20,542
Total other noninterest income	$ 13,631	$ 12,022	$ 42,773	$ 38,671

(1) Represents the net revaluation of client and internal foreign currency denominated financial instruments. We enter into foreign exchange forward contracts to economically reduce our foreign exchange exposure related to client and internal foreign currency denominated financial instruments.

Disaggregation of revenue from contracts with customers

The following tables present our revenues from contracts with customers disaggregated by revenue source and segment for the three and nine months ended September 30, 2019 and 2018:

Three months ended September 30, 2019 (Dollars in thousands)	Global Commercial Bank (2)	SVB Private Bank	SVB Capital (2)	SVB Leerink (2)	Other Items	Total
Revenue from contracts with customers:						
Client investment fees	$ 46,171	$ 508	$ —	$ —	$ —	$ 46,679
Spot contract commissions	36,644	89	—	—	103	36,836
Card interchange fees, gross	34,867	—	—	—	181	35,048
Merchant service fees	3,943	—	—	—	—	3,943
Deposit service charges	22,263	36	—	—	183	22,482
Investment banking revenue	—	—	—	38,516	—	38,516
Commissions	—	—	—	12,275	—	12,275
Fund management fees	—	—	7,063	1,430	—	8,493
Correspondent bank rebates	1,633	—	—	—	—	1,633
Total revenue from contracts with customers	$ 145,521	$ 633	$ 7,063	$ 52,221	$ 467	$ 205,905
Revenues outside the scope of ASC 606 (1)	15,508	1	27,892	726	43,977	88,104
Total noninterest income	$ 161,029	$ 634	$ 34,955	$ 52,947	$ 44,444	$ 294,009

(1) Amounts are accounted for under separate guidance than ASC 606.
(2) Global Commercial Bank's, SVB Capital's and SVB Leerink's components of noninterest income are shown net of noncontrolling interests. Noncontrolling interest is included within "Other Items."

Three months ended September 30, 2018 (Dollars in thousands)	Global Commercial Bank (2)	SVB Private Bank	SVB Capital (2)	Other Items	Total
Revenue from contracts with customers:					
Client investment fees (3)	$ 35,845	$ 420	$ —	$ —	$ 36,265
Spot contract commissions	29,776	184	—	81	30,041
Card interchange fees, gross	33,905	—	—	108	34,013
Merchant service fees	3,677	2	—	—	3,679
Deposit service charges	19,207	24	—	357	19,588
Fund management fees	—	—	5,479	—	5,479
Correspondent bank rebates	1,372	—	—	—	1,372
Total revenue from contracts with customers	$ 123,782	$ 630	$ 5,479	$ 546	$ 130,437
Revenues outside the scope of ASC 606 (1)	11,446	(25)	18,944	49,268	79,633
Total noninterest income	$ 135,228	$ 605	$ 24,423	$ 49,814	$ 210,070

(1) Amounts are accounted for under separate guidance than ASC 606.
(2) Global Commercial Bank's and SVB Capital's components of noninterest income are shown net of noncontrolling interests. Noncontrolling interest is included within "Other Items."
(3) For the three months ended September 30, 2018, the amount of client investment fees previously reported as "Other Items" has been correctly allocated to the reportable segment "Global Commercial Bank" to properly reflect the source of such revenue. The correction of this immaterial error had no impact on the "Total" amount of client investment fees.

Nine months ended September 30, 2019 (Dollars in thousands)	Global Commercial Bank (2)	SVB Private Bank	SVB Capital (2)	SVB Leerink (2)	Other Items	Total
Revenue from contracts with customers:						
Client investment fees	$ 135,551	$ 1,354	$ —	$ —	$ —	136,905
Spot contract commissions	105,877	376	—	—	308	106,561
Card interchange fees, gross	115,468	—	—	—	518	115,986
Merchant service fees	12,764	—	—	—	—	12,764
Deposit service charges	64,806	104	—	—	586	65,496
Investment banking revenue	—	—	—	137,005	—	137,005
Commissions	—	—	—	40,812	—	40,812
Fund management fees	—	—	20,050	4,242	—	24,292
Correspondent bank rebates	4,712	—	—	—	—	4,712
Total revenue from contracts with customers	$ 439,178	$ 1,834	$ 20,050	$ 182,059	$ 1,412	$ 644,533
Revenues outside the scope of ASC 606 (1)	32,314	(5)	79,810	6,005	145,478	263,602
Total noninterest income	$ 471,492	$ 1,829	$ 99,860	$ 188,064	$ 146,890	$ 908,135

(1) Amounts are accounted for under separate guidance than ASC 606.
(2) Global Commercial Bank's, SVB Capital's and SVB Leerink's components of noninterest income are shown net of noncontrolling interests. Noncontrolling interest is included within "Other Items."

Nine months ended September 30, 2018 (Dollars in thousands)	Global Commercial Bank (2)	SVB Private Bank	SVB Capital (2)	Other Items	Total
Revenue from contracts with customers:					
Client investment fees (3)	$ 87,491	$ 1,101	$ —	$ —	$ 88,592
Spot contract commissions	92,098	507	—	186	92,791
Card interchange fees, gross	95,088	—	—	311	95,399
Merchant service fees	10,008	2	—	—	10,010
Deposit service charges	54,633	83	—	1,365	56,081
Fund management fees	—	—	17,144	—	17,144
Correspondent bank rebates	4,241	—	—	—	4,241
Total revenue from contracts with customers	$ 343,559	$ 1,693	$ 17,144	$ 1,862	$ 364,258
Revenues outside the scope of ASC 606 (1)	33,761	(16)	64,688	95,586	194,019
Total noninterest income	$ 377,320	$ 1,677	$ 81,832	$ 97,448	$ 558,277

(1) Amounts are accounted for under separate guidance than ASC 606.
(2) Global Commercial Bank's and SVB Capital's components of noninterest income are shown net of noncontrolling interests. Noncontrolling interest is included within "Other Items."
(3) For the nine months ended September 30, 2018, the amount of client investment fees previously reported as "Other Items" has been correctly allocated to the reportable segment "Global Commercial Bank" to properly reflect the source of such revenue. The correction of this immaterial error had no impact on the "Total" amount of client investment fees.

The timing of revenue recognition may differ from the timing of cash settlements or invoicing to customers. We record a receivable when revenue is recognized prior to invoicing, and unearned revenue when revenue is recognized subsequent to receipt of consideration. These assets and liabilities are reported on the consolidated balance sheets on a contract-by-contract basis at the end of each reporting period. During the three and nine months ended September 30, 2019 and 2018, changes in our contract assets, contract liabilities and receivables were not material. Additionally, revenues recognized during the three and nine months ended September 30, 2019 and 2018 that were included in the corresponding contract liability balance at the beginning of the periods were not material.

14. Other Noninterest Expense

A summary of other noninterest expense for the three and nine months ended September 30, 2019 and 2018 is as follows:

	Three months ended September 30,		Nine months ended September 30,	
(Dollars in thousands)	2019	2018	2019	2018
Lending and other client related processing costs	$ 7,502	$ 5,698	$ 21,442	$ 16,301
Correspondent bank fees	3,657	3,513	10,970	10,200
Investment banking activities	1,864	—	9,918	—
Trade order execution costs	2,615	—	7,959	—
Data processing services	3,066	2,740	8,624	7,934
Telephone	2,466	2,269	7,629	7,025
Dues and publications	1,055	1,387	3,439	3,081
Postage and supplies	720	652	2,168	2,133
Other	11,161	5,393	32,910	15,171
Total other noninterest expense	$ 34,106	$ 21,652	$ 105,059	$ 61,845

15. Segment Reporting

We have four reportable segments for management reporting purposes: Global Commercial Bank, SVB Private Bank, SVB Capital and SVB Leerink. SVB Leerink is a new reportable segment and was created as a result of the acquisition of Leerink Holdings LLC effective January 4, 2019. The results of our operating segments are based on our internal management reporting process.

Our Global Commercial Bank and SVB Private Bank segments' primary source of revenue is from net interest income, which is primarily the difference between interest earned on loans, net of funds transfer pricing ("FTP"), and interest paid on deposits, net of FTP. Accordingly, these segments are reported using net interest income, net of FTP. FTP is an internal measurement framework designed to assess the financial impact of a financial institution's sources and uses of funds. It is the mechanism by which a funding credit is given for deposits raised, and a funding charge is made for funded loans. FTP is calculated at an instrument level based on account characteristics.

We also evaluate performance based on provision for credit losses, noninterest income and noninterest expense, which are presented as components of segment operating profit or loss. In calculating each operating segment's noninterest expense, we consider the direct costs incurred by the operating segment as well as certain allocated direct costs. As part of this review, we allocate certain corporate overhead costs to a corporate account. We do not allocate income tax expense or the provision for unfunded credit commitments (included in provision for credit losses) to our segments. Additionally, our management reporting model is predicated on average asset balances; therefore, period-end asset balances are not presented for segment reporting purposes. Changes in an individual client's primary relationship designation have resulted, and in the future may result, in the inclusion of certain clients in different segments in different periods.

Unlike financial reporting, which benefits from the comprehensive structure provided by GAAP, our internal management reporting process is highly subjective, as there is no comprehensive, authoritative guidance for management reporting. Our management reporting process measures the performance of our operating segments based on our internal operating structure, which is subject to change from time to time, and is not necessarily comparable with similar information for other financial services companies.

For reporting purposes, SVB Financial Group has four operating segments for which we report our financial information:

- **Global Commercial Bank** is comprised of results from the following:
  - Our **Commercial Bank** products and services are provided by the Bank and its subsidiaries to commercial clients in the technology, life science/healthcare and private equity/venture capital industries. The Bank provides solutions to the financial needs of commercial clients through credit, global treasury management, foreign exchange, trade finance, and other services. We broadly serve clients within the U.S., as well as non-U.S. clients in key international innovation markets. In addition, the Bank and its subsidiaries offer a variety of investment services and solutions to its clients that enable them to effectively manage their assets.
  - Our **Private Equity Division** provides banking products and services primarily to our private equity and venture capital clients.
  - **SVB Wine** provides banking products and services to our premium wine industry clients, including vineyard development loans.

  - **SVB Analytics** previously provided equity valuation services and currently provides research for investors and companies in the global innovation economy. In September 2017, SVB Analytics sold its equity valuation services business.
  - **Debt Fund Investments** is comprised of our investments in certain debt funds in which we are a strategic investor.

- **SVB Private Bank** is the private banking division of the Bank, which provides a range of personal financial solutions for consumers. Our clients are primarily private equity/venture capital professionals and executive leaders of the innovation companies they support. We offer a customized suite of private banking services, including mortgages, home equity lines of credit, restricted stock purchase loans, capital call lines of credit and other secured and unsecured lending products, as well as cash and wealth management services.
- **SVB Capital** is the funds management business of SVBFG, which focuses primarily on venture capital investments. SVB Capital manages funds (primarily venture capital funds) on behalf of third-party limited partners and, on a more limited basis, SVB Financial Group. The SVB Capital family of funds is comprised of direct venture funds that invest in companies and funds of funds that invest in other venture capital funds. SVB Capital generates income for the Company primarily from investment returns (including carried interest allocations) and management fees.
- **SVB Leerink** is an investment bank specializing in the equity and convertible capital markets, mergers and acquisitions, equity research and sales and trading for growth and innovation-minded healthcare and life science companies and operates as a wholly-owned subsidiary of SVB Financial. SVB Leerink provides investment banking services across all subsectors of healthcare including: biotechnology, pharmaceuticals, medical devices, diagnostic and life science tools, healthcare services and digital health. SVB Leerink focuses on two primary lines of business: (i) investment banking focused on providing companies with capital-raising services, financial advice on mergers and acquisitions, sales and trading services and equity research, and (ii) sponsorship of private investment funds.

The summary financial results of our operating segments are presented along with a reconciliation to our consolidated interim results.

Our segment information for the three and nine months ended September 30, 2019 and 2018 is as follows:

(Dollars in thousands)	Global Commercial Bank (1)	SVB Private Bank	SVB Capital (1)	SVB Leerink (1)	Other Items (2)	Total
Three months ended September 30, 2019						
Net interest income	$ 455,161	$ 12,772	$ 9	$ 277	$ 52,425	$ 520,644
Provision for credit losses	(34,075)	(1,910)	—	—	(551)	(36,536)
Noninterest income	161,029	634	34,955	52,947	44,444	294,009
Noninterest expense (3)	(213,786)	(11,638)	(8,129)	(55,200)	(102,571)	(391,324)
Income (loss) before income tax expense (4)	$ 368,329	$ (142)	$ 26,835	$ (1,976)	$ (6,253)	$ 386,793
Total average loans, net of unearned income	$ 25,839,647	$ 3,400,889	$ —	$ —	$ 581,890	$ 29,822,426
Total average assets (5) (6)	58,384,473	3,431,313	396,031	428,848	2,687,083	65,327,748
Total average deposits	55,250,154	1,497,303	—	—	487,512	57,234,969
Three months ended September 30, 2018						
Net interest income	$ 431,036	$ 14,919	$ 6	$ —	$ 47,261	$ 493,222
(Provision for) reduction of credit losses	(19,074)	(362)	—	—	2,262	(17,174)
Noninterest income (7)	135,228	605	24,423	—	49,814	210,070
Noninterest expense (3)	(206,487)	(6,760)	(6,469)	—	(89,729)	(309,445)
Income before income tax expense (4)	$ 340,703	$ 8,402	$ 17,960	$ —	$ 9,608	$ 376,673
Total average loans, net of unearned income	$ 22,925,909	$ 2,928,576	$ —	$ —	$ 476,892	$ 26,331,377
Total average assets (5) (8)	49,948,578	2,949,908	388,531	—	3,178,020	56,465,037
Total average deposits	47,037,693	1,505,746	—	—	548,801	49,092,240
Nine months ended September 30, 2019						
Net interest income	$ 1,360,997	$ 37,200	$ 20	$ 961	$ 163,755	$ 1,562,933
Provision for credit losses	(79,175)	(1,779)	—	—	(8,079)	(89,033)
Noninterest income	471,492	1,829	99,860	188,064	146,890	908,135
Noninterest expense (3)	(617,933)	(30,015)	(21,794)	(177,675)	(293,093)	(1,140,510)
Income before income tax expense (4)	$ 1,135,381	$ 7,235	$ 78,086	$ 11,350	$ 9,473	$ 1,241,525
Total average loans, net of unearned income	$ 25,457,997	$ 3,235,943	$ —	$ —	$ 517,020	$ 29,210,960
Total average assets (5) (6)	54,196,976	3,264,071	382,707	380,290	2,990,088	61,214,132
Total average deposits	51,352,644	1,461,170	—	—	517,530	53,331,344
Nine months ended September 30, 2018						
Net interest income	$ 1,209,960	$ 46,811	$ 22	$ —	$ 122,735	$ 1,379,528
Provision for credit losses	(71,704)	(2,384)	—	—	(138)	(74,226)
Noninterest income (7)	377,320	1,677	81,832	—	97,448	558,277
Noninterest expense (3)	(591,434)	(18,729)	(17,182)	—	(253,256)	(880,601)
Income (loss) before income tax expense (4)	$ 924,142	$ 27,375	$ 64,672	$ —	$ (33,211)	$ 982,978
Total average loans, net of unearned income	$ 21,781,557	$ 2,791,910	$ —	$ —	$ 434,810	$ 25,008,277
Total average assets (5) (8)	48,380,180	2,813,101	379,809	—	2,859,562	54,432,652
Total average deposits	45,701,317	1,519,200	—	—	513,845	47,734,362

(1) Global Commercial Bank's, SVB Capital's and SVB Leerink's components of net interest income, noninterest income, noninterest expense and total average assets are shown net of noncontrolling interests for all periods presented. Noncontrolling interest is included within "Other Items."

(2) The "Other Items" column reflects the adjustments necessary to reconcile the results of the operating segments to the consolidated financial statements prepared in conformity with GAAP. Net interest income consists primarily of interest earned from our fixed income investment portfolio, net of FTP. Noninterest income consists primarily of gains on equity warrant assets, gains or losses on the sale of fixed income investments and gains on equity securities from exercised warrant assets. Noninterest expense consists primarily of expenses associated with corporate support functions such as finance, human resources, marketing, legal and other expenses.

(3) The Global Commercial Bank segment includes direct depreciation and amortization of $5.1 million and $5.5 million for the three months ended September 30, 2019 and 2018, respectively, and $14.8 million and $16.6 million for the nine months ended September 30, 2019 and 2018.
(4) The internal reporting model used by management to assess segment performance does not calculate income tax expense by segment. Our effective tax rate is a reasonable approximation of the segment rates.
(5) Total average assets equal the greater of total average assets or the sum of total average liabilities and total average stockholders' equity for each segment to reconcile the results to the consolidated financial statements prepared in conformity with GAAP.
(6) Included in the total average assets for SVB Leerink is goodwill of $137.8 million for both the three and nine months ended September 30, 2019 related to the acquisition effective January 4, 2019.
(7) For the three and nine months ended September 30, 2018, amounts of client investment fees included in the line item "Noninterest Income" previously reported as "Other Items" have been correctly allocated to our reportable segment "Global Commercial Bank" to properly reflect the source of such revenue. The correction of this immaterial error had no impact on the "Total" amount of noninterest income.
(8) For the three and nine months ended September 30, 2018, amounts for average assets previously reported as "Other Items" have been correctly allocated to the reportable segments "Global Commercial Bank" and "Private Bank" to properly reflect the greater of total average assets or the sum of total average liabilities and total average stockholders' equity for "Global Commercial Bank" and "Private Bank." The correction of this immaterial error had no impact on the "Total" amount of average assets.

16. Off-Balance Sheet Arrangements, Guarantees and Other Commitments

In the normal course of business, we use financial instruments with off-balance sheet risk to meet the financing needs of our customers. These financial instruments include commitments to extend credit, commercial and standby letters of credit and commitments to invest in venture capital and private equity fund investments. These instruments involve, to varying degrees, elements of credit risk. Credit risk is defined as the possibility of sustaining a loss because other parties to the financial instrument fail to perform in accordance with the terms of the contract.

Commitments to Extend Credit

The following table summarizes information related to our commitments to extend credit at September 30, 2019 and December 31, 2018:

(Dollars in thousands)	September 30, 2019	December 31, 2018
Loan commitments available for funding: (1)		
Fixed interest rate commitments	$ 2,154,186	$ 1,839,190
Variable interest rate commitments	17,272,556	14,821,815
Total loan commitments available for funding	19,426,742	16,661,005
Commercial and standby letters of credit (2)	2,847,676	2,252,016
Total unfunded credit commitments	$ 22,274,418	$ 18,913,021
Commitments unavailable for funding (3)	$ 3,306,209	$ 2,723,835
Allowance for unfunded credit commitments (4)	63,108	55,183

(1) Represents commitments which are available for funding, due to clients meeting all collateral, compliance and financial covenants required under loan commitment agreements.
(2) See below for additional information on our commercial and standby letters of credit.
(3) Represents commitments which are currently unavailable for funding due to clients failing to meet all collateral, compliance and financial covenants under loan commitment agreements.
(4) Our allowance for unfunded credit commitments includes an allowance for both our unfunded loan commitments and our letters of credit.

Commercial and Standby Letters of Credit

The table below summarizes our commercial and standby letters of credit at September 30, 2019. The maximum potential amount of future payments represents the amount that could be remitted under letters of credit if there were a total default by the guaranteed parties, without consideration of possible recoveries under recourse provisions or from the collateral held or pledged.

(Dollars in thousands)	Expires In One Year or Less	Expires After One Year	Total Amount Outstanding	Maximum Amount of Future Payments
Financial standby letters of credit	$ 2,571,352	$ 58,290	$ 2,629,642	$ 2,629,642
Performance standby letters of credit	119,666	19,102	138,768	138,768
Commercial letters of credit	79,266	—	79,266	79,266
Total	$ 2,770,284	$ 77,392	$ 2,847,676	$ 2,847,676

Deferred fees related to financial and performance standby letters of credit were $16.6 million at September 30, 2019 and $14.1 million at December 31, 2018. At September 30, 2019, collateral in the form of cash of $1.6 billion was available to us to reimburse losses, if any, under financial and performance standby letters of credit.

Commitments to Invest in Venture Capital and Private Equity Funds

Subject to applicable regulatory requirements, including the Volcker Rule, we make commitments to invest in venture capital and private equity funds, which generally make investments in privately-held companies. Commitments to invest in these funds are generally made for a 10-year period from the inception of the fund. Although the limited partnership agreements governing these investments typically do not restrict the general partners from calling 100% of committed capital in one year, it is customary for these funds to call most of the capital commitments over 5 to 7 years, and in certain cases, the funds may not call 100% of committed capital. The actual timing of future cash requirements to fund these commitments is generally dependent upon the investment cycle, overall market conditions, and the nature and type of industry in which the privately held companies operate. The following table details our total capital commitments, unfunded capital commitments, and our ownership percentage in each fund at September 30, 2019:

(Dollars in thousands)	SVBFG Capital Commitments	SVBFG Unfunded Commitments	SVBFG Ownership of each Fund (3)
CP I, LP	$ 6,000	$ 270	10.7%
CP II, LP (1)	1,200	162	5.1
Capital Preferred Return Fund, LP	12,688	—	20.0
Growth Partners, LP	24,670	1,340	33.0
Strategic Investors Fund, LP	15,300	688	12.6
Strategic Investors Fund II, LP	15,000	1,050	8.6
Strategic Investors Fund III, LP	15,000	1,275	5.9
Strategic Investors Fund IV, LP	12,239	2,325	5.0
Strategic Investors Fund V funds	515	131	Various
Other venture capital and private equity fund investments (equity method accounting)	21,782	5,732	Various
Debt funds (equity method accounting)	58,493	—	Various
Other fund investments (2)	286,293	6,111	Various
Total	$ 469,180	$ 19,084	

(1) Our ownership includes direct ownership of 1.3 percent and indirect ownership interest of 3.8 percent through our investment in Strategic Investors Fund II, LP.

(2) Represents commitments to 217 funds (primarily venture capital funds) where our ownership interest is generally less than five percent of the voting interests of each such fund.

(3) We are subject to the Volcker Rule, which restricts or limits us from sponsoring or having ownership interests in “covered” funds including venture capital and private equity funds. See “Business - Supervision and Regulation” under Part 1, Item 1 of our 2018 Form 10-K.

The following table details the amounts of remaining unfunded commitments to venture capital and private equity funds by our consolidated managed funds of funds (including our interest and the noncontrolling interests) at September 30, 2019:

(Dollars in thousands)	Unfunded Commitments
Strategic Investors Fund, LP	$ 1,338
Capital Preferred Return Fund, LP	1,563
Growth Partners, LP	2,527
Total	$ 5,428

17. Income Taxes

We are subject to income tax in the U.S. federal jurisdiction and various state and foreign jurisdictions and have identified our federal tax and California tax returns as major tax filings. Our U.S. federal tax returns for 2015 and subsequent tax years remain open to full examination. Our California tax returns for 2015 and subsequent tax years remain open to full examination.

At September 30, 2019, our unrecognized tax benefit was $13.7 million, the recognition of which would reduce our income tax expense by $10.7 million. We do not expect that our unrecognized tax benefit will materially change in the next 12 months.

We recognize interest and penalties related to income tax matters as part of income before income taxes. Interest and penalties were not material for the three and nine months ended September 30, 2019.

18. Fair Value of Financial Instruments

Fair Value Measurements

Our available-for-sale securities, derivative instruments and certain non-marketable and other equity securities are financial instruments recorded at fair value on a recurring basis. We make estimates regarding valuation of assets and liabilities measured at fair value in preparing our interim consolidated financial statements.

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability (the “exit price”) in an orderly transaction between market participants at the measurement date. There is a three-level hierarchy for disclosure of assets and liabilities recorded at fair value. The classification of assets and liabilities within the hierarchy is based on whether the inputs to the valuation methodology used for measurement are observable or unobservable and on the significance of those inputs in the fair value measurement. Observable inputs reflect market-derived or market-based information obtained from independent sources, while unobservable inputs reflect our estimates about market data and views of market participants. The three levels for measuring fair value are based on the reliability of inputs and are as follows:

Level 1

Fair value measurements based on quoted prices in active markets for identical assets or liabilities that we have the ability to access. Since valuations are based on quoted prices that are readily and regularly available in an active market, valuation of these instruments does not entail a significant degree of judgment. Assets utilizing Level 1 inputs include U.S. Treasury securities, foreign government debt securities, exchange-traded equity securities and certain marketable securities accounted for under fair value accounting.

Level 2

Fair value measurements based on quoted prices in markets that are not active or for which all significant inputs are observable, directly or indirectly. Valuations for the available-for-sale securities are provided by independent pricing service providers who have experience in valuing these securities and by comparison to and/or average of quoted market prices obtained from independent brokers. We perform a monthly analysis on the values received from third parties to ensure that the prices represent a reasonable estimate of the fair value. The procedures include, but are not limited to, initial and ongoing review of third-party pricing methodologies, review of pricing trends and monitoring of trading volumes. Additional corroboration, such as obtaining a non-binding price from a broker, may be obtained depending on the frequency of trades of the security and the level of liquidity or depth of the market. We ensure prices received from independent brokers represent a reasonable estimate of the fair value through the use of observable market inputs including comparable trades, yield curve, spreads and, when available, market indices. As a result of this analysis, if the Company determines that there is a more appropriate fair value based upon the available market data, the price received from the third party is adjusted accordingly. Below is a summary of the significant inputs used for each class of Level 2 assets and liabilities:

U.S. agency debentures: Fair value measurements of U.S. agency debentures are based on the characteristics specific to bonds held, such as issuer name, coupon rate, maturity date and any applicable issuer call option features. Valuations are based on market spreads relative to similar term benchmark market interest rates, generally U.S. Treasury securities.

Agency-issued mortgage-backed securities: Agency-issued mortgage-backed securities are pools of individual conventional mortgage loans underwritten to U.S. agency standards with similar coupon rates, tenor, and other attributes such as geographic location, loan size and origination vintage. Fair value measurements of these securities are based on observable price adjustments relative to benchmark market interest rates taking into consideration estimated loan prepayment speeds.

Agency-issued collateralized mortgage obligations: Agency-issued collateralized mortgage obligations are structured into classes or tranches with defined cash flow characteristics and are collateralized by U.S. agency-issued mortgage pass-through securities. Fair value measurements of these securities incorporate similar characteristics of mortgage pass-through securities such as coupon rate, tenor, geographic location, loan size and origination vintage, in addition to incorporating the effect of estimated prepayment speeds on the cash flow structure of the class or tranche. These measurements incorporate observable market spreads over an estimated average life after considering the inputs listed above.

Agency-issued commercial mortgage-backed securities: Fair value measurements of these securities are based on spreads to benchmark market interest rates (usually U.S. Treasury rates or rates observable in the swaps market), prepayment speeds, loan default rate assumptions and loan loss severity assumptions on underlying loans.

Municipal bonds and notes: Bonds issued by municipal governments generally have stated coupon rates, final maturity dates and are subject to being called ahead of the final maturity date at the option of the issuer. Fair value measurements of these securities are priced based on spreads to other municipal benchmark bonds with similar characteristics; or, relative to market rates on U.S. Treasury bonds of similar maturity.

Other equity securities: Fair value measurements of equity securities of public companies are priced based on quoted market prices less a discount if the securities are subject to certain sales restrictions. Certain sales restriction discounts generally range from 10 percent to 20 percent depending on the duration of the sale restrictions which typically range from three to six months.

Equity warrant assets (public portfolio): Fair value measurements of equity warrant assets of publicly-traded portfolio companies are valued based on the Black-Scholes option pricing model. The model uses the price of publicly-traded companies (underlying stock price), stated strike prices, warrant expiration dates, the risk-free interest rate and market-observable option volatility assumptions.

Foreign exchange forward and option contract assets and liabilities: Fair value measurements of these assets and liabilities are priced based on spot and forward foreign currency rates and option volatility assumptions.

Interest rate derivative and interest rate swap assets and liabilities: Fair value measurements of interest rate derivatives are priced considering the coupon rate of the fixed leg of the contract and the variable coupon on the floating leg of the contract. Valuation is based on both spot and forward rates on the swap yield curve and the credit worthiness of the contract counterparty.

Level 3

The fair value measurement is derived from valuation techniques that use significant assumptions not observable in the market. These unobservable assumptions reflect our own estimates of assumptions we believe market participants would use in pricing the asset. Below is a summary of the valuation techniques used for each class of Level 3 assets:

Venture capital and private equity fund investments not measured at net asset value: Fair value measurements are based on consideration of a range of factors including, but not limited to, the price at which the investment was acquired, the term and nature of the investment, local market conditions, values for comparable securities, and as it relates to the private company, the current and projected operating performance, exit strategies and financing transactions subsequent to the acquisition of the investment. The significant unobservable inputs used in the fair value measurement include the information about each portfolio company, including actual and forecasted results, cash position, recent or planned transactions and market comparable companies. Significant changes to any one of these inputs in isolation could result in a significant change in the fair value measurement; however, we generally consider all factors available through ongoing communication with the portfolio companies and venture capital fund managers to determine whether there are changes to the portfolio company or the environment that indicate a change in the fair value measurement.

Equity warrant assets (public portfolio): Fair value measurements of equity warrant assets of publicly-traded portfolio companies are valued based on the Black-Scholes option pricing model. The model uses the price of publicly-traded companies (underlying stock price), stated strike prices, warrant expiration dates, the risk-free interest rate and market-observable option volatility assumptions. Modeled asset values are further adjusted by applying a discount of up to 20 percent for certain warrants that have lock-up restrictions or other features that indicate a discount to fair value is warranted.

As a lock-up term nears, and other sale restrictions are lifted, discounts are adjusted downward to zero percent once all restrictions expire or are removed.

Equity warrant assets (private portfolio): Fair value measurements of equity warrant assets of private portfolio companies are priced based on a Black-Scholes option pricing model to estimate the asset value by using stated strike prices, option expiration dates, risk-free interest rates and option volatility assumptions. Option volatility assumptions used in the model are based on public market indices whose members operate in similar industries as companies in our private company portfolio. Option expiration dates are modified to account for estimates to actual life relative to stated expiration. Overall model asset values are further adjusted for a general lack of liquidity due to the private nature of the associated underlying company. There is a direct correlation between changes in the volatility and remaining life assumptions in isolation and the fair value measurement while there is an inverse correlation between changes in the liquidity discount assumption and the fair value measurement.

It is our policy to maximize the use of observable inputs and minimize the use of unobservable inputs when developing fair value measurements. When available, we use quoted market prices to measure fair value. If market prices are not available, fair value measurement is based upon valuation techniques that use primarily market-based or independently-sourced market parameters, including interest rate yield curves, prepayment speeds, option volatilities and currency rates. Substantially all of our financial instruments use the foregoing methodologies and are categorized as a Level 1 or Level 2 measurement in the fair value hierarchy. However, in certain cases, when market observable inputs for our valuation techniques may not be readily available, we are required to make judgments about assumptions we believe market participants would use in estimating the fair value of the financial instrument, and based on the significance of those judgments, the measurement may be determined to be a Level 3 fair value measurement.

The degree of management judgment involved in determining the fair value of a financial instrument is dependent upon the availability of quoted market prices or observable market parameters. For financial instruments that trade actively and have quoted market prices or observable market parameters, there is minimal subjectivity involved in measuring fair value. When observable market prices and parameters are not fully available, management judgment is necessary to estimate fair value. For inactive markets, there is little information, if any, to evaluate if individual transactions are orderly. Accordingly, we are required to estimate, based upon all available facts and circumstances, the degree to which orderly transactions are occurring and provide more weighting to price quotes that are based upon orderly transactions. In addition, changes in the market conditions may reduce the availability of quoted prices or observable data. For example, reduced liquidity in the capital markets or changes in secondary market activities could result in observable market inputs becoming unavailable. Therefore, when market data is not available, we use valuation techniques requiring more management judgment to estimate the appropriate fair value measurement. Accordingly, the degree of judgment exercised by management in determining fair value is greater for financial assets and liabilities categorized as Level 3.

The following fair value hierarchy table presents information about our assets and liabilities that are measured at fair value on a recurring basis as of September 30, 2019:

(Dollars in thousands)	Level 1	Level 2	Level 3	Balance at September 30, 2019
Assets:				
Available-for-sale securities:				
U.S. Treasury securities	$ 6,334,848	$ —	$ —	$ 6,334,848
U.S. agency debentures	—	100,000	—	100,000
Foreign government debt securities	8,847	—	—	8,847
Residential mortgage-backed securities:				
Agency-issued mortgage-backed securities	—	4,148,700	—	4,148,700
Agency-issued collateralized mortgage obligations—fixed rate	—	1,679,664	—	1,679,664
Agency-issued commercial mortgage-backed securities	—	594,798	—	594,798
Total available-for-sale securities	6,343,695	6,523,162	—	12,866,857
Non-marketable and other equity securities (fair value accounting):				
Non-marketable securities:				
Venture capital and private equity fund investments measured at net asset value	—	—	—	273,426
Venture capital and private equity fund investments not measured at net asset value (1)	—	—	134	134
Other equity securities in public companies	3,226	52,855	—	56,081
Total non-marketable and other equity securities (fair value accounting)	3,226	52,855	134	329,641
Other assets:				
Foreign exchange forward and option contracts	—	122,280	—	122,280
Equity warrant assets	—	4,072	145,041	149,113
Interest rate swaps	—	40,976	—	40,976
Client interest rate derivatives	—	25,608	—	25,608
Total assets	$ 6,346,921	$ 6,768,953	$ 145,175	$ 13,534,475
Liabilities:				
Foreign exchange forward and option contracts	$ —	$ 101,729	$ —	$ 101,729
Interest rate swaps	—	9,286	—	9,286
Client interest rate derivatives	—	37,525	—	37,525
Total liabilities	$ —	$ 148,540	$ —	$ 148,540

(1) Included in Level 3 assets is $120 thousand attributable to noncontrolling interests calculated based on the ownership percentages of the noncontrolling interests.

The following fair value hierarchy table presents information about our assets and liabilities that are measured at fair value on a recurring basis as of December 31, 2018:

(Dollars in thousands)	Level 1	Level 2	Level 3	Balance at December 31, 2018
Assets:				
Available-for-sale securities:				
U.S. Treasury securities	$ 4,738,258	$ —	$ —	$ 4,738,258
U.S. agency debentures	—	1,084,117	—	1,084,117
Foreign government debt securities	5,812	—	—	5,812
Residential mortgage-backed securities:				
Agency-issued collateralized mortgage obligations—fixed rate	—	1,880,218	—	1,880,218
Agency-issued collateralized mortgage obligations—variable rate	—	81,638	—	81,638
Total available-for-sale securities	4,744,070	3,045,973	—	7,790,043
Non-marketable and other equity securities (fair value accounting):				
Non-marketable securities:				
Venture capital and private equity fund investments measured at net asset value	—	—	—	318,352
Venture capital and private equity fund investments not measured at net asset value (1)	—	—	1,079	1,079
Other equity securities in public companies	1,181	19,217	—	20,398
Total non-marketable and other equity securities (fair value accounting)	1,181	19,217	1,079	339,829
Other assets:				
Foreign exchange forward and option contracts	—	100,402	—	100,402
Equity warrant assets	—	4,039	145,199	149,238
Client interest rate derivatives	—	8,499	—	8,499
Total assets	$ 4,745,251	$ 3,178,130	$ 146,278	$ 8,388,011
Liabilities:				
Foreign exchange forward and option contracts	$ —	$ 88,559	$ —	$ 88,559
Client interest rate derivatives	—	9,491	—	9,491
Total liabilities	$ —	$ 98,050	$ —	$ 98,050

(1) Included in Level 3 assets is $964 thousand attributable to noncontrolling interests calculated based on the ownership percentages of the noncontrolling interests.

The following table presents additional information about Level 3 assets measured at fair value on a recurring basis for the three and nine months ended September 30, 2019 and 2018:

(Dollars in thousands)	Beginning Balance	Total Realized and Unrealized Gains Included in Income	Purchases	Sales/Exits	Issuances	Distributions and Other Settlements	Transfers Out of Level 3	Ending Balance
Three months ended September 30, 2019								
Non-marketable and other equity securities (fair value accounting):								
Venture capital and private equity fund investments not measured at net asset value (1)	$ 441	$ 57	$ —	$ (364)	$ —	$ —	$ —	$ 134
Other assets:								
Equity warrant assets (2)	147,770	39,527	—	(45,270)	4,130	—	(1,116)	145,041
Total assets	$ 148,211	$ 39,584	$ —	$ (45,634)	$ 4,130	$ —	$ (1,116)	$ 145,175
Three months ended September 30, 2018								
Non-marketable and other equity securities (fair value accounting):								
Venture capital and private equity fund investments not measured at net asset value (1)	$ 1,001	$ —	$ —	$ —	$ —	$ —	$ —	$ 1,001
Other assets:								
Equity warrant assets (2)	137,753	32,237	—	(34,101)	4,809	—	(209)	140,489
Total assets	$ 138,754	$ 32,237	$ —	$ (34,101)	$ 4,809	$ —	$ (209)	$ 141,490
Nine months ended September 30, 2019								
Non-marketable and other equity securities (fair value accounting):								
Venture capital and private equity fund investments not measured at net asset value (1)	$ 1,079	$ 12	$ —	$ (960)	$ —	$ 3	$ —	$ 134
Other assets:								
Equity warrant assets (2)	145,199	105,338	575	(113,143)	11,714	—	(4,642)	145,041
Total assets	$ 146,278	$ 105,350	$ 575	$ (114,103)	$ 11,714	$ 3	$ (4,642)	$ 145,175
Nine months ended September 30, 2018								
Non-marketable and other equity securities (fair value accounting):								
Venture capital and private equity fund investments not measured at net asset value (1)	$ 919	$ 82	$ —	$ —	$ —	$ —	$ —	$ 1,001
Other assets:								
Equity warrant assets (2)	121,331	69,097	—	(61,464)	14,007	—	(2,482)	140,489
Total assets	$ 122,250	$ 69,179	$ —	$ (61,464)	$ 14,007	$ —	$ (2,482)	$ 141,490

(1) Realized and unrealized gains (losses) are recorded in the line item “Gains on investment securities, net," a component of noninterest income.
(2) Realized and unrealized gains (losses) are recorded in the line item “Gains on equity warrant assets, net," a component of noninterest income.

The following table presents the amount of net unrealized gains and losses included in earnings (which is inclusive of noncontrolling interest) attributable to Level 3 assets still held at September 30, 2019 and 2018:

	Three months ended September 30,		Nine months ended September 30,	
(Dollars in thousands)	2019	2018	2019	2018
Non-marketable and other equity securities (fair value accounting):				
Venture capital and private equity fund investments not measured at net asset value (1)	$ 57	$ —	$ 12	$ 82
Other assets:				
Equity warrant assets (2)	(727)	15,841	21,041	30,954
Total unrealized (losses) gains, net	$ (670)	$ 15,841	$ 21,053	$ 31,036
Unrealized (losses) gains attributable to noncontrolling interests (1)	$ (158)	$ —	$ (199)	$ 73

(1) Unrealized gains (losses) are recorded in the line item "Gains on investment securities, net," a component of noninterest income.
(2) Unrealized gains (losses) are recorded in the line item "Gains on equity warrant assets, net," a component of noninterest income.

The extent to which any unrealized gains or losses will become realized is subject to a variety of factors, including, among other things, the expiration of current sales restrictions to which these securities are subject, the actual sales of securities and the timing of such actual sales.

The following table presents quantitative information about the significant unobservable inputs used for certain of our Level 3 fair value measurements at September 30, 2019 and December 31, 2018. We have not included in this table our venture capital and private equity fund investments (fair value accounting) as we use net asset value per share (as obtained from the general partners of the investments) as a practical expedient to determine fair value.

(Dollars in thousands)	Fair value	Valuation Technique	Significant Unobservable Inputs	Weighted Average
September 30, 2019:				
Venture capital and private equity fund investments (fair value accounting)	$ 134	Private company equity pricing	(1)	(1)
Equity warrant assets (public portfolio)	776	Black-Scholes option pricing model	Volatility	34.8%
			Risk-Free interest rate	1.6
			Sales restrictions discount (2)	19.2
Equity warrant assets (private portfolio)	144,265	Black-Scholes option pricing model	Volatility	38.9
			Risk-Free interest rate	1.6
			Marketability discount (3)	17.8
			Remaining life assumption (4)	45.0
December 31, 2018:				
Venture capital and private equity fund investments (fair value accounting)	$ 1,079	Private company equity pricing	(1)	(1)
Equity warrant assets (public portfolio)	2,757	Black-Scholes option pricing model	Volatility	54.7%
			Risk-Free interest rate	2.6
			Sales restrictions discount (2)	18.5
Equity warrant assets (private portfolio)	142,442	Black-Scholes option pricing model	Volatility	38.5
			Risk-Free interest rate	2.5
			Marketability discount (3)	17.7
			Remaining life assumption (4)	45.0

(1) In determining the fair value of our venture capital and private equity fund investment portfolio (not measured at net asset value), we evaluate a variety of factors related to each underlying private portfolio company including, but not limited to, actual and forecasted results, cash position, recent or planned transactions and market comparable companies. Additionally, we have ongoing communication with the portfolio companies and venture capital fund managers, to determine whether there is a material change in fair value. We use company provided valuation reports, if available, to support our valuation

assumptions. These factors are specific to each portfolio company and a weighted average or range of values of the unobservable inputs is not meaningful.

(2) We adjust quoted market prices of public companies, which are subject to certain sales restrictions. Sales restriction discounts generally range from 10 percent to 20 percent depending on the duration of the sales restrictions, which typically range from three to six months.

(3) Our marketability discount is applied to all private company warrants to account for a general lack of liquidity due to the private nature of the associated underlying company. The quantitative measure used is based upon various option-pricing models. On a quarterly basis, a sensitivity analysis is performed on our marketability discount.

(4) We adjust the contractual remaining term of private company warrants based on our estimate of the actual remaining life, which we determine by utilizing historical data on terminations and exercises. At September 30, 2019, the weighted average contractual remaining term was 6.1 years, compared to our estimated remaining life of 2.7 years. On a quarterly basis, a sensitivity analysis is performed on our remaining life assumption.

For the three and nine months ended September 30, 2019 and 2018, we did not have any transfers between Level 2 and Level 1 or transfers between Level 3 and Level 1. All transfers from Level 3 to Level 2 for the three and nine months ended September 30, 2019 and 2018 were due to the transfer of equity warrant assets from our private portfolio to our public portfolio (see our Level 3 reconciliation above). All amounts reported as transfers represent the fair value as of the date of the change in circumstances that caused the transfer.

Financial Instruments not Carried at Fair Value

FASB guidance over financial instruments requires that we disclose estimated fair values for our financial instruments not carried at fair value. The following fair value hierarchy table presents the estimated fair values of our financial instruments that are not carried at fair value at September 30, 2019 and December 31, 2018:

		Estimated Fair Value			
(Dollars in thousands)	**Carrying Amount**	**Total**	**Level 1**	**Level 2**	**Level 3**
September 30, 2019:					
Financial assets:					
Cash and cash equivalents	$ 6,946,196	$ 6,946,196	$ 6,946,196	$ —	$ —
Held-to-maturity securities	14,407,078	14,698,802	—	14,698,802	—
Non-marketable securities not measured at net asset value	183,980	183,980	—	—	183,980
Non-marketable securities measured at net asset value	217,459	217,459	—	—	—
Net commercial loans	27,283,952	28,427,753	—	—	28,427,753
Net consumer loans	3,475,632	3,620,703	—	—	3,620,703
FHLB and Federal Reserve Bank stock	59,790	59,790	—	—	59,790
Financial liabilities:					
Short-term borrowings	18,898	18,898	—	18,898	—
Non-maturity deposits (1)	59,352,559	59,352,559	59,352,559	—	—
Time deposits	190,315	190,078	—	190,078	—
3.50% Senior Notes	347,899	362,551	—	362,551	—
5.375% Senior Notes	349,328	360,560	—	360,560	—
Off-balance sheet financial assets:					
Commitments to extend credit	—	25,136	—	—	25,136
December 31, 2018:					
Financial assets:					
Cash and cash equivalents	$ 3,571,539	$ 3,571,539	$ 3,571,539	$ —	$ —
Held-to-maturity securities	15,487,442	15,188,236	—	15,188,236	—
Non-marketable securities not measured at net asset value	131,453	131,453	—	—	131,453
Non-marketable securities measured at net asset value	151,247	151,247	—	—	—
Net commercial loans	25,043,671	25,463,968	—	—	25,463,968
Net consumer loans	3,013,706	3,064,093	—	—	3,064,093
FHLB and Federal Reserve Bank stock	58,878	58,878	—	—	58,878
Financial liabilities:					
Short-term borrowings	631,412	631,412	—	631,412	—
Non-maturity deposits (1)	49,278,174	49,278,174	49,278,174	—	—
Time deposits	50,726	50,337	—	50,337	—
3.50% Senior Notes	347,639	336,088	—	336,088	—
5.375% Senior Notes	348,826	361,281	—	361,281	—
Off-balance sheet financial assets:					
Commitments to extend credit	—	22,930	—	—	22,930

(1) Includes noninterest-bearing demand deposits, interest-bearing checking accounts, money market accounts and interest-bearing sweep deposits.

Investments in Entities that Calculate Net Asset Value Per Share

FASB guidance over certain fund investments requires that we disclose the fair value of funds, significant investment strategies of the investees, redemption features of the investees, restrictions on the ability to sell investments, estimate of the period of time over which the underlying assets are expected to be liquidated by the investee, and unfunded commitments related to the investments.

Our investments in debt funds and venture capital and private equity fund investments generally cannot be redeemed. Alternatively, we expect distributions, if any, to be received primarily through IPO and M&A activity of the underlying assets of the fund. Subject to applicable requirements under the Volcker Rule, we do not have any plans to sell any of these fund investments. If we decide to sell these investments in the future, the investee fund's management must approve of the buyer before the sale of the investments can be completed. The fair values of the fund investments have been estimated using the net asset value per share of the investments, adjusted for any differences between our measurement date and the date of the fund investment's net asset value by using the most recently available financial information from the investee general partner, for example June 30th, for our September 30th consolidated financial statements, adjusted for any contributions paid, distributions received from the investment, and significant fund transactions or market events during the reporting period.

The following table is a summary of the estimated fair values of these investments and remaining unfunded commitments for each major category of these investments as of September 30, 2019:

(Dollars in thousands)	Carrying Amount	Fair Value	Unfunded Commitments
Non-marketable securities (fair value accounting):			
Venture capital and private equity fund investments (1)	$ 273,426	$ 273,426	$ 10,653
Non-marketable securities (equity method accounting):			
Venture capital and private equity fund investments (2)	196,425	196,425	10,674
Debt funds (2)	7,153	7,153	—
Other investments (2)	13,881	13,881	886
Total	$ 490,885	$ 490,885	$ 22,213

(1) Venture capital and private equity fund investments within non-marketable securities (fair value accounting) include investments made by our managed funds of funds and one of our direct venture funds (consolidated VIEs) and investments in venture capital and private equity fund investments (unconsolidated VIEs). Collectively, these investments in venture capital and private equity funds are primarily in U.S. and global technology and life science/healthcare companies. Included in the fair value and unfunded commitments of fund investments under fair value accounting are $68.2 million and $4.1 million, respectively, attributable to noncontrolling interests. It is estimated that we will receive distributions from the fund investments over the next 10 to 13 years, depending on the age of the funds and any potential extensions of terms of the funds.

(2) Venture capital and private equity fund investments, debt funds, and other fund investments within non-marketable securities (equity method accounting) include funds that invest in or lend money to primarily U.S. and global technology and life science/healthcare companies. It is estimated that we will receive distributions from the funds over the next 5 to 8 years, depending on the age of the funds and any potential extensions of the terms of the funds.

19. Legal Matters

Certain lawsuits and claims arising in the ordinary course of business have been filed or are pending against us and/or our affiliates, and we may from time to time be involved in other legal or regulatory proceedings. In accordance with applicable accounting guidance, we establish accruals for all such matters, including expected settlements, when we believe it is probable that a loss has been incurred and the amount of the loss is reasonably estimable. When a loss contingency is not both probable and estimable, we do not establish an accrual. Any such loss estimates are inherently uncertain, based on currently available information and are subject to management's judgment and various assumptions. Due to the inherent subjectivity of these estimates and unpredictability of outcomes of legal proceedings, any amounts accrued may not represent the ultimate resolution of such matters.

To the extent we believe any potential loss relating to such matters may have a material impact on our liquidity, consolidated financial position, results of operations, and/or our business as a whole and is reasonably possible but not probable, we aim to disclose information relating to such potential loss. We also aim to disclose information relating to any material potential loss that is probable but not reasonably estimable. In such cases, where reasonably practicable, we aim to provide an estimate of loss or range of potential loss. No disclosures are generally made for any loss contingencies that are deemed to be remote.

Based upon information available to us, our review of lawsuits and claims filed or pending against us to date and consultation with our outside legal counsel, we have not recognized a material accrual liability for any such matters, nor do we currently expect that these matters will result in a material liability to the Company. However, the outcome of litigation and other legal and regulatory matters is inherently uncertain, and it is possible that one or more of such matters currently pending or threatened could have an unanticipated material adverse effect on our liquidity, consolidated financial position, results of operations, and/or our business as a whole, in the future.

20. Related Parties

We have no material related party transactions requiring disclosure. In the ordinary course of business, the Bank may extend credit to related parties, including executive officers, directors, principal shareholders and their related interests. Additionally, we provide real estate secured loans to eligible employees through our EHOP. For additional details, see Note 17—"Employee Compensation and Benefit Plans" under Part II, Item 8 of our 2018 Form 10-K.

ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

Forward-Looking Statements

This Quarterly Report on Form 10-Q, including in particular "Management's Discussion and Analysis of Financial Condition and Results of Operations" under Part I, Item 2 of this report, contains forward-looking statements within the meaning of the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. In addition, management has in the past and might in the future make forward-looking statements orally to analysts, investors, the media and others. Forward-looking statements are statements that are not historical facts. Broadly speaking, forward-looking statements include, but are not limited to, the following:

- Financial projections, including with respect to our net interest income, noninterest income, earnings per share, noninterest expenses (including professional services, compliance, compensation and other costs), cash flows, balance sheet positions, capital expenditures, liquidity and capitalization or other financial items;
- Descriptions of our strategic initiatives, plans or objectives for future operations, including pending sales or acquisitions;

- Forecasts of private equity/venture capital funding and investment levels;
- Forecasts of future interest rates, economic performance, and income from investments;
- Forecasts of expected levels of provisions for loan losses, nonperforming loans, loan growth and client funds; and
- Descriptions of assumptions underlying or relating to any of the foregoing.

You can identify these and other forward-looking statements by the use of words such as “becoming,” “may,” “will,” “should,” "could," "would," “predict,” “potential,” “continue,” “anticipate,” “believe,” “estimate,” “assume,” “seek,” “expect,” “plan,” “intend,” the negative of such words, or comparable terminology. Forward-looking statements are neither historical facts nor assurances of future performance. Although we believe that the expectations reflected in these forward-looking statements are reasonable, we have based these expectations on our current beliefs as well as our assumptions, and such expectations may prove to be incorrect. Because forward-looking statements relate to the future, they are subject to inherent uncertainties, risks and changes in circumstances that are difficult to predict and many of which are outside of our control. Our actual results of operations and financial performance could differ significantly from those expressed in or implied by our management’s forward-looking statements. Important factors that could cause our actual results and financial condition to differ from the expectations stated in the forward-looking statements include, among others:

- Market and economic conditions, including the interest rate environment, and the associated impact on us;
- The credit profile and credit quality of our loan portfolio and volatility of our levels of nonperforming assets and charge-offs;
- The adequacy of our allowance for loan losses and the need to make provisions for loan losses for any period;
- The borrowing needs of our clients;
- The sufficiency of our capital and liquidity positions;
- The levels of loans, deposits and client investment fund balances;
- The performance of our portfolio investments; the general condition of the public and private equity and mergers and acquisitions markets and their impact on our investments, including equity warrant assets, venture capital and private equity funds and direct equity investments;
- Our overall investment plans and strategies; the realization, timing, valuation and performance of our equity or other investments;
- The levels of public offerings, mergers and acquisitions and venture capital investment activity of our clients that may impact the borrowing needs of our clients;
- The occurrence of fraudulent activity, including breaches of our information security or cyber security-related incidents;
- Business disruptions and interruptions due to natural disasters and other external events;
- The impact on our reputation and business from our interactions with business partners, counterparties, service providers and other third parties;
- Expansion of our business internationally, and the impact of international market and economic events on us;
- The impact of governmental policy, legal requirements and regulations, including the Economic Growth, Regulatory Relief and Consumer Protection Act and the Dodd-Frank Act, promulgated by the Federal Reserve and other regulatory requirements;
- The impact of lawsuits and claims, as well as legal or regulatory proceedings;
- The impact of changes in accounting standards and tax laws;
- The levels of equity capital available to our client or portfolio companies;
- The effectiveness of our risk management framework and quantitative models;
- Our ability to maintain or increase our market share, including through successfully implementing our business strategy and undertaking new business initiatives, including through the integration of SVB Leerink; and
- Other factors as discussed in “Risk Factors” under Part I, Item 1A in our 2018 Form 10-K.

We urge investors to consider all of these factors carefully in evaluating the forward-looking statements contained in this Quarterly Report on Form 10-Q. All subsequent written or oral forward-looking statements attributable to us or persons acting on our behalf are expressly qualified in their entirety by these cautionary statements. The forward-looking statements included in this filing are made only as of the date of this filing. We assume no obligation and do not intend to revise or update any forward-looking statements contained in this Quarterly Report on Form 10-Q, except as required by law.

The following discussion and analysis of financial condition and results of operations should be read in conjunction with our unaudited interim consolidated financial statements and accompanying notes as presented in Part I, Item 1 of this report and in conjunction with our 2018 Form 10-K.

Reclassifications

Certain prior period amounts related to presentation changes to our financial statement line items have been reclassified to conform to current period presentations.

Management's Overview of Third Quarter 2019 Performance

Overall, we continued to deliver strong results in the third quarter of 2019, marked by continued healthy balance sheet growth, stable credit quality, continued core fee income growth, solid gains on equity warrants and robust client acquisition. Our core business continued to perform well as a result of our ongoing focus on innovation companies and their investors and continued efforts to secure client relationships. We saw continued success in working with private equity/venture capital firms, our technology and life science/healthcare clients and clients in our private bank division.

A summary of our performance for the three months ended September 30, 2019 (compared to the three months ended September 30, 2018, where applicable) is as follows:

BALANCE SHEET

Assets. $65.3 billion in average total assets (up 15.7%). $68.2 billion in period-end total assets (up 17.4%).

Loans. $29.8 billion in average total loan balances, net of unearned income (up 13.3%). $31.1 billion in period-end total loan balances, net of unearned income (up 13.0%).

Total Client Funds. (on-balance sheet deposits and off-balance sheet client investment funds). $150.1 billion in average total client fund balances (up 16.6%). $156.0 billion in period-end total client fund balances (up 19.4%).

AFS/HTM Fixed Income Investments$25.1 billion in average fixed income investment securities (down 1.5%). $27.3 billion in period-end fixed income investment securities (up 9.2%).

EARNINGS

EPS. Earnings per diluted share of $5.15 (up 1.0%).

Net Income. Consolidated net income available to common stockholders of $267.3 million (down 2.7%).

- Net interest income of $520.6 million (up 5.6%).
- Net interest margin of 3.34% (down 28 bps).
- Noninterest income of $294.0 million (up 40.0%), with non-GAAP core fee income+ of $162.2 million (up 23.1%).
- Noninterest expense of $391.3 million (up 26.5%).

ROE. Return on average equity (annualized) ("*ROE*") performance of 18.27%.

Operating Efficiency Ratio. Operating efficiency ratio of 48.04% with a non-GAAP core operating efficiency ratio of 48.05%++.

CAPITAL

Capital. Continued strong capital, with all capital ratios considered "well-capitalized" under banking regulations. SVBFG and SVB capital ratios, respectively, were:

- CET 1 risk-based capital ratio of 12.71% and 11.48%.
- Tier 1 risk-based capital ratio of 12.86% and 11.48%.
- Total risk-based capital ratio of 13.70% and 12.36%.
- Tier 1 leverage ratio of 8.64% and 7.48%.

CREDIT QUALITY

Credit Quality. Continued disciplined underwriting.

- Allowance for loan losses of 0.97% as a percentage of period-end total gross loans.
- Provision for loan losses of 0.46% as a percentage of period-end total gross loans (annualized).
- Net loan charge-offs of 0.44% as a percentage of average total gross loans (annualized).

+ Consists of fee income for deposit services, letters of credit and standby letters of credit, credit cards, client investments, foreign exchange and lending-related activities. This is a non-GAAP financial measure. (See the non-GAAP reconciliation under "Results of Operations—Noninterest Income")

++ This ratio excludes certain financial line items where performance is typically subject to market or other conditions beyond our control and excludes SVB Leerink revenue and expenses. It is calculated by dividing noninterest expense after adjusting for noninterest expense attributable to SVB Leerink by total revenue after adjusting for noninterest income attributable to SVB Leerink, net gains or losses on investment securities and equity warrant assets, investment banking revenue and commissions. Additionally, noninterest expense and total revenue are adjusted for income or losses and expenses attributable to noncontrolling interests and adjustments to net interest income for a taxable equivalent basis. This is a non-GAAP financial measure. (See the non-GAAP reconciliation under "Results of Operations-Noninterest Expense").

A summary of our performance for the three and nine months ended September 30, 2019 and 2018 is as follows:

	Three months ended September 30,			Nine months ended September 30,		
(Dollars in thousands, except per share data, employees and ratios)	2019	2018	% Change	2019	2018	% Change
Income Statement:						
Diluted earnings per share	$ 5.15	$ 5.10	1.0 %	$ 16.67	$ 13.15	26.8 %
Net income available to common stockholders	267,281	274,817	(2.7)	874,000	707,576	23.5
Net interest income	520,644	493,222	5.6	1,562,933	1,379,528	13.3
Net interest margin	3.34%	3.62%	(28) bps	3.60%	3.53%	7 bps
Provision for credit losses	$ 36,536	$ 17,174	112.7 %	$ 89,033	$ 74,226	19.9 %
Noninterest income	294,009	210,070	40.0	908,135	558,277	62.7
Noninterest expense	391,324	309,445	26.5	1,140,510	880,601	29.5
Non-GAAP core fee income (1)	162,177	131,714	23.1	473,757	369,848	28.1
Non-GAAP core fee income, including investment banking revenue and commissions (1)	212,968	131,714	61.7	651,574	369,848	76.2
Non-GAAP noninterest income, net of noncontrolling interests (1)	279,441	203,378	37.4	871,583	529,116	64.7
Non-GAAP noninterest expense, net of noncontrolling interests (2)	391,179	309,291	26.5	1,139,818	880,252	29.5
Balance Sheet:						

Average available-for-sale securities	$ 10,600,449	$ 9,589,917	10.5 %	$ 8,572,314	$ 10,124,707	(15.3) %
Average held-to-maturity securities	14,534,505	15,916,690	(8.7)	14,891,158	14,764,215	0.9
Average loans, net of unearned income	29,822,426	26,331,377	13.3	29,210,960	25,008,277	16.8
Average noninterest-bearing demand deposits	39,146,184	40,625,772	(3.6)	38,498,971	39,473,468	(2.5)
Average interest-bearing deposits	18,088,785	8,466,468	113.7	14,832,373	8,260,894	79.5
Average total deposits	57,234,969	49,092,240	16.6	53,331,344	47,734,362	11.7
Earnings Ratios:						
Return on average assets (annualized) (3)	1.62%	1.93%	(16.1) %	1.91%	1.74%	9.8 %
Return on average SVBFG stockholders' equity (annualized) (4)	18.27	22.46	(18.7)	21.16	20.56	2.9
Asset Quality Ratios:						
Allowance for loan losses as a % of total period-end gross loans	0.97%	1.03%	(6) bps	0.97%	1.03%	(6) bps
Allowance for loan losses for performing loans as a % of total gross performing loans	0.81	0.86	(5)	0.81	0.86	(5)
Gross loan charge-offs as a % of average total gross loans (annualized)	0.49	0.33	16	0.33	0.26	7
Net loan charge-offs as a % of average total gross loans (annualized)	0.44	0.30	14	0.26	0.22	4
Capital Ratios:						
SVBFG CET 1 risk-based capital ratio	12.71%	13.28%	(57) bps	12.71%	13.28%	(57) bps
SVBFG tier 1 risk-based capital ratio	12.86	13.45	(59)	12.86	13.45	(59)
SVBFG total risk-based capital ratio	13.70	14.34	(64)	13.70	14.34	(64)
SVBFG tier 1 leverage ratio	8.64	8.99	(35)	8.64	8.99	(35)
SVBFG tangible common equity to tangible assets (5)	8.38	8.47	(9)	8.38	8.47	(9)
SVBFG tangible common equity to risk-weighted assets (5)	13.04	13.00	4	13.04	13.00	4
Bank CET 1 risk-based capital ratio	11.48	11.98	(50)	11.48	11.98	(50)
Bank tier 1 risk-based capital ratio	11.48	11.98	(50)	11.48	11.98	(50)
Bank total risk-based capital ratio	12.36	12.91	(55)	12.36	12.91	(55)
Bank tier 1 leverage ratio	7.48	7.82	(34)	7.48	7.82	(34)
Bank tangible common equity to tangible assets (5)	7.36	7.44	(8)	7.36	7.44	(8)
Bank tangible common equity to risk-weighted assets (5)	11.82	11.70	12	11.82	11.70	12
Other Ratios:						
GAAP operating efficiency ratio (6)	48.04%	44.00%	9.2 %	46.15%	45.44%	1.6 %
Non-GAAP core operating efficiency ratio (2)	48.05	48.35	(0.6)	46.09	49.06	(6.1)
Total costs of deposits (annualized) (7)	0.38	0.06	533.3	0.33	0.05	560.0
Book value per common share (8)	$ 114.26	$ 92.48	23.6	$ 114.26	$ 92.48	23.6
Other Statistics:						
Average full-time equivalent employees	3,413	2,778	22.9 %	3,309	2,623	26.2 %
Period-end full-time equivalent employees	3,460	2,836	22.0	3,460	2,836	22.0

(1) See "Results of Operations–Noninterest Income" for a description and reconciliation of non-GAAP core fee income and non-GAAP core fee income including investment banking revenue and commissions.
(2) See "Results of Operations–Noninterest Expense" for a description and reconciliation of non-GAAP noninterest expense and non-GAAP core operating efficiency ratio.
(3) Ratio represents annualized consolidated net income available to common stockholders divided by quarterly average assets.
(4) Ratio represents annualized consolidated net income available to common stockholders divided by quarterly average SVBFG stockholders' equity.
(5) See "Capital Resources–Capital Ratios" for a reconciliation of non-GAAP tangible common equity to tangible assets and tangible common equity to risk-weighted assets.
(6) The operating efficiency ratio is calculated by dividing total noninterest expense by total net interest income plus noninterest income.
(7) Ratio represents annualized total cost of deposits and is calculated by dividing interest expense from deposits by average total deposits.
(8) Book value per common share is calculated by dividing total SVBFG stockholders' equity by total outstanding common shares at period-end.

For more information with respect to our capital ratios, please refer to "Capital Ratios" under "Consolidated Financial Condition-Capital Ratios" below.

Critical Accounting Policies and Estimates

The accompanying management's discussion and analysis of results of operations and financial condition is based upon our unaudited interim consolidated financial statements, which have been prepared in accordance with GAAP. The preparation of these financial statements in accordance with GAAP requires management to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues, expenses and related disclosure of contingent assets and liabilities. Management evaluates estimates and assumptions on an ongoing basis. Management bases its estimates on historical experiences and various other factors and assumptions that are believed to be reasonable under the circumstances. Actual results may differ materially from these estimates under different assumptions or conditions.

There have been no significant changes during the nine months ended September 30, 2019 to the items that we disclosed as our critical accounting policies and estimates in "Management's Discussion and Analysis of Financial Condition and Results of Operations" under Part II, Item 7 of our 2018 Form 10-K.

Results of Operations

Net Interest Income and Margin (Fully Taxable Equivalent Basis)

Net interest income is defined as the difference between: (i) interest earned on loans, fixed income investments in our available-for-sale and held-to-maturity securities portfolios and short-term investment securities, and (ii) interest paid on funding sources. Net interest margin is defined as annualized net interest income, on a fully taxable equivalent basis, as a percentage of average interest-earning assets. Net interest income and net interest margin are presented on a fully taxable equivalent basis to consistently reflect income from taxable loans and securities and tax-exempt securities based on the federal statutory tax rate of 21.0 percent.

Analysis of Net Interest Income Changes Due to Volume and Rate (Fully Taxable Equivalent Basis)

Net interest income is affected by changes in the amount and mix of interest-earning assets and interest-bearing liabilities, referred to as "volume change." Net interest income is also affected by changes in yields earned on interest-earning assets and rates paid on interest-bearing liabilities, referred to as "rate change." The following table sets forth changes in interest income for each major category of interest-earning assets and interest expense for each major category of interest-bearing liabilities. The table also reflects the amount of simultaneous changes attributable to both volume and rate changes for the periods indicated. For this table, changes that are not solely due to either volume or rate are allocated in proportion to the percentage changes in average volume and average rate.

(Dollars in thousands)	2019 Compared to 2018 Three months ended September 30, increase (decrease) due to change in Volume	Rate	Total	2019 Compared to 2018 Nine months ended September 30, increase (decrease) due to change in Volume	Rate	Total
Interest income:						
Federal Reserve deposits, federal funds sold, securities purchased under agreements to resell and other short-term investment securities	$ 18,640	$ 2,090	$ 20,730	$ 41,307	$ 13,060	$ 54,367
Fixed income investment portfolio (taxable)	(3,985)	11,566	7,581	(31,754)	38,820	7,066
Fixed income investment portfolio (non-taxable)	703	(229)	474	11,030	975	12,005
Loans, net of unearned income	46,151	(4,258)	41,893	173,003	49,740	222,743
Increase in interest income, net	61,509	9,169	70,678	193,586	102,595	296,181
Interest expense:						
Interest bearing checking and savings accounts	(22)	8	(14)	(56)	36	(20)
Money market deposits	28,312	13,075	41,387	54,630	39,961	94,591
Money market deposits in foreign offices	(11)	1	(10)	(21)	3	(18)
Time deposits	311	244	555	295	424	719
Sweep deposits in foreign offices	2,186	2,960	5,146	6,266	10,216	16,482
Total increase in deposits expense	30,776	16,288	47,064	61,114	50,640	111,754
Short-term borrowings	(3,926)	6	(3,920)	(2,663)	1,129	(1,534)
3.50% Senior Notes	3	—	3	9	—	9
5.375% Senior Notes	10	—	10	27	—	27
Total (decrease) increase in borrowings expense	(3,913)	6	(3,907)	(2,627)	1,129	(1,498)
Increase in interest expense, net	26,863	16,294	43,157	58,487	51,769	110,256
Increase (decrease) in net interest income	$ 34,646	$ (7,125)	$ 27,521	$ 135,099	$ 50,826	$ 185,925

Net Interest Income (Fully Taxable Equivalent Basis)

Three months ended September 30, 2019 and 2018

Net interest income increased by $27.5 million to $523.6 million for the three months ended September 30, 2019, compared to $496.1 million for the comparable 2018 period. Overall, our net interest income increased primarily from interest earned on loans, reflective of higher average loan balances driven by strong loan growth from our private equity/venture capital loan portfolio as well as an increase in our private bank loan portfolio. In addition, we saw an increase in interest income from our interest earning cash and short-term investment securities reflective of higher average balances. These increases were partially offset by an increase in interest paid on our interest-bearing deposits due to the increase in average interest-bearing deposits as well as continued market rate adjustments on our interest-bearing deposits due to the competitive environment.

The main factors affecting interest income and interest expense for the three months ended September 30, 2019, compared to the comparable 2018 period are discussed below:

- *Interest income* for the three months ended September 30, 2019 increased by $70.7 million due primarily to:
  - A $41.9 million increase in interest income on loans to $394.2 million for the three months ended September 30, 2019, compared to $352.4 million for the comparable 2018 period. The increase was reflective of an increase in average loan balances of $3.5 billion partially offset by a decrease in the overall loan yields of 7 basis points to 5.24 percent from 5.31 percent. Gross loan yields, excluding loan interest recoveries and loan fees, decreased 9 basis points to 4.72 percent from 4.81 percent, reflective of the continued growth in our lower yielding private equity/venture capital and private bank loan portfolios, as well as compression on our loan yields due to pricing competition, and
  - A $20.7 million increase in interest income from our interest-earning cash and short-term investment securities. The increase was due primarily to the increase of $4.6 billion in average interest-earning Federal Reserve cash balances.
- *Interest expense* for the three months ended September 30, 2019 increased by $43.2 million due primarily to:
  - A $47.1 million increase in interest expense on deposits due primarily to an increase in interest paid on our interest-bearing money market and foreign sweep deposits due to the growth in average interest-bearing deposits of $9.6 billion as well as market rate adjustments due to competition, partially offset by

- A $3.9 million decrease in interest expense on short-term borrowings due primarily to a decrease in average short-term borrowings outstanding due to increases in our cash and cash equivalents.

Nine months ended September 30, 2019 and 2018

The main factors affecting interest income and interest expense for the nine months ended September 30, 2019, compared to the comparable 2018 period are discussed below:

- *Interest income* for the nine months ended September 30, 2019 increased by $296.2 million due primarily to:
  - A $222.7 million increase in interest income on loans to $1.2 billion for the nine months ended September 30, 2019, compared to $979.7 million for the comparable 2018 period. The increase was reflective of an increase in average loan balances of $4.2 billion and an increase in the overall loan yields of 26 basis points to 5.50 percent from 5.24 percent. Gross loan yields, excluding loan interest recoveries and loan fees, increased 25 basis points to 4.95 percent from 4.70 percent, reflective of the benefit of interest rate increases during late 2018, partially offset by the continued growth of our lower yielding private equity/venture capital loan portfolio. Our private equity/venture capital loan portfolio represented 52.2 percent and 48.3 percent of our total gross loan portfolio at September 30, 2019 and 2018, respectively, and
  - A $54.4 million increase in interest income from our interest earning cash and short-term investment securities. The increase was due primarily to the increase of $3.2 billion in average interest-earning Federal Reserve cash balances driven by deposit growth and the benefit from the impact of increases in the Federal Funds target rate during 2018.
- *Interest expense* for the nine months ended September 30, 2019 increased by $110.3 million primarily due to:
  - A $111.8 million increase in interest expense on deposits due primarily to an increase in interest paid on our interest-bearing money market deposits and foreign sweep deposits due to the growth in average interest-bearing deposits of $6.6 billion as well as market rate adjustments due to competition.

Net Interest Margin (Fully Taxable Equivalent Basis)

Three months ended September 30, 2019 and 2018

- Our net interest margin decreased by 28 basis points to 3.34 percent for the three months ended September 30, 2019, compared to 3.62 percent for the comparable 2018 period. The lower margin for the three months ended September 30, 2019 was due primarily to a change in the mix of interest earning assets resulting in a decrease in higher yielding loans and an increase in lower yielding cash and investments as a percentage of total interest earning assets as well as the increase of $9.6 billion in average interest bearing deposits. Our net interest margin also saw a decrease from an increase in yields paid on interest bearing deposits reflective of the full quarter impact of the two 25 basis point Federal Funds rate increases since September of 2018 partially offset by a benefit from the two 25 basis point Federal Funds rate decreases during the third quarter of 2019. Additionally, lower loan yields were driven by decreased prepayment fees as well as the continued compression on our loan yields due to pricing competition. Average loans represented 48.0 percent of average interest earnings assets for the three months ended September 30, 2019, compared to 48.4 percent for the comparable 2018 period.

Nine months ended September 30, 2019 and 2018

- Our net interest margin increased by 7 basis points to 3.60 percent for the nine months ended September 30, 2019, compared to 3.53 percent for the comparable 2018 period. The higher margin for the nine months ended September 30, 2019 was reflective primarily of the increases in the Federal Funds target rate during late 2018, as well as a shift in the mix of the growth in our interest-earning assets to higher-yielding loans from our fixed income investment securities portfolio. Average loans represented 50.0 percent of year-to-date average interest earnings assets, compared to 47.7 percent for the comparable 2018 period.

Average Balances, Yields and Rates Paid (Fully Taxable Equivalent Basis)

The average yield earned on interest-earning assets is the amount of annualized fully taxable equivalent interest income expressed as a percentage of average interest-earning assets. The average rate paid on funding sources is the amount of annualized interest expense expressed as a percentage of average funding sources. The following tables set forth average assets, liabilities, noncontrolling interests and SVBFG stockholders' equity, interest income, interest expense, annualized yields and rates, and the composition of our annualized net interest margin for the three and nine months ended September 30, 2019 and 2018:

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Average Balances, Rates and Yields for the Three Months Ended September 30, 2019 and 2018

	Three months ended September 30,					
	2019			2018		
(Dollars in thousands)	Average Balance	Interest Income/ Expense	Yield/ Rate	Average Balance	Interest Income/ Expense	Yield/ Rate
Interest-earning assets:						
Federal Reserve deposits, federal funds sold, securities purchased under agreements to resell and other short-term investment securities (1)	$ 7,193,195	$ 28,867	1.59%	$ 2,548,271	$ 8,137	1.27%
Investment securities: (2)						
Available-for-sale securities:						
Taxable	10,600,449	62,121	2.32	9,589,917	46,684	1.93
Held-to-maturity securities:						
Taxable	12,922,438	87,535	2.69	14,385,027	95,391	2.63
Non-taxable (3)	1,612,067	14,080	3.47	1,531,663	13,606	3.52
Total loans, net of unearned income (4) (5)	29,822,426	394,246	5.24	26,331,377	352,353	5.31
Total interest-earning assets	62,150,575	586,849	3.74	54,386,255	516,171	3.77
Cash and due from banks	590,391			553,132		
Allowance for loan losses	(308,609)			(296,177)		
Other assets (6)	2,895,391			1,821,827		
Total assets	$ 65,327,748			$ 56,465,037		
Funding sources:						
Interest-bearing liabilities:						
Interest bearing checking and savings accounts	$ 470,601	$ 102	0.09%	$ 572,242	$ 116	0.08%
Money market deposits	15,805,507	49,169	1.23	6,704,337	7,782	0.46
Money market deposits in foreign offices	115,590	12	0.04	218,734	22	0.04
Time deposits	157,218	590	1.49	74,597	35	0.19
Sweep deposits in foreign offices	1,539,869	5,233	1.35	896,558	87	0.04
Total interest-bearing deposits	18,088,785	55,106	1.21	8,466,468	8,042	0.38
Short-term borrowings	22,045	119	2.14	745,156	4,039	2.15
3.50% Senior Notes	347,841	3,150	3.59	347,499	3,147	3.59
5.375% Senior Notes	349,216	4,873	5.54	348,557	4,863	5.54
Total interest-bearing liabilities	18,807,887	63,248	1.33	9,907,680	20,091	0.80
Portion of noninterest-bearing funding sources	43,342,688			44,478,575		
Total funding sources	62,150,575	63,248	0.40	54,386,255	20,091	0.15
Noninterest-bearing funding sources:						
Demand deposits	39,146,184			40,625,772		
Other liabilities	1,417,659			932,544		
SVBFG stockholders' equity	5,802,907			4,854,440		
Noncontrolling interests	153,111			144,601		
Portion used to fund interest-earning assets	(43,342,688)			(44,478,575)		
Total liabilities, noncontrolling interest, and SVBFG stockholders' equity	$ 65,327,748			$ 56,465,037		
Net interest income and margin		$ 523,601	3.34%		$ 496,080	3.62%
Total deposits	$ 57,234,969			$ 49,092,240		
Reconciliation to reported net interest income:						
Adjustments for taxable equivalent basis		(2,957)			(2,858)	
Net interest income, as reported		$ 520,644			$ 493,222	

(1) Includes average interest-earning deposits in other financial institutions of $1.1 billion and $0.7 billion for the three months ended September 30, 2019 and 2018, respectively. For the three months ended September 30, 2019 and 2018, balances also include $5.1 billion and $1.4 billion, respectively, deposited at the FRB, earning interest at the Federal Funds target rate.

(2) Yields on interest-earning investment securities do not give effect to changes in fair value that are reflected in other comprehensive income.

(3) Interest income on non-taxable investment securities is presented on a fully taxable equivalent basis using the federal statutory tax rate of 21.0 percent for all periods presented.

(4) Nonaccrual loans are reflected in the average balances of loans.

(5) Interest income includes loan fees of $39.4 million and $33.1 million for the three months ended September 30, 2019 and 2018, respectively.

(6) Average investment securities of $1.2 billion and $761 million for the three months ended September 30, 2019 and 2018, respectively, were classified as other assets as they were noninterest-earning assets. These investments primarily consisted of non-marketable and other equity securities.

Average Balances, Rates and Yields for the Nine Months Ended September 30, 2019 and 2018

(Dollars in thousands)	Nine months ended September 30, 2019 Average Balance	2019 Interest Income/ Expense	2019 Yield/ Rate	2018 Average Balance	2018 Interest Income/ Expense	2018 Yield/ Rate
Interest-earning assets:						
Federal Reserve deposits, federal funds sold, securities purchased under agreements to resell and other short-term investment securities (1)	$ 5,696,501	$ 74,447	1.75%	$ 2,535,749	$ 20,080	1.06%
Investment securities: (2)						
Available-for-sale securities:						
Taxable	8,572,314	142,891	2.23	10,124,707	141,266	1.87
Held-to-maturity securities:						
Taxable	13,305,424	267,877	2.69	13,597,340	262,436	2.58
Non-taxable (3)	1,585,734	41,760	3.52	1,166,875	29,755	3.41
Total loans, net of unearned income (4) (5)	29,210,960	1,202,467	5.50	25,008,277	979,724	5.24
Total interest-earning assets	58,370,933	1,729,442	3.96	52,432,948	1,433,261	3.65
Cash and due from banks	553,523			496,658		
Allowance for loan losses	(303,154)			(280,102)		
Other assets (6)	2,592,830			1,783,148		
Total assets	$ 61,214,132			$ 54,432,652		
Funding sources:						
Interest-bearing liabilities:						
Interest bearing checking and savings accounts	$ 491,663	$ 318	0.09%	$ 578,313	$ 338	0.08%
Money market deposits	12,540,843	112,249	1.20	6,437,372	17,658	0.37
Money market deposits in foreign offices	142,053	43	0.04	206,924	61	0.04
Time deposits	94,934	790	1.11	59,561	71	0.16
Sweep deposits in foreign offices	1,562,880	16,763	1.43	978,724	281	0.04
Total interest-bearing deposits	14,832,373	130,163	1.17	8,260,894	18,409	0.30
Short-term borrowings	186,930	3,519	2.52	328,425	5,053	2.06
3.50% Senior Notes	347,756	9,447	3.63	347,416	9,438	3.63
5.375% Senior Notes	349,050	14,611	5.60	348,400	14,584	5.60
Total interest-bearing liabilities	15,716,109	157,740	1.34	9,285,135	47,484	0.68
Portion of noninterest-bearing funding sources	42,654,824			43,147,813		
Total funding sources	58,370,933	157,740	0.36	52,432,948	47,484	0.12
Noninterest-bearing funding sources:						
Demand deposits	38,498,971			39,473,468		
Other liabilities	1,327,040			930,985		
SVBFG stockholders' equity	5,523,196			4,602,027		
Noncontrolling interests	148,816			141,037		
Portion used to fund interest-earning assets	(42,654,824)			(43,147,813)		
Total liabilities, noncontrolling interest, and SVBFG stockholders' equity	$ 61,214,132			$ 54,432,652		
Net interest income and margin		$ 1,571,702	3.60%		$ 1,385,777	3.53%
Total deposits	$ 53,331,344			$ 47,734,362		
Reconciliation to reported net interest income:						
Adjustments for taxable equivalent basis		(8,769)			(6,249)	
Net interest income, as reported		$ 1,562,933			$ 1,379,528	

(1) Includes average interest-earning deposits in other financial institutions of $0.9 billion for both the nine months ended September 30, 2019. The balance also includes $3.9 billion and $1.4 billion deposited at the FRB, earning interest at the Federal Funds target rate for the nine months ended September 30, 2019 and 2018, respectively.

(2) Yields on interest-earning investment securities do not give effect to changes in fair value that are reflected in other comprehensive income.

(3) Interest income on non-taxable available-for-sale securities is presented on a fully taxable-equivalent basis using the federal statutory tax rate of 21.0 percent for all periods presented.

(4) Nonaccrual loans are reflected in the average balances of loans.

(5) Interest income includes loan fees of $120.2 million and $100.8 million for the nine months ended September 30, 2019 and 2018, respectively.

(6) Average investment securities of $1.1 billion and $774 million for the nine months ended September 30, 2019 and 2018, respectively, were classified as other assets as they were noninterest-earning assets. These investments consisted primarily of non-marketable securities.

Provision for Credit Losses

The provision for credit losses is the combination of both the provision for loan losses and the provision for unfunded credit commitments. Our provision for loan losses is a function of our reserve methodology, which is used to determine an appropriate allowance for loan losses for the period. Our reserve methodology is based on our evaluation of the existing allowance for loan losses in relation to total gross loans using historical and other objective information, and on our qualitative assessment of the inherent and identified credit risk of the loan portfolio. Our provision for unfunded credit commitments is determined using a methodology that is similar to the methodology used for calculating the allowance for loan losses, adjusted for factors specific to binding commitments, including the probability of funding and exposure at funding. Our provision for credit losses equals our best estimate of probable credit losses that are inherent in the portfolios at the balance sheet date.

The following table summarizes our allowance for loan losses and the allowance for unfunded credit commitments for the three and nine months ended September 30, 2019 and 2018:

	Three months ended September 30,		Nine months ended September 30,	
(Dollars in thousands, except ratios)	**2019**	**2018**	**2019**	**2018**
Allowance for loan losses, beginning balance	$ 301,888	$ 286,709	$ 280,903	$ 255,024
Provision for loan losses	35,985	19,436	80,954	74,088
Gross loan charge-offs	(36,820)	(22,205)	(72,255)	(48,220)
Loan recoveries	3,888	2,164	15,133	5,878
Foreign currency translation adjustments	(531)	(391)	(325)	(1,057)
Allowance for loan losses, ending balance	$ 304,410	$ 285,713	$ 304,410	$ 285,713
Allowance for unfunded credit commitments, beginning balance	62,664	54,104	55,183	51,770
Provision for (reduction of) unfunded credit commitments	551	(2,262)	8,079	138
Foreign currency translation adjustments	(107)	(34)	(154)	(100)
Allowance for unfunded credit commitments, ending balance (1)	$ 63,108	$ 51,808	$ 63,108	$ 51,808
Ratios and other information:				
Provision for loan losses as a percentage of period-end total gross loans (annualized)	0.46%	0.28%	0.35%	0.36%
Gross loan charge-offs as a percentage of average total gross loans (annualized)	0.49	0.33	0.33	0.26
Net loan charge-offs as a percentage of average total gross loans (annualized)	0.44	0.30	0.26	0.22
Allowance for loan losses as a percentage of period-end total gross loans	0.97	1.03	0.97	1.03
Provision for credit losses	$ 36,536	$ 17,174	$ 89,033	$ 74,226
Period-end total gross loans	31,229,003	27,668,829	31,229,003	27,668,829
Average total gross loans	29,979,522	26,497,171	29,373,264	25,165,486

(1) The “allowance for unfunded credit commitments” is included as a component of “Other liabilities” on our consolidated balance sheets.

Three months ended September 30, 2019 and 2018

Our provision for credit losses was $36.5 million for the three months ended September 30, 2019, consisting of a provision for loan losses of $36.0 million and a provision for unfunded credit commitments of $0.5 million. Our provision for credit losses was $17.2 million for the three months ended September 30, 2018, consisting of a provision for loan losses of $19.4 million and a reduction of our allowance for unfunded credit commitments of $2.2 million.

The provision for loan losses of $36.0 million for the three months ended September 30, 2019 reflects an increase of $19.1 million for net new nonaccrual loans, $18.3 million for charge-offs not specifically reserved for and $15.2 million in additional reserves for period-end loan growth, partially offset by a decrease of $13.0 million for the qualitative component of our performing loans and $3.9 million of recoveries.

The provision for unfunded credit commitments of $0.5 million was driven primarily by the growth in unfunded credit commitments of $1.3 billion for three months ended September 30, 2019, offset by a decrease related to the continued shift in the mix of our unfunded credit facilities to our large, higher credit quality private equity/venture capital clients.

The provision for loan losses of $19.4 million for the three months ended September 30, 2018 reflects primarily an increase of $12.9 million in additional reserves for period-end loan growth, $9.2 million for charge-offs not specifically reserved for and $9.3 million in net new specific reserves for nonaccrual loans, partially offset by a decrease in the qualitative component of our performing loan reserves of $8.2 million reflective of the continued growth of larger, higher credit quality private equity/venture capital loans as a percentage of total gross loans.

The reduction of the allowance for unfunded credit commitments of $2.2 million for the three months ended September 30, 2018 was driven primarily by a decrease in reserves reflective primarily of the continued shift in the mix of our unfunded credit facilities consisting of large, higher credit quality private equity/venture capital loans.

Gross loan charge-offs were $36.8 million for the three months ended September 30, 2019, of which $18.3 million was not specifically reserved for in prior quarters. Gross loan charge-offs were primarily driven by a $9.4 million charge-off for one mid-stage life science/healthcare portfolio client and $7.6 million for one later-stage software client, both of which were previously included in our nonaccrual loan portfolio. The remaining charge-offs came primarily from our early-stage and mid-stage clients.

Gross loan charge-offs were $22.2 million for the three months ended September 30, 2018, of which $9.2 million was not specifically reserved for at June 30, 2018. Gross loan charge-offs included $12.7 million from our hardware loan portfolio and consisted primarily of $11.1 million for one early-stage client and $6.3 million from our software/internet loan portfolio primarily attributable to one mid-stage client.

Nine months ended September 30, 2019 and 2018

Our provision for credit losses was $89.0 million for the nine months ended September 30, 2019, consisting of a provision for loan losses of $81.0 million and a provision for unfunded credit commitments of $8.0 million. Our provision for credit losses was $74.2 million for the nine months ended September 30, 2018, consisting of a provision for loan losses of $74.1 million and a provision for unfunded credit commitments of $0.1 million.

The provision for loan losses of $81.0 million for the nine months ended September 30, 2019 was reflective primarily of $57.5 million in net new specific reserves for nonaccrual loans, $30.5 million for charge-offs not specifically reserved for in prior quarters and $22.4 million from period-end loan growth, partially offset by a decrease of $14.3 million for our performing loans and $15.1 million of recoveries.

The provision for unfunded credit commitments of $8.0 million for nine months ended September 30, 2019 was driven primarily by growth in unfunded credit commitments of $3.4 billion.

The provision for loan losses of $74.1 million for the nine months ended September 30, 2018 was reflective primarily of $39.4 million from period-end loan growth, $34.0 million in net new specific reserves for nonaccrual loans and $24.0 million for charge-offs not specifically reserved for in prior quarters, partially offset by a decrease in reserves of $20.7 million for our performing loans from certain reserve methodology enhancements made to our qualitative reserve for large loan exposure as a result of growth within our higher credit quality private equity/venture capital loan portfolio.

The provision for unfunded credit commitments of $0.1 million for the nine months ended September 30, 2018 was driven primarily by increased reserves of $4.5 million from growth in our unfunded credit commitment balances, offset by a decrease in reserves reflective of the methodology enhancements.

Gross loan charge-offs were $72.3 million for the nine months ended September 30, 2019, of which $30.5 million was not specifically reserved for in prior quarters. Gross loan charge-offs included $26.9 million from our life science/healthcare loan portfolio and $38.3 million from our software/internet loan portfolio. Gross loan charge-offs for our life science/healthcare portfolio were driven primarily by $22.5 million from one mid-stage client. Gross loan charge-offs for our software/internet loan portfolio were driven primarily by our early-stage clients.

Gross loan charge-offs were $48.2 million for the nine months ended September 30, 2018, of which $24.0 million was not specifically reserved for in prior quarters. Gross loan charge-offs included $26.4 million from our software/internet loan portfolio and $16.1 million from our hardware loan portfolio and consisted primarily of $24.4 million from early-stage clients, $8.7 million for one sponsor-led buyout loan, $4.8 million from one mid-stage client and $3.2 million from one late-stage client.

See “Consolidated Financial Condition—Credit Quality and Allowance for Loan Losses” below and Note 8—“Loans, Allowance for Loan Losses and Allowance for Unfunded Credit Commitments” of the “Notes to Interim Consolidated Financial Statements (unaudited)” under Part I, Item 1 of this report for further details on our allowance for loan losses.

Noninterest Income

For the three and nine months ended September 30, 2019, noninterest income was $294.0 million and $908.1 million, respectively, compared to $210.1 million and $558.3 million for the comparable 2018 periods. For the three and nine months ended September 30, 2019, non-GAAP noninterest income, net of noncontrolling interests was $279.4 million and $871.6 million,

respectively, compared to $203.4 million and $529.1 million for the comparable 2018 periods. For the three and nine months ended September 30, 2019, non-GAAP core fee income including investment banking revenue and commissions was $213.0 million and $651.6 million, respectively, compared to $131.7 million and $369.8 million for the comparable 2018 periods. For the three and nine months ended September 30, 2019, non-GAAP core fee income was $162.2 million and $473.8 million, respectively, compared to $131.7 million and $369.8 million for the comparable 2018 periods. (See reconciliations of non-GAAP measures used below under "Use of Non-GAAP Financial Measures".)

Use of Non-GAAP Financial Measures

To supplement our unaudited interim consolidated financial statements presented in accordance with GAAP, we use certain non-GAAP measures of financial performance (including, but not limited to, non-GAAP core fee income, non-GAAP core fee income including investment banking revenue and commissions, non-GAAP noninterest income, and non-GAAP net gains on investment securities). These supplemental performance measures may vary from, and may not be comparable to, similarly titled measures by other companies in our industry. Non-GAAP financial measures are not in accordance with, or an alternative for, GAAP. Generally, a non-GAAP financial measure is a numerical measure of a company's performance that either excludes or includes amounts that are not normally excluded or included in the most directly comparable measure calculated and presented in accordance with GAAP. A non-GAAP financial measure may also be a financial metric that is not required by GAAP or other applicable requirement.

We believe these non-GAAP financial measures, when taken together with the corresponding GAAP financial measures, provide meaningful supplemental information regarding our performance by excluding items that represent income attributable to investors other than us and our subsidiaries and certain other non-recurring items. Our management uses, and believes that investors benefit from referring to, these non-GAAP financial measures in assessing our operating results and when planning, forecasting and analyzing future periods. However, these non-GAAP financial measures should be considered in addition to, and not as a substitute for or preferable to, financial measures prepared in accordance with GAAP.

Included in net income is income and expense attributable to noncontrolling interests. We recognize, as part of our investment funds management business through SVB Capital and SVB Leerink, the entire income or loss from funds consolidated in accordance with ASC Topic 810 as discussed in Note 1 —"Basis of Presentation" of the "Notes to Interim Consolidated Financial Statements (unaudited)" under Part I, Item 1 of this report. We are required under GAAP to consolidate 100% of the results of these entities, even though we may own less than 100% of such entities. The relevant amounts attributable to investors other than us are reflected under "Net Income Attributable to Noncontrolling Interests" on our statements of income. Where applicable, the tables below for noninterest income and net gains on investment securities exclude noncontrolling interests.

Core fee income is a non-GAAP financial measure, which represents GAAP noninterest income, but excludes certain line items where performance is typically subject to market or other conditions beyond our control, primarily our net gains (losses) on investment securities and equity warrant assets. Core fee income includes client investment fees, foreign exchange fees, credit card fees, deposit service charges, lending related fees and letters of credit and letters of credit fees.

Core fee income including investment banking revenue and commissions is a non-GAAP measure, which represents GAAP noninterest income, but excludes certain line items where performance is typically subject to market or other conditions beyond our control.

The following table provides a reconciliation of GAAP noninterest income to non-GAAP noninterest income, net of noncontrolling interests, for the three and nine months ended September 30, 2019 and 2018:

	Three months ended September 30,			Nine months ended September 30,		
(Dollars in thousands)	**2019**	**2018**	**% Change**	**2019**	**2018**	**% Change**
GAAP noninterest income	$ 294,009	$ 210,070	40.0%	$ 908,135	$ 558,277	62.7%
Less: income attributable to noncontrolling interests, including carried interest allocation	14,568	6,692	117.7	36,552	29,161	25.3
Non-GAAP noninterest income, net of noncontrolling interests	$ 279,441	$ 203,378	37.4	$ 871,583	$ 529,116	64.7

The following table provides a reconciliation of GAAP noninterest income to non-GAAP core fee income for the three and nine months ended September 30, 2019 and 2018:

	Three months ended September 30,			Nine months ended September 30,		
(Dollars in thousands)	2019	2018	% Change	2019	2018	% Change
GAAP noninterest income	$ 294,009	$ 210,070	40.0 %	$ 908,135	$ 558,277	62.7%
Less: gains on investment securities, net	29,849	32,193	(7.3)	106,575	77,365	37.8
Less: gains on equity warrant assets, net	37,561	34,141	10.0	107,213	72,393	48.1
Less: other noninterest income	13,631	12,022	13.4	42,773	38,671	10.6
Non-GAAP core fee income including investment banking revenue and commissions (1)	$ 212,968	$ 131,714	61.7	$ 651,574	$ 369,848	76.2
Less: investment banking revenue	38,516	—	—	137,005	—	—
Less: commissions	12,275	—	—	40,812	—	—
Non-GAAP core fee income (2)	$ 162,177	$ 131,714	23.1	$ 473,757	$ 369,848	28.1

(1) Non-GAAP core fee income including investment banking revenue and commissions represents noninterest income, but excludes certain line items where performance is typically subject to market or other conditions beyond our control.

(2) Non-GAAP core fee income represents noninterest income, but excludes certain line items where performance is typically subject to market or other conditions beyond our control, as well as our investment banking revenue and commissions, and includes client investment fees, foreign exchange fees, credit card fees, deposit service charges, lending related fees and letters of credit and standby letters of credit fees.

Gains on Investment Securities, Net

Net gains on investment securities include gains and losses from our non-marketable and other equity securities, which include public equity securities held as a result of exercised equity warrant assets, as well as gains and losses from sales of our AFS debt securities portfolio, when applicable.

Our non-marketable and other equity securities portfolio primarily represents investments in venture capital and private equity funds, SPD Silicon Valley Bank Co., Ltd. (the Bank's joint venture bank in China ("SPD-SVB")), debt funds, private and public portfolio companies and qualified affordable housing projects. We experience variability in the performance of our non-marketable and other equity securities from period to period, which results in net gains or losses on investment securities (both realized and unrealized). This variability is due to a number of factors, including unrealized changes in the values of our investments, changes in the amount of realized gains and losses from distributions, changes in liquidity events and general economic and market conditions. Unrealized gains or losses from non-marketable and other equity securities for any single period are typically driven by valuation changes, and are therefore subject to potential increases or decreases in future periods. Such variability may lead to volatility in the gains or losses from investment securities. As such, our results for a particular period are not necessarily indicative of our expected performance in a future period.

The extent to which any unrealized gains or losses will become realized is subject to a variety of factors, including, among other things, the expiration of certain sales restrictions to which these equity securities may be subject to (e.g. lock-up agreements), changes in prevailing market prices, market conditions, the actual sales or distributions of securities, and the timing of such actual sales or distributions, which, to the extent such securities are managed by our managed funds, are subject to our funds' separate discretionary sales/distributions and governance processes.

Our AFS securities portfolio is a fixed income investment portfolio that is managed with the objective of earning an appropriate portfolio yield over the long-term while maintaining sufficient liquidity and credit diversification as well as addressing our asset/liability management objectives. Though infrequent, sales of debt securities in our AFS securities portfolio may result in net gains or losses and are conducted pursuant to the guidelines of our investment policy related to the management of our liquidity position and interest rate risk.

Three months ended September 30, 2019 and 2018

For the three months ended September 30, 2019, we had net gains on investment securities of $29.8 million, compared to $32.2 million for the comparable 2018 period. Non-GAAP net gains on investment securities, net of noncontrolling interests, were $15.2 million for the three months ended September 30, 2019, compared to non-GAAP net gains, net of controlling interest of $25.6 million for the comparable 2018 period.

Non-GAAP net gains on investment securities, net of noncontrolling interests, of $15.2 million for the three months ended September 30, 2019 were driven by the following:

- Gains of $12.5 million from our managed funds of funds portfolio, related primarily to net unrealized valuation increases in private and public company investments held by the funds in the portfolio,
- Gains of $8.0 million from our strategic and other investments, comprised primarily of net unrealized valuation increases in private companies held in our strategic venture capital funds, and
- Gains of $5.5 million from our managed direct venture funds, related primarily to net unrealized valuation increases in investments held by the funds in the portfolio, partially offset by
- Losses of $11.5 million from our public equity securities investments, primarily driven by unrealized losses due to a decline in value of our public equity securities held.

Nine months ended September 30, 2019 and 2018

For the nine months ended September 30, 2019, we had net gains on investment securities of $106.6 million, compared to $77.4 million for the comparable 2018 period. Non-GAAP net gains on investment securities, net of noncontrolling interests, were $69.9 million for the nine months ended September 30, 2019, compared to $48.1 million for the comparable 2018 period.

Non-GAAP net gains, net of noncontrolling interests, of $69.9 million for the nine months ended September 30, 2019 were driven primarily by the following:

- Gains of $30.5 million from our managed funds of funds portfolio, related primarily to net unrealized valuation increases in private and public company investments held by the funds in the portfolio,
- Gains of $30.3 million from our strategic and other investments portfolio, comprised primarily of net unrealized valuation increases in private and public companies held in our strategic venture capital funds and a realized gain for one company in our direct equity portfolio due to M&A activity,
- Gains of $7.6 million from our managed direct venture funds, related primarily to net unrealized valuation increases in investments held by the funds in the portfolio, and
- Gains of $5.2 million from our strategic and other investments, comprised primarily of net unrealized valuation increases in private companies held in our strategic venture capital funds.

The following tables provide a reconciliation of GAAP total gains (losses) on investment securities, net, to non-GAAP net gains (losses) on investment securities, net of noncontrolling interests, for the three and nine months ended September 30, 2019 and 2018:

(Dollars in thousands)	Managed Funds of Funds	Managed Direct Venture Funds	Public Equity Securities	Debt Funds	Sales of AFS Securities	Strategic and Other Investments	SVB Leerink	Total
Three months ended September 30, 2019								
Total gains (losses) on investment securities, net	$ 22,223	$ 9,668	$ (11,488)	$ 187	$ —	$ 8,035	$ 1,224	$ 29,849
Less: income attributable to noncontrolling interests, including carried interest allocation	9,676	4,138	—	—	—	—	826	14,640
Non-GAAP net gains (losses) on investment securities, net of noncontrolling interests	$ 12,547	$ 5,530	$ (11,488)	$ 187	$ —	$ 8,035	$ 398	$ 15,209
Three months ended September 30, 2018								
Total gains on investment securities, net	$ 12,949	$ 1,863	$ 4,372	$ 1,473	$ —	$ 11,536	$ —	$ 32,193
Less: income attributable to noncontrolling interests, including carried interest allocation	5,914	727	—	—	—	—	—	$ 6,641
Non-GAAP net gains on investment securities, net of noncontrolling interests	$ 7,035	$ 1,136	$ 4,372	$ 1,473	$ —	$ 11,536	$ —	$ 25,552
Nine months ended September 30, 2019								
Total gains (losses) on investment securities, net	$ 60,787	$ 13,135	$ (1,408)	$ 1,529	$ (3,905)	$ 30,348	$ 6,089	$ 106,575
Less: income attributable to noncontrolling interests, including carried interest allocation	30,273	5,540	—	—	—	—	861	36,674
Non-GAAP net gains (losses) on investment securities, net of noncontrolling interests	$ 30,514	$ 7,595	$ (1,408)	$ 1,529	$ (3,905)	$ 30,348	$ 5,228	$ 69,901
Nine months ended September 30, 2018								
Total gains (losses) on investment securities, net	$ 49,553	$ 3,377	$ (17,770)	$ (100)	$ —	$ 42,305	$ —	$ 77,365
Less: income attributable to noncontrolling interests, including carried interest allocation	27,904	1,314	—	—	—	—	—	29,218
Non-GAAP net gains (losses) on investment securities, net of noncontrolling interests	$ 21,649	$ 2,063	$ (17,770)	$ (100)	$ —	$ 42,305	$ —	$ 48,147

Gains on Equity Warrant Assets, Net

Three months ended September 30, 2019 and 2018

Net gains on equity warrant assets were $37.6 million for the three months ended September 30, 2019, compared to net gains of $34.1 million for the comparable 2018 period. Net gains on equity warrant assets for the three months ended September 30, 2019 consisted of:

- Net gains of $30.0 million from the exercise of equity warrant assets compared to net gains of $18.3 million, primarily driven by healthy gains from IPO activity, and
- Net gains of $8.0 million from increases in warrant valuations compared to net gains of $17.3 million, driven by valuation increases in our private company warrant portfolio driven by healthy funding rounds during the three months ended September 30, 2019.

Nine months ended September 30, 2019 and 2018

Net gains on equity warrant assets were $107.2 million for the nine months ended September 30, 2019, compared to net gains of $72.4 million for the comparable 2018 period. Net gains on equity warrant assets for the nine months ended September 30, 2019 consisted of:

- Net gains of $90.4 million from the exercise of equity warrant assets compared to net gains of $42.8 million, reflective primarily of increased IPO activity during the nine months ended September 30, 2019, and
- Net gains of $19.8 million from changes in warrant valuation increases compared to net gains of $32.7 million, driven by valuation increases in our private company warrant portfolio during the nine months ended September 30, 2019.

A summary of gains on equity warrant assets, net, for the three and nine months ended September 30, 2019 and 2018 is as follows:

	Three months ended September 30,			Nine months ended September 30,		
(Dollars in thousands)	**2019**	**2018**	**% Change**	**2019**	**2018**	**% Change**
Equity warrant assets (1):						
Gains on exercises, net	$ 30,047	$ 18,287	64.3 %	$ 90,357	$ 42,808	111.1 %
Terminations	(481)	(1,432)	(66.4)	(2,931)	(3,158)	(7.2)
Changes in fair value, net	7,995	17,286	(53.7)	19,787	32,743	(39.6)
Total gains on equity warrant assets, net	$ 37,561	$ 34,141	10.0	$ 107,213	$ 72,393	48.1

(1) At September 30, 2019, we held warrants in 2,227 companies, compared to 2,031 companies at September 30, 2018. The total fair value of our warrant portfolio was $149.1 million at September 30, 2019 and $147.0 million at September 30, 2018. Warrants in 15 companies each had fair values greater than $1.0 million and collectively represented $43.7 million, or 29.3 percent, of the fair value of the total warrant portfolio at September 30, 2019. Warrants in 18 companies each had fair values greater than $1.0 million and collectively represented $42.8 million, or 29.1 percent, of the fair value of the total warrant portfolio at September 30, 2018.

Non-GAAP Core Fee Income

(Dollars in thousands)	Three months ended September 30, 2019	2018	% Change	Nine months ended September 30, 2019	2018	% Change
Non-GAAP core fee income (1):						
Client investment fees	$ 46,679	$ 36,265	28.7%	$ 136,905	$ 88,592	54.5%
Foreign exchange fees	40,309	32,656	23.4	116,863	100,560	16.2
Credit card fees	30,158	24,121	25.0	86,431	68,739	25.7
Deposit service charges	22,482	19,588	14.8	65,496	56,081	16.8
Lending related fees	11,707	10,675	9.7	36,857	30,938	19.1
Letters of credit and standby letters of credit fees	10,842	8,409	28.9	31,205	24,938	25.1
Total non-GAAP core fee income (1)	$ 162,177	$ 131,714	23.1	$ 473,757	$ 369,848	28.1
Investment banking revenue	38,516	—	—	137,005	—	—
Commissions	12,275	—	—	40,812	—	—
Total non-GAAP core fee income including investment banking revenue and commissions (2)	$ 212,968	$ 131,714	61.7	$ 651,574	$ 369,848	76.2

(1) This non-GAAP measure represents noninterest income, but excludes certain line items where performance is typically subject to market or other conditions beyond our control. See “Use of Non-GAAP Measures” above.

(2) This non-GAAP measure represents noninterest income, but excludes certain line items where performance is typically subject to market or other conditions beyond our control, as well as investment banking revenue and commissions. See “Use of Non-GAAP Measures” above.

Client Investment Fees

Client investment fees were $46.7 million and $136.9 million for the three and nine months ended September 30, 2019, compared to $36.3 million and $88.6 million for the comparable 2018 periods. The increases were reflective of the large increases in average client investment funds driven by our clients’ increased utilization of our off-balance sheet sweep money market funds and products managed by SVB Asset Management. Client investment fees also benefited from improved spreads on our client investment funds due to increases in general market rates since the third quarter ended September 30, 2018. A summary of client investment fees by instrument type for the three and nine months ended September 30, 2019 and 2018 is as follows:

(Dollars in thousands)	Three months ended September 30, 2019	2018	% Change	Nine months ended September 30, 2019	2018	% Change
Client investment fees by type:						
Sweep money market fees	$ 26,202	$ 21,105	24.2%	$ 79,698	$ 50,605	57.5%
Asset management fees	7,256	6,358	14.1	20,883	17,447	19.7
Repurchase agreement fees	13,221	8,802	50.2	36,324	20,540	76.8
Total client investment fees	$ 46,679	$ 36,265	28.7	$ 136,905	$ 88,592	54.5

The following table summarizes average client investment funds for the three and nine months ended September 30, 2019 and 2018:

(Dollars in millions)	Three months ended September 30, 2019	2018	% Change	Nine months ended September 30, 2019	2018	% Change
Sweep money market funds	$ 40,321	$ 34,556	16.7%	$ 40,048	$ 30,284	32.2%
Client investment assets under management (1)	42,834	36,541	17.2	40,969	33,561	22.1
Repurchase agreements	9,670	8,464	14.2	8,947	7,905	13.2
Total average client investment funds (2)	$ 92,825	$ 79,561	16.7	$ 89,964	$ 71,750	25.4

(1) These funds represent investments in third-party money market mutual funds and fixed-income securities managed by SVB Asset Management.

(2) Client investment funds are maintained at third-party financial institutions and are not recorded on our balance sheet.

The following table summarizes period-end client investment funds at September 30, 2019 and December 31, 2018:

(Dollars in millions)	September 30, 2019	December 31, 2018	% Change
Sweep money market funds	$ 42,022	$ 38,348	9.6%
Client investment assets under management (1)	44,886	39,214	14.5
Repurchase agreements	9,564	8,422	13.6
Total period-end client investment funds (2)	$ 96,472	$ 85,984	12.2

(1) These funds represent investments in third-party money market mutual funds and fixed-income securities managed by SVB Asset Management.
(2) Client investment funds are maintained at third-party financial institutions and are not recorded on our balance sheet.

Foreign Exchange Fees

Foreign exchange fees were $40.3 million and $116.9 million for the three and nine months ended September 30, 2019, respectively, compared to $32.7 million and $100.6 million for the comparable 2018 periods. The increase in foreign exchange fees was driven primarily by increases in spot contract commissions driven by increased volume of trades for the three and nine months ended September 30, 2019 compared to the 2018 periods. The volume of trades for spot contracts increased 16.0 and 21.6 percent for the three and nine months ended September 30, 2019, respectively, compared to the comparable 2018 periods reflective primarily of our global expansion initiative and increased client engagement efforts. A summary of foreign exchange fee income by instrument type for the three and nine months ended September 30, 2019 and 2018 is as follows:

	Three months ended September 30,			Nine months ended September 30,		
(Dollars in thousands)	2019	2018	% Change	2019	2018	% Change
Foreign exchange fees by instrument type:						
Spot contract commissions	$ 36,836	$ 30,041	22.6%	$ 106,561	$ 92,791	14.8 %
Forward contract commissions	3,371	2,534	33.0	10,144	7,474	35.7
Option premium fees	102	81	25.9	158	295	(46.4)
Total foreign exchange fees	$ 40,309	$ 32,656	23.4	$ 116,863	$ 100,560	16.2

Credit Card Fees

Credit card fees were $30.2 million and $86.4 million for the three and nine months ended September 30, 2019, respectively, compared to $24.1 million and $68.7 million for the comparable 2018 periods. The increases were primarily due to an increase in net interchange fees for the three and nine months ended September 30, 2019. A summary of credit card fees by instrument type for the three and nine months ended September 30, 2019 and 2018 is as follows:

	Three months ended September 30,			Nine months ended September 30,		
(Dollars in thousands)	2019	2018	% Change	2019	2018	% Change
Credit card fees by instrument type:						
Card interchange fees, net	$ 24,560	$ 18,849	30.3%	$ 68,808	$ 54,547	26.1%
Merchant service fees	3,943	3,679	7.2	12,763	10,010	27.5
Card service fees	1,655	1,593	3.9	4,860	4,182	16.2
Total credit card fees	$ 30,158	$ 24,121	25.0	$ 86,431	$ 68,739	25.7

Deposit Service Charges

Deposit service charges were $22.5 million and $65.5 million for the three and nine months ended September 30, 2019, respectively, compared to $19.6 million and $56.1 million for the comparable 2018 periods. The increases were reflective of higher deposit client counts as well as higher volumes of our transaction-based fee products during the three and nine months ended September 30, 2019.

Lending Related Fees

Lending related fees were $11.7 million and $36.9 million for the three and nine months ended September 30, 2019, respectively, compared to $10.7 million and $30.9 million for the comparable 2018 periods. The increases were due to an increase in loan servicing fees and syndication fee income for the three and nine months ended September 30, 2019. A summary of lending

related fees by type for the three and nine months ended September 30, 2019 and 2018 is as follows:

	Three months ended September 30,			Nine months ended September 30,		
(Dollars in thousands)	2019	2018	% Change	2019	2018	% Change
Lending related fees by instrument type:						
Unused commitment fees	$ 8,339	$ 8,410	(0.8)%	$ 25,060	$ 24,994	0.3%
Other	3,368	2,265	48.7	11,797	5,944	98.5
Total lending related fees	$ 11,707	$ 10,675	9.7	$ 36,857	$ 30,938	19.1

Letters of Credit and Standby Letters of Credit Fees

Letters of credit and standby letters of credit fees were $10.8 million and $31.2 million for the three and nine months ended September 30, 2019, respectively, compared to $8.4 million and $24.9 million for the comparable 2018 periods. The increases were primarily driven by increases in deferred fee income reflective of larger letter of credit issuances.

Investment Banking Revenue

Investment banking revenue was $38.5 million and $137.0 million for the three and nine months ended September 30, 2019, respectively, consisting primarily of underwriting fees. A summary of investment banking revenue by type for the three and nine months ended September 30, 2019 and 2018 is as follows:

	Three months ended September 30,			Nine months ended September 30,		
(Dollars in thousands)	2019	2018	% Change	2019	2018	% Change
Investment banking revenue:						
Underwriting fees	$ 31,016	$ —	—	$ 109,371	$ —	—
Advisory fees	5,200	—	—	22,789	—	—
Private placements and other	2,300	—	—	4,845	—	—
Total investment banking revenue	$ 38,516	$ —	—	$ 137,005	$ —	—

Commissions

Commissions for the three and nine months ended September 30, 2019 were $12.3 million and $40.8 million, respectively, which were driven by client trading activity, consistent with market volumes.

Other Noninterest Income

Total other noninterest income was $13.6 million and $42.8 million for the three and nine months ended September 30, 2019, respectively, compared to $12.0 million and $38.7 million for the comparable 2018 periods. The increases were due primarily to an increase in fund management fees due to the inclusion of SVB Leerink in our financial results as of January 4, 2019. A summary of other noninterest income for the three and nine months ended September 30, 2019 and 2018 is as follows:

	Three months ended September 30,			Nine months ended September 30,		
(Dollars in thousands)	2019	2018	% Change	2019	2018	% Change
Other noninterest income by instrument type:						
Fund management fees	$ 8,493	$ 5,479	55.0 %	$ 24,292	$ 17,144	41.7 %
Net (losses) gains on revaluation of foreign currency instruments, net of foreign exchange forward contracts (1)	(78)	796	(109.8)	173	985	(82.4)
Other service revenue (2)	5,216	5,747	(9.2)	18,308	20,542	(10.9)
Total other noninterest income	$ 13,631	$ 12,022	13.4	$ 42,773	$ 38,671	10.6

(1) Represents the net revaluation of client and internal foreign currency denominated financial instruments. We enter into foreign exchange forward contracts to economically reduce our foreign exchange exposure related to client and internal foreign currency denominated financial instruments.
(2) Includes dividends on FHLB/FRB stock, correspondent bank rebate income, incentive fees related to carried interest, valuation fee income and other fee income.

Noninterest Expense

A summary of noninterest expense for the three and nine months ended September 30, 2019 and 2018 is as follows:

	Three months ended September 30,			Nine months ended September 30,		
(Dollars in thousands)	**2019**	**2018**	**% Change**	**2019**	**2018**	**% Change**
Compensation and benefits	$ 233,840	$ 195,437	19.6 %	$ 715,073	$ 543,198	31.6 %
Professional services	55,202	36,542	51.1	133,018	112,080	18.7
Premises and equipment	26,775	19,858	34.8	72,386	57,576	25.7
Net occupancy	16,981	13,694	24.0	49,716	40,598	22.5
Business development and travel	19,539	12,712	53.7	51,915	35,998	44.2
FDIC and state assessments	4,881	9,550	(48.9)	13,343	29,306	(54.5)
Other	34,106	21,652	57.5	105,059	61,845	69.9
Total noninterest expense	$ 391,324	$ 309,445	26.5	$ 1,140,510	$ 880,601	29.5

Included in noninterest expense is expense attributable to noncontrolling interests. See below for a description and reconciliation of non-GAAP noninterest expense and non-GAAP core operating efficiency ratio, both of which exclude noncontrolling interests.

Non-GAAP Noninterest Expense

We use and report non-GAAP noninterest expense, non-GAAP taxable equivalent revenue and non-GAAP core operating efficiency ratio, which excludes noncontrolling interests and SVB Leerink. We believe these non-GAAP financial measures, when taken together with the corresponding GAAP financial measures, provide meaningful supplemental information regarding our performance by: (i) excluding certain items that represent expenses attributable to investors other than us and our subsidiaries, or certain items that do not occur every reporting period; or (ii) providing additional information used by management that is not otherwise required by GAAP or other applicable requirements. Our management uses, and believes that investors benefit from referring to, these non-GAAP financial measures in assessing our operating results and when planning, forecasting and analyzing future periods. However, these non-GAAP financial measures should be considered in addition to, not as a substitute for or preferable to, financial measures prepared in accordance with GAAP.

The table below provides a summary of non-GAAP noninterest expense and non-GAAP core operating efficiency ratio for the three and nine months ended September 30, 2019 and 2018:

Non-GAAP core operating efficiency ratio (Dollars in thousands, except ratios)	Three months ended September 30,			Nine months ended September 30,		
	2019	2018	% Change	2019	2018	% Change
GAAP noninterest expense	$ 391,324	$ 309,445	26.5 %	$ 1,140,510	$ 880,601	29.5 %
Less: expense attributable to noncontrolling interests	145	154	(5.8)	692	349	98.3
Non-GAAP noninterest expense, net of noncontrolling interests	391,179	309,291	26.5	1,139,818	880,252	29.5
Less: expense attributable to SVB Leerink	55,200	—	—	177,675	—	—
Non-GAAP noninterest expense, net of noncontrolling interests and SVB Leerink	$ 335,979	$ 309,291	8.6	$ 962,143	$ 880,252	9.3
GAAP net interest income	$ 520,644	$ 493,222	5.6	$ 1,562,933	$ 1,379,528	13.3
Adjustments for taxable equivalent basis	2,957	2,858	3.5	8,769	6,249	40.3
Non-GAAP taxable equivalent net interest income	523,601	496,080	5.5	1,571,702	1,385,777	13.4
Less: income attributable to noncontrolling interests	14	10	40.0	41	29	41.4
Non-GAAP taxable equivalent net interest income, net of noncontrolling interests	523,587	496,070	5.5	1,571,661	1,385,748	13.4
Less: net interest income attributable to SVB Leerink	277	—	—	961	—	—
Non-GAAP taxable equivalent net interest income, net of noncontrolling interests and SVB Leerink	$ 523,310	$ 496,070	5.5	$ 1,570,700	$ 1,385,748	13.3
GAAP noninterest income	$ 294,009	$ 210,070	40.0	$ 908,135	$ 558,277	62.7
Less: income attributable to noncontrolling interests, including carried interest allocation	14,568	6,692	117.7	36,552	29,161	25.3
Non-GAAP noninterest income, net of noncontrolling interests	279,441	203,378	37.4	871,583	529,116	64.7
Less: non-GAAP net gains on investment securities, net of noncontrolling interests	15,209	25,552	(40.5)	69,901	48,147	45.2
Less: net gains on equity warrant assets	37,561	34,141	10.0	107,213	72,393	48.1
Less: investment banking revenue	38,516	—	—	137,005	—	—
Less: commissions	12,275	—	—	40,812	—	—
Non-GAAP noninterest income, net of noncontrolling interests and net of net gains on investment securities, net gains on equity warrant assets, investment banking revenue and commissions	$ 175,880	$ 143,685	22.4	$ 516,652	$ 408,576	26.5
GAAP total revenue	$ 814,653	$ 703,292	15.8	$ 2,471,068	$ 1,937,805	27.5
Non-GAAP taxable equivalent revenue, net of noncontrolling interests and SVB Leerink, net gains on investment securities, net gains on equity warrant assets, investment banking revenue and commissions	$ 699,190	$ 639,755	9.3	$ 2,087,352	$ 1,794,324	16.3
GAAP operating efficiency ratio	48.04%	44.00%	9.2	46.15%	45.44%	1.6
Non-GAAP core operating efficiency ratio (1)	48.05	48.35	(0.6)	46.09	49.06	(6.1)

(1) The non-GAAP core operating efficiency ratio is calculated by dividing noninterest expense after adjusting for noninterest expense attributable to SVB Leerink by total revenue after adjusting for net interest income attributable to SVB Leerink, net gains or losses on investment securities and equity warrant assets, investment banking revenue and commissions. Additionally, noninterest expense and total revenue are adjusted for income or losses and expenses attributable to noncontrolling interests and adjustments to net interest income for a taxable equivalent basis.

Compensation and Benefits Expense

The following table provides a summary of our compensation and benefits expense for the three and nine months ended September 30, 2019 and 2018:

	Three months ended September 30,			Nine months ended September 30,		
(Dollars in thousands, except employees)	**2019**	**2018**	**% Change**	**2019**	**2018**	**% Change**
Compensation and benefits:						
Salaries and wages	$ 109,473	$ 84,962	28.8%	$ 316,472	$ 234,832	34.8%
Incentive compensation & ESOP	60,486	57,375	5.4	203,614	155,390	31.0
Other employee incentives and benefits (1)	63,881	53,100	20.3	194,987	152,976	27.5
Total compensation and benefits	$ 233,840	$ 195,437	19.6	$ 715,073	$ 543,198	31.6
Period-end full-time equivalent employees	3,460	2,836	22.0	3,460	2,836	22.0
Average full-time equivalent employees	3,413	2,778	22.9	3,309	2,623	26.2

(1) Other employee incentives and benefits includes employer payroll taxes, group health and life insurance, share-based compensation, 401(k), warrant and retention plans, agency fees and other employee-related expenses.

Compensation and benefits expense was $233.8 million for the three months ended September 30, 2019, compared to $195.4 million for the comparable 2018 period. The key changes in factors affecting compensation and benefits expense were as follows:

- An increase of $24.5 million in salaries and wages reflective primarily due to the increase in the number of average FTE by 635 to 3,413 for the third quarter of 2019, of which 229 FTE were attributable to the acquisition of SVB Leerink compared to the same period in 2018, as well as annual pay raises,
- An increase of $3.1 million in incentive compensation and ESOP expense reflective primarily of the inclusion of SVB Leerink in our financial results for the third quarter of 2019, partially offset by a decrease in our incentive accruals as a result of our 2019 full-year projected financial performance, and
- An increase of $10.8 million in other employee incentives and benefits primarily driven by an increase of $7.3 million in share-based compensation expense due to the increased restricted stock awards granted during 2019, a $2.3 million increase in retention compensation primarily due to an increase in the number of average FTE and other miscellaneous employee expenses related to the increase in average FTE as noted above.

Compensation and benefits expense was $715.1 million for the nine months ended September 30, 2019, compared to $543.2 million for the comparable 2018 period. The key changes in factors affecting compensation and benefits expense were as follows:

- An increase of $81.6 million in salaries and wages reflective primarily due to the increase in the number of average FTE by 686 to 3,309 for the nine months ended September 30, 2019, of which 230 FTE were attributable to the acquisition of SVB Leerink compared to the same period in 2018, as well as annual pay raises,
- An increase of $48.2 million in incentive compensation and ESOP expense reflective primarily of the inclusion of SVB Leerink in our financial results for the nine months ended September 30, 2019, and
- An increase of $42.0 million in other employee incentives and benefits primarily driven by an increase of $16.6 million in share-based compensation expense due to the increased restricted stock awards granted during 2019, $4.2 million for increased warrant compensation expense due to gains on equity warrant assets, $5.9 million increase in retention compensation primarily due to an increase in the number of average FTE and other miscellaneous employee expenses related to the increase in average FTE as noted above.

Our variable compensation plans consist primarily of our Incentive Compensation Plan, Direct Drive Incentive Compensation Plan, 401(k) and ESOP Plan, Retention Program and Warrant Incentive Plan (see descriptions in our 2018 Form 10-K). Total costs incurred under these plans were $72.1 million and $244.1 million for the three and nine months ended September 30, 2019, respectively, compared to $67.3 million and $182.2 million for the comparable 2018 periods. These amounts are included in total compensation and benefits expense discussed above.

Professional Services

Professional services expense was $55.2 million and $133.0 million for the three and nine months ended September 30, 2019, respectively, compared to $36.5 million and $112.1 million for the comparable 2018 periods. The increase for the three months ended September 30, 2019 was primarily related to increased consulting fees during the third quarter of 2019 associated with increased project spend to support our global digital banking, and continued global infrastructure, initiatives. The increase for the nine months ended September 30, 2019 was primarily due to the increase in legal and consulting costs related to the acquisition of SVB Leerink as well as the increased project spend as discussed above.

Premises and Equipment

Premises and equipment expense was $26.8 million and $72.4 million for the three and nine months ended September 30, 2019, respectively, compared to $19.9 million and $57.6 million for the comparable 2018 periods. The increases related to investments in projects, systems and technology to support our revenue growth and related initiatives as well as other operating costs.

Net Occupancy

Net occupancy expense was $17.0 million and $49.7 million for the three and nine months ended September 30, 2019, respectively, compared to $13.7 million and $40.6 million for the comparable 2018 periods. The increases were primarily due to lease renewals at higher costs, reflective of market conditions, and the expansion of certain offices to support our growth. Additionally, for the three and nine months ended September 30, 2019, $1.9 million and $5.6 million, respectively, were directly attributable to the inclusion of SVB Leerink in our financial results effective January 4, 2019.

FDIC and State Assessments

FDIC and state assessments expense was $4.9 million and $13.3 million for the three and nine months ended September 30, 2019, respectively, compared to $9.6 million and $29.3 million for the comparable 2018 periods. The decreases were primarily due to the elimination of the FDIC surcharge for banks effective October 1, 2018, reflective of the deposit insurance fund reserve ratio reaching its minimum funding requirements.

Business Development and Travel

Business development and travel expense was $19.5 million and $51.9 million for the three and nine months ended September 30, 2019, respectively, compared to $12.7 million and $36.0 million for the comparable 2018 periods. The increases were to support expansion initiatives as we continue to grow both domestically and globally.

Other Noninterest Expense

Total other noninterest expense was $34.1 million and $105.1 million for the three and nine months ended September 30, 2019, respectively, compared to $21.7 million and $61.8 million for the comparable 2018 periods. The increases were driven primarily by ongoing expenses related to the consolidation of SVB Leerink, specifically, $7.3 million and $26.5 million of the overall increases for the three and nine months ended September 30, 2019, respectively, were related to expenses for investment banking and trade order execution costs as well as amortization of intangible assets recorded as part of the acquisition.

A summary of other noninterest expense for the three and nine months ended September 30, 2019 and 2018 is as follows:

	Three months ended September 30,			Nine months ended September 30,		
(Dollars in thousands)	2019	2018	% Change	2019	2018	% Change
Lending and other client related processing costs	$ 7,502	$ 5,698	31.7 %	$ 21,442	$ 16,301	31.5%
Correspondent bank fees	3,657	3,513	4.1	10,970	10,200	7.5
Investment banking activities	1,864	—	—	9,918	—	—
Trade order execution costs	2,615	—	—	7,959	—	—
Data processing services	3,066	2,740	11.9	8,624	7,934	8.7
Telephone	2,466	2,269	8.7	7,629	7,025	8.6
Dues and publications	1,055	1,387	(23.9)	3,439	3,081	11.6
Postage and supplies	720	652	10.4	2,168	2,133	1.6
Other	11,161	5,393	107.0	32,910	15,171	116.9
Total other noninterest expense	$ 34,106	$ 21,652	57.5	$ 105,059	$ 61,845	69.9

Net Income Attributable to Noncontrolling Interests

Included in net income is income and expense attributable to noncontrolling interests. The relevant amounts allocated to investors in our consolidated subsidiaries, other than us, are reflected under "net income attributable to noncontrolling interests" on our statements of income.

In the table below, noninterest income consists primarily of net investment gains and losses from our consolidated funds. Noninterest expense is primarily related to management fees paid by our managed funds to SVB Financial's subsidiaries as the managed funds' general partners. A summary of net income attributable to noncontrolling interests for the three and nine months ended September 30, 2019 and 2018 is as follows:

	Three months ended September 30,			Nine months ended September 30,		
(Dollars in thousands)	2019	2018	% Change	2019	2018	% Change
Net interest income (1)	$ (14)	$ (10)	40.0 %	$ (41)	$ (29)	41.4 %
Noninterest income (1)	(4,910)	(2,749)	78.6	(19,586)	(20,127)	(2.7)
Noninterest expense (1)	145	154	(5.8)	692	349	98.3
Carried interest allocation (2)	(9,658)	(3,943)	144.9	(16,966)	(9,034)	87.8
Net income attributable to noncontrolling interests	$ (14,437)	$ (6,548)	120.5	$ (35,901)	$ (28,841)	24.5

(1) Represents noncontrolling interests' share in net interest income, noninterest income or loss and noninterest expense.
(2) Represents the preferred allocation of income (or change in income) earned by us as the general partner of certain consolidated funds.

Three months ended September 30, 2019 and 2018

Net income attributable to noncontrolling interests was $14.4 million for the three months ended September 30, 2019, compared to $6.5 million for the comparable 2018 period. Net income attributable to noncontrolling interests of $14.4 million for the three months ended September 30, 2019 was primarily a result of net gains on investment securities (including carried interest allocation) from our managed funds of funds and our managed direct venture fund portfolios, related primarily to net unrealized valuation increases for private and public company investments held by the funds in the portfolio. See "Results of Operations—Noninterest Income—Gains on Investment Securities, Net".

Nine months ended September 30, 2019 and 2018

Net income attributable to noncontrolling interests was $35.9 million for the nine months ended September 30, 2019, compared to $28.8 million for the comparable 2018 period. Net income attributable to noncontrolling interests of $35.9 million for the nine months ended September 30, 2019 was primarily a result of net gains on investment securities (including carried interest allocation) from our managed funds of funds and our managed direct venture fund portfolios, related primarily to net unrealized valuation increases for private and public company investments held by the funds in the portfolio. See "Results of Operations—Noninterest Income—Gains on Investment Securities, Net".

Income Taxes

Our effective income tax expense rate was 28.2 percent and 27.5 percent for the three and nine months ended September 30, 2019, respectively, compared to 25.8 percent for both comparable 2018 periods. Our effective tax rate is calculated by dividing income tax expense by the sum of income before income tax expense and the net income attributable to noncontrolling interests.

The increases in the effective tax rate for the three and nine months ended September 30, 2019 was due primarily to a decrease in the tax benefit for share-based compensation expense related to the lower number of stock options exercised due to the decrease in the stock price of SIVB.

Operating Segment Results

We have four segments for which we report our financial information: Global Commercial Bank, SVB Private Bank, SVB Capital and SVB Leerink. SVB Leerink is a new reportable segment for 2019 as a result of the acquisition of SVB Leerink effective January 4, 2019.

We report segment information based on the "management" approach. The management approach designates the internal reporting used by management for making decisions and assessing performance as the source of our reporting segments. Please refer to Note 15—"Segment Reporting" of the "Notes to Interim Consolidated Financial Statements (unaudited)" under Part I, Item 1 of this report for additional details.

The following is our reportable segment information for the three and nine months ended September 30, 2019 and 2018:

Global Commercial Bank

	Three months ended September 30,			Nine months ended September 30,		
(Dollars in thousands)	**2019**	**2018**	**% Change**	**2019**	**2018**	**% Change**
Net interest income	$ 455,161	$ 431,036	5.6%	$ 1,360,997	$ 1,209,960	12.5%
Provision for credit losses	(34,075)	(19,074)	78.6	(79,175)	(71,704)	10.4
Noninterest income	161,029	135,228	19.1	471,492	377,320	25.0
Noninterest expense	(213,786)	(206,487)	3.5	(617,933)	(591,434)	4.5
Income before income tax expense	$ 368,329	$ 340,703	8.1	$ 1,135,381	$ 924,142	22.9
Total average loans, net of unearned income	$ 25,839,647	$ 22,925,909	12.7	$ 25,457,997	$ 21,781,557	16.9
Total average assets	58,384,473	49,948,578	16.9	54,196,976	48,380,180	12.0
Total average deposits	55,250,154	47,037,693	17.5	51,352,644	45,701,317	12.4

Three months ended September 30, 2019 and 2018

Income before income tax expense from our Global Commercial Bank ("GCB") increased to $368.3 million for the three months ended September 30, 2019, compared to $340.7 million for the comparable 2018 period, which reflected the continued acquisition of new clients and growth of our core commercial business. The key components of GCB's performance for the three months ended September 30, 2019 compared to the comparable 2018 period are discussed below.

Net interest income from GCB increased by $24.1 million for the three months ended September 30, 2019, due primarily to an increase in loan interest income resulting mainly from higher average loan balances.

GCB had a provision for credit losses of $34.1 million for the three months ended September 30, 2019, compared to $19.1 million for the comparable 2018 period. The provision of $34.1 million for the three months ended September 30, 2019 primarily reflects an increase of $19.1 million for net new nonaccrual loans, $18.3 million for charge-offs not specifically reserved for and $15.2 million in additional reserves for period-end loan growth, partially offset by a decrease of $13.0 million for the qualitative component of our performing loans as described above and $3.9 million of recoveries.

The provision of $19.1 million for the three months ended September 30, 2018 reflects primarily $12.9 million in additional reserves for period-end loan growth, $9.2 million for charge-offs not specifically reserved for and $9.3 million in net new specific reserves for nonaccrual loans, partially offset by a decrease in the qualitative component of our performing loan reserves of $8.2 million reflective of the continued growth of larger, higher credit quality private equity/venture capital loans as a percentage of total gross loans.

Noninterest income increased by $25.8 million for the three months ended September 30, 2019 related primarily to an overall increase in our non-GAAP core fee income (higher client investment fees, foreign exchange fees and credit card fees).

These increases were due primarily to the continued growth of our client base and work with larger global companies reflective of investments in our platform, capabilities and global reach.

Noninterest expense increased by $7.3 million for the three months ended September 30, 2019, due primarily to professional services expense. Professional services expense increased primarily as a result of increased consulting fees during the third quarter of 2019 associated with increased project spend to support our global digital banking, and continued global infrastructure, initiatives.

Nine months ended September 30, 2019 and 2018

Net interest income from our GCB increased by $151.0 million for the nine months ended September 30, 2019, due primarily to an increase in loan interest income resulting mainly from higher average loan balances as well as from an increase in loan yields as a result of rate increases.

GCB had a provision for credit losses of $79.2 million for the nine months ended September 30, 2019, compared to a provision of $71.7 million for the comparable 2018 period. The provision of $79.2 million for the nine months ended September 30, 2019 was reflective primarily of $57.5 million in net new specific reserves for nonaccrual loans, $30.5 million for charge-offs not specifically reserved for in prior quarters and $22.4 million for period-end loan growth, partially offset by a decrease of $14.3 million for our performing loans and $15.1 million of recoveries.

The provision of $71.7 million for the nine months ended September 30, 2018 was reflective primarily of $39.4 million from period-end loan growth, $34.0 million in net new specific reserves for nonaccrual loans and $24.0 million for charge-offs not specifically reserved for in prior quarters, partially offset by a decrease in reserves of $20.7 million for our performing loans from certain reserve methodology enhancements made to our qualitative reserve for large loan exposure as a result of growth within our higher credit quality private equity/venture capital loan portfolios.

Noninterest income increased by $94.2 million for the nine months ended September 30, 2019, related primarily to an overall increase in our non-GAAP core fee income (higher client investment fees, credit card fees, foreign exchange fees and deposit service charges). This increase was due primarily to the continued growth of our client base and work with larger global companies reflective of investments in our platform, capabilities and global reach.

Noninterest expense increased by $26.5 million for the nine months ended September 30, 2019, due primarily to an increase in compensation and benefits expense. Compensation and benefits expense increased by $15.5 million primarily as a result of an increase in salaries and wages primarily due to an increase in the average number of FTEs at GCB, which increased by 282 to 2,283 FTEs for the nine months ended September 30, 2019, compared to 2,001 FTEs for the comparable 2018 period.

SVB Private Bank

	Three months ended September 30,			Nine months ended September 30,		
(Dollars in thousands)	**2019**	**2018**	**% Change**	**2019**	**2018**	**% Change**
Net interest income	$ 12,772	$ 14,919	(14.4)%	$ 37,200	$ 46,811	(20.5)%
Provision for credit losses	(1,910)	(362)	NM	(1,779)	(2,384)	(25.4)
Noninterest income	634	605	4.8	1,829	1,677	9.1
Noninterest expense	(11,638)	(6,760)	72.2	(30,015)	(18,729)	60.3
(Loss) income before income tax expense	$ (142)	$ 8,402	(101.7)	$ 7,235	$ 27,375	(73.6)
Total average loans, net of unearned income	$ 3,400,889	$ 2,928,576	16.1	$ 3,235,943	$ 2,791,910	15.9
Total average assets	3,431,313	2,949,908	16.3	3,264,071	2,813,101	16.0
Total average deposits	1,497,303	1,505,746	(0.6)	1,461,170	1,519,200	(3.8)

NM—Not meaningful

Three months ended September 30, 2019 and 2018

Net interest income from our SVB Private Bank decreased by $2.1 million for the three months ended September 30, 2019, due primarily to higher interest paid on interest-bearing deposits due to the continued market rate adjustments for the three months ended September 30, 2019 as compared to the 2018 comparable period.

Noninterest expense increased by $4.9 million for the three months ended September 30, 2019, due primarily to professional services expense. Professional services expense increased primarily as a result of increased consulting fees during the third quarter of 2019 associated with increased project spend to support our global digital banking, and continued global infrastructure, initiatives.

Nine months ended September 30, 2019 and 2018

Net interest income from our SVB Private Bank decreased by $9.6 million for the nine months ended September 30, 2019, due primarily to higher interest paid on interest-bearing deposits due to the continued market rate adjustments for the nine months ended September 30, 2019 as compared to the 2018 comparable period.

Noninterest expense increased by $11.3 million for the nine months ended September 30, 2019, due primarily to an increase in compensation and benefits expense and an increase in professional services expense. Compensation and benefits expense increased as a result of increased salaries and wages reflective primarily of the increase in the number of average FTE since September 30, 2018. Professional services expense increased primarily as a result of increased consulting fees during the third quarter of 2019 associated with increased project spend to support our global digital banking, and continued global infrastructure, initiatives.

SVB Capital

	Three months ended September 30,			Nine months ended September 30,		
(Dollars in thousands)	**2019**	**2018**	**% Change**	**2019**	**2018**	**% Change**
Net interest income	$ 9	$ 6	50.0%	$ 20	$ 22	(9.1)%
Noninterest income	34,955	24,423	43.1	99,860	81,832	22.0
Noninterest expense	(8,129)	(6,469)	25.7	(21,794)	(17,182)	26.8
Income before income tax expense	$ 26,835	$ 17,960	49.4	$ 78,086	$ 64,672	20.7
Total average assets	$ 396,031	$ 388,531	1.9	$ 382,707	$ 379,809	0.8

SVB Capital's components of noninterest income primarily include net gains and losses on non-marketable and other equity securities, carried interest and fund management fees. All components of income before income tax expense discussed below are net of noncontrolling interests.

We experience variability in the performance of SVB Capital from quarter to quarter due to a number of factors, including changes in the values of our funds' underlying investments, changes in the amount of distributions and general economic and market conditions. Such variability may lead to volatility in the gains and losses from investment securities and cause our results to differ from period to period.

Three months ended September 30, 2019 and 2018

SVB Capital had noninterest income of $35.0 million for the three months ended September 30, 2019, compared to $24.4 million for the comparable 2018 period. The increase in noninterest income was due primarily to higher net gains on investment securities compared to the comparable 2018 period. SVB Capital's components of noninterest income primarily include the following:

- Net gains on investment securities of $26.0 million for the three months ended September 30, 2019, compared to net gains of $17.8 million for the comparable 2018 period. The net gains on investment securities of $26.0 million were related primarily to gains from our managed funds of funds and our strategic venture capital fund investments reflective of net unrealized valuation increases in public and private company investments held by the funds in our portfolios, and
- Fund management fees of $7.1 million for the three months ended September 30, 2019, compared to $5.5 million for the comparable 2018 period.

Nine months ended September 30, 2019 and 2018

SVB Capital had noninterest income of $99.9 million for the nine months ended September 30, 2019, compared to $81.8 million for the comparable 2018 period. The increase in noninterest income was due primarily to higher fund management fees and other noninterest income compared to the comparable 2018 period. SVB Capital's components of noninterest income primarily include the following:

- Net gains on investment securities of $70.0 million for the nine months ended September 30, 2019, compared to net gains of $61.6 million for the comparable 2018 period. The net gains on investment securities of $70.0 million were related primarily to gains from our managed funds of funds and our strategic venture capital fund investments reflective of net unrealized valuation increases in public and private company investments held by the funds in our portfolios, and
- Fund management fees of $20.1 million for the nine months ended September 30, 2019, compared to $17.1 million for the comparable 2018 period.

SVB Leerink

	Three months ended September 30,			Nine months ended September 30,		
(Dollars in thousands)	2019	2018	% Change	2019	2018	% Change
Net interest income	$ 277	$ —	—	$ 961	$ —	—
Noninterest income	52,947	—	—	188,064	—	—
Noninterest expense	(55,200)	—	—	(177,675)	—	—
(Loss) income before income tax expense	$ (1,976)	$ —	—	$ 11,350	$ —	—
Total average assets	$ 428,848	$ —	—	$ 380,290	$ —	—

SVB Leerink's components of noninterest income primarily include investment banking revenue, commissions and net gains and losses on non-marketable and other equity securities, carried interest and fund management fees. All components of income before income tax expense discussed below are net of noncontrolling interests.

Three months ended September 30, 2019

SVB Leerink had noninterest income of $52.9 million for the three months ended September 30, 2019, primarily consisting of $38.5 million of investment banking revenue, $12.3 million of commissions and $1.4 million in fund management fees.

SVB Leerink had noninterest expense of $55.2 million for the three months ended September 30, 2019, primarily consisting of $37.2 million in compensation and benefits expense and $8.5 million in other noninterest expense, driven by investment banking and trade order execution costs as well as amortization of intangible assets recorded as part of the acquisition.

Nine months ended September 30, 2019

SVB Leerink had noninterest income of $188.1 million for the nine months ended September 30, 2019, primarily consisting of $137.0 million of investment banking revenue, $40.8 million of commissions and $5.2 million in net gains on investment securities.

SVB Leerink had noninterest expense of $177.7 million for the nine months ended September 30, 2019, primarily consisting of $124.4 million in compensation and benefits expense and $30.7 million in other noninterest expense, driven by investment banking and trade order execution costs as well as amortization of intangible assets recorded as part of the acquisition.

Consolidated Financial Condition

Our total assets, and total liabilities and stockholders' equity, were $68.2 billion at September 30, 2019 compared to $56.9 billion at December 31, 2018, an increase of $11.3 billion, or 19.9 percent. Refer below to a summary of the individual components driving the changes in total assets, total liabilities and stockholders' equity.

Cash and Cash Equivalents

Cash and cash equivalents totaled $6.9 billion at September 30, 2019, an increase of $3.3 billion, or 94.5 percent, compared to $3.6 billion at December 31, 2018. As of September 30, 2019, $4.1 billion of our cash and due from banks was deposited at the Federal Reserve Bank and was earning interest at the Federal Funds target rate and interest-earning deposits in other financial institutions were $1.9 billion. As of December 31, 2018, $1.7 billion of our cash and due from banks was deposited at the Federal Reserve Bank and was earning interest at the Federal Funds target rate and interest-earning deposits in other financial institutions were $1.2 billion.

Investment Securities

Investment securities totaled $28.4 billion at September 30, 2019, a decrease of $4.2 billion, or 17.4 percent, compared to $24.2 billion at December 31, 2018. Our investment securities portfolio is comprised of: (i) an available-for-sale securities portfolio and a held-to-maturity securities portfolio, both of which represent interest earning fixed income investment securities; and (ii) a non-marketable and other equity securities portfolio, which represents primarily investments managed as part of our funds management business as well as public equity securities held as a result of equity warrant assets exercised.

Available-for-Sale Securities

Period-end available-for-sale securities were $12.9 billion at September 30, 2019 compared to $7.8 billion at December 31, 2018, an increase of $5.1 billion, or 65.2 percent. The $5.1 billion increase in period-end AFS securities balances from December 31, 2018 to September 30, 2019, was due primarily to the purchases of $7.8 billion of U.S. Treasury securities and mortgage-backed securities. Portfolio purchases and cash flows from paydowns and sales were $3.0 billion during the nine months ended September 30, 2019. Securities classified as available-for-sale are carried at fair value with changes in fair value recorded as unrealized gains or losses in a separate component of stockholders' equity.

The following table summarizes the remaining contractual principal maturities and fully taxable equivalent yields on fixed income securities, carried at fair value, classified as available-for-sale as of September 30, 2019. The weighted average yield is computed using the amortized cost of fixed income investment securities, which are reported at fair value. For U.S. Treasury securities, U.S. agency debentures and foreign government debt securities, the expected maturity is the actual contractual maturity of the notes. Expected maturities for mortgage-backed securities may differ significantly from their contractual maturities because mortgage borrowers have the right to prepay outstanding loan obligations with or without penalties. Mortgage-backed securities classified as available-for-sale typically have original contractual maturities from 10 to 30 years whereas expected average lives of these securities tend to be significantly shorter and vary based upon structure and prepayments in lower interest rate environments. The weighted average yield on mortgage-backed securities is based on prepayment assumptions at the purchase date. Actual yields earned may differ significantly based upon actual prepayments.

	September 30, 2019									
	Total		One Year or Less		After One Year to Five Years		After Five Years to Ten Years		After Ten Years	
(Dollars in thousands)	Carrying Value	Weighted Average Yield	Carrying Value	Weighted Average Yield	Carrying Value	Weighted Average Yield	Carrying Value	Weighted Average Yield	Carrying Value	Weighted Average Yield
U.S. Treasury securities	$ 6,334,848	2.00 %	$2,007,267	1.70%	$1,710,316	2.26 %	$2,617,265	2.06%	$ —	—%
U.S. agency debentures	100,000	2.28	—	—	—	—	100,000	2.28	—	—
Foreign government debt securities	8,847	(0.64)	—	—	8,847	(0.64)	—	—	—	—
Residential mortgage-backed securities:										
Agency-issued mortgage-backed securities	4,148,700	2.83	—	—	—	—	—	—	4,148,700	2.83
Agency-issued collateralized mortgage obligations—fixed rate	1,679,664	2.58	—	—	—	—	3,131	3.13	1,676,533	2.58
Agency-issued commercial mortgage-backed securities	594,798	2.43	—	—	—	—	300,208	2.33	294,590	2.52
Total	$12,866,857	2.36	$2,007,267	1.70	$1,719,163	2.24	$3,020,604	2.09	$6,119,823	2.75

Held-to-Maturity Securities

Period-end held-to-maturity securities were $14.4 billion at September 30, 2019 compared to $15.5 billion at December 31, 2018, a decrease of $1.1 billion, or 7.0 percent. The $1.1 billion decrease in period-end HTM security balances from December 31, 2018 to September 30, 2019 was due primarily to pay downs and maturities of $1.5 billion, partially offset by the purchase of $0.4 billion of securities.

Securities classified as held-to-maturity are accounted for at cost with no adjustments for changes in fair value. For securities previously re-designated as held-to-maturity from available-for-sale, the net unrealized gains at the date of transfer will continue to be reported as a separate component of shareholders' equity and amortized over the life of the securities in a manner consistent with the amortization of a premium or discount.

The following table summarizes the remaining contractual principal maturities and fully taxable equivalent yields on fixed income investment securities classified as held-to-maturity as of September 30, 2019. Interest income on certain municipal bonds and notes (non-taxable investments) are presented on a fully taxable equivalent basis using the federal statutory tax rate of 21.0 percent. The weighted average yield is computed using the amortized cost of fixed income investment securities. For U.S. agency debentures, the expected maturity is the actual contractual maturity of the notes. Expected remaining maturities for certain U.S. agency debentures may occur earlier than their contractual maturities because the note issuers have the right to call outstanding amounts ahead of their contractual maturity. Expected maturities for mortgage-backed securities may differ significantly from their contractual maturities because mortgage borrowers have the right to prepay outstanding loan obligations with or without penalties. Mortgage-backed securities classified as held-to-maturity typically have original contractual maturities from 10 to 30 years whereas expected average lives of these securities tend to be significantly shorter and vary based upon structure and prepayments in lower interest rate environments. The weighted average yield on mortgage-backed securities is based on prepayment assumptions at the purchase date. Actual yields earned may differ significantly based upon actual prepayments.

	September 30, 2019									
	Total		One Year or Less		After One Year to Five Years		After Five Years to Ten Years		After Ten Years	
(Dollars in thousands)	Amortized Cost	Weighted-Average Yield	Amortized Cost	Weighted-Average Yield	Amortized Cost	Weighted-Average Yield	Amortized Cost	Weighted-Average Yield	Amortized Cost	Weighted-Average Yield
U.S. agency debentures	$ 518,841	2.65%	$ —	—%	$ 123,205	2.61%	$ 395,636	2.66%	$ —	—%
Residential mortgage-backed securities:										
Agency-issued mortgage-backed securities	7,376,458	2.90	—	—	94,514	2.05	771,670	2.47	6,510,274	2.96
Agency-issued collateralized mortgage obligations—fixed rate	1,754,498	1.78	—	—	—	—	635,235	1.64	1,119,263	1.87
Agency-issued collateralized mortgage obligations—variable rate	188,120	0.74	—	—	—	—	—	—	188,120	0.74
Agency-issued commercial mortgage-backed securities	2,826,344	3.02	—	—	—	—	—	—	2,826,344	3.02
Municipal bonds and notes	1,742,817	3.57	14,002	1.90	82,708	2.16	369,911	2.87	1,276,196	3.89
Total	$14,407,078	2.83	$ 14,002	1.90	$ 300,427	2.31	$2,172,452	2.33	$11,920,197	2.94

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 3.4 years and 3.8 years at September 30, 2019 and December 31, 2018, respectively.

Non-Marketable and Other Equity Securities

Our non-marketable and other equity securities portfolio primarily represents investments in venture capital and private equity funds, SPD Silicon Valley Bank Co., Ltd. (the Bank's joint venture bank in China ("SPD-SVB")), debt funds, private and public portfolio companies, including public equity securities held as a result of equity warrant assets exercised, and qualified affordable housing projects. Included in our non-marketable and other equity securities carried under fair value accounting are amounts that are attributable to noncontrolling interests. We are required under GAAP to consolidate 100% of these investments that we are deemed to control, even though we may own less than 100% of such entities. See below for a summary of the carrying value (as reported) of non-marketable and other equity securities compared to the amounts attributable to SVBFG.

Period-end non-marketable and other equity securities were $1.2 billion at September 30, 2019 compared to $941.1 million at December 31, 2018, an increase of $209.0 million, or 22.2 percent. Non-marketable and other equity securities, net of noncontrolling interests were $1,007.9 million at September 30, 2019, compared to $806.1 million at December 31, 2018. The increase was primarily attributable to equity securities from exercised equity warrant assets, valuation increases in our managed funds of funds investments and an increase in new investments within our qualified housing projects portfolio. We also increased our investment in non-marketable and other equity securities by $35.0 million to the inclusion of SVB Leerink in our financial results at September 30, 2019. The following table summarizes the carrying value (as reported) of non-marketable and other equity securities compared to the amounts attributable to SVBFG (which generally represents the carrying value times our ownership percentage) at September 30, 2019 and December 31, 2018:

	September 30, 2019		December 31, 2018	
(Dollars in thousands)	Carrying value (as reported)	Amount attributable to SVBFG	Carrying value (as reported)	Amount attributable to SVBFG
Non-marketable and other equity securities:				
Non-marketable securities (fair value accounting):				
Consolidated venture capital and private equity fund investments (1)	$ 92,010	$ 23,704	$ 118,333	$ 30,235
Unconsolidated venture capital and private equity fund investments (2)	181,550	181,550	201,098	201,098
Other investments without a readily determinable fair value (3)	43,524	43,523	25,668	25,668
Other equity securities in public companies (fair value accounting (4)	56,081	56,081	20,398	20,098
Non-marketable securities (equity method accounting) (5):				
Venture capital and private equity fund investments	196,425	122,550	129,485	82,921
Debt funds	7,153	7,153	5,826	5,826
Other investments	154,323	154,323	121,721	121,721
Investments in qualified affordable housing projects, net	419,028	419,028	318,575	318,575
Total non-marketable and other equity securities	$ 1,150,094	$ 1,007,912	$ 941,104	$ 806,142

(1) The following table shows the amounts of venture capital and private equity fund investments held by the following consolidated funds and amounts attributable to SVBFG for each fund at September 30, 2019 and December 31, 2018:

	September 30, 2019		December 31, 2018	
(Dollars in thousands)	Carrying value (as reported)	Amount attributable to SVBFG	Carrying value (as reported)	Amount attributable to SVBFG
Strategic Investors Fund, LP	$ 6,829	$ 858	$ 12,452	$ 1,564
Capital Preferred Return Fund, LP	46,691	10,063	53,957	11,629
Growth Partners, LP	38,356	12,769	50,845	16,927
CP I, LP	134	14	1,079	115
Total consolidated venture capital and private equity fund investments	$ 92,010	$ 23,704	$ 118,333	$ 30,235

(2) The carrying value represents investments in 211 and 213 funds (primarily venture capital funds) at September 30, 2019 and December 31, 2018, respectively, where our ownership interest is typically less than 5% of the voting interests of each such fund and in which we do not have the ability to exercise significant influence over the partnerships' operating activities

and financial policies. Our unconsolidated venture capital and private equity fund investments are carried at fair value based on the fund investments' net asset values per share as obtained from the general partners of the funds. For each fund investment, we adjust the net asset value per share for differences between our measurement date and the date of the fund investment's net asset value by using the most recently available financial information from the investee general partner, for example, June 30th for our September 30th consolidated financial statements, adjusted for any contributions paid, distributions received from the investment, and significant fund transactions or market events during the reporting period.

(3) Investments classified as "Other investments without a readily determinable fair value" include direct equity investments in private companies. The carrying value is based on the price at which the investment was acquired plus or minus changes resulting from observable price changes in orderly transactions for identical or similar investments. We consider a range of factors when adjusting the fair value of these investments, including, but not limited to, the term and nature of the investment, local market conditions, values for comparable securities, current and projected operating performance, exit strategies, financing transactions subsequent to the acquisition of the investment and a discount for certain investments that have lock-up restrictions or other features that indicate a discount to fair value is warranted. For further details on the carrying value of these investments refer to Note 7 —"Investment Securities" of the "Notes to Interim Consolidated Financial Statements (unaudited)" under Part I, Item 1 of this report.

(4) Investments classified as other equity securities (fair value accounting) represent shares held in public companies as a result of exercising public equity warrant assets and direct equity investments in public companies held by our consolidated funds. Changes in the fair value recognized through net income.

(5) The following table shows the carrying value and our ownership percentage of each investment at September 30, 2019 and December 31, 2018 (equity method accounting):

	September 30, 2019		December 31, 2018	
(Dollars in thousands)	Carrying value (as reported)	Amount attributable to SVBFG	Carrying value (as reported)	Amount attributable to SVBFG
Venture capital and private equity fund investments:				
Strategic Investors Fund II, LP	$ 4,501	$ 4,249	$ 4,670	$ 4,366
Strategic Investors Fund III, LP	15,279	12,391	17,396	14,059
Strategic Investors Fund IV, LP	28,549	24,041	28,974	24,388
Strategic Investors Fund V, LP	37,233	19,547	28,189	14,799
CP II, LP (i)	7,333	4,432	7,122	4,308
Other venture capital and private equity fund investments	103,530	57,890	43,134	21,001
Total venture capital and private equity fund investments	$ 196,425	$ 122,550	$ 129,485	$ 82,921
Debt funds:				
Gold Hill Capital 2008, LP (ii)	$ 5,323	$ 5,323	$ 3,901	$ 3,901
Other debt funds	1,830	1,830	1,925	1,925
Total debt funds	$ 7,153	$ 7,153	$ 5,826	$ 5,826
Other investments:				
SPD Silicon Valley Bank Co., Ltd.	$ 73,918	$ 73,918	$ 76,412	$ 76,412
Other investments	80,405	80,405	45,309	45,309
Total other investments	$ 154,323	$ 154,323	$ 121,721	$ 121,721

(i) Our ownership includes direct ownership interest of 1.3 percent and indirect ownership interest of 3.8 percent through our investments in Strategic Investors Fund II, LP.

(ii) Our ownership includes direct ownership interest of 11.5 percent in the fund and an indirect interest in the fund through our investment in Gold Hill Capital 2008, LLC of 4.0 percent.

Volcker Rule

On June 6, 2017, we received notice that the Board of Governors of the Federal Reserve System approved the Company's application for an extension of the permitted conformance period for the Company's investments in "illiquid" covered funds. The approval extends the deadline by which the Company must sell, divest, restructure or otherwise conform such investments

to the provisions of the Volcker Rule until the earlier of (i) July 21, 2022, or (ii) the date by which each fund matures by its terms or is otherwise conformed to the Volcker Rule.

As implemented under the Dodd-Frank Wall Street Reform and Consumer Protection Act, the Volcker Rule prohibits, subject to certain exceptions, a banking entity, such as the Company, from sponsoring or investing in covered funds, defined to include many venture capital and private equity funds. As noted above, the Company currently maintains certain investments deemed to be prohibited investments in "illiquid" covered funds, which are now covered under the approved extension. As of September 30, 2019, such prohibited investments had an estimated aggregate carrying value and fair value of approximately $231.5 million. (For more information about the Volcker Rule, see "Business—Supervision and Regulation" under Part 1, Item 1 of our 2018 Form 10-K.)

Loans

Loans, net of unearned income, increased by $2.8 billion to $31.1 billion at September 30, 2019, compared to $28.3 billion at December 31, 2018. Unearned income was $165 million at September 30, 2019 and $173 million at December 31, 2018. Total gross loans were $31.2 billion at September 30, 2019, an increase of $2.7 billion, compared to $28.5 billion at December 31, 2018. Period-end loans increased compared to December 31, 2018, driven primarily by loan growth in our private equity/venture capital portfolio as well as from our private bank portfolio.

The breakdown of total gross loans and total loans as a percentage of total gross loans by industry sector is as follows:

	September 30, 2019		December 31, 2018	
(Dollars in thousands)	Amount	Percentage	Amount	Percentage
Commercial loans:				
Software/internet	$ 6,067,667	19.4%	$ 6,209,978	21.8%
Hardware	1,367,892	4.4	1,245,800	4.4
Private equity/venture capital	16,310,084	52.2	14,118,132	49.5
Life science/healthcare	2,447,193	7.8	2,461,076	8.6
Premium wine	234,784	0.8	249,316	0.9
Other	400,487	1.3	346,747	1.2
Commercial loans	26,828,107	85.9	24,631,049	86.4
Real estate secured loans:				
Premium wine	750,304	2.4	711,237	2.5
Consumer	3,012,047	9.6	2,609,645	9.2
Other	39,455	0.2	40,627	0.1
Real estate secured loans	3,801,806	12.2	3,361,509	11.8
Construction loans	117,653	0.4	98,034	0.3
Consumer loans	481,437	1.5	420,720	1.5
Total gross loans	$ 31,229,003	100.0	$ 28,511,312	100.0

Loan Concentration

The following table provides a summary of gross loans by size and category. The breakout of the categories is based on total client balances (individually or in the aggregate) as of September 30, 2019:

	September 30, 2019					
(Dollars in thousands)	Less than Five Million	Five to Ten Million	Ten to Twenty Million	Twenty to Thirty Million	Thirty Million or More	Total
Commercial loans:						
Software/internet	$ 1,565,054	$ 847,876	$ 1,334,672	$ 1,145,303	$ 1,174,762	$ 6,067,667
Hardware	304,558	152,184	243,057	336,547	331,546	1,367,892
Private equity/venture capital	1,036,306	1,003,076	2,376,076	2,138,287	9,756,339	16,310,084
Life science/healthcare	354,874	399,046	630,421	509,353	553,499	2,447,193
Premium wine	70,134	52,972	50,998	58,880	1,800	234,784
Other	325,423	8,050	10,158	22,815	34,041	400,487
Commercial loans	3,656,349	2,463,204	4,645,382	4,211,185	11,851,987	26,828,107
Real estate secured loans:						
Premium wine	182,556	193,478	235,052	110,035	29,183	750,304
Consumer	2,568,735	284,988	125,574	20,250	12,500	3,012,047
Other	7,310	—	32,145	—	—	39,455
Real estate secured loans	2,758,601	478,466	392,771	130,285	41,683	3,801,806
Construction loans	2,693	41,153	29,767	44,040	—	117,653
Consumer loans	192,079	74,369	66,728	95,575	52,686	481,437
Total gross loans	$ 6,609,722	$ 3,057,192	$ 5,134,648	$ 4,481,085	$ 11,946,356	$ 31,229,003

At September 30, 2019, gross loans equal to or greater than $20 million to any single client (individually or in the aggregate) totaled $16.4 billion, or 52.6 percent of our total gross loan portfolio. These loans represented 388 clients, and of these loans, $37.3 million were on nonaccrual status as of September 30, 2019.

The following table provides a summary of gross loans by size and category. The breakout of the categories is based on total client balances (individually or in the aggregate) as of December 31, 2018:

	December 31, 2018					
(Dollars in thousands)	Less than Five Million	Five to Ten Million	Ten to Twenty Million	Twenty to Thirty Million	Thirty Million or More	Total
Commercial loans:						
Software/internet	$ 1,515,096	$ 918,647	$ 1,520,634	$ 1,221,250	$ 1,034,351	$ 6,209,978
Hardware	292,022	152,061	196,763	386,288	218,666	1,245,800
Private equity/venture capital	836,894	1,012,605	2,120,918	2,135,279	8,012,436	14,118,132
Life science/healthcare	273,075	477,046	645,895	410,127	654,933	2,461,076
Premium wine	70,573	55,852	48,656	65,035	9,200	249,316
Other	246,011	18,921	10,911	70,904	—	346,747
Commercial loans	3,233,671	2,635,132	4,543,777	4,288,883	9,929,586	24,631,049
Real estate secured loans:						
Premium wine	168,130	173,882	263,093	83,945	22,187	711,237
Consumer loans	2,258,479	239,400	111,766	—	—	2,609,645
Other	7,506	—	33,121	—	—	40,627
Real estate secured loans	2,434,115	413,282	407,980	83,945	22,187	3,361,509
Construction loans	7,076	15,064	75,894	—	—	98,034
Consumer loans	148,391	55,401	51,409	93,690	71,829	420,720
Total gross loans	$ 5,823,253	$ 3,118,879	$ 5,079,060	$ 4,466,518	$ 10,023,602	$ 28,511,312

At December 31, 2018, gross loans equal to or greater than $20 million to any single client (individually or in the aggregate) totaled $14.5 billion, or 50.8 percent of our total gross loan portfolio. These loans represented 361 clients, and of these loans, $27.5 million were on nonaccrual status as of December 31, 2018.

The credit profile of our loan portfolio clients varies based on the nature of the lending we do for different market segments. Our three main market segments include (i) technology (software/internet and hardware) and life science/healthcare, (ii) private equity/venture capital, and (iii) SVB Private Bank.

(i) Technology and Life Science/Healthcare

Our technology and life science/healthcare loan portfolios include loans to clients at the various stages of their life cycles and represent the largest segments of our loan portfolio. The primary underwriting method for our technology and life science/healthcare portfolios are classified as investor dependent, balance sheet dependent or cash flow dependent.

Investor dependent loans represent a relatively small percentage of our overall portfolio at 11 percent of total gross loans at both September 30, 2019 and December 31, 2018. These loans are made to companies in both our Accelerator (early-stage) and Growth practices. Investor dependent loans typically have modest or negative cash flows and no established record of profitable operations. Repayment of these loans may be dependent upon receipt by borrowers of additional equity financing from venture capital firms or others, or in some cases, a successful sale to a third party or an IPO. Venture capital firms may provide financing selectively, at reduced amounts, or on less favorable terms, which may have an adverse effect on our borrowers' ability to repay their loans to us. When repayment is dependent upon the next round of venture investment and there is an indication that further investment is unlikely or will not occur, it is often likely that the company would need to be sold to repay the debt in full. If reasonable efforts have not yielded a likely buyer willing to repay all debt at the close of the sale or on commercially viable terms, the account will most likely be deemed to be impaired.

Balance sheet dependent loans, which include asset-based loans, represented eight percent of total gross loans at both September 30, 2019 and December 31, 2018. Balance sheet dependent loans are structured to require constant current asset coverage (i.e., cash, cash equivalents, accounts receivable and, to a much lesser extent, inventory) in an amount that exceeds the outstanding debt. These loans are generally made to companies in our Growth and Corporate Finance practices. Our asset-based lending, which includes working capital lines and accounts receivable financing, represented two and one percent of total gross loans at both September 30, 2019 and December 31, 2018. The repayment of these arrangements is dependent on the financial condition, and payment ability, of third parties with whom our clients do business.

Cash flow dependent loans, which include sponsored buyout lending, represented 13 percent of total gross loans at September 30, 2019, compared to 16 percent at December 31, 2018. Cash flow dependent loans require the borrower to maintain cash flow from operations that is sufficient to service all debt. Borrowers must demonstrate normalized cash flow in excess of all fixed charges associated with operating the business. Sponsored buyout loans represented six percent of total

gross loans at September 30, 2019, compared to eight percent at December 31, 2018. These loans are typically used to assist a select group of experienced private equity sponsors with the acquisition of businesses, are larger in size, and repayment is generally dependent upon the cash flows of the acquired company. The acquired companies are typically established, later-stage businesses of scale and characterized by reasonable levels of leverage and loan structures that include meaningful financial covenants. The sponsor's equity contribution is often 50 percent or more of the acquisition price.

(ii) Private Equity/Venture Capital

We also provide financial services to clients in the private equity/venture capital community. Our lending to private equity/venture capital firms and funds represented 52 percent of total gross loans at September 30, 2019, compared to 50 percent at December 31, 2018. The vast majority of this portfolio consists of capital call lines of credit, the repayment of which is dependent on the payment of capital calls by the underlying limited partner investors in the funds managed by these firms. These facilities are generally governed by meaningful financial covenants oriented towards ensuring that the funds' remaining callable capital is sufficient to repay the loan, and larger commitments (typically provided to larger private equity funds) are often secured by an assignment of the general partner's right to call capital from the fund's limited partner investors.

(iii) SVB Private Bank

Our SVB Private Bank clients are primarily private equity/venture capital professionals and executive leaders of the innovation companies they support. Our lending to SVB Private Bank clients represented 11 percent of total gross loans at both September 30, 2019 and December 31, 2018. Many of these clients have mortgages, which represented 86 percent of this portfolio at September 30, 2019; the balance of this portfolio consisted of home equity lines of credit, restricted stock purchase loans, capital call lines of credit, and other secured and unsecured lending.

State Concentrations

Approximately 28 percent of our outstanding total gross loan balances as of both September 30, 2019 and December 31, 2018 were to borrowers based in California. Additionally, as of September 30, 2019, borrowers in Massachusetts increased to 10 percent of our outstanding gross loan balances compared to 9 percent as of December 31, 2018. As of September 30, 2019, borrowers in New York decreased to 9 percent of our outstanding gross loan balances compared to 10 percent as of December 31, 2018. Other than California and Massachusetts, there are no states with gross loan balances greater than or equal to 10 percent.

See generally “Risk Factors–Credit Risks” set forth under Part I, Item 1A in our 2018 Form 10-K.

Credit Quality Indicators

As of September 30, 2019 and December 31, 2018, our total criticized loans and impaired loans represented three and four percent of our total gross loans, respectively. Criticized and impaired loans to early-stage clients represented 20 and 19 percent of our total criticized and impaired loan balances at September 30, 2019 and December 31, 2018, respectively. Loans to early-stage clients represent a relatively small percentage of our overall portfolio at five percent of total gross loans at September 30, 2019 and six percent at December 31, 2018. It is common for an early-stage client’s remaining liquidity to fall temporarily below the threshold for a pass-rated credit during its capital-raising period for a new round of funding. Based on our experience, for most early-stage clients, this situation typically lasts one to two quarters and generally resolves itself with a subsequent round of venture funding, though there are exceptions, from time to time. As a result, we expect that each of our early-stage clients will reside in our criticized portfolio during a portion of their life cycle.

Credit Quality and Allowance for Loan Losses

Nonperforming assets consist of loans on nonaccrual status, loans past due 90 days or more still accruing interest, and Other Real Estate Owned ("OREO") and other foreclosed assets. We measure all loans placed on nonaccrual status for impairment based on the fair value of the underlying collateral or the net present value of the expected cash flows. The table below sets forth certain data and ratios between nonperforming loans, nonperforming assets and the allowance for loan losses:

(Dollars in thousands)	September 30, 2019	December 31, 2018
Gross nonperforming, past due, and restructured loans:		
Nonaccrual loans	$ 104,045	$ 94,142
Loans past due 90 days or more still accruing interest	864	1,964
Total nonperforming loans	104,909	96,106
OREO and other foreclosed assets	—	—
Total nonperforming assets	$ 104,909	$ 96,106
Performing TDRs	$ 31,692	$ 31,639
Nonperforming loans as a percentage of total gross loans	0.34%	0.34%
Nonperforming assets as a percentage of total assets	0.15	0.17
Allowance for loan losses	$ 304,410	$ 280,903
As a percentage of total gross loans	0.97%	0.99%
As a percentage of total gross nonperforming loans	290.17	292.28
Allowance for loan losses for nonaccrual loans	$ 53,728	$ 37,941
As a percentage of total gross loans	0.17%	0.13%
As a percentage of total gross nonperforming loans	51.21	39.48
Allowance for loan losses for total gross performing loans	$ 250,682	$ 242,962
As a percentage of total gross loans	0.80%	0.85%
As a percentage of total gross performing loans	0.81	0.86
Total gross loans	$ 31,229,003	$ 28,511,312
Total gross performing loans	31,124,094	28,415,206
Allowance for unfunded credit commitments (1)	63,108	55,183
As a percentage of total unfunded credit commitments	0.28%	0.29%
Total unfunded credit commitments (2)	$ 22,274,418	$ 18,913,021

(1) The "allowance for unfunded credit commitments" is included as a component of other liabilities and any provision is included in the "provision for credit losses" in the statement of income. See "Provision for Credit Losses" for a discussion of the changes to the allowance.
(2) Includes unfunded loan commitments and letters of credit.

Our allowance for loan losses as a percentage of total gross loans decreased two basis points to 0.97 percent at September 30, 2019, compared to 0.99 percent at December 31, 2018 reflective of a decrease in the qualitative component of our performing loan reserves as a percentage of gross loans reflective of the continued growth in our large, high credit quality private equity/venture capital loan portfolio.

Our allowance for loan losses for performing loans was $250.7 million at September 30, 2019, compared to $243.0 million at December 31, 2018. The $7.7 million increase in reserves for performing loans was driven primarily by the overall growth in loans during the nine months ended September 30, 2019 as well as the continued change in the mix of the overall loan portfolio.

Our allowance for loan losses for nonaccrual loans was $53.7 million at September 30, 2019, compared to $37.9 million at December 31, 2018. The $15.8 million increase in the reserves for nonaccrual loans was due to new nonaccrual loan reserves of $92.8 million driven primarily by three clients in our life science/healthcare loan portfolio and three clients in our software/internet loan portfolio, partially offset by $77.0 million of repayments and charge-offs.

The following table presents a summary of changes in nonaccrual loans for the three and nine months ended September 30, 2019 and 2018:

	Three months ended September 30,		Nine months ended September 30,	
(Dollars in thousands)	2019	2018	2019	2018
Balance, beginning of period	$ 96,641	$ 124,842	$ 94,142	$ 119,259
Additions	53,643	18,346	143,960	69,202
Paydowns	(22,493)	(14,891)	(86,430)	(48,550)
Charge-offs	(23,729)	(13,135)	(47,559)	(24,714)
Other reductions	(17)	—	(68)	(35)
Balance, end of period	$ 104,045	$ 115,162	$ 104,045	$ 115,162

Our nonaccrual loans as of September 30, 2019 included $70.1 million from five clients (two software/internet clients represented $45.5 million and three life science/healthcare clients represented $24.6 million). One of these loans is a sponsored buyout loan that was added to our nonaccrual portfolio in 2015, one is a Growth client that was added during 2018 and three are new nonaccrual loans added during 2019, two Growth clients and one sponsored buyout loan. The total credit exposure for these five largest nonaccrual loans was $70.3 million as of September 30, 2019, for which we have specifically reserved $38.1 million.

Average nonaccrual loans for the three and nine months ended September 30, 2019 were $90.3 million and $98.1 million, respectively, compared to $122.9 million and $120.6 million for the comparable 2018 periods. The $32.6 million decrease in average nonaccrual loans for the three months ended September 30, 2019 compared to September 30, 2018 was primarily from our software/internet loan portfolio partially offset by an increase in our life science/healthcare portfolio. If the nonaccrual loans had not been nonperforming, $1.0 million and $4.1 million in interest income would have been recorded for the three and nine months ended September 30, 2019, respectively, compared to $1.8 million and $5.8 million for the comparable 2018 periods.

Accrued Interest Receivable and Other Assets

A summary of accrued interest receivable and other assets at September 30, 2019 and December 31, 2018 is as follows:

(Dollars in thousands)	September 30, 2019	December 31, 2018	% Change
Derivative assets (1)	$ 337,977	$ 258,139	30.9 %
Foreign exchange spot contract assets, gross	644,122	152,268	NM
Accrued interest receivable	201,595	197,927	1.9
FHLB and Federal Reserve Bank stock	59,790	58,878	1.5
Net deferred tax assets	6,759	65,433	(89.7)
Accounts receivable	49,524	55,807	(11.3)
Other assets	286,301	162,809	75.9
Total accrued interest receivable and other assets	$ 1,586,068	$ 951,261	66.7

NM—Not meaningful
(1) See “Derivatives” section below.

Foreign Exchange Spot Contract Assets

Foreign exchange spot contract assets represent unsettled client trades at the end of the period. The increase of $491.9 million was primarily due to an overall increase in the amount of unsettled spot trades at period-end as compared to December 31, 2018.

Net Deferred Tax Assets

The decrease of $58.7 million in net deferred tax assets was primarily due to an increase in the fair value of AFS securities due to a decrease in market interest rates as compared to December 31, 2018.

Other Assets

Other assets includes various asset amounts for other operational transactions. The increase of $123.5 million was primarily due to $72.3 million in current taxes receivable due to estimated tax payments made during the nine months ended September 30, 2019. Additionally, an increase in other assets of $48.0 million was due primarily to the inclusion of SVB Leerink in our financial results at September 30, 2019.

Derivatives

Derivative instruments are recorded as a component of other assets and other liabilities on the balance sheet. The following table provides a summary of derivative assets and liabilities at September 30, 2019 and December 31, 2018:

(Dollars in thousands)	September 30, 2019	December 31, 2018	% Change
Assets:			
Equity warrant assets	$ 149,113	$ 149,238	(0.1)%
Foreign exchange forward and option contracts	122,280	100,402	21.8
Client interest rate derivatives	25,608	8,499	NM
Interest rate swaps	40,976	—	—
Total derivative assets	$ 337,977	$ 258,139	30.9
Liabilities:			
Foreign exchange forward and option contracts	$ 101,729	$ 88,559	14.9
Client interest rate derivatives	37,525	9,491	NM
Interest rate swaps	9,286	—	—
Total derivative liabilities	$ 148,540	$ 98,050	51.5

NM—Not meaningful

Equity Warrant Assets

In connection with negotiating credit facilities and certain other services, we often obtain rights to acquire stock in the form of equity warrant assets in primarily private, venture-backed companies in the technology and life science/healthcare industries. At September 30, 2019, we held warrants in 2,227 companies, compared to 2,095 companies at December 31, 2018. Warrants in 15 companies each had values greater than $1.0 million and collectively represented $43.7 million, or 29.3 percent, of the fair value of the total warrant portfolio at September 30, 2019. The change in fair value of equity warrant assets is recorded in "Gains on equity warrant assets, net" in noninterest income, a component of consolidated net income. The following table provides a summary of transactions and valuation changes for equity warrant assets for the three and nine months ended September 30, 2019 and 2018:

	Three months ended September 30,		Nine months ended September 30,	
(Dollars in thousands)	2019	2018	2019	2018
Balance, beginning of period	$ 158,048	$ 143,725	$ 149,238	$ 123,763
New equity warrant assets	3,843	5,113	11,365	14,511
Non-cash changes in fair value, net	7,995	17,286	19,787	32,743
Exercised equity warrant assets	(20,292)	(17,725)	(28,346)	(20,892)
Terminated equity warrant assets	(481)	(1,432)	(2,931)	(3,158)
Balance, end of period	$ 149,113	$ 146,967	$ 149,113	$ 146,967

Foreign Exchange Forward and Foreign Currency Option Contracts

We enter into foreign exchange forward contracts and foreign currency option contracts with clients involved in foreign activities, either as the purchaser or seller, depending upon the clients' needs. For each forward or option contract entered into with our clients, we enter into an opposite way forward or option contract with a correspondent bank, which mitigates the risk of fluctuations in currency rates. We also enter into forward contracts with correspondent banks to economically reduce our foreign exchange exposure related to certain foreign currency denominated instruments. Net gains and losses on the revaluation of foreign currency denominated instruments are recorded in the line item "Other" as part of noninterest income, a component of consolidated net income. We have not experienced nonperformance by any of our counterparties and therefore have not

incurred any related losses. Further, we anticipate performance by all counterparties. Our net exposure for foreign exchange forward and foreign currency option contracts, net of cash collateral, was $6.7 million at September 30, 2019 and $20.7 million at December 31, 2018. For additional information on our foreign exchange forward contracts and foreign currency option contracts, see Note 12—"Derivative Financial Instruments" of the "Notes to Interim Consolidated Financial Statements (unaudited)" under Part I, Item 1 of this report.

Client Interest Rate Derivatives

We sell interest rate contracts to clients who wish to mitigate their interest rate exposure. We economically reduce the interest rate risk from this business by entering into opposite way contracts with correspondent banks. Our net exposure for client interest rate derivative contracts, net of cash collateral, was $25.3 million at September 30, 2019 and $8.7 million at December 31, 2018. For additional information on our client interest rate derivatives, see Note 12—"Derivative Financial Instruments" of the "Notes to Interim Consolidated Financial Statements (unaudited)" under Part I, Item 1 of this report.

Interest Rate Swaps

To manage interest rate risk on our variable-interest rate loan portfolio, we enter into interest rate swap contracts to hedge against future changes in interest rates by using hedging instruments to lock in future cash inflows that would otherwise be impacted by movements in the market interest rates. We designate these interest rate swap contracts as cash flow hedges that qualify for hedge accounting under ASC 815 and record them in other assets and other liabilities. For additional information on our interest rate swaps, see Note 12—"Derivative Financial Instruments" of the "Notes to Interim Consolidated Financial Statements (unaudited)" and "Quantitative and Qualitative Disclosures about Market Risk" under Part I, Item 1 of this report.

Deposits

Deposits were $59.5 billion at September 30, 2019, an increase of $10.2 billion, or 20.7 percent, compared to $49.3 billion at December 31, 2018. The increase in deposits was driven primarily by growth across all our portfolio segments. The leading contributor was our technology client portfolio attributable primarily to a healthy equity funding environment and robust IPO and SPO markets as well as continued healthy new client acquisition.

At September 30, 2019, the aggregate balance of time deposit accounts individually equal to or greater than $100,000 totaled $187 million, compared to $46 million at December 31, 2018. At September 30, 2019, all the time deposit accounts individually equal to or greater than $100,000 were scheduled to mature within one year. No material portion of our deposits has been obtained from a single depositor and the loss of any one depositor would not materially affect our business. Approximately 13 percent and 16 percent of our total deposits at September 30, 2019 and December 31, 2018, respectively, were from our clients in Asia.

Short-Term Borrowings

As of September 30, 2019, we had no overnight borrowings and $18.9 million in other short-term borrowings consisting of cash collateral received from certain counterparties in relation to market value exposures of derivative contracts in our favor. As of December 31, 2018, we had $0.6 billion in short-term borrowings, consisting of $0.3 billion in advances from the FHLB and $0.3 billion in securities sold under an agreement to repurchase. For more information on our short-term debt, see Note 11—"Short-Term Borrowings and Long-Term Debt" of the "Notes to Interim Consolidated Financial Statements (unaudited)" under Part I, Item 1 of this report.

Long-Term Debt

Our long-term debt was $697.2 million at September 30, 2019 and $696.5 million at December 31, 2018. As of September 30, 2019, long-term debt included our 3.50% Senior Notes and 5.375% Senior Notes. For more information on our long-term debt, see Note 11—"Short-Term Borrowings and Long-Term Debt" of the "Notes to Interim Consolidated Financial Statements (unaudited)" under Part I, Item 1 of this report.

Other Liabilities

A summary of other liabilities at September 30, 2019 and December 31, 2018 is as follows:

(Dollars in thousands)	September 30, 2019	December 31, 2018	% Change
Foreign exchange spot contract liabilities, gross	$ 696,513	$ 170,355	NM
Accrued compensation	259,809	224,405	15.8
Allowance for unfunded credit commitments	63,108	55,183	14.4
Derivative liabilities (1)	148,540	98,050	51.5
Other liabilities	563,251	458,366	22.9
Total other liabilities	$ 1,731,221	$ 1,006,359	72.0

NM—Not meaningful
(1) See "Derivatives" section above.

Foreign Exchange Spot Contract Liabilities

Foreign exchange spot contract liabilities represent unsettled client trades at the end of the period. The increase of $526.2 million was due primarily to an increase in the amount of unsettled spot trades at period-end as compared to December 31, 2018.

Accrued Compensation

Accrued compensation includes amounts for our Incentive Compensation Plan, Direct Drive Incentive Compensation Plan, Retention Program, Warrant Incentive Plan, ESOP and other compensation arrangements. The increase of $35.4 million was the result of higher incentive compensation accruals for the nine months ended September 30, 2019 primarily due to the increase in the number of average FTEs for 2019.

Other Liabilities

Other liabilities includes various accrued liability amounts for other operational transactions. The increase of $104.9 million was reflective primarily of a $71.3 million increase in new commitments for our qualified affordable tax credit funds, a $17.2 million increase in accrued rebate liabilities due to the timing of settlement at September 30, 2019 as compared to December 31, 2018. In addition, an increase of $5.2 million in other liabilities was attributable to the inclusion of SVB Leerink in our financial results at September 30, 2019.

Noncontrolling Interests

Noncontrolling interests totaled $157.8 million and $148.6 million at September 30, 2019 and December 31, 2018, respectively. The $9.2 million increase was due primarily to income attributable to noncontrolling interests of $35.9 million as well as an additional $5.3 million attributable to the acquisition of SVB Leerink in our financial results for the nine months ended September 30, 2019, partially offset by net distributions of $32.0 million to limited partners from various managed funds of funds.

Fair Value Measurements

The following table summarizes our financial assets and liabilities that are measured at fair value on a recurring basis as of September 30, 2019 and December 31, 2018:

	September 30, 2019		December 31, 2018	
(Dollars in thousands)	Total Balance	Level 3	Total Balance	Level 3
Assets carried at fair value	$ 13,534,475	$ 145,175	$ 8,388,011	$ 146,278
As a percentage of total assets	19.8%	0.2%	14.7%	0.3%
Liabilities carried at fair value	$ 148,540	$ —	$ 98,050	$ —
As a percentage of total liabilities	0.2%	—%	0.2%	—%
As a percentage of assets carried at fair value		1.1%		1.7%

Financial assets valued using Level 3 measurements consist of our non-marketable investment securities in shares of private company stock and equity warrant assets (rights to shares of private and public company capital stock). The valuation methodologies of our non-marketable securities carried under fair value accounting and equity warrant assets involve a significant degree of management judgment. Refer to Note 18—"Fair Value of Financial Instruments" of the "Notes to Interim Consolidated Financial Statements (unaudited)" under Part I, Item 1 of this report for a summary of the valuation techniques and significant inputs used for each class of Level 3 assets.

The inherent uncertainty in the process of valuing securities for which a ready market does not exist may cause our estimated values of these securities to differ significantly from the values that would have been derived had a ready market for the securities existed, and those differences could be material. The timing and amount of changes in fair value, if any, of these financial instruments depend upon factors beyond our control, including the performance of the underlying companies, fluctuations in the market prices of the preferred or common stock of the underlying companies, general volatility and interest rate market factors, and legal and contractual restrictions. The timing and amount of actual net proceeds, if any, from the disposition of these financial instruments depend upon factors beyond our control, including investor demand for IPOs, levels of M&A activity, legal and contractual restrictions on our ability to sell, and the perceived and actual performance of portfolio companies. All of these factors are difficult to predict and there can be no assurances that we will realize the full value of these securities, which could result in significant losses. See "Risk Factors" set forth in our 2018 Form 10-K.

During the three and nine months ended September 30, 2019, the Level 3 assets that are measured at fair value on a recurring basis experienced net realized and unrealized gains of $39.6 million and $105.4 million, respectively, primarily reflective of valuation increases from our private company warrant portfolio driven by healthy funding rounds and net gains realized on exercised warrant assets due to IPO activity. During the three and nine months ended September 30, 2018, the Level 3 assets that are measured at fair value on a recurring basis experienced net realized and unrealized gains of $32.2 million and $69.2 million, respectively, primarily reflective of valuation increases from our public and private company warrant portfolios and net gains realized on exercised warrant assets due to IPO and M&A activity.

Capital Resources

We maintain an adequate capital base to support anticipated asset growth, operating needs and credit and other business risks, and to provide for SVB Financial and the Bank to be in compliance with all regulatory capital guidelines, including the joint agency rules implementing the "Basel III" capital rules. Our primary sources of new capital include retained earnings and proceeds from the sale and issuance of our capital stock or other securities. In consultation with the Finance Committee of our Board of Directors, management engages in regular capital planning processes in an effort to optimize the use of capital available to us and to appropriately plan for our future capital needs. The capital plan considers capital needs for the foreseeable future and allocates capital to both existing and future business activities. Expected future use or activities for which capital may be set aside include balance sheet growth and associated relative increases in market or credit exposure, investment activity, potential product and business expansions, acquisitions and strategic or infrastructure investments. In addition, we conduct capital stress tests as part of our annual capital planning process. The capital stress tests allow us to assess the impact of adverse changes in the economy and interest rates on our capital adequacy position.

SVBFG Stockholders' Equity

SVBFG stockholders' equity totaled $5.9 billion at September 30, 2019, an increase of $0.8 billion, or 15.1 percent, compared to $5.1 billion at December 31, 2018. This increase was due primarily to net income of $874.0 million and an increase in accumulated other comprehensive income reflective primarily of a $240.1 million ($173.2 million net of tax) increase in the fair value of our AFS securities portfolio driven by decreases in period-end market interest rates. The increases were partially offset by a $352.5 million decrease in SVBFG stockholders' equity related to the repurchase of our outstanding common stock.

Funds generated through retained earnings are a significant source of capital and liquidity and are expected to continue to be so in the future.

Capital Ratios

Both SVB Financial and the Bank are subject to various regulatory capital requirements administered by state and federal banking agencies.

Regulatory capital ratios for SVB Financial and the Bank exceeded minimum federal regulatory guidelines for a well-capitalized depository institution as of September 30, 2019 and December 31, 2018. Capital ratios for SVB Financial and the Bank, compared to the minimum regulatory ratios applicable to bank holding companies and banks to be considered "well capitalized" and "adequately capitalized," are set forth below:

	September 30, 2019	December 31, 2018	Minimum Ratios under Applicable Regulatory Capital Adequacy Requirements	
			"Well Capitalized"	"Adequately Capitalized"
SVB Financial:				
CET 1 risk-based capital ratio	12.71%	13.41%	6.5%	4.5%
Tier 1 risk-based capital ratio	12.86	13.58	8.0	6.0
Total risk-based capital ratio	13.70	14.45	10.0	8.0
Tier 1 leverage ratio	8.64	9.06	N/A	4.0
Tangible common equity to tangible assets ratio (1)	8.38	8.99	N/A	N/A
Tangible common equity to risk-weighted assets ratio (1)	13.04	13.28	N/A	N/A
Bank:				
CET 1 risk-based capital ratio	11.48%	12.41%	6.5%	4.5%
Tier 1 risk-based capital ratio	11.48	12.41	8.0	6.0
Total risk-based capital ratio	12.36	13.32	10.0	8.0
Tier 1 leverage ratio	7.48	8.10	5.0	4.0
Tangible common equity to tangible assets ratio (1)	7.36	8.13	N/A	N/A
Tangible common equity to risk-weighted assets ratio (1)	11.82	12.28	N/A	N/A

(1) See below for a reconciliation of non-GAAP tangible common equity to tangible assets and tangible common equity to risk-weighted assets.

Risk-based capital ratios (CET 1, tier 1, total risk-based capital, and tier 1 leverage ratio) for SVB Financial decreased as of September 30, 2019, compared to the same ratios as of December 31, 2018 as a result of an increase in risk-weighted assets, primarily driven by increases in funded loans and loan commitments. The decrease in the tier 1 leverage ratio is due to the increase in average assets driven by an increase in the average loan portfolio and investment securities.

Risk-based capital ratios (CET 1, tier 1, total risk-based capital, and tier 1 leverage ratio) for the Bank decreased as of September 30, 2019, compared to the same ratios as of December 31, 2018. The decrease in the Bank's capital ratios reflected $633.0 million of cash dividends paid by the Bank to our bank holding company, SVB Financial, during the nine months ended September 30, 2019.

All of our reported capital ratios remain above the levels considered to be "well capitalized" under applicable banking regulations.

The tangible common equity to tangible assets ratio and the tangible common equity to risk-weighted assets ratios are not required by GAAP or applicable bank regulatory requirements. However, we believe these ratios provide meaningful supplemental information regarding our capital levels. Our management uses, and believes that investors benefit from referring to, these ratios in evaluating the adequacy of the Company's capital levels; however, these financial measures should be considered in addition to, not as a substitute for or preferable to, comparable financial measures prepared in accordance with GAAP. These ratios are calculated by dividing total SVBFG stockholders' equity, by total period-end assets and risk-weighted assets, after reducing both amounts by acquired intangibles, if any. The manner in which this ratio is calculated varies among companies. Accordingly, our ratio is not necessarily comparable to similar measures of other companies.

The following table provides a reconciliation of non-GAAP financial measures with financial measures defined by GAAP for SVB Financial and the Bank for the periods ended September 30, 2019 and December 31, 2018:

Non-GAAP tangible common equity and tangible assets (Dollars in thousands, except ratios)	SVB Financial		Bank	
	September 30, 2019	December 31, 2018	September 30, 2019	December 31, 2018
GAAP SVBFG stockholders' equity	$ 5,890,680	$ 5,116,209	$ 4,918,767	$ 4,554,814
Less: intangible assets	190,111	—	—	—
Tangible common equity	$ 5,700,569	$ 5,116,209	$ 4,918,767	$ 4,554,814
GAAP total assets	$ 68,231,233	$ 56,927,979	$ 66,824,088	$ 56,047,134
Less: intangible assets	190,111	—	—	—
Tangible assets	$ 68,041,122	$ 56,927,979	$ 66,824,088	$ 56,047,134
Risk-weighted assets	$ 43,712,495	$ 38,527,853	$ 41,597,959	$ 37,104,080
Non-GAAP tangible common equity to tangible assets	8.38%	8.99%	7.36%	8.13%
Non-GAAP tangible common equity to risk-weighted assets	13.04	13.28	11.82	12.28

The tangible common equity to tangible assets ratio decreased for the Bank primarily as a result of the $633.0 million in cash dividends paid by the Bank to our bank holding company, SVB Financial Group, during the nine months ended September 30, 2019. The tangible common equity to risk-weighted assets ratio decreased for the Bank as a result of the proportionally higher increase in risk-weighted assets relative to the increase tangible common equity. The growth in period-end risk-weighted assets was primarily due to increases in cash and cash equivalents and period-end loan growth.

Off-Balance Sheet Arrangements

In the normal course of business, we use financial instruments with off-balance sheet risk to meet the financing needs of our customers. These financial instruments include commitments to extend credit, commercial and standby letters of credit and commitments to invest in venture capital and private equity fund investments. These instruments involve, to varying degrees, elements of credit risk. Credit risk is defined as the possibility of sustaining a loss because other parties to the financial instrument fail to perform in accordance with the terms of the contract. For details of our commitments to extend credit, and commercial and standby letters of credit, please refer to Note 16—"Off-Balance Sheet Arrangements, Guarantees and Other Commitments" of the "Notes to Interim Consolidated Financial Statements (unaudited)" under Part I, Item 1 of this report.

Commitments to Invest in Venture Capital and Private Equity Funds

Subject to applicable regulatory requirements, including the Volcker Rule, we make investments. We make commitments to invest in venture capital and private equity funds, which in turn make investments generally in, or in some cases make loans to, privately-held companies. Commitments to invest in these funds are generally made for a 10-year period from the inception of the fund. Although the limited partnership agreements governing these investments typically do not restrict the general partners from calling 100% of committed capital in one year, it is customary for these funds to generally call most of the capital commitments over 5 to 7 years; however, in certain cases, the funds may not call 100% of committed capital over the life of the fund. The actual timing of future cash requirements to fund these commitments is generally dependent upon the investment cycle, overall market conditions, and the nature and type of industry in which the privately held companies operate.

For further details on our commitments to invest in venture capital and private equity funds, refer to Note 16—"Off-Balance Sheet Arrangements, Guarantees and Other Commitments" of the "Notes to Interim Consolidated Financial Statements (unaudited)" under Part I, Item 1 of this report.

Liquidity

The objective of liquidity management is to ensure that funds are available in a timely manner to meet our financial obligations, including, as necessary, paying creditors, meeting depositors' needs, accommodating loan demand and growth, funding investments, repurchasing securities and other operating or capital needs, without incurring undue cost or risk, or causing a disruption to normal operating conditions.

We regularly assess the amount and likelihood of projected funding requirements through a review of factors such as historical deposit volatility and funding patterns, present and forecasted market and economic conditions, individual client funding needs, and existing and planned business activities. Our Asset/Liability Committee ("ALCO"), which is a management committee, provides oversight to the liquidity management process and recommends policy guidelines for the approval of the Finance

Committee of our Board of Directors, and courses of action to address our actual and projected liquidity needs. Additionally, we routinely conduct liquidity stress testing as part of our liquidity management practices.

Our deposit base is, and historically has been, our primary source of liquidity. Our deposit levels and cost of deposits may fluctuate from time to time due to a variety of factors, including market conditions, prevailing interest rates, changes in client deposit behaviors, availability of insurance protection, and our offering of deposit products. We may also offer more investment alternatives for our off-balance sheet products which may impact deposit levels. At September 30, 2019, our period-end total deposit balances were $59.5 billion, compared to $49.3 billion at December 31, 2018.

Our liquidity requirements can also be met through the use of our portfolio of liquid assets. Our definition of liquid assets includes cash and cash equivalents in excess of the minimum levels necessary to carry out normal business operations, short-term investment securities maturing within one year, available-for-sale securities eligible and available for financing or pledging purposes with a maturity in excess of one year and anticipated near-term cash flows from investments.

We have certain facilities in place to enable us to access short-term borrowings on a secured and unsecured basis. Our secured facilities include collateral pledged to the FHLB of San Francisco and the discount window at the FRB (using both fixed income securities and loans as collateral). Our unsecured facility consists of our uncommitted federal funds lines. As of September 30, 2019, collateral pledged to the FHLB of San Francisco was comprised primarily of fixed income investment securities and loans and had a carrying value of $4.5 billion, of which $4.1 billion was available to support additional borrowings. As of September 30, 2019, collateral pledged to the discount window at the FRB was comprised of fixed income investment securities and had a carrying value of $1.0 billion, all of which was unused and available to support additional borrowings. Our total unused and available borrowing capacity for our uncommitted federal funds lines totaled $1.9 billion at September 30, 2019. Our total unused and available borrowing capacity under our master repurchase agreements with various financial institutions totaled $3.3 billion at September 30, 2019.

On a stand-alone basis, SVB Financial's primary liquidity channels include dividends from the Bank, its portfolio of liquid assets, and its ability to raise debt and capital. Consistent with recent prior quarters, the Bank has paid a quarterly dividend to SVB Financial. For the three and nine months ended September 30, 2019, the dividend amount paid was $336.0 million and $633.0 million, respectively. The ability of the Bank to pay dividends is subject to certain regulations described in "Business—Supervision and Regulation—Restriction on Dividends" under Part I, Item 1 of our 2018 Form 10-K.

Consolidated Summary of Cash Flows

Below is a summary of our average cash position and statement of cash flows for the nine months ended September 30, 2019 and 2018. For further details, see our "Interim Consolidated Statements of Cash Flows (Unaudited)" under Part I, Item 1 of this report.

	Nine months ended September 30,	
(Dollars in thousands)	**2019**	**2018**
Average cash and cash equivalents	$ 6,250,024	$ 3,032,407
Percentage of total average assets	10.2%	5.6%
Net cash provided by operating activities	$ 709,744	$ 703,904
Net cash used for investing activities	(6,564,776)	(5,736,296)
Net cash provided by financing activities	9,229,689	5,928,458
Net increase in cash and cash equivalents	$ 3,374,657	$ 896,066

Average cash and cash equivalents increased by $3.2 billion, or 106.1 percent, to $6.3 billion for the nine months ended September 30, 2019, compared to $3.0 billion for the comparable 2018 period.

Cash provided by operating activities was $709.7 million for the nine months ended September 30, 2019, reflective primarily of net income before noncontrolling interests of $909.9 million, partially offset by a net decrease of $205.8 million in adjustments to reconcile net income to net cash driven primarily by the changes in our amortization of deferred loan fees and the change in accrued compensation.

Cash used for investing activities of $6.6 billion for the nine months ended September 30, 2019 was driven by $8.2 billion in purchases of fixed income investment securities and a $2.7 billion increase in loan balances, partially offset by $4.5 billion of proceeds from maturities and principle pay downs from our fixed income investment securities portfolio.

Cash provided by financing activities was $9.2 billion for the nine months ended September 30, 2019, reflective primarily of a net increase of $10.2 billion in deposits, partially offset by $0.6 billion in paydowns of our short-term overnight borrowings and $0.4 billion in cash outflows related to repurchases of our outstanding common stock.

Cash and cash equivalents were $6.9 billion and $3.8 billion, respectively, at September 30, 2019 and 2018.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Interest Rate Risk Management

Market risk is defined as the risk of adverse fluctuations in the market value of financial instruments due to changes in market interest rates. Interest rate risk is our primary market risk and can result from timing and volume differences in the repricing of our rate-sensitive assets and liabilities, widening or tightening of credit spreads, changes in the general level of market interest rates and changes in the shape and level of the benchmark LIBOR/SWAP yield curve. Additionally, changes in interest rates can influence the rate of principal prepayments on mortgage securities, which affects the rate of amortization of purchase premiums and discounts. Other market risks include foreign currency exchange risk, equity price risk, including the effect of competition on product pricing. All these risks are important considerations, but are also inherently difficult to predict and to assess the impact of each on the simulation results. Consequently, simulations used to analyze the sensitivity of net interest income to changes in interest rates will differ from actual results due to differences in the timing and frequency of rate resets, the magnitude of changes in market rates, the impact of competition, fluctuating business conditions, and the impact of strategies taken by management to mitigate these risks.

Interest rate risk is managed by our ALCO. ALCO reviews the sensitivity of the market valuation on earning assets and funding liabilities and the modeled 12-month projection of net interest income from changes in interest rates, structural changes in investment and funding portfolios, loan and deposit activity and current market conditions. Relevant metrics and guidelines, which are approved by the Finance Committee of our Board of Directors and are included in our Interest Rate Risk Policy, are monitored on an ongoing basis.

Interest rate risk is managed primarily through strategies involving our fixed income securities portfolio, available funding channels and capital market activities. In addition, our policies permit the use of off-balance sheet derivatives, such as interest rate swaps, to assist with managing interest rate risk.

We utilize a simulation model to perform sensitivity analysis on the economic value of equity and net interest income under a variety of interest rate scenarios, balance sheet forecasts and business strategies. The simulation model provides a dynamic assessment of interest rate sensitivity embedded within our balance sheet which measures the potential variability in economic value and net interest income relating solely to changes in market interest rates over time. We review our interest rate risk position and sensitivity to market interest rates regularly.

Model Simulation and Sensitivity Analysis

A specific application of our simulation model involves measurement of the impact of changes in market interest rates on the economic value of equity (“EVE”). EVE is defined as the market value of assets, less the market value of liabilities. Another application of the simulation model measures the impact of changes in market interest rates on net interest income (“NII”) assuming a static balance sheet size and composition as of the period-end reporting date. In the NII simulation, the level of market interest rates as well as the size and composition of the balance sheet are held constant over the simulation horizon. Simulated cash flows during the scenario horizon are assumed to be replaced as they occur, which maintains the balance sheet at its current size and composition. Yield and spread assumptions on cash and investment balances reflect current market rates and the shape of the yield curve. Yield and spread assumptions on loans reflect recent market impacts on product pricing. Similarly, we make certain deposit decay rate assumptions on demand deposits and interest-bearing deposits, which are replenished to hold the level and mix of funding liabilities constant. Changes in market interest rates that affect net interest income are principally short-term interest rates and include the following benchmark indexes: (i) the National Prime Rate, (ii) 1-month and 3-month LIBOR, and (iii) the Federal Funds target rate. Changes in these short-term rates impact interest earned on our variable rate loans and balances held as cash and cash equivalents. Additionally, simulated changes in deposit pricing relative to changes in market rates, commonly referred to as deposit beta, generally follow overall changes in short-term interest rates, although actual changes may lag in terms of timing and magnitude.

Changes in short-term interest rates through an increasing rate cycle from the end of 2015 through the end of 2018 and corresponding increases in deposit rates paid to our clients to attract new deposit funding and retain existing funds has resulted in a realized beta of approximately 50 percent, as measured since the beginning of the increasing rate cycle. Management expects deposit repricing behavior in a falling rate environment to be different than repricing behavior in a rising rate environment. This results in an "asymmetric" beta assumption that is applied in the NII and EVE simulation models for interest bearing deposits. This model assumes the overall beta for interest bearing deposits in a falling rate environment would be approximately 60 percent. That is, overall changes in interest bearing deposit rates would be approximately 60 percent of the change in short-term market rates. These repricing assumptions are reflected as changes in interest expense on interest bearing deposit balances.

The following table presents our EVE and NII sensitivity exposure related to an instantaneous and sustained parallel shift in market interest rates of 100 and 200 basis points ("bps") at September 30, 2019 and December 31, 2018. NII sensitivity for December 31, 2018 reflects the higher beta assumptions discussed above in both increasing and decreasing rate scenarios for purposes of comparison. Modeled EVE for December 31, 2018 has not been adjusted as the assumption change had an immaterial impact.

Change in interest rates (bps) (Dollars in thousands)	Estimated EVE	Estimated Increase/(Decrease) in EVE		Estimated NII	Estimated Increase/(Decrease) in NII	
		Amount	Percent		Amount	Percent
September 30, 2019:						
+200	$ 10,053,818	$ (210,435)	(2.1)%	$ 2,494,222	$ 443,430	21.6 %
+100	10,193,693	(70,560)	(0.7)	2,274,377	223,585	10.9
—	10,264,253	—	—	2,050,792	—	—
-100	10,080,991	(183,262)	(1.8)	1,851,688	(199,104)	(9.7)
-200	9,961,089	(303,164)	(3.0)	1,675,960	(374,832)	(18.3)
December 31, 2018: (as revised)						
+200	$ 9,348,408	$ 504,405	5.7 %	$ 2,583,577	$ 499,257	24.0 %
+100	9,090,781	246,778	2.8	2,334,040	249,720	12.0
—	8,844,003	—	—	2,084,320	—	—
-100	8,470,501	(373,502)	(4.2)	1,840,190	(244,130)	(11.7)
-200	7,590,973	(1,253,030)	(14.2)	1,543,150	(541,170)	(26.0)

Economic Value of Equity

The estimated EVE in the preceding table is based on a combination of valuation methodologies including a discounted cash flow analysis and a multi-path lattice-based valuation. Both methodologies use publicly available market interest rates to determine discounting factors on projected cash flows. The model simulations and calculations are highly assumption-dependent and will change regularly as the composition of earning assets and funding liabilities change (including the impact of changes in the value of interest rate derivatives, if any), as interest rate environments evolve, and as we change our assumptions in response to relevant market conditions, competition or business circumstances. These calculations do not reflect forecast changes in our balance sheet or changes we may make to reduce our EVE exposure as a part of our overall interest rate risk management strategy.

As with any method of measuring interest rate risk, certain limitations are inherent in the method of analysis presented in the preceding table. We are exposed to yield curve risk, prepayment risk, basis risk and yield spread compression, which cannot be fully modeled and expressed using the above methodology. Accordingly, the results in the preceding table should not be relied upon as a precise indicator of actual results in the event of changing market interest rates. Additionally, the resulting EVE and NII estimates are not intended to represent and should not be construed to represent our estimate of the underlying EVE or forecast of NII.

Our base EVE as of September 30, 2019 increased from December 31, 2018 by $1.4 billion, driven equally by changes in balance sheet composition as well as changes in interest rates. Interest rate changes include the shape of the yield curve which remains inverted, with rates across the curve approximately 90 bps to 115 bps lower compared to December 31, 2018. At September 30, 2019, as compared to December 31, 2018, total loan balances increased by $2.7 billion, primarily in Prime and LIBOR indexed variable rate loans. Total fixed income securities increased by $4.0 billion due primarily to total deposit growth. Total deposit growth was $10.2 billion as compared to December 31, 2018.

Overall balance sheet growth contributed $731 million to the change in total base EVE. Lower rates across the yield curve contributed an additional $689 million to base EVE. Excess liquidity due to deposit growth was absorbed by the investment portfolio, of which approximately 42% of holdings are 15-year and 30-year fixed agency MBS. Under the current rate environment, the MBS portfolio contributes to a negatively convex EVE profile as the securities extend in the +100 and +200 instantaneous rate shock scenarios due to slower prepayment speeds. Thus, in the +100 and +200 rate shock scenarios, EVE decreased slightly relative to base EVE. The change in EVE under the +100 bps rate shock scenario as of September 30, 2019 is approximately $317 million lower compared to the results from December 31, 2018. The change in EVE sensitivity in the +200 is approximately $715 million lower compared to the December 31, 2018 results.

12-Month Net Interest Income Simulation

NII sensitivity is measured as the percentage change in projected 12-month net interest income earned in +/-100 and +/-200 basis point interest rate shock scenarios compared to a base scenario where balances and interest rates are held constant over the forecast horizon. At September 30, 2019, NII sensitivity was 10.9 percent in the +100 bps interest rate scenario, compared to 12.0 percent at December 31, 2018. Our NII sensitivity in the +200 bps interest rate shock scenario was 21.6 percent compared to 24.0 percent at December 31, 2018. NII sensitivity in the -100 bps scenario of negative 9.7 percent was lower at September 31, 2019, compared to a negative 11.7 percent at December 31, 2018. The -200 bps scenario currently indicates a lower percentage change in NII of negative 18.3 percent at September 30, 2019, compared to negative 26.0 percent at December 31, 2018. The September 30, 2019 NII sensitivity percentages are inclusive of the income or expense associated with interest rate swaps that are part of our macro hedging process initiated in 2019 as part of the effort to reduce the impact of decreasing rates on NII. The changes in NII sensitivity are primarily the result of the changes in balance sheet composition described previously, combined with the impact of hedges in the respective parallel rate shock scenarios.

Our base case static 12-month NII forecast at September 30, 2019 decreased compared to December 31, 2018 by $34 million. This decrease is primarily the result of fundamental changes in balance sheet composition that have taken place year-to-date. Specifically, significant growth in interest bearing deposit balances as well as corresponding growth in loan and investment balances. However, in the 12-month NII simulation, the interest income benefit of growth in the balance sheet was offset by an increase in interest expense associated with the increase in interest-bearing deposit balances and lower overall rate levels across the yield curve. Costs associated with the macro hedging swap portfolio also contributed to the decrease in the simulated 12-month NII.

A majority of our loans are indexed to Prime and LIBOR. In the positive parallel simulated rate shock scenarios, interest income on assets that are tied to variable rate indexes, primarily our variable rate loans, are expected to benefit our base 12-month NII projections. The opposite is true for negative rate shock scenarios.

The 12-month NII simulations include repricing assumptions on our interest bearing deposit products which we set at our discretion based on client needs and our overall funding mix. Repricing of interest bearing deposits impacts estimated interest expense. As noted previously, repricing deposit rates are generally assumed to be less than one-half of the amount of simulated changes in short-term market interest rates.

The simulation model used in the above analysis incorporates embedded floors on loans, where present, in our interest rate scenarios, which prevent model benchmark rates from moving below zero percent in the down rate scenarios. The embedded floors are also a factor in the up rate scenarios to the extent a simulated increase in rates is needed before floored rates are cleared. In addition, we assume different deposit balance decay rates based on a historical deposit study of our clients. These assumptions may change in future periods based on changes in client behavior and at management's discretion. Actual changes in our deposit pricing strategies may differ from our current model assumptions and may have an impact on our actual sensitivity overall.

ITEM 4. CONTROLS AND PROCEDURES

Disclosure Controls and Procedures

Disclosure controls and procedures are the controls and other procedures that are designed to ensure that information required to be disclosed in the reports that we file or submit under the Securities Exchange Act of 1934, as amended (the “Exchange Act”) is recorded, processed, summarized, and reported within the time periods specified in SEC rules and forms. Disclosure controls and procedures include, among other things, processes, controls and procedures designed to ensure that information required to be disclosed in the reports that we file or submit under the Exchange Act is accumulated and communicated to management, including the Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure.

We carried out an evaluation, under the supervision and with the participation of management, including the Chief Executive Officer and the Chief Financial Officer, of the effectiveness of the design and operation of our disclosure controls and procedures as of our most recently completed fiscal quarter, pursuant to Exchange Act Rule 13a-15(b). Based upon this evaluation, the Chief Executive Officer and Chief Financial Officer have concluded that, as of the end of the period covered by this report, the Company’s disclosure controls and procedures were effective.

Changes in Internal Control

Except as set forth below, there were no changes in our internal control over financial reporting identified in management’s evaluation pursuant to Rules 13a-15(d) or 15d-15(d) of the Exchange Act during the period covered by this Quarterly Report on Form 10-Q that materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Beginning January 1, 2019, we implemented ASC 842, Leases. Although the new lease standard had an immaterial impact on our consolidated financial statements, we did implement changes to our processes related to recognition and the control activities to properly identify and record them. These included the development of new policies, new controls, new training, ongoing contract review requirements, and gathering of information provided for disclosures.

PART II–OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

Please refer to Note 19—"Legal Matters" of the "Notes to Interim Consolidated Financial Statements (unaudited)" under Part I, Item 1 of this report.

ITEM 1A. RISK FACTORS

There are no material changes to the risk factors set forth in our 2018 Annual Report on Form 10-K.

ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS

Recent Sales of Unregistered Securities

None.

Issuer Purchases of Equity Securities

Stock repurchase activity during the three months ended September 30, 2019 was as follows:

Period ended	Total number of shares purchased	Average price paid per share	Total number of shares purchased as part of publicly announced programs	Maximum dollar value that may yet be purchased under the programs (1)
July 31, 2019	25,562	$ 224.16	2,247,417	$ 365,526
August 31, 2019	—	—	—	—
September 30, 2019	—	—	—	—
Total	25,562	$ 224.16	2,247,417	$ 365,526

(1) On November 13, 2018, the Company announced that its Board of Directors had authorized a $500 million stock repurchase program (the "Stock Repurchase Program"), pursuant to which the Company may, from time to time and on or before the program's expiration date of November 15, 2019, repurchase shares of its outstanding common stock in the open market, in privately-negotiated transactions, or otherwise, subject to applicable laws and regulations. During the three months ended September 30, 2019, the Company repurchased 25,562 shares of its outstanding common stock for $5.7 million under the Stock Repurchase Program. As of September 30, 2019, the Company had repurchased 2.2 million shares of its outstanding common stock for $499.6 million under the Stock Repurchase Program. The Stock Repurchase Program was completed on July 1, 2019.

On October 24, 2019, the Company's Board of Directors authorized a new stock repurchase program that enables the Company to repurchase up to $350 million of its outstanding common stock. This program expires on October 29, 2020. The extent to which the Company repurchases its shares, and the timing of such repurchases, will depend upon a variety of factors, including market conditions, regulatory requirements, availability of funds, and other relevant considerations, as determined by the Company. The Company may, in its discretion, begin, suspend or terminate repurchases at any time prior to the program's expiration, without any prior notice. Repurchases may also be made pursuant to a trading plan under Rule 10b5-1 under the Exchange Act, which would permit shares to be repurchased when the Company might otherwise be precluded from doing so because of self-imposed trading blackout periods or other regulatory restrictions.

ITEM 3. DEFAULTS UPON SENIOR SECURITIES

None.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

ITEM 5. OTHER INFORMATION

None.

ITEM 6. EXHIBITS

Exhibit Number	Exhibit Description	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
*10.1	Form of Nonqualified Stock Option Agreement under 2006 Equity Incentive Plan**					X
*10.2	Form of Restricted Stock Unit Award Agreement under 2006 Equity Incentive Plan**					X
*10.3	Form of Restricted Stock Unit Award Agreement under 2006 Equity Incentive Plan (Performance-Based)**					X
31.1	Rule 13a-14(a) / 15(d)-14(a) Certification of Principal Executive Officer					X
31.2	Rule 13a-14(a) / 15(d)-14(a) Certification of Principal Financial Officer					X
32.1	Section 1350 Certifications					X
101.INS	XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document					X
101.SCH	XBRL Taxonomy Extension Schema Document					X
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document					X
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document					X
101.LAB	XBRL Taxonomy Extension Label Linkbase Document					X
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document					X

* Denotes management contract or any compensatory plan, contract or arrangement.

** Forms applicable to grants made under the 2006 Equity Incentive Plan beginning in 2019.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

SVB Financial Group

Date: November 12, 2019

/s/ DANIEL BECK

Daniel Beck
Chief Financial Officer
(Principal Financial Officer)

SVB Financial Group

Date: November 12, 2019

/s/ KAREN HON

Karen Hon
Interim Chief Accounting Officer
(Principal Accounting Officer)

Exhibit 10.1

Notice of Grant of Stock Options and Award Agreement

SVB FINANCIAL GROUP
ID: 94-2875288
3003 Tasman Drive
Santa Clara, CA 95054

Grant Agreement:	
Participant Name: ###PARTICIPANT_NAME###	**Grant Name:** ###GRANT_NAME###
Employee Number: ###EMPLOYEE_NUMBER###	**Issue Date/Date of Grant:** ###ISSUE_DATE###
Total Nonqualified Stock Options: **Total** ###DICTIONARY_AWARD_NAME###: ###TOTAL_AWARDS###	**Expiry/Expiration Date:** ###EMPLOYEE_GRANT_EXPIRY_DATE###
Plan: 2006 Equity Incentive Plan	**Grant/Option Price:** ###GRANT_PRICE### ###GRANT_PRICE_REM_START### ###GRANT_PRICE_REM_END###
###EMPLOYEE_GRANT_VEST_SCHEDULE_TABLE###	###EMPLOYEE_GRANT_NUMBER###

Effective on the Date of Grant listed above, you have been granted a Nonqualified Stock Option to buy Shares of SVB Financial Group (the "Company") stock at the Option Price listed in the Grant Agreement above (the "Option").

Shares in each period will become fully vested on the dates shown in the Vesting Schedule, subject to you continuing to be a Service Provider through each such date. Notwithstanding the foregoing, if your status as a Service Provider terminates as a result of your death or Disability, then 100% of the Shares subject to the Option will fully vest.

The Option and any Shares, cash, or other property acquired in connection with the exercise of the Option will be subject to the terms and conditions of any clawback policy adopted by the Company and as may be in effect from time to time, which will survive your termination as a Service Provider.

By your acceptance and the Company's signature below, you and the Company agree that this Option is granted under and governed by the terms and conditions of the Company's 2006 Equity Incentive Plan and this Global Nonstatutory Stock Option Award Agreement, including any country appendix, all of which are attached and made a part of this document.

###HR_SIGNATURE###
SVB Financial Group

Date

Participant Name

Date

SVB FINANCIAL GROUP

GLOBAL NONSTATUTORY STOCK OPTION AWARD AGREEMENT

SVB Financial Group (the "Company"), pursuant to its 2006 Equity Incentive Plan, as amended from time to time (the "Plan") and this Global Nonstatutory Stock Option Award Agreement, including any country-specific terms and conditions for your country set forth in the Appendix for Non-U.S. Participants (the "Appendix") attached hereto as Appendix A (together with the Global Nonstatutory Stock Option Award Agreement, the "Award Agreement") has granted to Participant an Option to purchase shares of the Common Stock of the Company ("Shares"). This Option is not intended to qualify as an "incentive stock option" within the meaning of Section 422 of the U.S. Internal Revenue Code of 1986, as amended (the "Code").

Defined terms not explicitly defined in this Award Agreement shall have the same definitions as in the Plan or in the Notice of Grant of Stock Options ("Notice of Grant"), to which this Award Agreement is attached.

The details of your Option are as follows:

1. TOTAL NUMBER OF SHARES SUBJECT TO THIS OPTION. The total number of Shares subject to this Option is set forth in the Notice of Grant.

2. VESTING. Subject to the limitations contained herein, the Option will vest (become exercisable) as set forth in the Notice of Grant until either (i) you cease to be a Service Provider for any reason, or (ii) this Option becomes fully vested. Notwithstanding the foregoing, if your status as a Service Provider terminates as a result of your death or Disability, then 100% of the Shares subject to the Option will fully vest. In the event of your termination as a Service Provider (regardless of the reason for such termination and whether or not later to be found invalid or in breach of employment laws in the jurisdiction where you are employed or the terms of your employment agreement, if any), (i) your right to vest in this Option under the Plan, if any, and (ii) the period (if any) during which you may exercise this Option shall be measured by the date upon which your employment with your employer (the "Employer") and any notice period has ended. For the avoidance of doubt, employment shall include any contractual notice period or period of "garden leave" or similar period mandated under employment laws in the jurisdiction where you are employed or the other terms of your employment agreement, if any. The Committee shall have the exclusive discretion to determine when you are no longer employed for purposes of the Option.

3. OPTION PRICE AND METHOD OF PAYMENT.

(a) Option Price. The Option Price per Share is the price set forth in the Notice of Grant, such price being not less than one hundred percent (100%) of the fair market value of the Common Stock on the Date of Grant of this Option.

(b) Method of Payment. Payment of the Option Price per Share is due in full upon exercise of all or any part of each installment which has accrued to you. You may elect, to the extent permitted by Applicable Laws, to make payment of the Option Price under one of the following alternatives:

(i) Payment of the Option Price per Share in cash (including check) at the time of exercise;

(ii) For U.S. taxpayers only, provided that at the time of exercise the Common Stock is publicly traded and quoted regularly in the Wall Street Journal, payment by delivery of already-owned Shares, held for the period required to avoid a charge to the Company's reported earnings, and owned free and clear of any liens, claims, encumbrances or security interests, which Common Stock shall be valued at its fair market value on the date of exercise;

(iii) Consideration received by the Company under a formal cashless exercise program adopted by the Company in connection with the Plan; or

(iv) Payment by a combination of the methods of payment permitted by Section 3(b)(i), (ii), and (iii) above.

4. WHOLE SHARES. This Option may only be exercised for whole Shares.

5. SECURITIES LAW COMPLIANCE. Notwithstanding anything to the contrary in the Plan or this Award Agreement, unless there is an available exemption from any registration, qualification or other legal requirement applicable to the Shares, the Company shall not be required to deliver any Shares issuable upon exercise of the Option prior to the completion of any registration or qualification of the Shares under any U.S. or non-U.S. local, state, or federal securities or exchange control law or under rulings or regulations of the U.S. Securities and Exchange Commission ("SEC") or of any other governmental regulatory body, or prior to obtaining any approval or other clearance from any U.S. or non-U.S. local, state, or federal governmental agency, which registration, qualification or approval the Company shall, in its absolute discretion, deem necessary or advisable. You understand that the Company is under no obligation to register or qualify the Shares with the SEC or any state or foreign securities commission or to seek approval or clearance from any governmental authority for the issuance or sale of the shares. Further, you agree that the Company shall have unilateral authority to amend the Plan and the Award Agreement without your consent to the extent necessary to comply with securities or other laws applicable to issuance of shares.

6. TERM. The term of this Option commences on the Date of Grant and expires on the Expiration Date, unless this Option expires sooner as set forth below or in the Plan. In no event may this Option be exercised on or after the Expiration Date. This Option shall terminate prior to the Expiration Date as follows: three (3) months after your termination as a Service Provider unless one of the following circumstances exists:

(a) Your termination as a Service Provider is due to your Disability. This Option will then expire on the earlier of the Expiration Date set forth above or twelve (12) months following such termination.

(b) Your termination as a Service Provider is due to your death. This Option will then expire on the earlier of the Expiration Date set forth above or twelve (12) months after your death.

(c) Your termination as a Service Provider is due to Cause (as defined in the Plan). This Option will then expire on the date of such termination.

(d) If during any part of such three (3)-month period you may not exercise your Option solely because of the condition set forth in Section 5 above, then your Option will not expire until the earlier of the Expiration Date set forth above or until this Option shall have been exercisable for an aggregate period of three (3) months after your termination as a Service Provider.

(e) If your exercise of the Option within three (3) months after your termination as a Service Provider would result in liability under Section 16(b) of the Exchange Act, then your Option will expire on the earlier of (i) the Expiration Date set forth above, or (ii) the tenth (10th) day after the last date upon which exercise would result in such liability.

However, this Option may be exercised following your termination as a Service Provider only as to that number of Shares as to which it was exercisable on the date of termination under the provisions of Section 2 of this Option.

7. EXERCISE.

(a) This Option is exercisable by (i) delivery of an exercise notice, in the form and manner determined by the Administrator, or (ii) following an electronic or other exercise procedure prescribed by the Administrator, which in either case shall state the election to exercise the Option, the number of Shares in respect of which the Option is being exercised, and such other representations and agreements as may be required by the Company pursuant to the provisions of the Plan. Participant shall provide payment of any applicable Tax-Related Items (as defined in Section 10, herein) arising in connection with such exercise. This Option shall be deemed to be exercised upon receipt by the Company of a fully executed exercise notice or completion of such exercise procedure, as the Administrator may determine in its sole discretion, accompanied by any applicable Tax-Related Items (as defined in Section 10, herein).

(b) By exercising this Option you agree that, as a precondition to the completion of any exercise, you must satisfy the Tax-Related Items in accordance with Section 10, herein.

8. TRANSFERABILITY.

(a) This Option is not transferable, except by will or by the laws of descent and distribution, and is exercisable during your life only by you.

(b) The terms of this Award Agreement (including, without limitation, Section 6(b) relating to termination as a result of death) shall apply to your beneficiaries (provided such beneficiaries have been designated prior to your death in a form acceptable to the Administrator) and executors and administrators including the right to agree to any amendment of the applicable Award Agreement.

(d) An Option shall be exercised only by you (or your attorney in fact or guardian) or, in the case of your death, by the executor or administrator, and no Shares shall be issued by the Company unless the exercise of an Option is accompanied by sufficient payment, as determined by the Company, to meet the Tax-Related Items (as defined in Section 10, herein) on such exercise or by other arrangements satisfactory to the Committee to provide such payment.

9. ACKNOWLEDGMENTS. You acknowledge and agree to the following:

- the Plan is discretionary in nature and the Administrator may amend, suspend, or terminate it at any time;

- the grant of this Option is exceptional, voluntary and occasional and does not create any contractual or other right to receive future grants of options, or benefits in lieu of the options even if options have been granted in the past;

- all determinations with respect to future Option or other grants, if any, will be at the sole discretion of the Administrator;

- your participation in the Plan is voluntary;

- this Option and any Shares acquired under the Plan and the income from and value of same, are not part of normal or expected compensation for purposes of calculating any severance, resignation, termination, redundancy, dismissal, end-of-service payments, bonuses, long-service awards, holiday pay, pension or retirement or welfare benefits or similar payments;

- the future value of the Shares is unknown, indeterminable, and cannot be predicted with certainty;

- if the underlying Shares do not increase in value, this Option will have no value;

- if you exercise this Option and acquire Shares, the value of such Shares may increase or decrease in value, even below the Option Price;

- this Option and any Shares, cash, or other property acquired in connection with the exercise of the Option will be subject to the terms and conditions of any clawback policy adopted by the Company and as may be in effect from time to time, which will survive your termination as a Service Provider;

- neither the Plan nor the Option shall be construed to create a right to employment or be interpreted as forming an employment or service contract with the Company, your Employer or any Affiliate, and shall not interfere with the ability of the Company, the Employer or any Affiliate, as applicable, to terminate your status as a Service Provider (if any);

- no claim or entitlement to compensation or damages shall arise from forfeiture of this Option resulting from the termination of your status as a Service Provider (for any reason whatsoever, whether or not later found to be invalid or in breach of employment laws in the jurisdiction where you are employed or the terms of your employment agreement, if any);

- unless otherwise provided in the Plan or by the Company in its discretion, this Option and the benefits evidenced by this Award Agreement do not create any entitlement to have this Option or any such benefits transferred to, or assumed by, another company nor to be exchanged, cashed out or substituted for, in connection with any corporate transaction affecting the Shares of the Company; and

- the following provisions apply only if you are providing services outside the United States:

    - this Option and the Shares subject to this Option, and the income from and value of the same, are not part of normal or expected compensation or salary for any purpose; and

    - neither the Company, the Employer nor any Affiliate shall be liable for any foreign exchange rate fluctuation between your local currency and the United States Dollar that may affect the value of this Option or of any amounts due to you pursuant to the exercise of this Option or the subsequent sale of any Shares acquired upon exercise.

10. WITHHOLDING OF TAXES. The Company or one of its Affiliates shall assess tax and social insurance liability and requirements in connection with your participation in the Plan, including, without limitation, income tax, social insurance, payroll tax, fringe benefit tax, payment of account or other tax related items related to your participation in the Plan and legally applicable to you (the "Tax-Related Items"). These requirements may change from time to time as laws or interpretations change. Regardless of the actions of the Company or if different, the Employer, you hereby acknowledge and agree that the Tax-Related Items liability is and remains your responsibility and liability.

You acknowledge that the Company's obligation to issue Shares or make payment in connection with the Option shall be subject to satisfaction of the Tax-Related Items liability. By your acceptance of the Option, you authorize the Company, the Employer or any brokerage firm determined acceptable to the Company to sell on your behalf a whole number of Shares from those Shares issued to you as the Company determines to be sufficient to satisfy the obligation for Tax Related Items unless such method of exercise is not available to you under the terms of the Appendix or as otherwise determined by the Company. Alternatively, or in addition thereto, you further authorize the Company or the Employer to satisfy the Tax-Related Items withholding liability by deducting an amount from your wages or from other cash compensation to be paid to you by the Company or the Employer. If authorized by the Company, employees who are U.S. taxpayers residing in the United States also may exercise the Option through Share attestation. The Company and/or the Employer may withhold or account for Tax-Related Items by considering statutory withholding amounts or other withholding rates, including maximum applicable rates in your jurisdiction(s), in which case you may receive a refund of any over-withheld amount in cash and will have no entitlement to the equivalent amount in Shares. Finally, you agree to pay the Company or the Employer any Tax-Related Items withholding liability that cannot be satisfied by one of the methods of exercise set forth in this Award Agreement and authorized under the Plan.

11. [RESERVED.]

12. COMPLIANCE WITH APPLICABLE LAWS. The vesting and exercise of the Option under the Plan and the issuance, transfer, assignment, sale, or other dealings of the Shares shall be subject to compliance by the Company (or any Affiliate) and you with all Applicable Laws.

13. ELECTRONIC DELIVERY. The Company may, in its sole discretion, decide to deliver any documents related to the Option awarded under the Plan or future Options that may be awarded under the Plan by electronic means or request your consent to participate in the Plan by electronic means. You hereby consent to receive such documents by electronic delivery and agree to participate in the Plan through an on-line or electronic system established and maintained by the Company or another third party designated by the Company. Electronic execution of this Award Agreement and/or other documents shall have the same binding effect as a written or hard copy signature and accordingly, shall bind you and the Company to all of the terms and conditions set forth in the Plan, this Award Agreement and/or such other documents.

14. NOTICES. Any notices provided for in this Option or the Plan shall be given in writing and shall be deemed effectively given upon receipt or, in the case of notices delivered by the Company to you, five (5) days after deposit in the United States mail, postage prepaid, addressed to you at the address specified below or at such other address as you hereafter designate by written notice to the Company.

15. GOVERNING PLAN DOCUMENT. This Option is subject to all the provisions of the Plan, a copy of which is attached hereto and its provisions are hereby made a part of this Option, and is further subject to all interpretations, amendments, rules and regulations which may from time to time be

promulgated and adopted pursuant to the Plan. In the event of any conflict between the provisions of this Option and those of the Plan, the provisions of the Plan shall control.

16. NO ADVICE REGARDING GRANT. The Company is not providing any tax, legal or financial advice, nor is the Company making any recommendations regarding your participation in the Plan, or your acquisition or sale of the underlying Shares. You should consult with your own personal tax, legal and financial advisors regarding your participation in the Plan before taking any action related to the Plan.

17. AGREEMENT SEVERABLE. In the event that any provision in this Award Agreement will be held invalid or unenforceable, such provision will be severable from, and such invalidity or unenforceability will not be construed to have any effect on, the remaining provisions of this Award Agreement.

18. LANGUAGE. You acknowledge that you are proficient in the English language, or have consulted with an advisor who is sufficiently proficient in English, so as to allow you to understand the terms and conditions of this Award Agreement. If you have received this Award Agreement or any other document related to the Plan translated into a language other than English and if the meaning of the translated version is different than the English version, the English version will control.

19. APPENDIX. Notwithstanding any provisions in this Award Agreement, if you reside outside the United States at any time during the life of this Option, your participation in the Plan shall be subject to the Appendix for Non-U.S. Participants attached hereto as Appendix A. Moreover, if you relocate to one of the countries included in the Appendix, the special terms and conditions will apply to you, to the extent the Company determines that the application of such terms and conditions is necessary or advisable for legal or administrative reasons. The Appendix constitutes part of this Award Agreement.

20. GOVERNING LAW AND VENUE . This Award Agreement will be governed by the laws of the State of California, without giving effect to the conflict of law principles thereof. For purposes of litigating any dispute that arises under this Option or this Award Agreement, the parties hereby submit to and consent to the jurisdiction of the State of California**,** and agree that such litigation shall be conducted in the courts of Santa Clara County, California**,** or the federal courts for the United States for the Northern District of California, and no other courts, where this Option is made and/or to be performed.

21. IMPOSITION OF OTHER REQUIREMENTS. The Company reserves the right to impose other requirements on your participation in the Plan, this Option and on any Shares acquired under the Plan, to the extent the Company determines it is necessary or advisable for legal or administrative reasons, and to require you to sign any additional agreements or undertakings that may be necessary to accomplish the foregoing.

22. INSIDER TRADING/MARKET ABUSE RESTRICTIONS. By accepting the Option, you acknowledge that you are bound by all the terms and conditions of the Company's insider trading policy as may be in effect from time to time. You further acknowledge that, depending on your or your broker's country or the country in which the Shares are listed, you may be subject to insider trading restrictions and/or market abuse laws which may affect your ability to accept, acquire, sell or otherwise dispose of Shares, rights to Shares (*e.g.*, Options) or rights linked to the value of Shares under the Plan during such times as you are considered to have "inside information" regarding the Company (as defined by the laws in the applicable jurisdictions). Local insider trading laws and regulations may prohibit the cancellation or amendment of orders you placed before you possessed inside information. Furthermore, you could be prohibited from (i) disclosing the inside information to any third party, which may include fellow employees and (ii) "tipping" third parties or causing them otherwise to buy or sell securities. Any restrictions under these laws or

regulations are separate from and in addition to any restrictions that may be imposed under the Company's insider trading policy as may be in effect from time to time. You acknowledge that it is your responsibility to comply with any applicable restrictions, and you should speak to your personal advisor on this matter.

23. FOREIGN ASSET/ACCOUNT, EXCHANGE CONTROL AND TAX REPORTING. Depending on your country, you may be subject to foreign asset/account, exchange control, tax reporting or other requirements which may affect your ability acquire or hold Options or Shares under the Plan or cash received from participating in the Plan (including dividends and the proceeds arising from the sale of Shares) in a brokerage/bank account outside your country. The applicable laws of your country may require that you report such Options, Shares, accounts, assets or transactions to the applicable authorities in such country and/or repatriate funds received in connection with the Plan to your country within a certain time period or according to certain procedures. You acknowledge that you are responsible for ensuring compliance with any applicable requirements and should consult your personal legal advisor to ensure compliance with applicable laws.

24. WAIVER. You acknowledge that a waiver by the Company of breach of any provision of this Award Agreement shall not operate or be construed as a waiver of any other provision of this Award Agreement, or of any subsequent breach by you or any other participant.

Notice of Exercise

SVB Financial Group
Attn: Stock Administration
80 E Rio Salado Parkway Suite 600
Tempe, AZ 85281

I, _____ , elect to exercise the following SVB Financial Group stock option(s):

Grant Number:	Grant Date:	Type of Option:	Number of Shares to be Exercised:	Exercise Price Per Share:	Aggregate Exercise Price:
		NQ		$	$
		NQ			
		NQ			
					$

TYPE OF EXERCISE:

☐ CASH(1) ☐ CASHLESS (Sale of underlying shares of option to pay exercise price) ☐ Sell shares ☐ Sell all shares listed above ☐ STOCK(1)(2) (For U.S. taxpayers only - use already-held shares to pay exercise price) *Attach Share Attestation Form*

BROKER INFORMATION (if applicable**):**

Firm: _____ DTC # _____ Account # _____
Contact Person: _____ Phone: _____ Fax: _____

☐ I authorize my broker to pay SVB Financial Group the aggregate exercise price. For non-qualified (NQ) shares, I also authorize my broker to pay Silicon Valley Bank for the applicable taxes owed.

DELIVERY INSTRUCTIONS:

☐ Mail certificate to my home address. ☐ Deliver electronically to my Broker.

I will (i) provide any additional documents you require pursuant to the terms of the Award Agreement, (ii) pay any withholding taxes resulting from exercise of a NQ stock option.

Very truly yours,

SS#: _____

_____
Signed

Telephone: _____

_____
Address

Date: _____

(1) The Effective Date of cash and stock exercises is the day cash, stock, or Share Attestation Form is received by Stock Administration, unless otherwise notified by Stock Administration as a result of insider trading restrictions. If delivery is made by US Mail (or overnight courier) the Effective Date is the postmark date (or pick-up date). The value of shares remitted for stock transactions is based on the closing stock price on the Effective Date.

(2) Attested shares must meet certain requirements.

Share Attestation Form for U.S. Taxpayers

SVB Financial Group
Attn: Stock Administration
80 E Rio Salado Parkway Suite 600
Tempe, AZ 85281

I will use shares of SVB Financial Group (the "Company") common stock I already own to pay the exercise price on the stock options identified on the attached Notice of Exercise. I will not deliver the shares. The Company will subtract the number of shares required to pay the exercise price from the underlying shares I am entitled to receive from the stock option and send me the balance.

1. I certify that I own _____ shares of SVB Financial Group common stock (the "Attested Shares") which I tender to pay part or all of the stock option exercise price. I hold the Attested Shares (*check one*):

- ☐ individually. A photocopy of the stock certificate(s) is attached.
- ☐ jointly as _____ . A photocopy of the stock certificate(s) is attached.
- ☐ in a brokerage account in the name(s) of _____ . A photocopy of a brokerage statement from the preceding two months showing the Company stock is attached. (Note: Irrelevant information related to other investments may be blocked out.)

2. I certify that (*check all that apply*):

- ☐ the Attested Shares are **NOT** held by a trustee or custodian in an IRA account or any tax deferral plan.
- ☐ I have owned the Attested Shares for **AT LEAST SIX MONTHS** and did not acquire them in a stock-for-stock transaction during that six months.
- ☐ the Attested Shares were originally acquired through an incentive stock option (ISO) exercise and
- ☐ I have owned _____ shares for **AT LEAST ONE YEAR**;
  or
- ☐ I have owned _____ shares for **LESS THAN ONE YEAR** (Note: Attesting ISO shares held less than one year triggers a disqualifying disposition of the Attested Shares.)
- ☐ the Attested Shares were purchased through the SVB Financial Group Employee Stock Purchase Plan (ESPP) and:
- ☐ I have owned _____ shares for **AT LEAST EIGHTEEN MONTHS;** or
- ☐ I have owned _____ shares for **LESS THAN EIGHTEEN MONTHS** (Note: Attesting ESPP shares held less than eighteen months triggers a disqualifying disposition of the Attested Shares.)

3. Apply toward the option price:

- ☐ the maximum number of whole shares necessary to pay the aggregate exercise price of my option. I agree to settle any fractional share balance with the Company within 2 days of the Effective Date via check.
- ☐ the total number of whole shares represented by this attestation to pay for only part of the exercise price. I agree to settle the remaining balance of the aggregate exercise price by check within 1 day of the Effective Date.

Although I will not be required to make actual delivery of the Attested Shares and I will retain full ownership of the Attested Shares, I represent that I (with the consent of the joint owner, if any) have the full power to deliver the Attested Shares to the Company for their benefit.

By signing, any joint owner consents to the exercise of the stock option(s) using Attested Shares and agrees with any representations made above pursuant to the Attested Shares.

Signature of Participant	Signature of any Joint Owner
Print Name	Print Name
Effective Date	

APPENDIX A

SVB FINANCIAL GROUP

GLOBAL NONSTATUTORY STOCK OPTION AWARD AGREEMENT

APPENDIX FOR NON-U.S. PARTICIPANTS

Terms and Conditions

This Appendix includes additional terms and conditions that govern the Option granted to you under the Plan if you are in one of the countries listed below. If you are a citizen or resident of a country (or are considered as such for local law purposes) other than the one in which you are currently residing and/or working or if you move to another country after receiving the Option, the Company will, in its discretion, determine the extent to which the terms and conditions herein will be applicable to you. Certain capitalized terms used but not defined in this Appendix have the meanings set forth in the Plan and/or the Award Agreement.

Notifications

This Appendix may also include information regarding exchange controls and certain other issues of which you should be aware with respect to your participation in the Plan. The information is based on the securities, exchange control, and other laws in effect in the respective countries as of April 2019. Such laws are often complex and change frequently. As a result, the Company strongly recommends that you not rely on the information in this Appendix as the only source of information relating to the consequences of your participation in the Plan because the information may be out of date at the time you exercise the Option or sell any Shares acquired under the Plan.

In addition, the information contained herein is general in nature and may not apply to your particular situation, and the Company is not in a position to assure you of a particular result. Accordingly, you are advised to seek appropriate professional advice as to how the relevant laws in your country may apply to your situation.

Finally, if you are a citizen or resident of a country other than the one in which you are currently working, or are considered a resident of another country for local law purposes, or if you transfer employment and/or residency to another country after the Option has been granted, the notifications contained herein may not be applicable in the same manner.

DATA PRIVACY PROVISIONS APPLICABLE TO PARTICIPANTS IN THE EUROPEAN UNION/EUROPEAN ECONOMIC AREA AND THE UK

To the extent that the Company collects, holds, uses or processes Personal Data (as defined below), it shall do so in accordance with its Privacy Notice for Employees. The following section shall be read so as to incorporate all relevant parts of the Company's Privacy Notice for Employees:

Personal Data Subject to Processing. In addition to the types of personal data listed in the Privacy Notice for Employees, the Company collects, processes and uses the following types of personal data about the Participant in connection with this Award Agreement: details of any shares of stock or directorships held in the Company by the Participant, details of all Options or any other entitlement to Shares awarded, canceled, settled, vested, unvested or outstanding in the Participant's favour, which the Company receives from the Participant or the Employer ("Personal Data").

Purposes and Legal Bases of Processing. The Company processes the Personal Data in accordance with the Company's Privacy Notice for Employees. The Participant and the Company acknowledge that such Personal Data shall be controlled and processed by the Company for the purpose of performing its contractual

obligations under this Award Agreement, granting Options, implementing and administering and managing the Participant's participation in the Plan and that the Participant's consent is not required for the collection, use or transfer of that Personal Data.

Stock Plan Administration Service Providers. In addition to the third parties set out in the Privacy Notice for Employees, the Company transfers Personal Data to Solium Capital, LLC and its affiliated companies (collectively, "Solium"), an independent stock plan administrator with operations, relevant to the Company, in the United States, which assists the Company with the implementation, administration and management of the Plan. The Company's stock plan administrator acts as an independent data controller and will open an account for the Participant to receive and trade Shares. The Participant will be asked to agree on separate terms and data processing practices with the service provider, which is a condition of the Participant's ability to participate in the Plan. The Participant understands that the Participant may request a list with the names and addresses of any potential recipients of Personal Data by contacting the Participant's local human resources representative.

CANADA

Terms and Conditions

The following provisions apply if the Participant is a resident of Quebec:

Language Consent.
The parties acknowledge that it is their express wish that the Award Agreement, as well as all documents, notices and legal proceedings entered into, given or instituted pursuant hereto or relating directly or indirectly hereto, be drawn up in English.

Les parties reconnaissent avoir exigé la rédaction en anglais de la convention, ainsi que de tous documents exécutés, avis donnés et procédures judiciaries intentées, directement ou indirectement, relativement à ou suite à la présente convention.

Authorization to Release and Transfer Necessary Personal Information .

You hereby authorize the Company and the Company's representatives to discuss with and obtain all relevant information from all personnel, professional or not, involved in the administration and operation of the Plan. You further authorize the Company, any Affiliate and the plan administrators to disclose and discuss the Plan with their advisors and to record such information and to keep such information in your employee file.

Notifications

Securities Law Notification.

You are permitted to sell Shares acquired under the Plan through the designated broker appointed under the Plan, if any, provided the resale of Shares acquired under the Plan takes place outside of Canada through the facilities of a stock exchange on which the Shares are listed. The Shares are currently listed on the Nasdaq market in the United States.

Foreign Asset/Account Reporting Information.

Foreign specified property, including Shares and other rights to receive Shares (e.g., the Option), must be reported annually on a Form T1135 (Foreign Income Verification Statement) if the total cost of the foreign

specified property exceeds CAD100,000 at any time during the year. Thus, the Option must be reported - generally at a nil cost - if the CAD100,000 cost threshold is exceeded because of other foreign specified property. When Shares are acquired, their cost generally is the adjusted cost base ("ACB") of the Shares. The ACB would ordinarily equal the fair market value of the Shares at the time of acquisition, but if other Shares are also owned, this ACB may have to be averaged with the ACB of the other Shares. The Form T1135 generally must be filed by April 30 of the following year. You should consult with your personal advisor to ensure compliance with the applicable reporting requirements.

CHINA

The following provision applies if you are not a PRC national but are working in the PRC. (If you are a PRC national residing in the PRC or the Company has otherwise determined that the State Administration of Foreign Exchange ("SAFE") rules apply to you, please contact Stock Administration as you may have received this Award Agreement in error.)

Terms and Conditions

Exchange Control Requirements.

You understand and agree to comply with all exchange control restrictions imposed by the State Administration of Foreign Exchange ("SAFE") or other exchange control authority in connection with the Option granted by the Company. You further agree to comply with any requirements that may be imposed by the Company in the future in order to facilitate compliance with exchange control requirements in the People's Republic of China (the "PRC"). You understand that it is your sole responsibility to comply with applicable exchange control restrictions in China.

GERMANY

Notifications

Exchange Control Information.

Cross-border payments in excess of €12,500 must be reported monthly to the German Federal Bank. No report is required for payments less than €12,500. In case of payments in connection with securities (including proceeds realized upon the sale of Shares), the report must be filed electronically by the 5th day of the month following the month in which the payment was received. The form of report ("*Allgemeine Meldeportal Statistik*") can be accessed via the *Bundesbank's* website (www.bundesbank.de) and is available in both German and English. You are responsible for satisfying the reporting obligation.

ISRAEL

Terms and Conditions

The following provision applies to you if you are in Israel on the Date of Grant.

Trust Arrangement.

You understand and agree that the Option is offered subject to and in accordance with the terms of the Plan, Israeli Subplan (the "Subplan"), Award Agreement and Israel Beneficiary 102 Undertaking. You understand that the Option shall be allocated under the provisions of the track referred to as the "Capital Gain Route,"

according to Section 102(b)(2) and 102(b)(3) of the Israeli Income Tax Ordinance ("Section 102") and shall be held by the trustee for the periods stated in Section 102. You hereby confirm that you have: (i) read and understand the Plan, Subplan, Award Agreement and Israel Beneficiary 102 Undertaking; (ii) received all the clarifications and explanations that you have requested; and (iii) had the opportunity to consult with your advisers before accepting the Award Agreement. In the event of any inconsistencies between the provisions of this Israeli Appendix and the Award Agreement, the provisions of this Appendix shall govern the Option and any Shares and in no event shall any term require shareholder approval as set out in Section 21(b) of the Plan.

Limited Transferability.

This provision supplements Section 8 of the Award Agreement:

As long as the Option or any issued Shares are held by the Trustee on your behalf, all of your rights over the Option or the Shares are personal and cannot be transferred, assigned, pledged or mortgaged, other than by will or the laws of descent and distribution.

Subject to the provisions of the Plan, Section 102 and any rules or regulations or orders or procedures promulgated thereunder, to obtain favorable tax treatment for Capital Gain Route awards, you may not sell or release from trust any Shares received upon exercise of the Option and/or any Shares received subsequently following any realization of rights, including without limitation, bonus shares, until the lapse of the holding period required under Section 102. Notwithstanding the above, if any such sale or release occurs during the holding period, the sanctions under Section 102 and under any rules or regulation or orders or procedures promulgated thereunder will apply to and will be borne by you.

Issuance of Shares.

If the Shares are to be issued during the holding period, such Shares shall be restricted and will be held by the Trustee on your behalf. In the event that the Shares are to be issued after the expiration of the holding period, you may elect to have the Shares issued and delivered directly to you, provided that you first comply with any Tax-Related Items stipulated under this Award Agreement to the Trustee's and the Company's satisfaction, or in trust on your behalf to the Trustee.

Withholding of Taxes.

This provision supplements Section 10 of the Award Agreement:

You hereby agree to indemnify the Company (or any Affiliate) and/or the Trustee and hold them harmless against and from any and all liability for any Tax-Related Items and other amounts, or interest or penalty thereon, including without limitation, liabilities relating to the necessity to withhold, or to have withheld, any such amounts from any payment made to you. Any reference to the Company or the Employer shall include a reference to the Trustee. You hereby undertake to release the Trustee from any liability in respect of any action or decisions duly taken and bona fide executed in relation to the Plan or any options or Shares acquired under the Plan. You agree to execute any and all documents which the Company or the Trustee may reasonably determine to be necessary in order to comply with the Israeli Income Tax Ordinance.

You shall not be liable for the Employer's components of payments to the national insurance institute, unless otherwise agreed by you and allowed by applicable tax laws. Furthermore, you agree to indemnify the Company, the Employer and/or the Trustee and hold them harmless against and from any and all liability for any such tax or interest or penalty thereon that you have agreed to pay, including without limitation, liabilities

relating to the necessity to withhold, or to have withheld, any such tax from any payment made to you for which you are responsible.

Notwithstanding anything to the contrary in the Award Agreement, no Tax-Related Items will be settled by withholding Shares, unless the ITA approves otherwise in writing.

Governing Law.

This section supplements Section 21 of the Award Agreement:

To the extent any covenant, condition, or other provision of the Award Agreement and your rights hereunder are intended to be rights granted under Section 102 and therefore determined to be subject to Israeli law, such covenant, condition, or other provision of the Award Agreement shall be subject to applicable Israeli law, but shall in no way affect, impair or invalidate any other provision of the Award Agreement, and the applicability of the Plan to such covenant, condition, or other provision of the Award Agreement.

Written Acceptance.

You must print, sign and deliver the signed copy of the Israel Beneficiary 102 Undertaking within 45 days to: 80 E Rio Salado Parkway Suite 600, Tempe, AZ 85281, Attn: Stock Administration. If the Company does not receive the signed Israel Beneficiary 102 Undertaking within 45 days, the Option may not qualify for preferential tax treatment.

The following provision applies if you transfer into Israel after the Date of Grant.

Exercise.

The following provision supplements Section 7 of the Award Agreement.

At the discretion of the Company, you will be restricted to exercising your Option using a cashless sell-all exercise method, pursuant to which all Shares are sold immediately upon exercise of the Option and you receive the sale proceeds less the Option Price, Tax-Related Items and any applicable broker fees or commissions. In this case, you will not be entitled to hold any Shares acquired at exercise.

SVB FINANCIAL GROUP

GLOBAL RESTRICTED STOCK UNIT AWARD AGREEMENT

ISRAEL BENEFICIARY 102 UNDERTAKING

If you have not already executed an Israel Beneficiary 102 Undertaking in connection with grants made under the Israeli Subplan, you must print, sign and deliver the signed copy of this Israel Beneficiary 102 Undertaking within 45 days to: 80 E Rio Salado Parkway Suite 600, Tempe, AZ 85281, Attn: Stock Administration. If SVB Financial Group does not receive the signed Israel Beneficiary 102 Undertaking within 45 days, the Option may not qualify for preferential tax treatment.

1. I hereby agree that any shares (the “Shares”) (as defined by Section 102 of the Income Tax Ordinance [New Version], 1961) (the “Tax Ordinance”) issued to me by SVB Financial Group according to and under the terms and conditions of the Plan and the Israeli Subplan adopted by SVB Financial Group as of January 8, 2014 (collectively, the "Plan") are granted to me to qualify under the capital gain tax treatment in accordance and pursuant to Section 102(b)(2) of the Tax Ordinance after 132 amendment (“Section 102”) and the Income Tax Rules (Tax Relief upon the Allotment of Shares to Employees), 2003 (the “Rules”) unless I am otherwise notified subject to SVB Financial Group’s absolute discretion to change such election on future grants and subject to the Tax Authorities’ approval.
2. I declare and confirm that I am familiar with the terms of Section 102, the Rules, and the implications and consequences of the chosen tax arrangement with respect to the Shares, and consent that all the terms and conditions set forth in Section 102 and the Rules, as shall be amended from time to time, shall apply to me and bind me.
3. I hereby declare and confirm that I am familiar with the provisions of the trust agreement signed between SVB Israel Advisors Ltd. and Tamir Fishman Trusts 2004 Ltd., or its successor in interest (the “Trustee”) (the “Trust Agreement”), including the deed of trust, attached to the Trust Agreement and constitute an integral part thereto (“Deed of Trust”), and I consent that the Trust Agreement and the Deed of Trust shall fully bind me.
4. Without derogating from the generality of the aforesaid, I agree that the Shares will be deposited in trust with the Trustee and be held in trust in accordance with Section 102, the Rules and the Trust Agreement.
5. I hereby declare and consent that any and all the rights that I shall be entitled to with respect to the Shares, including, without limitation, dividend, bonus shares and shares issued pursuant to adjustments made by SVB Financial Group, shall be issued in the name of the Trustee and be deposited with the Trustee, and shall be subject to Section 102, the Rules and the Trust Agreement.
6. Without derogating from the generality of the aforesaid, I acknowledge that during the “Holding Period” as determined by the Tax Ordinance I am prevented from selling the Shares, or releasing them from the Trustee, before the termination of the “Holding Period” and I understand the tax implications and consequences that may be applied as a result of breaching such obligation, as set by Section 102, which I am familiar with.

7. If I will cease to be an Israeli resident or if my employment will be terminated for any reason, the Shares shall remain subject to section 102, the Rules and the Trust Agreement.

8. I hereby agree that any tax liability whatsoever arising from the grant, vesting or exercise of any awards, sale of Shares, release of Shares from the Trustee or any other event or act with respect to the Shares granted to me, shall be borne solely by me. I declare and consent that the SVB Financial Group, SVB Israel Advisors Ltd. and/or the Trustee shall make any tax payment due, out of the proceeds of any sale of Shares, to any tax authority, according to Section 102, the Rules, the Trust Agreement or any other compulsory payments or applicable law.

9. I understand that this grant of Shares under the capital gain track is conditioned upon the receipt, inter alia, of all required approvals from the tax authorities. Accordingly, to the extent that for whatever reason SVB Israel Advisors Ltd. shall not be granted an approval by the Israeli Tax Authorities under section 102, I shall bear and pay any and all taxes and any other compulsory payments applicable to the grant, exercise, sale or other disposition of options or stocks; I hereby declare and consent for the SVB Financial Group, SVB Israel Advisors Ltd. and/or the Trustee to deduct any tax payment due, out of the proceeds of any sale of Shares, for any payment to The tax authorities, according to the Rules, or any other applicable compulsory payments.

10. I confirm that SVB Financial Group and/or the Trustee shall not be required to release any Shares or any proceeds deriving from the sale of Shares, to me, until all required tax payments according to section 102, the Rules and the Trust Agreement, including any other compulsory payments, or applicable law, have been fully assured.

11. I acknowledge that the Trustee is not a tax advisor and it is recommended that I consult a tax advisor before I accept this letter, any restricted stock units vest, sell any Shares or release them from the Trustee, or any other act.

12. I agree to indemnify SVB Financial Group, SVB Israel Advisors Ltd.and/or the Trustee and to hold them harmless against and from any and all liability for any damage and/or loss and/or expense that might occur regarding the tax liability and/or the execution of the Trust Agreement.

13. I hereby agree to bear all the applicable fees and commissions involved in establishing and maintaining trust account in the Trustee's name, and in performing any action in the trust account.

14. I hereby agree to sign any document reasonably required at SVB Financial Group's and/or the Trustee's request.

15. I hereby confirm that I read this letter thoroughly, received all the clarifications and explanations I requested, I understand the contents of this letter and the obligations I undertake in signing it.

_____	_____	_____
Name of the Beneficiary	I.D. Number	Signature

UNITED KINGDOM

Terms and Conditions

Withholding of Taxes.

The following provision supplements Section 10 of the Award Agreement:

Without limitation to Section 10 of the Award Agreement, you agree that you are liable for all Tax-Related Items and hereby covenant to pay all such Tax-Related Items, as and when requested by the Company or the Employer or by Her Majesty's Revenue and Customs ("HMRC") (or any other tax authority or any other relevant authority). You also agree to indemnify and keep indemnified the Company and the Employer against any Tax-Related Items that they are required to pay or withhold or have paid or will pay to HMRC (or any other tax authority or any other relevant authority) on your behalf.

Notwithstanding the foregoing, if you are a director or executive officer of the Company (within the meaning of Section 13(k) of the Exchange Act), the immediately foregoing provision will not apply; instead, the amount of any uncollected income tax may constitute a benefit to you on which additional income tax and national insurance contributions may be payable. You are responsible for reporting and paying any income tax due on this additional benefit directly to HMRC under the self-assessment regime and for paying the Company or the Employer (as applicable) for the value of any employee national insurance contributions due on this additional benefit, which may also be recovered from you by any of the means referred to in Section 10 of the Award Agreement.

Exhibit 10.2

Notice of Grant of Restricted Stock Unit Award and Award Agreement (Time-Based Vesting)

SVB FINANCIAL GROUP
ID: 94-2875288
3003 Tasman Drive
Santa Clara, CA 95054

Grant Agreement:	
Participant Name: <Name>	**Grant Name:** <MM/DD/YYYY RSU 0.00 (TEST)>
Employee Number: **<Emp ID No>**	**Issue Date/Date of Grant: <Issue Date>**
Total RSUs: **Up to <Amount>**	**Grant Price: <$**.** USD>**
	Plan: <2006 Equity Incentive Plan>
Vesting Schedule - RSU	The vesting of the RSUs (as defined below) granted hereunder is time-based, as follows: • ***[Time Vesting –]***

Effective on the Date of Grant listed above, you have been granted an Award of Restricted Stock Units ("RSUs") under the SVB Financial Group 2006 Equity Incentive Plan, as amended from time to time (the "Plan"). Unless otherwise defined herein or in the Award Agreement, capitalized terms herein or in the Award Agreement will have the defined meanings ascribed to them in the Plan.

RSUs in each period will vest in increments on the dates shown in the Vesting Schedule ("Vesting Dates"), subject to you continuing to be a Service Provider through each such date. Notwithstanding the foregoing, if your status as a Service Provider terminates as a result of your death or Disability, then 100% of the RSUs subject to the Award will fully vest. Unless otherwise specified in the Restricted Stock Unit Election Form (the "Election"), the Settlement Dates for the RSUs shall be the Vesting Dates. Any RSUs that vest in accordance with Section 3 will be paid to you (or in the event of your death, pursuant to Section 6 of the Award Agreement) in whole Shares, less applicable Tax-Related Items. The Company shall issue to you, on a date within thirty (30) days following the Settlement Date, a number of whole Shares to equal to the vested RSUs.

The RSUs and any Shares, cash, or other property paid upon settlement of the RSUs will be subject to the terms and conditions of any clawback policy adopted by the Company and as may be in effect from time to time, which will survive your termination as a Service Provider.

[If permitted, you may elect to defer delivery of the payment of any Shares, which election will be subject to such documentation as the Company may promptly and reasonably request. Unless otherwise determined by the Committee, any such deferral election by you will be void and not given effect unless your deferral election is made at least twelve (12) months prior to the date the Shares otherwise are scheduled to be paid. The Committee may require that you make an election earlier than twelve (12) months prior to the date the Shares are scheduled to be paid. Upon the date the Shares vest to which a deferral election applies, the Company will create a bookkeeping entry initially representing an amount equivalent to the Fair Market Value of the number of Shares that would have otherwise been payable hereunder had a deferral election not been made. Any such obligation will represent an unfunded and unsecured obligation of the Company.]

By your acceptance and the Company's signature below, you and the Company agree that these RSUs are granted under and governed by the terms and conditions of the Company's 2006 Equity Incentive Plan and this Award Agreement including any country appendix, all of which are attached and made a part of this document.

SVB Financial Group

Date

Participant Name

Date

[1] Bracketed language to be used only for directors

SVB FINANCIAL GROUP

GLOBAL RESTRICTED STOCK UNIT AWARD AGREEMENT

1. Grant. The Company hereby grants to the Participant under the Plan an Award of the number of RSUs set forth on the first page hereof, subject to all of the terms and conditions in this Global Restricted Stock Unit Award Agreement, including any country-specific terms and conditions for your country set forth in the Appendix for Non-U.S. Participants (the "Appendix") attached hereto as Appendix A (together with the Global Restricted Stock Unit Award Agreement, the "Award Agreement") and the Plan.

2. Company's Obligation. Each RSU represents the right to receive a share of Common Stock ("Share") on the date it becomes vested. Unless and until the RSUs will have vested in the manner set forth in Sections 3 and 4, the Participant will have no right to issuance of Shares in connection with any such RSUs. Prior to actual payment of any vested RSUs, such RSUs will represent an unsecured obligation of the Company, payable (if at all) only from the general assets of the Company.

3. Vesting Schedule. Subject to Section 4, the RSUs awarded by this Award Agreement will vest in the Participant according to the vesting schedule set forth on the first page hereof, subject to the Participant continuing to be a Service Provider through the Vesting Date. Notwithstanding the foregoing, if the Participant's status as a Service Provider terminates as a result of his or her death or Disability, then 100% of the RSUs subject to this Award will fully vest.

4. Forfeiture upon Termination of Status as a Service Provider. Notwithstanding any contrary provision of this Award Agreement (but subject to the provisions of Section 3), if the Participant ceases to be a Service Provider for any or no reason (other than due to the Participant's death or Disability) prior to the Vesting Date, the then-unvested RSUs awarded by this Award Agreement will thereupon be forfeited at no cost to the Company or its Affiliate and the Participant will have no further rights thereunder.

In the event of the Participant's termination as a Service Provider (regardless of the reason for such termination and whether or not later to be found invalid or in breach of employment laws in the jurisdiction where the Participant is employed or the terms of the Participant's employment agreement, if any), the Participant's right to vest in the RSUs under the Plan, if any, will terminate effective as of the date that the Participant is no longer employed by the Participant's employer (the "Employer") and any notice period has ended. For the avoidance of doubt, employment shall include any contractual notice period or period of "garden leave" or similar period mandated under employment laws in the jurisdiction where the Participant is employed or the terms of the Participant's employment agreement, if any. The Committee shall have the exclusive discretion to determine when the Participant is no longer employed for purposes of the RSUs.

5. Issuance after Vesting. Any RSUs that vest in accordance with Section 3 will be settled in whole Shares delivered to the Participant (or in the event of the Participant's death, pursuant to Section 6 hereof), provided that to the extent determined appropriate by the Company, less any Tax-Related Items (as defined in Section 7 below) withholding. The Company shall issue such Shares to the Participant within thirty (30) days of the Vesting Date.

6. Issuance after Death. Any issuance to be made to the Participant under this Award Agreement will, if the Participant is then deceased, be made to the Participant's designated beneficiary (provided such beneficiary has been designated prior to the Participant's death in a form acceptable to the Administrator), or if no beneficiary survives the Participant, the personal representative, administrator or executor of the Participant's estate. Any such transferee must furnish the Company with (a) written notice of his or her status as transferee, and (b) evidence satisfactory to the Company to establish the validity of the transfer and compliance with any laws or regulations pertaining to said transfer.

7 . Withholding of Taxes . The Company or one of its Affiliates shall assess tax and social insurance liability and requirements in connection with the Participant's participation in the Plan, including, without limitation, income tax, social insurance, payroll tax, fringe benefit tax, payment of account or other tax related items related to the Participant's participation in the Plan and legally applicable to the Participant (the "Tax-Related Items"). These requirements may change from time to time as laws or interpretations change. Regardless of the actions of the Company or if different, the Employer, the Participant hereby acknowledges and agrees that the Tax-Related Items liability is and remains the Participant's responsibility and liability.

The Participant acknowledges that the Company's obligation to issue Shares in connection with the RSUs shall be subject to satisfaction of the Tax-Related Items liability. Unless otherwise determined by the Company or set forth in the Appendix, Tax-Related Items withholding obligations shall be satisfied by having the Company and/or the Employer withhold the cash equivalent of all or a portion of any Shares that otherwise would be issued to the Participant upon settlement of the vested RSUs. The Company and/or the Employer may withhold or account for Tax-Related Items by considering statutory withholding amounts or other withholding rates, including maximum applicable rates in the Participant's jurisdiction(s), in which case the Participant may receive a refund of any over-withheld amount in cash and will have no entitlement to the equivalent amount in Shares. For tax purposes, the Participant is deemed to have been issued the full number of Shares subject to the vested RSUs, notwithstanding that a number of the Shares is held back solely for the purpose of paying the Tax-Related Items withholding. The Company or the Employer may also satisfy the Tax-Related Items withholding liability by deduction from the Participant's wages or other cash compensation paid to the Participant by the Company or the Employer. Alternatively, by the Participant's acceptance of the RSUs, the Participant authorizes and directs the Company or any brokerage firm determined acceptable to the Company to sell on the Participant's behalf a whole number of Shares from those Shares issued to the Participant as the Company determines to be sufficient to satisfy the obligation for Tax-Related Items. Finally, the Participant agrees to pay the Company or the Employer any Tax-Related Items withholding liability that cannot be satisfied by deduction from the Participant's wages or other cash compensation paid to the Participant by the Company or the Employer or sale of the Shares acquired under the Plan.

8. Dividend Equivalents. If the Company declares a cash dividend with respect to Shares, the Participant will receive credits equal to the amount of the cash dividends payable on the cash dividend payment date with respect to the number of Shares represented by the RSUs outstanding as of the cash dividend record date. The credits will be subject to the same terms and conditions that apply to the RSUs (including vesting conditions), such that no payment shall be made to the Participant unless and until the corresponding RSUs have vested in accordance with Section 3. The credits will be settled in Shares or cash as determined by the Company in its sole discretion on the date the underlying RSUs are settled, subject to the Company's collection of the Tax-Related Items pursuant to Section 7. If an RSU is settled before a cash dividend payment date, but after the cash dividend record date, the Participant will be entitled to be paid for the credits that relate to such RSUs on the cash dividend payment date, or as soon as reasonably practicable thereafter. If the credit is settled in Shares, the number of Shares payable will equal the dollar value of such credits on the settlement date divided by the Fair Market Value of a Share on the settlement date rounded down to the nearest whole Share. In the event of a dividend or distribution paid in Shares or any other adjustment made upon a change in the capital structure of the Company as described in Section 16 of the Plan, appropriate adjustments will be made to the RSUs so that they represent the right to receive upon settlement any and all new, substituted or additional securities or other property (other than cash dividends) to which the Participant would be entitled by reason of the Shares issuable upon settlement of the RSUs, and all such new, substituted or additional securities or other property will be immediately subject to the same vesting conditions as are applicable to the RSUs.

9 . Rights as Stockholder. Neither the Participant nor any person claiming under or through the Participant will have any of the rights or privileges of a stockholder of the Company in respect of any

Shares deliverable hereunder unless and until certificates representing such Shares have been issued, recorded on the records of the Company or its transfer agents or registrars, and delivered to the Participant.

10. Acknowledgements. The Participant acknowledges and agrees to the following:

- the Plan is discretionary in nature and the Administrator may amend, suspend, or terminate it at any time;
- the grant of the RSUs is exceptional, voluntary and occasional and does not create any contractual or other right to receive future grants of RSUs, or benefits in lieu of the RSUs even if the RSUs have been granted in the past;
- all determinations with respect to future RSUs or other grants, if any, will be at the sole discretion of the Administrator;
- the Participant's participation in the Plan is voluntary;
- the RSUs and the Shares subject to the RSUs, and the income from and value of same, are not part of normal or expected compensation for purposes of calculating any severance, resignation, termination, redundancy, dismissal, end-of-service payments, bonuses, long-service awards, holiday pay, pension or retirement or welfare benefits or similar payments;
- the future value of the Shares is unknown, indeterminable and cannot be predicted with certainty;
- the RSUs and any Shares, cash, or other property paid upon settlement of the RSUs will be subject to the terms and conditions of any clawback policy adopted by the Company and as may be in effect from time to time, which will survive the Participant's termination as a Service Provider;
- no claim or entitlement to compensation or damages shall arise from forfeiture of the RSUs resulting from the termination of the Participant's employment or other service relationship (for any reason whatsoever whether or not later found to be invalid or in breach of employment laws in the jurisdiction where the Participant is employed or the terms of the Participant's employment agreement, if any);
- the RSU grant and the Participant's participation in the Plan shall not create a right to employment or be interpreted as forming an employment or services contract with the Company, the Employer or any Affiliate and shall not interfere with the ability of the Company, the Employer or any Affiliate, as applicable, to terminate the Participant's employment or service relationship (if any);
- unless otherwise provided in the Plan or by the Company in its discretion, the RSUs and the benefits evidenced by this Award Agreement do not create any entitlement to have the RSUs or any such benefits transferred to, or assumed by, another company nor be exchanged, cashed out or substituted for, in connection with any corporate transaction affecting the shares of the Company;
- the following provisions apply only if the Participant is providing services outside the United States:
    - the RSUs and the Shares subject to the RSUs, and the income from and value of the same, are not part of normal or expected compensation or salary for any purpose; and
    - neither the Company, the Employer nor any Affiliate shall be liable for any foreign exchange rate fluctuation between the Participant's local currency and the United

States Dollar that may affect the value of the RSUs or of any amounts due to the Participant pursuant to the settlement of the RSUs or the subsequent sale of any Shares acquired upon settlement.

11. No Advice Regarding Grant. The Company is not providing any tax, legal or financial advice, nor is the Company making any recommendations regarding the Participant's participation in the Plan, or the Participant's acquisition or sale of the underlying Shares. The Participant should to consult with his or her own personal tax, legal and financial advisors regarding his or her participation in the Plan before taking any action related to the Plan.

12. Address for Notices. Any notice to be given to the Company under the terms of this Award Agreement will be addressed to the Company at 80 E Rio Salado Parkway Suite 600, Tempe, AZ 85281, Attn: Stock Administration, or at such other address as the Company may hereafter designate in writing.

13. Grant is Not Transferable. Except to the limited extent provided in Section 6, this grant and the rights and privileges conferred hereby will not be transferred, assigned, pledged or hypothecated in any way (whether by operation of law or otherwise) and will not be subject to sale under execution, attachment or similar process. Upon any attempt to transfer, assign, pledge, hypothecate or otherwise dispose of this grant, or any right or privilege conferred hereby, or upon any attempted sale under any execution, attachment or similar process, this grant and the rights and privileges conferred hereby immediately will become null and void.

14. Binding Agreement. Subject to the limitation on the transferability of this grant contained herein, this Award Agreement will be binding upon and inure to the benefit of the heirs, legatees, legal representatives, successors and assigns of the parties hereto.

1 5 . Additional Conditions to Issuance of Stock. If at any time the Company will determine, in its discretion, that the listing, registration or qualification of the Shares upon any securities exchange or under any U.S. or non-U.S. local, state, or federal law, or the consent or approval of any governmental regulatory authority is necessary or desirable as a condition to the issuance of Shares to the Participant (or his estate), such issuance will not occur unless and until such listing, registration, qualification, consent or approval will have been effected or obtained free of any conditions not acceptable to the Company. Where the Company determines that the issuance of any Shares will violate U.S. or non-U.S. local, state, or federal securities laws or other applicable laws, the Company will defer delivery until the earliest date at which the Company reasonably anticipates that the delivery of Shares will no longer cause such violation. The Company will make all reasonable efforts to meet the requirements of any law or securities exchange and to obtain any such consent or approval of any such governmental authority.

16. Plan Governs. This Award Agreement is subject to all terms and provisions of the Plan. In the event of a conflict between one or more provisions of this Award Agreement and one or more provisions of the Plan, the provisions of the Plan will govern.

17. Administrator Authority. The Administrator will have the power to interpret the Plan and this Award Agreement and to adopt such rules for the administration, interpretation and application of the Plan as are consistent therewith and to interpret or revoke any such rules (including, but not limited to, the determination of whether or not any RSUs have vested). All actions taken and all interpretations and determinations made by the Administrator in good faith will be final and binding upon Participant, the Company and all other interested persons. No member of the Administrator will be personally liable for any action, determination or interpretation made in good faith with respect to the Plan or this Award Agreement.

18. Captions. Captions provided herein are for convenience only and are not to serve as a basis for interpretation or construction of this Award Agreement.

19. Agreement Severable. In the event that any provision in this Award Agreement will be held invalid or unenforceable, such provision will be severable from, and such invalidity or unenforceability will not be construed to have any effect on, the remaining provisions of this Award Agreement.

20. Modifications to the Agreement. This Award Agreement, including the Appendix, and the Plan constitute the entire understanding of the parties on the subjects covered. The Participant expressly warrants that he or she is not accepting this Award Agreement in reliance on any promises, representations, or inducements other than those contained herein. Modifications to this Award Agreement or the Plan can be made only in an express written contract executed by a duly authorized officer of the Company.

21. Electronic Delivery. The Company may, in its sole discretion, decide to deliver any documents related to RSUs awarded under the Plan or future RSUs that may be awarded under the Plan by electronic means or request the Participant's consent to participate in the Plan by electronic means. The Participant hereby consents to receive such documents by electronic delivery and agrees to participate in the Plan through an on-line or electronic system established and maintained by the Company or another third party designated by the Company. Electronic execution of this Award Agreement and/or other documents shall have the same binding effect as a written or hard copy signature and accordingly, shall bind the Participant and the Company to all of the terms and conditions set forth in the Plan, this Award Agreement and/or such other documents.

22. Compliance with Applicable Laws. The vesting of the RSUs under the Plan and the issuance, transfer, assignment, sale, or other dealings of the Shares shall be subject to compliance by the Company (or any Affiliate) and the Participant with all Applicable Laws.

23. Language. The Participant acknowledges that he or she is proficient in the English language, or has consulted with an advisor who is sufficiently proficient in English, so as to allow the Participant to understand the terms and conditions of this Award Agreement. If the Participant has received this Award Agreement or any other document related to the Plan translated into a language other than English and if the meaning of the translated version is different than the English version, the English version will control.

24. Appendix. Notwithstanding any provisions in this Award Agreement, if the Participant resides outside the United States at any time during the life of the Award, the Participant's participation in the Plan shall be subject to the Appendix for Non-U.S. Participants attached hereto as Appendix A. Moreover, if the Participant relocates to one of the countries included in the Appendix, the special terms and conditions will apply to the Participant, to the extent the Company determines that the application of such terms and conditions is necessary or advisable for legal or administrative reasons. The Appendix constitutes part of this Award Agreement.

25. Governing Law and Venue. This Award Agreement will be governed by the laws of the State of California, without giving effect to the conflict of law principles thereof. For purposes of litigating any dispute that arises under this Award of RSUs or this Award Agreement, the parties hereby submit to and consent to the jurisdiction of the State of California**,** and agree that such litigation shall be conducted in the courts of Santa Clara County, California**,** or the federal courts for the United States for the Northern District of California, and no other courts, where this Award of RSUs is made and/or to be performed.

26. Imposition of Other Requirements. The Company reserves the right to impose other requirements on the Participant's participation in the Plan, on the RSUs and on any Shares acquired under the Plan, to the extent the Company determines it is necessary or advisable for legal or administrative reasons,

and to require the Participant to sign any additional agreements or undertakings that may be necessary to accomplish the foregoing.

27. Insider Trading/Market Abuse Restrictions . By accepting the RSUs, the Participant acknowledges that he or she is bound by all the terms and conditions of the Company's insider trading policy as may be in effect from time to time. The Participant further acknowledges that, depending on the Participant's or his or her broker's country or the country in which the Shares are listed, he or she may be subject to insider trading restrictions and/or market abuse laws which may affect the Participant's ability to accept, acquire, sell or otherwise dispose of Shares, rights to Shares (*e.g.*, RSUs) or rights linked to the value of Shares under the Plan during such times as the Participant is considered to have "inside information" regarding the Company (as defined by the laws in the applicable jurisdictions). Local insider trading laws and regulations may prohibit the cancellation or amendment of orders the Participant placed before the Participant possessed inside information. Furthermore, the Participant could be prohibited from (i) disclosing the inside information to any third party, which may include fellow employees and (ii) "tipping" third parties or causing them otherwise to buy or sell securities. Any restrictions under these laws or regulations are separate from and in addition to any restrictions that may be imposed under the Company's insider trading policy as may be in effect from time to time. The Participant acknowledges that it is the Participant's responsibility to comply with any applicable restrictions, and the Participant should speak to his or her personal advisor on this matter.

28. Foreign Asset/Account, Exchange Control and Tax Reporting . Depending on the Participant's country, the Participant may be subject to foreign asset/account, exchange control, tax reporting or other requirements which may affect the Participant's ability acquire or hold RSUs or Shares under the Plan or cash received from participating in the Plan (including dividends and the proceeds arising from the sale of Shares) in a brokerage/bank account outside the Participant's country. The applicable laws of the Participant's country may require that he or she report such RSUs, Shares, accounts, assets or transactions to the applicable authorities in such country and/or repatriate funds received in connection with the Plan to the Participant's country within a certain time period or according to certain procedures. The Participant acknowledges that he or she is responsible for ensuring compliance with any applicable requirements and should consult his or her personal legal advisor to ensure compliance with applicable laws.

29. Waiver. The Participant acknowledges that a waiver by the Company of breach of any provision of this Award Agreement shall not operate or be construed as a waiver of any other provision of this Award Agreement, or of any subsequent breach by the Participant or any other participant.

APPENDIX A

SVB FINANCIAL GROUP

GLOBAL RESTRICTED STOCK UNIT AWARD AGREEMENT

APPENDIX FOR NON-U.S. PARTICIPANTS

Terms and Conditions

This Appendix includes additional terms and conditions that govern the RSUs granted to the Participant under the Plan if he or she is in one of the countries listed below. If the Participant is a citizen or resident of a country (or are considered as such for local law purposes) other than the one in which the Participant is currently residing and/or working or if the Participant moves to another country after receiving the grant of RSUs, the Company will, in its discretion, determine the extent to which the terms and conditions herein will be applicable to the Participant. Certain capitalized terms used but not defined in this Appendix have the meanings set forth in the Plan and/or the Award Agreement.

Notifications

This Appendix may also include information regarding exchange controls and certain other issues of which the Participant should be aware with respect to his or her participation in the Plan. The information is based on the securities, exchange control, and other laws in effect in the respective countries as of April 2019. Such laws are often complex and change frequently. As a result, the Company strongly recommends that the Participant not rely on the information in this Appendix as the only source of information relating to the consequences of the Participant's participation in the Plan because the information may be out of date at the time the RSUs vest, the Shares underlying the RSUs are issued or the Participant sells Shares acquired under the Plan.

In addition, the information contained herein is general in nature and may not apply to the Participant's particular situation, and the Company is not in a position to assure the Participant of a particular result. Accordingly, the Participant is advised to seek appropriate professional advice as to how the relevant laws in his country may apply to the Participant's situation.

Finally, if the Participant is a citizen or resident of a country other than the one in which he or she is currently working, or is considered a resident of another country for local law purposes, or if the Participant transfers employment and/or residency to another country after the RSUs have been granted, the notifications contained herein may not be applicable in the same manner.

DATA PRIVACY PROVISIONS APPLICABLE TO PARTICIPANTS IN THE EUROPEAN UNION/EUROPEAN ECONOMIC AREA AND THE UK

To the extent that the Company collects, holds, uses or processes Personal Data (as defined below), it shall do so in accordance with its Privacy Notice for Employees. The following section shall be read so as to incorporate all relevant parts of the Company's Privacy Notice for Employees:

Personal Data Subject to Processing. In addition to the types of personal data listed in the Privacy Notice for Employees, the Company collects, processes and uses the following types of personal data about the Participant in connection with this Award Agreement: details of any shares of stock or directorships held in the Company by the Participant, details of all RSUs or any other entitlement to Shares awarded, canceled, settled, vested, unvested or outstanding in the Participant's favour, which the Company receives from the Participant or the Employer ("Personal Data").

Purposes and Legal Bases of Processing. The Company processes the Personal Data in accordance with the Company's Privacy Notice for Employees. The Participant and the Company acknowledge that such Personal Data shall be controlled and processed by the Company for the purpose of performing its contractual obligations under this Award Agreement, granting RSUs, implementing and administering and managing the Participant's participation in the Plan and that the Participant's consent is not required for the collection, use or transfer of that Personal Data.

Stock Plan Administration Service Providers. In addition to the third parties set out in the Privacy Notice for Employees, the Company transfers Personal Data to Solium Capital, LLC and its affiliated companies (collectively, "Solium"), an independent stock plan administrator with operations, relevant to the Company, in the United States, which assists the Company with the implementation, administration and management of the Plan. The Company's stock plan administrator acts as an independent data controller and will open an account for the Participant to receive and trade Shares. The Participant will be asked to agree on separate terms and data processing practices with the service provider, which is a condition of the Participant's ability to participate in the Plan. The Participant understands that the Participant may request a list with the names and addresses of any potential recipients of Personal Data by contacting the Participant's local human resources representative.

CANADA

Terms and Conditions

The following provisions apply if the Participant is a resident of Quebec:

Language Consent.

The parties acknowledge that it is their express wish that the Award Agreement, as well as all documents, notices and legal proceedings entered into, given or instituted pursuant hereto or relating directly or indirectly hereto, be drawn up in English.

Les parties reconnaissent avoir exigé la rédaction en anglais de la convention, ainsi que de tous documents exécutés, avis donnés et procédures judiciaries intentées, directement ou indirectement, relativement à ou suite à la présente convention.

Authorization to Release and Transfer Necessary Personal Information .

The Participant hereby authorizes the Company and the Company's representatives to discuss with and obtain all relevant information from all personnel, professional or not, involved in the administration and operation of the Plan. The Participant further authorizes the Company, any Affiliate and the plan administrators to disclose and discuss the Plan with their advisors. The Participant further authorizes the company and any Affiliate to record such information and to keep such information in the Participant's employee file.

Notifications

Securities Law Notification.

The Participant is permitted to sell Shares acquired under the Plan through the designated broker appointed under the Plan, if any, provided the resale of Shares acquired under the Plan takes place outside of Canada through the facilities of a stock exchange on which the Shares are listed. The Shares are currently listed on the Nasdaq market in the United States.

Foreign Asset/Account Reporting Information.

Foreign specified property, including Shares and other rights to receive Shares (e.g., RSUs), must be reported annually on a Form T1135 (Foreign Income Verification Statement) if the total cost of the foreign specified property exceeds CAD100,000 at any time during the year. Thus, the RSUs must be reported - generally at a nil cost - if the CAD100,000 cost threshold is exceeded because of other foreign specified property. When Shares are acquired, their cost generally is the adjusted cost base ("ACB") of the Shares. The ACB would ordinarily equal the fair market value of the Shares at the time of acquisition, but if other Shares are also owned, this ACB may have to be averaged with the ACB of the other Shares. The Form T1135 generally must be filed by April 30 of the following year. The Participant should consult with his or her personal advisor to ensure compliance with the applicable reporting requirements.

CHINA

Terms and Conditions

Unless otherwise required by the State Administration of Foreign Exchange ("SAFE"), the following provisions apply only to Participants who are nationals of the People's Republic of China ("PRC") and reside in the PRC, as determined by the Company in its sole discretion.

Issuance After Vesting

This provision replaces Section 5 of the Award Agreement:

Upon the vesting of RSUs in accordance with Section 3, the Participant (or in the event of the Participant's death, to his or her estate) shall be paid an amount in local currency through local payroll that is equal in value to the Fair Market Value of the applicable number of whole Shares otherwise issuable at vesting, provided that to the extent determined appropriate by the Company, any Tax-Related Items withholding with respect to such RSUs shall be deducted from the amount of cash otherwise payable to the Participant.

Dividend Equivalents

This provision supplements Section 8 of the Award Agreement:

To the extent that dividend equivalents shall be credited on RSUs, such credits shall be settled in cash, not in Shares.

GERMANY

Notifications

Exchange Control Information.

Cross-border payments in excess of €12,500 must be reported monthly to the German Federal Bank. No report is required for payments less than €12,500. In case of payments in connection with securities (including proceeds realized upon the sale of Shares), the report must be filed electronically by the 5th day of the month following the month in which the payment was received. The form of report ("Allgemeine Meldeportal Statistik") can be accessed via the Bundesbank's website (www.bundesbank.de) and is available in both German and English. The Participant is responsible for satisfying the reporting obligation.

INDIA

Terms and Conditions

Issuance after Vesting.

The following provision supplements Section 5 of the Award Agreement.

Any RSUs that vest in accordance with Section 3 will be paid in cash to the Participant (or in the event of the Participant's death, to his or her estate) based on the value equivalent to the number of applicable whole Shares, provided that to the extent determined appropriate by the Company, any Tax-Related Items withholding with respect to such RSUs will be paid from the amount otherwise payable to the Participant.

Dividend Equivalents

To the extent that pursuant to Section 8 of the Award Agreement, dividend equivalents shall be credited on RSUs, such credits shall be settled in cash, not in Shares.

ISRAEL

Terms and Conditions

The following provision applies to the Participant if the Participant is in Israel on the Date of Grant.

Trust Arrangement.

The Participant understands and agrees that the RSUs are offered subject to and in accordance with the terms of the Plan, Israeli Subplan (the "Subplan"), Award Agreement and Israel Beneficiary 102 Undertaking. The Participant understands that the RSUs shall be allocated under the provisions of the track referred to as the "Capital Gain Route," according to Section 102(b)(2) and 102(b)(3) of the Israeli Income Tax Ordinance ("Section 102") and shall be held by the trustee for the periods stated in Section 102. The Participant hereby confirms that he or she has: (i) read and understands the Plan, Subplan, Award Agreement and Israel Beneficiary 102 Undertaking; (ii) received all the clarifications and explanations that the Participant has requested; and (iii) had the opportunity to consult with his or her advisers before accepting the Award Agreement. In the event of any inconsistencies between the provisions of this Israeli Appendix and the Award Agreement, the provisions of this Appendix shall govern the RSUs and any Shares and in no event shall any term require shareholder approval as set out in Section 21(b) of the Plan.

Limited Transferability.

This provision supplements Section 13 of the Award Agreement:

As long as the RSUs or any issued Shares are held by the Trustee on the Participant's behalf, all of the Participant's rights over the RSUs or the Shares are personal and cannot be transferred, assigned, pledged or mortgaged, other than by will or the laws of descent and distribution.

Subject to the provisions of the Plan, Section 102 and any rules or regulations or orders or procedures promulgated thereunder, to obtain favorable tax treatment for Capital Gain Route awards, the Participant may not sell or release from trust any Shares received upon vesting of the RSUs and/or any Shares received subsequently following any realization of rights, including without limitation, bonus shares, until the lapse of the holding period required under Section 102. Notwithstanding the above, if any such sale or release occurs during the holding period, the sanctions under Section 102 and under any rules or regulation or orders or procedures promulgated thereunder will apply to and will be borne by the Participant.

Issuance of Shares.

This provision supplements Sections 5 and 6 of the Award Agreement:

If the Shares are to be issued during the holding period, such Shares shall be restricted and will be held by the Trustee on the Participant's behalf. In the event that the Shares are to be issued after the expiration of the holding period, the Participant may elect to have the Shares issued and delivered directly to him or her, provided that the Participant first complies with any Tax-Related Items stipulated under this Award Agreement to the Trustee's and the Company's satisfaction, or in trust on the Participant's behalf to the Trustee.

Withholding of Taxes.

This provision supplements Section 7 of the Award Agreement:

The Participant hereby agrees to indemnify the Company (or any Affiliate) and/or the Trustee and hold them harmless against and from any and all liability for any Tax-Related Items and other amounts, or interest or penalty thereon, including without limitation, liabilities relating to the necessity to withhold, or to have withheld, any such amounts from any payment made to the Participant. Any reference to the Company or the Employer shall include a reference to the Trustee. The Participant hereby undertakes to release the Trustee from any liability in respect of any action or decisions duly taken and *bona fide* executed in relation to the Plan or any RSUs or Shares acquired under the Plan. The Participant agrees to execute any and all documents which the Company or the Trustee may reasonably determine to be necessary in order to comply with the Israeli Income Tax Ordinance.

The Participant shall not be liable for the Employer's components of payments to the national insurance institute, unless otherwise agreed by the Participant and allowed by applicable tax laws. Furthermore, the Participant agrees to indemnify the Company, the Employer and/or the Trustee and hold them harmless against and from any and all liability for any such tax or interest or penalty thereon that Participant has agreed to pay, including without limitation, liabilities relating to the necessity to withhold, or to have withheld, any such tax from any payment made to the Participant for which the Participant is responsible.

Notwithstanding anything to the contrary in the Award Agreement, no Tax-Related Items will be settled by withholding Shares, unless the ITA approves otherwise in writing.

Governing Law.

This section supplements Section 26 of the Award Agreement:

To the extent any covenant, condition, or other provision of the Award Agreement and the rights of the Participant hereunder are intended to be rights granted under Section 102 and therefore determined to be subject to Israeli law, such covenant, condition, or other provision of the Award Agreement shall be subject to applicable Israeli law, but shall in no way affect, impair or invalidate any other provision of the Award Agreement, and the applicability of the Plan to such covenant, condition, or other provision of the Award Agreement.

Written Acceptance.

The Participant must print, sign and deliver the signed copy of the Israel Beneficiary 102 Undertaking within 45 days to: 80 E Rio Salado Parkway Suite 600, Tempe, AZ 85281, Attn: Stock Administration. If the Company does not receive the signed Israel Beneficiary 102 Undertaking within 45 days, the RSUs may not qualify for preferential tax treatment.

The following provision applies if the Participant transfers into Israel after the Date of Grant.

Issuance after Vesting.

The following provision replaces Section 5 of the Award Agreement.

Any RSUs that vest in accordance with the vesting schedule in the Notice of Grant will be paid to the Participant (or in the event of the Participant's death, to his or her estate), upon satisfaction, as determined by the Company, of any Tax-Related Items as set forth in Section 7 of this Award Agreement. At the discretion of the Company, the Shares will be subject to an immediate forced sale restriction, pursuant to which all Shares acquired at vesting will be immediately sold and the Participant will receive the sale proceeds less Tax-Related Items and applicable broker fees and commissions. In this case, the Participant will not be entitled to hold any Shares acquired at vesting.

SVB FINANCIAL GROUP

GLOBAL RESTRICTED STOCK UNIT AWARD AGREEMENT

ISRAEL BENEFICIARY 102 UNDERTAKING

If the Participant has not already executed an Israel Beneficiary 102 Undertaking in connection with grants made under the Israeli Subplan, the Participant must print, sign and deliver the signed copy of this Israel Beneficiary 102 Undertaking within 45 days to: 80 E Rio Salado Parkway Suite 600, Tempe, AZ 85281, Attn: Stock Administration. If the Company does not receive the signed Israel Beneficiary 102 Undertaking within 45 days, the RSUs may not qualify for preferential tax treatment.

1. I hereby agree that any shares (the "Shares") (as defined by Section 102 of the Income Tax Ordinance [New Version], 1961) (the "Tax Ordinance") issued to me by SVB Financial Group according to and under the terms and conditions of the Plan and the Israeli Subplan adopted by SVB Financial Group as of January 8, 2014 (collectively, the "Plan") are granted to me to qualify under the capital gain tax treatment in accordance and pursuant to Section 102(b)(2) of the Tax Ordinance after 132 amendment ("Section 102") and the Income Tax Rules (Tax Relief upon the Allotment of Shares to Employees), 2003 (the "Rules") unless I am otherwise notified subject to SVB Financial Group's absolute discretion to change such election on future grants and subject to the Tax Authorities' approval.

2. I declare and confirm that I am familiar with the terms of Section 102, the Rules, and the implications and consequences of the chosen tax arrangement with respect to the Shares, and consent that all the terms and conditions set forth in Section 102 and the Rules, as shall be amended from time to time, shall apply to me and bind me.

3. I hereby declare and confirm that I am familiar with the provisions of the trust agreement signed between SVB Israel Advisors Ltd. and Tamir Fishman Trusts 2004 Ltd., or its successor in interest (the "Trustee") (the "Trust Agreement"), including the deed of trust, attached to the Trust Agreement and constitute an integral part thereto ("Deed of Trust"), and I consent that the Trust Agreement and the Deed of Trust shall fully bind me.

4. Without derogating from the generality of the aforesaid, I agree that the Shares will be deposited in trust with the Trustee and be held in trust in accordance with Section 102, the Rules and the Trust Agreement.

5. I hereby declare and consent that any and all the rights that I shall be entitled to with respect to the Shares, including, without limitation, dividend, dividend equivalents, bonus shares and shares issued pursuant to adjustments made by SVB Financial Group, shall be issued in the name of the Trustee and be deposited with the Trustee, and shall be subject to Section 102, the Rules and the Trust Agreement.

6. Without derogating from the generality of the aforesaid, I acknowledge that during the "Holding Period" as determined by the Tax Ordinance I am prevented from selling the Shares, or releasing them from the Trustee, before the termination of the "Holding Period" and I understand the tax implications and consequences that may be applied as a result of breaching such obligation, as set by Section 102, which I am familiar with.

7. If I will cease to be an Israeli resident or if my employment will be terminated for any reason, the Shares shall remain subject to section 102, the Rules and the Trust Agreement.

8. I hereby agree that any tax liability whatsoever arising from the grant, vesting or exercise of any awards, sale of Shares, release of Shares from the Trustee or any other event or act with respect to the Shares granted to me, shall be borne solely by me. I declare and consent that the SVB Financial Group, SVB Israel Advisors Ltd. and/or the Trustee shall make any tax payment due, out of the proceeds of any sale of Shares, to any tax authority, according to Section 102, the Rules, the Trust Agreement or any other compulsory payments or applicable law.

9. I understand that this grant of Shares under the capital gain track is conditioned upon the receipt, inter alia, of all required approvals from the tax authorities. Accordingly, to the extent that for whatever reason SVB Israel Advisors Ltd. shall not be granted an approval by the Israeli Tax Authorities under section 102, I shall bear and pay any and all taxes and any other compulsory payments applicable to the grant, exercise, sale or other disposition of options or stocks; I hereby declare and consent for the SVB Financial Group, SVB Israel Advisors Ltd. and/or the Trustee to deduct any tax payment due, out of the proceeds of any sale of Shares, for any payment to The tax authorities, according to the Rules, or any other applicable compulsory payments.

10. I confirm that SVB Financial Group and/or the Trustee shall not be required to release any Shares or any proceeds deriving from the sale of Shares, to me, until all required tax payments according to section 102, the Rules and the Trust Agreement, including any other compulsory payments, or applicable law, have been fully assured.

11. I acknowledge that the Trustee is not a tax advisor and it is recommended that I consult a tax advisor before I accept this letter, any restricted stock units vest, sell any Shares or release them from the Trustee, or any other act.

12. I agree to indemnify SVB Financial Group, SVB Israel Advisors Ltd. and/or the Trustee and to hold them harmless against and from any and all liability for any damage and/or loss and/or expense that might occur regarding the tax liability and/or the execution of the Trust Agreement.

13. I hereby agree to bear all the applicable fees and commissions involved in establishing and maintaining trust account in the Trustee's name, and in performing any action in the trust account.

14. I hereby agree to sign any document reasonably required at the Company's and/or the Trustee's request.

15. I hereby confirm that I read this letter thoroughly, received all the clarifications and explanations I requested, I understand the contents of this letter and the obligations I undertake in signing it.

_____	_____	_____
Name of the Beneficiary	I.D. Number	Signature

UNITED KINGDOM

Terms and Conditions

RSUs Payable Only in Shares.

RSUs granted to the Participant resident in the United Kingdom shall be paid in Shares only and do not provide any right for the Participant to receive a cash payment, notwithstanding any discretion contained in the Plan to the contrary.

Dividend Equivalents

To the extent that pursuant to Section 8 of the Award Agreement, dividend equivalents shall be credited on RSUs to a Participant resident in the United Kingdom, the credits shall be settled in whole Shares only and do not provide any right for the Participant to receive a cash payment, notwithstanding any discretion contained in the Award Agreement to the contrary.

Withholding of Taxes.

The following provision supplements Section 7 of the Award Agreement:

Without limitation to Section 7 of the Award Agreement, the Participant agrees that the Participant is liable for all Tax-Related Items and hereby covenants to pay all such Tax-Related Items, as and when requested by the Company or the Employer or by Her Majesty's Revenue and Customs ("HMRC") (or any other tax authority or any other relevant authority). The Participant also agrees to indemnify and keep indemnified the Company and the Employer against any Tax-Related Items that they are required to pay or withhold or have paid or will pay to HMRC (or any other tax authority or any other relevant authority) on the Participant's behalf.

Notwithstanding the foregoing, if the Participant is a director or executive officer of the Company (within the meaning of Section 13(k) of the Exchange Act), the immediately foregoing provision will not apply; instead, the amount of any uncollected income tax may constitute a benefit to the Participant on which additional income tax and national insurance contributions may be payable. The Participant is responsible for reporting and paying any income tax due on this additional benefit directly to HMRC under the self-assessment regime and for paying the Company or the Employer (as applicable) for the value of any employee national insurance contributions due on this additional benefit, which may also be recovered from the Participant by any of the means referred to in Section 7 of the Award Agreement.

Exhibit 10.3

Notice of Grant of Restricted Stock Unit Award and Award Agreement (Performance-Based)

SVB FINANCIAL GROUP
ID: 94-2875288
3003 Tasman Drive
Santa Clara, CA 95054

Grant Agreement:	
Participant Name: <Name>	**Grant Name:** <MM/DD/YYYY RSU 0.00 (TEST)>
Employee Number: **<Emp ID No>**	**Issue Date/Date of Grant: <Issue Date>**
Total RSUs: **Up to <Amount>**	**Grant Price: <$**.** USD>**
	Plan: <2006 Equity Incentive Plan>

Vesting Schedule - RSU

Vesting Conditions	Number of RSUs Earned
[Condition 1]	0
[Condition 2]	<Vest Qty 2>
[Condition 3]	<Vest Qty 3>
[Condition 4]	<Vest Qty 4>

The vesting of the RSUs (as defined below) granted hereunder are both performance-based and time-based, as follows:

- ***Performance Condition*** – [Insert conditions]
- ***Time Vesting*** – To the extent the RSUs are deemed earned, the RSUs will be subject to further vesting and will cliff vest on [_____ ___, 20___] (the "Vesting Date") provided the Participant remains a Service Provider as of such Vesting Date (except as otherwise provided in this Award Agreement).

Effective on the Date of Grant listed above, you have been granted an Award of Restricted Stock Units ("RSUs") under the SVB Financial Group 2006 Equity Incentive Plan, as amended from time to time (the "Plan"). Unless otherwise defined herein or in the Award Agreement, capitalized terms herein or in the Award Agreement will have the defined meanings ascribed to them in the Plan.

RSUs in each period will vest in increments on the dates shown in the Vesting Schedule ("Vesting Dates"), subject to you continuing to be a Service Provider through each such date. Notwithstanding the foregoing, if your status as a Service Provider terminates as a result of your death or Disability, and such termination occurs prior to the satisfaction of the Performance Condition(s) listed above, then the number of RSUs that will vest upon your termination will be calculated on a pro-rata basis based on the level of achievement of the Performance Condition(s): (i) as of the end of the applicable performance period (for any Performance Condition(s) where the level of achievement is calculated based on Company performance), or (ii) as of the date of your termination (for any Performance Condition(s) where the level of achievement is calculated based on your individual performance), and in either case, with the level of achievement determined by the Company in its sole discretion. Such pro-rata amount will be calculated based on the number of calendar days that have elapsed between the commencement date of the applicable performance period relating to the Performance Condition(s) listed above and the date of your termination compared to the total number of days in the performance period. If your status as a Service Provider terminates as a result of your death or Disability, and such termination occurs prior to satisfying the Time Vesting conditions listed above, then 100% of the RSUs subject to Time Vesting will fully vest. Unless otherwise specified in the Restricted Stock Unit Election Form (the "Election"), the Settlement Dates for the RSUs shall be the Vesting Dates. Any RSUs that vest in accordance with Section 3 will be paid to you (or in the event of your death, pursuant to Section 6 of the Award Agreement) in whole Shares, less applicable Tax-Related Items. The Company shall issue to you, on a date within thirty (30) days following the Settlement Date, a number of whole Shares to equal to the vested RSUs.

The RSUs and any Shares, cash, or other property paid upon settlement of the RSUs will be subject to the terms and conditions of any clawback policy adopted by the Company and as may be in effect from time to time, which will survive your termination as a Service Provider.

By your acceptance and the Company's signature below, you and the Company agree that these RSUs are granted under and governed by the terms and conditions of the Company's 2006 Equity Incentive Plan and this Award Agreement including any country appendix, all of which are attached and made a part of this document.

SVB Financial Group	Date
Participant Name	Date

SVB FINANCIAL GROUP

GLOBAL RESTRICTED STOCK UNIT AWARD AGREEMENT

1. Grant. The Company hereby grants to the Participant under the Plan an Award of the number of RSUs set forth on the first page hereof (the "Notice of Grant"), subject to all of the terms and conditions in this Global Restricted Stock Unit Award Agreement, including any country-specific terms and conditions for your country set forth in the Appendix for Non-U.S. Participants (the "Appendix") attached hereto as Appendix A (together with the Global Restricted Stock Unit Award Agreement, the "Award Agreement") and the Plan.

2. Company's Obligation. Each RSU represents the right to receive a share of Common Stock ("Share") on the date it becomes vested. Unless and until the RSUs will have vested in the manner set forth in Sections 3 and 4, the Participant will have no right to issuance of Shares in connection with any such RSUs. Prior to actual payment of any vested RSUs, such RSUs will represent an unsecured obligation of the Company, payable (if at all) only from the general assets of the Company.

3. Vesting Schedule. Subject to Section 4, the RSUs awarded by this Award Agreement will vest in the Participant according to the vesting schedule set forth on the first page hereof, subject to the Participant continuing to be a Service Provider through the Vesting Date. Notwithstanding the foregoing, if the Participant's status as a Service Provider terminates as a result of his or her death or Disability, then some or all of the RSUs subject to this Award may vest as set forth in the Notice of Grant.

4. Forfeiture upon Termination of Status as a Service Provider. Notwithstanding any contrary provision of this Award Agreement (but subject to the provisions of Section 3), if the Participant ceases to be a Service Provider for any or no reason (other than due to the Participant's death or Disability) prior to the Vesting Date, the then-unvested RSUs awarded by this Award Agreement will thereupon be forfeited at no cost to the Company or its Affiliate and the Participant will have no further rights thereunder.

In the event of the Participant's termination as a Service Provider (regardless of the reason for such termination and whether or not later to be found invalid or in breach of employment laws in the jurisdiction where the Participant is employed or the terms of the Participant's employment agreement, if any), the Participant's right to vest in the RSUs under the Plan, if any, will terminate effective as of the date that the Participant is no longer employed by the Participant's employer (the "Employer") and any notice period has ended. For the avoidance of doubt, employment shall include any contractual notice period or period of "garden leave" or similar period mandated under employment laws in the jurisdiction where the Participant is employed or the terms of the Participant's employment agreement, if any. The Committee shall have the exclusive discretion to determine when the Participant is no longer employed for purposes of the RSUs.

5. Issuance after Vesting. Any RSUs that vest in accordance with Section 3 will be settled in whole Shares delivered to the Participant (or in the event of the Participant's death, pursuant to Section 6 hereof), provided that to the extent determined appropriate by the Company, less any Tax-Related Items (as defined in Section 7 below) withholding. The Company shall issue such Shares to the Participant within thirty (30) days of the Settlement Date.

6. Issuance after Death. Any issuance to be made to the Participant under this Award Agreement will, if the Participant is then deceased, be made to the Participant's designated beneficiary (provided such beneficiary has been designated prior to the Participant's death in a form acceptable to the Administrator), or if no beneficiary survives the Participant, the personal representative, administrator or executor of the Participant's estate. Any such transferee must furnish the Company with (a) written notice of his or her status as transferee, and (b) evidence satisfactory to the Company to establish the validity of the transfer and compliance with any laws or regulations pertaining to said transfer.

7. Withholding of Taxes. The Company or one of its Affiliates shall assess tax and social insurance liability and requirements in connection with the Participant's participation in the Plan, including, without limitation, income tax, social insurance, payroll tax, fringe benefit tax, payment of account or other tax related items related to the Participant's participation in the Plan and legally applicable to the Participant (the "Tax-Related Items"). These requirements may change from time to time as laws or interpretations change. Regardless of the actions of the Company or if different, the Employer, the Participant hereby acknowledges and agrees that the Tax-Related Items liability is and remains the Participant's responsibility and liability.

The Participant acknowledges that the Company's obligation to issue Shares in connection with the RSUs shall be subject to satisfaction of the Tax-Related Items liability. Unless otherwise determined by the Company or set forth in the Appendix, Tax-Related Items withholding obligations shall be satisfied by having the Company and/or the Employer withhold the cash equivalent of all or a portion of any Shares that otherwise would be issued to the Participant upon settlement of the vested RSUs. The Company and/or the Employer may withhold or account for Tax-Related Items by considering statutory withholding amounts or other withholding rates, including maximum applicable rates in the Participant's jurisdiction(s), in which case the Participant may receive a refund of any over-withheld amount in cash and will have no entitlement to the equivalent amount in Shares. For tax purposes, the Participant is deemed to have been issued the full number of Shares subject to the vested RSUs, notwithstanding that a number of the Shares is held back solely for the purpose of paying the Tax-Related Items withholding. The Company or the Employer may also satisfy the Tax-Related Items withholding liability by deduction from the Participant's wages or other cash compensation paid to the Participant by the Company or the Employer. Alternatively, by the Participant's acceptance of the RSUs, the Participant authorizes and directs the Company or any brokerage firm determined acceptable to the Company to sell on the Participant's behalf a whole number of Shares from those Shares issued to the Participant as the Company determines to be sufficient to satisfy the obligation for Tax-Related Items. Finally, the Participant agrees to pay the Company or the Employer any Tax-Related Items withholding liability that cannot be satisfied by deduction from the Participant's wages or other cash compensation paid to the Participant by the Company or the Employer or sale of the Shares acquired under the Plan.

8. Dividend Equivalents. If the Company declares a cash dividend with respect to Shares, the Participant will receive credits equal to the amount of the cash dividends payable on the cash dividend payment date with respect to the number of Shares represented by the RSUs outstanding as of the cash dividend record date. The credits will be subject to the same terms and conditions that apply to the RSUs (including vesting conditions), such that no payment shall be made to the Participant unless and until the corresponding RSUs have vested in accordance with Section 3. The credits will be settled in Shares or cash as determined by the Company in its sole discretion on the date the underlying RSUs are settled, subject to the Company's collection of the Tax-Related Items pursuant to Section 7. If an RSU is settled before a cash dividend payment date, but after the cash dividend record date, the Participant will be entitled to be paid for the credits that relate to such RSUs on the cash dividend payment date, or as soon as reasonably practicable thereafter. If the credit is settled in Shares, the number of Shares payable will equal the dollar value of such credits on the settlement date divided by the Fair Market Value of a Share on the settlement date rounded down to the nearest whole Share. In the event of a dividend or distribution paid in Shares or any other adjustment made upon a change in the capital structure of the Company as described in Section 16 of the Plan, appropriate adjustments will be made to the RSUs so that they represent the right to receive upon settlement any and all new, substituted or additional securities or other property (other than cash dividends) to which the Participant would be entitled by reason of the Shares issuable upon settlement of the RSUs, and all such new, substituted or additional securities or other property will be immediately subject to the same vesting conditions as are applicable to the RSUs.

9. Rights as Stockholder. Neither the Participant nor any person claiming under or through the Participant will have any of the rights or privileges of a stockholder of the Company in respect of any

Shares deliverable hereunder unless and until certificates representing such Shares have been issued, recorded on the records of the Company or its transfer agents or registrars, and delivered to the Participant.

10. Acknowledgements. The Participant acknowledges and agrees to the following:

- the Plan is discretionary in nature and the Administrator may amend, suspend, or terminate it at any time;
- the grant of the RSUs is exceptional, voluntary and occasional and does not create any contractual or other right to receive future grants of RSUs, or benefits in lieu of the RSUs even if the RSUs have been granted in the past;
- all determinations with respect to future RSUs or other grants, if any, will be at the sole discretion of the Administrator;
- the Participant's participation in the Plan is voluntary;
- the RSUs and the Shares subject to the RSUs, and the income from and value of same, are not part of normal or expected compensation for purposes of calculating any severance, resignation, termination, redundancy, dismissal, end-of-service payments, bonuses, long-service awards, holiday pay, pension or retirement or welfare benefits or similar payments;
- the future value of the Shares is unknown, indeterminable and cannot be predicted with certainty;
- the RSUs and any Shares, cash, or other property paid upon settlement of the RSUs will be subject to the terms and conditions of any clawback policy adopted by the Company and as may be in effect from time to time, which will survive the Participant's termination as a Service Provider;
- no claim or entitlement to compensation or damages shall arise from forfeiture of the RSUs resulting from the termination of the Participant's employment or other service relationship (for any reason whatsoever whether or not later found to be invalid or in breach of employment laws in the jurisdiction where the Participant is employed or the terms of the Participant's employment agreement, if any);
- the RSU grant and the Participant's participation in the Plan shall not create a right to employment or be interpreted as forming an employment or services contract with the Company, the Employer or any Affiliate and shall not interfere with the ability of the Company, the Employer or any Affiliate, as applicable, to terminate the Participant's employment or service relationship (if any);
- unless otherwise provided in the Plan or by the Company in its discretion, the RSUs and the benefits evidenced by this Award Agreement do not create any entitlement to have the RSUs or any such benefits transferred to, or assumed by, another company nor be exchanged, cashed out or substituted for, in connection with any corporate transaction affecting the shares of the Company; and
- the following provisions apply only if the Participant is providing services outside the United States:
    - the RSUs and the Shares subject to the RSUs, and the income from and value of the same, are not part of normal or expected compensation or salary for any purpose; and
    - neither the Company, the Employer nor any Affiliate shall be liable for any foreign exchange rate fluctuation between the Participant's local currency and the United

States Dollar that may affect the value of the RSUs or of any amounts due to the Participant pursuant to the settlement of the RSUs or the subsequent sale of any Shares acquired upon settlement.

11. No Advice Regarding Grant. The Company is not providing any tax, legal or financial advice, nor is the Company making any recommendations regarding the Participant's participation in the Plan, or the Participant's acquisition or sale of the underlying Shares. The Participant should consult with his or her own personal tax, legal and financial advisors regarding his or her participation in the Plan before taking any action related to the Plan.

12. Address for Notices. Any notice to be given to the Company under the terms of this Award Agreement will be addressed to the Company at 80 E Rio Salado Parkway Suite 600, Tempe, AZ 85281, Attn: Stock Administration, or at such other address as the Company may hereafter designate in writing.

13. Grant is Not Transferable. Except to the limited extent provided in Section 6, this grant and the rights and privileges conferred hereby will not be transferred, assigned, pledged or hypothecated in any way (whether by operation of law or otherwise) and will not be subject to sale under execution, attachment or similar process. Upon any attempt to transfer, assign, pledge, hypothecate or otherwise dispose of this grant, or any right or privilege conferred hereby, or upon any attempted sale under any execution, attachment or similar process, this grant and the rights and privileges conferred hereby immediately will become null and void.

14. Binding Agreement. Subject to the limitation on the transferability of this grant contained herein, this Award Agreement will be binding upon and inure to the benefit of the heirs, legatees, legal representatives, successors and assigns of the parties hereto.

1 5 . Additional Conditions to Issuance of Stock. If at any time the Company will determine, in its discretion, that the listing, registration or qualification of the Shares upon any securities exchange or under any U.S. or non-U.S. local, state, or federal law, or the consent or approval of any governmental regulatory authority is necessary or desirable as a condition to the issuance of Shares to the Participant (or his estate), such issuance will not occur unless and until such listing, registration, qualification, consent or approval will have been effected or obtained free of any conditions not acceptable to the Company. Where the Company determines that the issuance of any Shares will violate U.S. or non-U.S. local, state or federal securities laws or other applicable laws, the Company will defer delivery until the earliest date at which the Company reasonably anticipates that the delivery of Shares will no longer cause such violation. The Company will make all reasonable efforts to meet the requirements of any law or securities exchange and to obtain any such consent or approval of any such governmental authority.

16. Plan Governs. This Award Agreement is subject to all terms and provisions of the Plan. In the event of a conflict between one or more provisions of this Award Agreement and one or more provisions of the Plan, the provisions of the Plan will govern.

17. Administrator Authority. The Administrator will have the power to interpret the Plan and this Award Agreement and to adopt such rules for the administration, interpretation and application of the Plan as are consistent therewith and to interpret or revoke any such rules (including, but not limited to, the determination of whether or not any RSUs have vested). All actions taken and all interpretations and determinations made by the Administrator in good faith will be final and binding upon Participant, the Company and all other interested persons. No member of the Administrator will be personally liable for any action, determination or interpretation made in good faith with respect to the Plan or this Award Agreement.

18. Captions. Captions provided herein are for convenience only and are not to serve as a basis for interpretation or construction of this Award Agreement.

19. Agreement Severable. In the event that any provision in this Award Agreement will be held invalid or unenforceable, such provision will be severable from, and such invalidity or unenforceability will not be construed to have any effect on, the remaining provisions of this Award Agreement.

20. Modifications to the Agreement. This Award Agreement, including the Appendix, and the Plan constitute the entire understanding of the parties on the subjects covered. The Participant expressly warrants that he or she is not accepting this Award Agreement in reliance on any promises, representations, or inducements other than those contained herein. Modifications to this Award Agreement or the Plan can be made only in an express written contract executed by a duly authorized officer of the Company.

21. Electronic Delivery. The Company may, in its sole discretion, decide to deliver any documents related to RSUs awarded under the Plan or future RSUs that may be awarded under the Plan by electronic means or request the Participant's consent to participate in the Plan by electronic means. The Participant hereby consents to receive such documents by electronic delivery and agrees to participate in the Plan through an on-line or electronic system established and maintained by the Company or another third party designated by the Company. Electronic execution of this Award Agreement and/or other documents shall have the same binding effect as a written or hard copy signature and accordingly, shall bind the Participant and the Company to all of the terms and conditions set forth in the Plan, this Award Agreement and/or such other documents.

22. Compliance with Applicable Laws. The vesting of the RSUs under the Plan and the issuance, transfer, assignment, sale, or other dealings of the Shares shall be subject to compliance by the Company (or any Affiliate) and the Participant with all Applicable Laws.

23. Language. The Participant acknowledges that he or she is proficient in the English language, or has consulted with an advisor who is sufficiently proficient in English, so as to allow the Participant to understand the terms and conditions of this Award Agreement. If the Participant has received this Award Agreement or any other document related to the Plan translated into a language other than English and if the meaning of the translated version is different than the English version, the English version will control.

24. Appendix. Notwithstanding any provisions in this Award Agreement, if the Participant resides outside the United States at any time during the life of the Award, the Participant's participation in the Plan shall be subject to the Appendix for Non-U.S. Participants attached hereto as Appendix A. Moreover, if the Participant relocates to one of the countries included in the Appendix, the special terms and conditions will apply to the Participant, to the extent the Company determines that the application of such terms and conditions is necessary or advisable for legal or administrative reasons. The Appendix constitutes part of this Award Agreement.

25. Governing Law and Venue. This Award Agreement will be governed by the laws of the State of California, without giving effect to the conflict of law principles thereof. For purposes of litigating any dispute that arises under this Award of RSUs or this Award Agreement, the parties hereby submit to and consent to the jurisdiction of the State of California**,** and agree that such litigation shall be conducted in the courts of Santa Clara County, California**,** or the federal courts for the United States for the Northern District of California, and no other courts, where this Award of RSUs is made and/or to be performed.

26. Imposition of Other Requirements. The Company reserves the right to impose other requirements on the Participant's participation in the Plan, on the RSUs and on any Shares acquired under the Plan, to the extent the Company determines it is necessary or advisable for legal or administrative reasons,

and to require the Participant to sign any additional agreements or undertakings that may be necessary to accomplish the foregoing.

27. Insider Trading/Market Abuse Restrictions. By accepting the RSUs, the Participant acknowledges that he or she is bound by all the terms and conditions of the Company's insider trading policy as may be in effect from time to time. The Participant further acknowledges that, depending on the Participant's or his or her broker's country or the country in which the Shares are listed, he or she may be subject to insider trading restrictions and/or market abuse laws which may affect the Participant's ability to accept, acquire, sell or otherwise dispose of Shares, rights to Shares (e.g., RSUs) or rights linked to the value of Shares under the Plan during such times as the Participant is considered to have "inside information" regarding the Company (as defined by the laws in the applicable jurisdictions. Local insider trading laws and regulations may prohibit the cancellation or amendment of orders the Participant placed before the Participant possessed inside information. Furthermore, the Participant could be prohibited from (i) disclosing the inside information to any third party, which may include fellow employees and (ii) "tipping" third parties or causing them otherwise to buy or sell securities. Any restrictions under these laws or regulations are separate from and in addition to any restrictions that may be imposed under the Company's insider trading policy as may be in effect from time to time. The Participant acknowledges that it is the Participant's responsibility to comply with any applicable restrictions, and the Participant should speak to his or her personal advisor on this matter.

28. Foreign Asset/Account, Exchange Control and Tax Reporting. Depending on the Participant's country, the Participant may be subject to foreign asset/account, exchange control, tax reporting or other requirements which may affect the Participant's ability acquire or hold RSUs or Shares under the Plan or cash received from participating in the Plan (including dividends and the proceeds arising from the sale of Shares) in a brokerage/bank account outside the Participant's country. The applicable laws of the Participant's country may require that he or she report such RSUs, Shares, accounts, assets or transactions to the applicable authorities in such country and/or repatriate funds received in connection with the Plan to the Participant's country within a certain time period or according to certain procedures. The Participant acknowledges that he or she is responsible for ensuring compliance with any applicable requirements and should consult his or her personal legal advisor to ensure compliance with applicable laws.

29. Waiver. The Participant acknowledges that a waiver by the Company of breach of any provision of this Award Agreement shall not operate or be construed as a waiver of any other provision of this Award Agreement, or of any subsequent breach by the Participant or any other participant.

APPENDIX A

SVB FINANCIAL GROUP

GLOBAL RESTRICTED STOCK UNIT AWARD AGREEMENT

APPENDIX FOR NON-U.S. PARTICIPANTS

Terms and Conditions

This Appendix includes additional terms and conditions that govern the RSUs granted to the Participant under the Plan if he or she is in one of the countries listed below. If the Participant is a citizen or resident of a country (or are considered as such for local law purposes) other than the one in which the Participant is currently residing and/or working or if the Participant moves to another country after receiving the grant of RSUs, the Company will, in its discretion, determine the extent to which the terms and conditions herein will be applicable to the Participant. Certain capitalized terms used but not defined in this Appendix have the meanings set forth in the Plan and/or the Award Agreement.

Notifications

This Appendix may also include information regarding exchange controls and certain other issues of which the Participant should be aware with respect to his or her participation in the Plan. The information is based on the securities, exchange control, and other laws in effect in the respective countries as of April 2019. Such laws are often complex and change frequently. As a result, the Company strongly recommends that the Participant not rely on the information in this Appendix as the only source of information relating to the consequences of the Participant's participation in the Plan because the information may be out of date at the time the RSUs vest, the Shares underlying the RSUs are issued or the Participant sells Shares acquired under the Plan.

In addition, the information contained herein is general in nature and may not apply to the Participant's particular situation, and the Company is not in a position to assure the Participant of a particular result. Accordingly, the Participant is advised to seek appropriate professional advice as to how the relevant laws in his country may apply to the Participant's situation.

Finally, if the Participant is a citizen or resident of a country other than the one in which he or she is currently working, or is considered a resident of another country for local law purposes, or if the Participant transfers employment and/or residency to another country after the RSUs have been granted, the notifications contained herein may not be applicable in the same manner.

DATA PRIVACY PROVISIONS APPLICABLE TO PARTICIPANTS IN THE EUROPEAN UNION/EUROPEAN ECONOMIC AREA AND THE UK

To the extent that the Company collects, holds, uses or processes Personal Data (as defined below), it shall do so in accordance with its Privacy Notice for Employees. The following section shall be read so as to incorporate all relevant parts of the Company's Privacy Notice for Employees:

Personal Data Subject to Processing. In addition to the types of personal data listed in the Privacy Notice for Employees, the Company collects, processes and uses the following types of personal data about the Participant in connection with this Award Agreement: details of any shares of stock or directorships held in the Company by the Participant, details of all RSUs or any other entitlement to Shares awarded, canceled,

settled, vested, unvested or outstanding in the Participant's favour, which the Company receives from the Participant or the Employer ("Personal Data").

Purposes and Legal Bases of Processing. The Company processes the Personal Data in accordance with the Company's Privacy Notice for Employees. The Participant and the Company acknowledge that such Personal Data shall be controlled and processed by the Company for the purpose of performing its contractual obligations under this Award Agreement, granting RSUs, implementing and administering and managing the Participant's participation in the Plan and that the Participant's consent is not required for the collection, use or transfer of that Personal Data.

Stock Plan Administration Service Providers. In addition to the third parties set out in the Privacy Notice for Employees, the Company transfers Personal Data to Solium Capital, LLC and its affiliated companies (collectively, "Solium"), an independent stock plan administrator with operations, relevant to the Company, in the United States, which assists the Company with the implementation, administration and management of the Plan. The Company's stock plan administrator acts as an independent data controller and will open an account for the Participant to receive and trade Shares. The Participant will be asked to agree on separate terms and data processing practices with the service provider, which is a condition of the Participant's ability to participate in the Plan. The Participant understands that the Participant may request a list with the names and addresses of any potential recipients of Personal Data by contacting the Participant's local human resources representative.

CANADA

Terms and Conditions

The following provisions apply if the Participant is a resident of Quebec:

Language Consent.

The parties acknowledge that it is their express wish that the Award Agreement, as well as all documents, notices and legal proceedings entered into, given or instituted pursuant hereto or relating directly or indirectly hereto, be drawn up in English.

Les parties reconnaissent avoir exigé la rédaction en anglais de la convention, ainsi que de tous documents exécutés, avis donnés et procédures judiciaries intentées, directement ou indirectement, relativement à ou suite à la présente convention.

Authorization to Release and Transfer Necessary Personal Information .

The Participant hereby authorizes the Company and the Company's representatives to discuss with and obtain all relevant information from all personnel, professional or not, involved in the administration and operation of the Plan. The Participant further authorizes the Company, any Affiliate and the plan administrators to disclose and discuss the Plan with their advisors. The Participant further authorizes the company and any Affiliate to record such information and to keep such information in the Participant's employee file.

Notifications

Securities Law Notification.

The Participant is permitted to sell Shares acquired under the Plan through the designated broker appointed under the Plan, if any, provided the resale of Shares acquired under the Plan takes place outside of Canada through the facilities of a stock exchange on which the Shares are listed. The Shares are currently listed on the Nasdaq market in the United States.

Foreign Asset/Account Reporting Information.

Foreign specified property, including Shares and other rights to receive Shares (e.g., RSUs), must be reported annually on a Form T1135 (Foreign Income Verification Statement) if the total cost of the foreign specified property exceeds CAD100,000 at any time during the year. Thus, the RSUs must be reported - generally at a nil cost - if the CAD100,000 cost threshold is exceeded because of other foreign specified property. When Shares are acquired, their cost generally is the adjusted cost base ("ACB") of the Shares. The ACB would ordinarily equal the fair market value of the Shares at the time of acquisition, but if other Shares are also owned, this ACB may have to be averaged with the ACB of the other Shares. The Form T1135 generally must be filed by April 30 of the following year. The Participant should consult with his or her personal advisor to ensure compliance with the applicable reporting requirements.

CHINA

Terms and Conditions

Unless otherwise required by the State Administration of Foreign Exchange ("SAFE"), the following provisions apply only to Participants who are nationals of the People's Republic of China ("PRC") and reside in the PRC, as determined by the Company in its sole discretion.

Issuance After Vesting.

This provision replaces Section 5 of the Award Agreement:

Upon the vesting of RSUs in accordance with Section 3, the Participant (or in the event of the Participant's death, to his or her estate) shall be paid an amount in local currency through local payroll that is equal in value to the Fair Market Value of the applicable number of whole Shares otherwise issuable at vesting, provided that to the extent determined appropriate by the Company, any Tax-Related Items withholding with respect to such RSUs shall be deducted from the amount of cash otherwise payable to the Participant.

Dividend Equivalents.

This provision supplements Section 8 of the Award Agreement:

To the extent that dividend equivalents shall be credited on RSUs, such credits shall be settled in cash, not in Shares.

GERMANY

Exchange Control Information.

Cross-border payments in excess of €12,500 must be reported monthly to the German Federal Bank. No report is required for payments less than €12,500. In case of payments in connection with securities (including proceeds realized upon the sale of Shares), the report must be filed electronically by the 5th day of the month following the month in which the payment was received. The form of report ("*Allgemeine Meldeportal Statistik*") can be accessed via the *Bundesbank's* website (www.bundesbank.de) and is available in both German and English. The Participant is responsible for satisfying the reporting obligation.

INDIA

Terms and Conditions

Issuance after Vesting.

The following provision supplements Section 5 of the Award Agreement.

Any RSUs that vest in accordance with Section 3 will be paid in cash to the Participant (or in the event of the Participant's death, to his or her estate) based on the value equivalent to the number of applicable whole Shares, provided that to the extent determined appropriate by the Company, any Tax-Related Items withholding with respect to such RSUs will be paid by reducing the amount otherwise payable to the Participant.

Dividend Equivalents.

To the extent that pursuant to Section 8 of the Award Agreement dividend equivalents shall be credited on RSUs, such credits shall be settled in cash, not in Shares.

ISRAEL

Terms and Conditions

The following provision applies to the Participant if the Participant is in Israel on the Date of Grant.

Trust Arrangement.

The Participant understands and agrees that the RSUs are offered subject to and in accordance with the terms of the Plan, Israeli Subplan (the "Subplan"), Award Agreement and Israel Beneficiary 102 Undertaking. The Participant understands that the RSUs shall be allocated under the provisions of the track referred to as the "Capital Gain Route," according to Section 102(b)(2) and 102(b)(3) of the Israeli Income Tax Ordinance ("Section 102") and shall be held by the trustee for the periods stated in Section 102. The Participant hereby confirms that he or she has: (i) read and understands the Plan, Subplan, Award Agreement and Israel Beneficiary 102 Undertaking; (ii) received all the clarifications and explanations that the Participant has requested; and (iii) had the opportunity to consult with his or her advisers before accepting the Award Agreement. In the event of any inconsistencies between the provisions of this Israeli Appendix and the Award Agreement, the provisions of this Appendix shall govern the RSUs and any Shares and in no event shall any term require shareholder approval as set out in Section 21(b) of the Plan.

Limited Transferability.

This provision supplements Section 13 of the Award Agreement:

As long as the RSUs or any issued Shares are held by the Trustee on the Participant's behalf, all of the Participant's rights over the RSUs or the Shares are personal and cannot be transferred, assigned, pledged or mortgaged, other than by will or the laws of descent and distribution.

Subject to the provisions of the Plan, Section 102 and any rules or regulations or orders or procedures promulgated thereunder, to obtain favorable tax treatment for Capital Gain Route awards, the Participant may not sell or release from trust any Shares received upon vesting of the RSUs and/or any Shares received subsequently following any realization of rights, including without limitation, bonus shares, until the lapse of the holding period required under Section 102. Notwithstanding the above, if any such sale or release

occurs during the holding period, the sanctions under Section 102 and under any rules or regulation or orders or procedures promulgated thereunder will apply to and will be borne by the Participant.

Issuance of Shares.

This provision supplements Sections 5 and 6 of the Award Agreement:

If the Shares are to be issued during the holding period, such Shares shall be restricted and will be held by the Trustee on the Participant's behalf. In the event that the Shares are to be issued after the expiration of the holding period, the Participant may elect to have the Shares issued and delivered directly to him or her, provided that the Participant first complies with any Tax-Related Items stipulated under this Award Agreement to the Trustee's and the Company's satisfaction, or in trust on the Participant's behalf to the Trustee.

Withholding of Taxes.

This provision supplements Section 7 of the Award Agreement:

The Participant hereby agrees to indemnify the Company (or any Affiliate) and/or the Trustee and hold them harmless against and from any and all liability for any Tax-Related Items and other amounts, or interest or penalty thereon, including without limitation, liabilities relating to the necessity to withhold, or to have withheld, any such amounts from any payment made to the Participant. Any reference to the Company or the Employer shall include a reference to the Trustee. The Participant hereby undertakes to release the Trustee from any liability in respect of any action or decisions duly taken and *bona fide* executed in relation to the Plan or any RSUs or Shares acquired under the Plan. The Participant agrees to execute any and all documents which the Company or the Trustee may reasonably determine to be necessary in order to comply with the Israeli Income Tax Ordinance.

The Participant shall not be liable for the Employer's components of payments to the national insurance institute, unless otherwise agreed by the Participant and allowed by applicable tax laws. Furthermore, the Participant agrees to indemnify the Company, the Employer and/or the Trustee and hold them harmless against and from any and all liability for any such tax or interest or penalty thereon that Participant has agreed to pay, including without limitation, liabilities relating to the necessity to withhold, or to have withheld, any such tax from any payment made to the Participant for which the Participant is responsible.

Notwithstanding anything to the contrary in the Award Agreement, no Tax-Related Items will be settled by withholding Shares, unless the ITA approves otherwise in writing.

Governing Law.

This section supplements Section 26 of the Award Agreement:

To the extent any covenant, condition, or other provision of the Award Agreement and the rights of the Participant hereunder are intended to be rights granted under Section 102 and therefore determined to be subject to Israeli law, such covenant, condition, or other provision of the Award Agreement shall be subject to applicable Israeli law, but shall in no way affect, impair or invalidate any other provision of the Award Agreement, and the applicability of the Plan to such covenant, condition, or other provision of the Award Agreement.

Written Acceptance.

The Participant must print, sign and deliver the signed copy of the Israel Beneficiary 102 Undertaking within 45 days to: 80 E Rio Salado Parkway Suite 600, Tempe, AZ 85281, Attn: Stock Administration. If the

Company does not receive the signed Israel Beneficiary 102 Undertaking within 45 days, the RSUs may not qualify for preferential tax treatment.

The following provision applies if the Participant transfers into Israel after the Date of Grant.

Issuance after Vesting.

The following provision replaces Section 5 of the Award Agreement.

Any RSUs that vest in accordance with the vesting schedule in the Notice of Grant will be paid to the Participant (or in the event of the Participant's death, to his or her estate), upon satisfaction, as determined by the Company, of any Tax-Related Items as set forth in Section 7 of this Award Agreement. At the discretion of the Company, the Shares will be subject to an immediate forced sale restriction, pursuant to which all Shares acquired at vesting will be immediately sold and the Participant will receive the sale proceeds less Tax-Related Items and applicable broker fees and commissions. In this case, the Participant will not be entitled to hold any Shares acquired at vesting.

SVB FINANCIAL GROUP

GLOBAL RESTRICTED STOCK UNIT AWARD AGREEMENT

ISRAEL BENEFICIARY 102 UNDERTAKING

If the Participant has not already executed an Israel Beneficiary 102 Undertaking in connection with grants made under the Israeli Subplan, the Participant must print, sign and deliver the signed copy of this Israel Beneficiary 102 Undertaking within 45 days to: 80 E Rio Salado Parkway Suite 600, Tempe, AZ 85281, Attn: Stock Administration. If the Company does not receive the signed Israel Beneficiary 102 Undertaking within 45 days, the RSUs may not qualify for preferential tax treatment.

1. I hereby agree that any shares (the "Shares") (as defined by Section 102 of the Income Tax Ordinance [New Version], 1961) (the "Tax Ordinance") issued to me by SVB Financial Group according to and under the terms and conditions of the Plan and the Israeli Subplan adopted by SVB Financial Group as of January 8, 2014 (collectively, the "Plan") are granted to me to qualify under the capital gain tax treatment in accordance and pursuant to Section 102(b)(2) of the Tax Ordinance after 132 amendment ("Section 102") and the Income Tax Rules (Tax Relief upon the Allotment of Shares to Employees), 2003 (the "Rules") unless I am otherwise notified subject to SVB Financial Group's absolute discretion to change such election on future grants and subject to the Tax Authorities' approval.

2. I declare and confirm that I am familiar with the terms of Section 102, the Rules, and the implications and consequences of the chosen tax arrangement with respect to the Shares, and consent that all the terms and conditions set forth in Section 102 and the Rules, as shall be amended from time to time, shall apply to me and bind me.

3. I hereby declare and confirm that I am familiar with the provisions of the trust agreement signed between SVB Israel Advisors Ltd. and Tamir Fishman Trusts 2004 Ltd., or its successor in interest (the "Trustee") (the "Trust Agreement"), including the deed of trust, attached to the Trust Agreement and constitute an integral part thereto ("Deed of Trust"), and I consent that the Trust Agreement and the Deed of Trust shall fully bind me.

4. Without derogating from the generality of the aforesaid, I agree that the Shares will be deposited in trust with the Trustee and be held in trust in accordance with Section 102, the Rules and the Trust Agreement.

5. I hereby declare and consent that any and all the rights that I shall be entitled to with respect to the Shares, including, without limitation, dividend, dividend equivalents, bonus shares and shares issued pursuant to adjustments made by SVB Financial Group, shall be issued in the name of the Trustee and be deposited with the Trustee,] and shall be subject to Section 102, the Rules and the Trust Agreement.

6. Without derogating from the generality of the aforesaid, I acknowledge that during the "Holding Period" as determined by the Tax Ordinance I am prevented from selling the Shares, or releasing them from the Trustee, before the termination of the "Holding Period" and I understand the tax implications and consequences that may be applied as a result of breaching such obligation, as set by Section 102, which I am familiar with.

7. If I will cease to be an Israeli resident or if my employment will be terminated for any reason, the Shares shall remain subject to section 102, the Rules and the Trust Agreement.

8. I hereby agree that any tax liability whatsoever arising from the grant, vesting or exercise of any awards, sale of Shares, release of Shares from the Trustee or any other event or act with respect to the Shares granted to me, shall be borne solely by me. I declare and consent that the SVB Financial Group, SVB Israel Advisors Ltd. and/or the Trustee shall make any tax payment due, out of the proceeds of any sale of Shares, to any tax authority, according to Section 102, the Rules, the Trust Agreement or any other compulsory payments or applicable law.

9. I understand that this grant of Shares under the capital gain track is conditioned upon the receipt, inter alia, of all required approvals from the tax authorities. Accordingly, to the extent that for whatever reason SVB Israel Advisors Ltd. shall not be granted an approval by the Israeli Tax Authorities under section 102, I shall bear and pay any and all taxes and any other compulsory payments applicable to the grant, exercise, sale or other disposition of options or stocks; I hereby declare and consent for the SVB Financial Group, SVB Israel Advisors Ltd. and/or the Trustee to deduct any tax payment due, out of the proceeds of any sale of Shares, for any payment to The tax authorities, according to the Rules, or any other applicable compulsory payments.

10. I confirm that SVB Financial Group and/or the Trustee shall not be required to release any Shares or any proceeds deriving from the sale of Shares, to me, until all required tax payments according to section 102, the Rules and the Trust Agreement, including any other compulsory payments, or applicable law, have been fully assured.

11. I acknowledge that the Trustee is not a tax advisor and it is recommended that I consult a tax advisor before I accept this letter, any restricted stock units vest, sell any Shares or release them from the Trustee, or any other act.

12. I agree to indemnify SVB Financial Group, SVB Israel Advisors Ltd. and/or the Trustee and to hold them harmless against and from any and all liability for any damage and/or loss and/or expense that might occur regarding the tax liability and/or the execution of the Trust Agreement.

13. I hereby agree to bear all the applicable fees and commissions involved in establishing and maintaining trust account in the Trustee's name, and in performing any action in the trust account.

14. I hereby agree to sign any document reasonably required at the Company's and/or the Trustee's request.

15. I hereby confirm that I read this letter thoroughly, received all the clarifications and explanations I requested, I understand the contents of this letter and the obligations I undertake in signing it.

_____	_____	_____
Name of the Beneficiary	I.D Number	Signature

UNITED KINGDOM

Terms and Conditions

RSUs Payable Only in Shares.

RSUs granted to the Participant resident in the United Kingdom shall be paid in Shares only and do not provide any right for the Participant to receive a cash payment, notwithstanding any discretion contained in the Plan to the contrary.

Dividend Equivalents

To the extent that pursuant to Section 8 of the Award Agreement, dividend equivalents shall be credited on RSUs to a Participant resident in the United Kingdom, the credits shall be settled in whole Shares only and do not provide any right for the Participant to receive a cash payment, notwithstanding any discretion contained in the Award Agreement to the contrary.

Withholding of Taxes.

The following provision supplements Section 7 of the Award Agreement:

Without limitation to Section 7 of the Award Agreement, the Participant agrees that the Participant is liable for all Tax-Related Items and hereby covenants to pay all such Tax-Related Items, as and when requested by the Company or the Employer or by Her Majesty's Revenue and Customs ("HMRC") (or any other tax authority or any other relevant authority). The Participant also agrees to indemnify and keep indemnified the Company and the Employer against any Tax-Related Items that they are required to pay or withhold or have paid or will pay to HMRC (or any other tax authority or any other relevant authority) on the Participant's behalf.

Notwithstanding the foregoing, if the Participant is a director or executive officer of the Company (within the meaning of Section 13(k) of the Exchange Act), the immediately foregoing provision will not apply; instead, the amount of any uncollected income tax may constitute a benefit to the Participant on which additional income tax and national insurance contributions may be payable. The Participant is responsible for reporting and paying any income tax due on this additional benefit directly to HMRC under the self-assessment regime and for paying the Company or the Employer (as applicable) for the value of any employee national insurance contributions due on this additional benefit, which may also be recovered from the Participant by the Company or the Employer by any of the means referred to in Section 7 of the Award Agreement.

EXHIBIT 31.1

RULE 13a-14(a)/15d-14(a) CERTIFICATION

I, Greg Becker, certify that:

1. I have reviewed this quarterly report on Form 10-Q of SVB Financial Group;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the periods covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's Board of Directors (or persons performing the equivalent functions):
   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: November 12, 2019

/s/ GREG BECKER

Greg Becker

President and Chief Executive Officer

(Principal Executive Officer)

EXHIBIT 31.2

RULE 13a-14(a)/15d-14(a) CERTIFICATION

I, Daniel Beck, certify that:

1. I have reviewed this quarterly report on Form 10-Q of SVB Financial Group;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the periods covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's Board of Directors (or persons performing the equivalent functions):
   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: November 12, 2019

/s/ DANIEL BECK

Daniel Beck

Chief Financial Officer

(Principal Financial Officer)

EXHIBIT 32.1

SECTION 1350 CERTIFICATIONS

I, Greg Becker, certify, pursuant to 18 U.S.C. Section 1350, that, to my knowledge, the quarterly report of SVB Financial Group on Form 10-Q for the quarterly period ended September 30, 2019, (i) fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and (ii) that the information contained in such Form 10-Q fairly presents, in all material respects, the financial condition and results of operations of SVB Financial Group.

Date: November 12, 2019

/s/ GREG BECKER

Greg Becker

President and Chief Executive Officer

(Principal Executive Officer)

I, Daniel Beck, certify, pursuant to 18 U.S.C. Section 1350, that, to my knowledge, the quarterly report of SVB Financial Group on Form 10-Q for the quarterly period ended September 30, 2019, (i) fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and (ii) that the information contained in such Form 10-Q fairly presents, in all material respects, the financial condition and results of operations of SVB Financial Group.

Date: November 12, 2019

/s/ DANIEL BECK

Daniel Beck

Chief Financial Officer

(Principal Financial Officer)