The Depository Trust & Clearing Corporation

Consolidated Financial Statements as of and for the Years Ended December 31, 2018 and 2017, and Independent Auditors' Report

THE DEPOSITORY TRUST & CLEARING CORPORATION

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INDEPENDENT AUDITORS' REPORT

To the Board of Directors and Shareholders of
The Depository Trust & Clearing Corporation

We have audited the accompanying consolidated financial statements of The Depository Trust & Clearing Corporation and its subsidiaries (the "Company"), which comprise the consolidated statements of financial condition as of December 31, 2018 and 2017, and the related consolidated statements of income, comprehensive income, changes in shareholders' equity, and cash flows for the years then ended, and the related notes to the consolidated financial statements.

Management's Responsibility for the Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of these consolidated financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of consolidated financial statements free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the consolidated financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Company's preparation and fair presentation of the consolidated financial statements in order to design audit procedures appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of The Depository Trust & Clearing Corporation and its subsidiaries as of December 31, 2018 and 2017, and the results of their operations and their cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Deloitte & Touche LLP

March 27, 2019

THE DEPOSITORY TRUST & CLEARING CORPORATION

CONSOLIDATED STATEMENTS OF FINANCIAL CONDITION

(In thousands, except share data)	As of December 31, 2018	2017
ASSETS		
CURRENT ASSETS:		
Cash and cash equivalents	$ 8,641,036	$ 5,075,318
Participants' segregated cash	77,988	20,120
Short-term investments	800,000	—
Accounts receivable - net of allowance for doubtful accounts of $1,650 and $205 as of December 31, 2018 and 2017, respectively	177,880	174,456
Participants' and Clearing Funds	36,622,122	27,015,465
Other Participants' assets	518,115	868,036
Other current assets	133,960	101,654
Total current assets	46,971,101	33,255,049
NON-CURRENT ASSETS:		
Premises and equipment - net of accumulated depreciation of $399,846 and $394,039 as of December 31, 2018 and 2017, respectively	213,111	233,835
Goodwill	57,699	57,699
Intangible assets - net of accumulated amortization of $839,236 and $740,942 as of December 31, 2018 and 2017, respectively	319,119	338,359
Equity method investments	10,491	10,394
Other non-current assets	319,579	353,836
Total non-current assets	919,999	994,123
TOTAL ASSETS	$ 47,891,100	$ 34,249,172
LIABILITIES AND SHAREHOLDERS' EQUITY		
CURRENT LIABILITIES:		
Commercial paper - net of unamortized discount of $43,856 and $3,371 as of December 31, 2018 and 2017, respectively	$ 7,436,141	$ 3,222,571
Current portion of long-term debt	2,650	7,877
Current portion of pension and postretirement benefits	16,608	21,337
Accounts payable and accrued expenses	104,013	118,345
Participants' and Clearing Funds	36,622,122	27,015,465
Payable to Participants	596,103	888,156
Other current liabilities	260,677	249,929
Total current liabilities	45,038,314	31,523,680
NON-CURRENT LIABILITIES:		
Non-current portion of long-term debt	33,725	36,375
Non-current portion of pension and postretirement benefits	198,492	291,208
Other non-current liabilities	288,334	370,242
Total non-current liabilities	520,551	697,825
Total liabilities	45,558,865	32,221,505
COMMITMENTS AND CONTINGENCIES (Note 21)		
SHAREHOLDERS' EQUITY		
Preferred stock:		
Series A, $0.50 par value - 10,000 shares authorized, issued (above par), and outstanding	300	300
Series B, $0.50 par value - 10,000 shares authorized, issued (above par), and outstanding	300	300
Series C, $0.50 par value - 1,600 shares authorized, issued (above par), and outstanding	390,516	390,516
Common stock, $100 par value - 80,000 shares authorized, 50,908 shares issued and outstanding	5,091	5,091
Paid-in capital	411,065	411,065
Retained earnings	1,571,298	1,261,309
Accumulated other comprehensive loss, net of tax	(196,335)	(189,354)
Non-controlling interests	150,000	148,440
Total shareholders' equity	2,332,235	2,027,667
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY	$ 47,891,100	$ 34,249,172

The Notes to Consolidated Financial Statements are an integral part of these statements.

THE DEPOSITORY TRUST & CLEARING CORPORATION

CONSOLIDATED STATEMENTS OF INCOME

(In thousands)	For the years ended December 31, 2018	2017
REVENUES		
Settlement and asset services	$ 458,973	$ 449,039
Clearing services	604,628	523,539
Matching and data services	275,979	269,168
Repository services	292,980	285,521
Wealth management services	112,133	108,925
Other services	44,481	50,747
Investment (loss) income	(4,806)	14,804
Total revenues	1,784,368	1,701,743
EXPENSES		
Employee compensation and related benefits	664,068	647,770
Information technology	161,863	158,731
Professional and other services	369,477	335,865
Occupancy	48,180	45,578
Depreciation and amortization	159,528	179,208
General and administrative	43,723	38,654
Impairment of Intangible assets	8,588	19,797
Total expenses	1,455,427	1,425,603
Total operating income	328,941	276,140
NON-OPERATING INCOME (EXPENSE)		
Interest income	460,017	213,677
Refunds to Participants	(326,017)	(163,594)
Interest expense	(148,390)	(76,839)
Net loss from Equity method investments	(10,423)	(13,240)
Impairment of Equity method investments	—	(9,881)
Other non-operating income	42,709	79,701
Total non-operating income	17,896	29,824
Income before taxes	346,837	305,964
Provision for income taxes	47,124	127,730
Net income	299,713	178,234
Net income attributable to non-controlling interests	3,900	13,342
Net income attributable to DTCC	$ 295,813	$ 164,892

The Notes to Consolidated Financial Statements are an integral part of these statements.

THE DEPOSITORY TRUST & CLEARING CORPORATION
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

(In thousands)	For the years ended December 31, 2018	2017
Net income	$ 299,713	$ 178,234
OTHER COMPREHENSIVE INCOME (LOSS) - Net of tax:		
Defined benefit pension and other plans [(1)]	33,129	(29,279)
Foreign currency translation	(6,434)	1,254
Other comprehensive loss	26,695	(28,025)
Comprehensive income	326,408	150,209
Comprehensive income attributable to non-controlling interests	3,900	13,342
Comprehensive income attributable to DTCC	$ 322,508	$ 136,867

(1) Amounts are net of provision for income taxes of $12,797 and benefit for income taxes of $11,330 for 2018 and 2017, respectively.

The Notes to Consolidated Financial Statements are an integral part of these statements.

THE DEPOSITORY TRUST & CLEARING CORPORATION

CONSOLIDATED STATEMENTS OF CHANGES IN SHAREHOLDERS' EQUITY

							Accumulated Other Comprehensive Income (Loss), Net of Tax			
	Preferred Stock									
(In thousands)	**Series A**	**Series B**	**Series C**	**Common Stock**	**Paid-In Capital**	**Retained Earnings**	**Defined Benefit Pension and Other Plans**	**Foreign Currency Translation**	**Non-controlling Interests**	**Total Shareholders' Equity**
BALANCE - January 1, 2017	$ 300	$ 300	$ 390,516	$ 5,091	$ 411,065	$ 1,115,917	$ (159,646)	$ (1,683)	$ 144,748	$ 1,906,608
Net income	—	—	—	—	—	164,892	—	—	13,342	178,234
Other comprehensive (loss) income	—	—	—	—	—	—	(29,279)	1,254	—	(28,025)
Business disposition	—	—	—	—	—	—	—	—	(8,570)	(8,570)
Dividend to non-controlling interest	—	—	—	—	—	—	—	—	(1,080)	(1,080)
Dividends on preferred stock	—	—	—	—	—	(19,500)	—	—	—	(19,500)
BALANCE - December 31, 2017	300	300	390,516	5,091	411,065	1,261,309	(188,925)	(429)	148,440	2,027,667
Cumulative adjustment for accounting changes(1)	—	—	—	—	—	33,676	(33,676)	—	—	—
Net income	—	—	—	—	—	295,813	—	—	3,900	299,713
Other comprehensive income (loss)	—	—	—	—	—	—	33,129	(6,434)	—	26,695
Dividend to non-controlling interest	—	—	—	—	—	—	—	—	(2,340)	(2,340)
Dividends on preferred stock	—	—	—	—	—	(19,500)	—	—	—	(19,500)
BALANCE - December 31, 2018	$ 300	$ 300	$ 390,516	$ 5,091	$ 411,065	$ 1,571,298	$ (189,472)	$ (6,863)	$ 150,000	$ 2,332,235

(1) The cumulative adjustments relate to the adoption of certain accounting updates during the current and prior year periods. See Note 2 and Note 3 for additional information.

The Notes to Consolidated Financial Statements are an integral part of these statements.

THE DEPOSITORY TRUST & CLEARING CORPORATION

CONSOLIDATED STATEMENTS OF CASH FLOWS

(In thousands)	For the years ended December 31, 2018	2017
CASH FLOWS FROM OPERATING ACTIVITIES:		
Net income	$ 299,713	$ 178,234
Adjustments to reconcile net income to net cash provided by/(used in) operating activities:		
Depreciation and amortization	159,528	179,208
Loss on impairment of Intangible assets	8,588	19,797
Net (gain)/loss on disposal of Premises and equipment and Intangible assets	(1,769)	1,494
Loss on impairment of Equity method investments	—	9,881
Net loss from Equity method investments	10,423	13,240
Deferred income taxes	42,260	22,598
Discount on Commercial paper outstanding	24,854	—
Gain on business dispositions	—	(47,001)
Other	(6,432)	(161)
Net change (excluding the effects of business dispositions) in:		
Accounts receivable	(7,490)	27,801
Other Participants' assets	5,529	(792)
Other assets	(31,367)	(40,900)
Accounts payable and accrued expenses	(13,590)	17,836
Pension and postretirement benefits	(64,316)	(21,611)
Other liabilities	(74,658)	32,095
Participants' and Clearing Funds liabilities, net	1,995,148	(1,258,042)
Payable to Participants	(292,053)	(88,483)
Net cash provided by/(used in) operating activities	2,054,368	(954,806)
CASH FLOWS FROM INVESTING ACTIVITIES:		
Sale of securities under Reverse repurchase agreements	—	100,000
Purchases of Short-term investments	(800,000)	—
Maturities of Investments in marketable securities	83,600	75,000
Purchases of Investments in marketable securities	(58,600)	(75,000)
Purchases of Premises and equipment	(36,706)	(47,718)
Purchases of Intangible assets	(93,215)	(86,310)
Investment in Equity method investments	(11,000)	(15,000)
Purchase of equity investments	(1,104)	—
Proceeds from disposition of businesses, net of Cash and cash equivalents sold	—	22,768
Net cash provided by/(used in) investing activities	(917,025)	(26,260)
CASH FLOWS FROM FINANCING ACTIVITIES:		
Change in Commercial paper, net (see Note 13)	4,188,716	668,551
Repayments on long-term debt and other borrowings	(4,237)	(20,468)
Preferred stock dividend payments	(19,500)	(19,500)
Payment to Non-controlling interests	(1,080)	(480)
Net cash provided by/(used in) financing activities	4,163,899	628,103
Effect of foreign exchange rate changes on Cash and cash equivalents	(1,900)	5,416
Net increase/(decrease) in Cash and cash equivalents, Participants' segregated cash, Participants' and Clearing Funds cash deposits, Cash in Other Participants' assets	5,299,342	(347,547)
Cash and cash equivalents, Participants' segregated cash, Participants' and Clearing Funds cash deposits, Cash in Other Participants' assets - Beginning of year	20,270,015	20,617,562
Cash and cash equivalents, Participants' segregated cash, Participants' and Clearing Funds cash deposits, Cash in Other Participants' assets - End of year	$ 25,569,357	$ 20,270,015
SUPPLEMENTAL DISCLOSURES:		
Cash interest paid	$ 80,992	$ 32,551
Cash income taxes paid - net of refunds	$ 83,009	$ 69,068
Non-cash financing activity - capital lease obligation	$ 3,640	$ —

The Notes to Consolidated Financial Statements are an integral part of these statements.

1. BUSINESS AND OWNERSHIP

The Depository Trust & Clearing Corporation (DTCC) is the parent company of various operating subsidiaries, including, but not limited to, The Depository Trust Company (DTC), National Securities Clearing Corporation (NSCC), Fixed Income Clearing Corporation (FICC), DTCC ITP LLC (ITP), DTCC Deriv/SERV LLC (Deriv/SERV), DTCC Solutions LLC (Solutions), Business Entity Data, B.V. (GMEI); collectively, the "Company" or "Companies."

Subsidiaries
DTC is a limited purpose trust company formed under the Banking Law of New York State and supervised by the New York State Department of Financial Services (NYSDFS); a State member bank of the Federal Reserve System (FRS), subject to examination by the Federal Reserve Bank of New York (FRBNY) under delegated authority from the Board of Governors (the FRB) of the FRS; and a clearing agency registered with and under the supervision of the U.S. Securities and Exchange Commission (SEC). DTC provides central securities depository, settlement and related services to members of the securities, banking and financial services industries.

NSCC is organized as a business corporation under New York law, and is a clearing agency registered with the SEC. NSCC provides clearing, settlement, risk management, and central counterparty (CCP) services to its members for broker-to broker trades involving equities, corporate and municipal debt, exchange-traded funds, and unit investment trusts.

FICC is a clearing agency registered with the SEC that provides CCP services to members that participate in the U.S. government and mortgage-backed securities markets, consisting principally of automated real-time trade comparison, netting, clearance, settlement, trade confirmation, risk management and electronic pool notification. FICC has two divisions: the Government Securities Division (GSD) and the Mortgage-Backed Securities Division (MBSD).

DTC, NSCC and FICC are designated as Systemically Important Financial Market Utilities (SIFMUs) by the U.S. Financial Stability Oversight Council pursuant to Title VIII of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010. This designation subjects the clearing agencies to enhanced standards for operation and governance, as established by the SEC's Standards for Covered Clearing Agencies (CCAS).

The members of DTCC's clearing agencies are collectively referred to as Participants.

ITP, formerly known as Omgeo LLC, provides post-trade matching, processing and other related services, primarily to members of the financial community.

Deriv/SERV, through its subsidiaries and affiliates, enhances transparency and provides operational efficiency for the derivatives market. Its trade repository system supports a multitude of data submissions, including real-time price reporting, transaction details, confirmation records and valuation data.

Solutions provides information-based and business processing solutions to financial intermediaries globally.

GMEI utility is DTCC's Legal Entity Identifier (LEI) solution offered in collaboration with Society for Worldwide Interbank Financial Telecommunication (SWIFT) and a consortium of 14 global financial services organizations, led by the Global Financial Markets Association (GFMA), to meet the requirements across all asset classes. GMEI is designed to create and apply a single, universal standard identifier to any organization or firm involved in a financial transaction globally.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of presentation. The accompanying Consolidated Financial Statements are prepared in accordance with generally accepted accounting principles in the United States of America (U.S. GAAP). The accompanying Consolidated Financial Statements include the accounts of the Company, its wholly owned subsidiaries and consolidated Variable Interest Entities (VIEs). Intercompany accounts and transactions have been eliminated in consolidation. The Company reclassified prior period amounts related to Refunds to Participants, restricted cash, and certain components of net periodic pension cost to conform to the current year presentation. See below in the footnote herein, Note 3 and Note 16 for additional information.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

In December 2018, the Company determined that revenues related to Trade Information Warehouse were recorded as Clearing services instead of Repository services. As a result, the Company reclassified $9,414,000 from Clearing services to Repository services for the year ended December 31, 2017.

The Company consolidates entities in which it retained a controlling financial interest. The Company applies accounting guidance to determine if a controlling financial interest exists by evaluating whether the entity is a VIE. The Company also determines whether or not assets, liabilities, non-controlling interests and results of operations of a VIE need to be included in the accompanying Consolidated Financial Statements. Where the Company holds current or potential rights that provide DTCC with sufficient control to direct the activities of a VIE that most significantly impacts the VIE's economic performance, combined with a variable interest that gives DTCC the right to receive potentially significant benefits or the obligation to absorb potentially significant losses, the Company is deemed to have a controlling financial interest in that VIE. Rights held by others to remove the party with control over the VIE are not considered unless one party can exercise those rights unilaterally. When changes occur to the design of the entity, the Company reconsiders whether it is subject to the VIE model.

Use of estimates. The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the amounts reported in the Consolidated Financial Statements. Management makes estimates regarding, among other things, the collectability of receivables, the outcome of litigation, the realization of deferred taxes, unrecognized tax benefits, impairment of intangible assets, fair value measurements and other matters that affect the reported amounts. Estimates are based on judgment and available information; therefore, actual results could differ materially from those estimates.

Equity method investments. All investments that represent less than a majority, but at least a 20% ownership interest, and where the Company can exert significant influence over the operations of the investment, are accounted for using the equity method. Investments are initially recognized at cost. Subsequently, investments are measured at fair value when a transaction price is observed for the identical or similar security. The Company's share of investees' earnings are recorded in the accompanying Consolidated Statements of Income in the period earned. Dividends are recorded as a reduction to the investment account.

Non-controlling interests. Shareholders' equity is adjusted for the income attributable to the non-controlling interest shareholders and any distributions to those shareholders.

Cash and cash equivalents. All highly liquid investments purchased with an original maturity of three months or less at the date of acquisition are classified as Cash and cash equivalents. Cash equivalents consist primarily of highly liquid investments in deposits held in banks.

Participants' segregated cash. DTCC receives cash from Participants for the exclusive benefit of the Participants' customers in compliance with SEC rule 15c3-3 (customer protection), which requires broker-dealers to segregate a certain amount of cash and securities in specially protected accounts on behalf of their clients.

Short-term investments. Consists of cash invested in bank deposits with original maturities greater than three months and less than one year with various yields carried at amortized cost and approximate fair value due to their short-term maturities.

Fair value measurements. The Company may be required or permitted to measure and disclose certain assets and liabilities using fair value measurements. Fair value is defined as the price that would be received to sell an asset, or paid to transfer a liability, in an orderly transaction between market participants at the measurement date. The Company uses a three-level classification hierarchy of fair value measurements that establishes the quality of inputs used to measure fair value. The fair value of financial instruments is determined using various techniques that involve some level of estimation and judgment, the degree of which is dependent on the price transparency and the complexity of the instruments.

Accounts receivable. Accounts receivable are stated at cost, net of an allowance for doubtful accounts. The Company establishes an allowance for estimated losses resulting from uncollectibility. The Company determines the need for an allowance based on a variety of factors, including the length of time receivables are past due, macroeconomic conditions, historical experience and the financial condition of customers and other debtors.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

Participants' and Clearing Funds. The rules of DTC, NSCC and FICC require Participants to maintain deposits related to their respective activities based on calculated requirements. The deposits are available to collateralize Participants' obligations and certain liabilities of the Companies. Margin deposits and Participant contributions are maintained within the Participants' and Clearing Funds on the accompanying Consolidated Statements of Financial Condition due to the benefits and risks of ownership incurred by the Company. Deposits and contributions may be in the form of cash and cash equivalents and securities. These deposits and contributions may be applied to satisfy obligations of the depositing Participant, other Participants, or the Company as provided in the rules of the relevant subsidiaries of the Company.

Cash deposits and Investments in marketable securities. Deposits and contributions received in the form of cash may be invested in bank deposits, reverse repurchase agreements, money market funds and direct obligations of the U.S. Government. Reverse repurchase agreements provide for FICC's delivery of cash in exchange for securities having a fair value that is at least 102% of the amount of the agreements. Securities purchased under reverse repurchase agreements are typically U.S. Treasury and agency securities. Reverse repurchase agreements are recorded at the contract amounts. All interest earned on investments is accrued and included within Interest income in the accompanying Consolidated Statements of Income. This interest is refunded to Participants, which is included in Refunds to Participants in the accompanying Consolidated Statements of Income.

Securities on deposit - at fair value. Securities may include U.S. Treasury securities, U.S. agency debt securities and U.S. agency residential mortgage-backed securities. All interest earned on these investments is accrued and included within Interest income in the accompanying Consolidated Statements of Income. This interest is refunded to Participants, which is included in Refunds to Participants in the accompanying Consolidated Statements of Income.

Securities held in custody. Securities held in custody by DTC for Participants, which are predominantly in electronic book form, but also include physical certificates, are not reported in the accompanying Consolidated Financial Statements. Cash dividends and interest received by DTC or due on such securities and in the process of distribution or awaiting claim, are included in Other Participants' assets with a corresponding liability recorded in Payable to Participants on the accompanying Consolidated Statements of Financial Condition. Short positions occasionally exist in securities balances and are credited to the account of the Participants; such short positions are valued and collateralized daily by 130% of the short position reflected in Other Participants' assets on the accompanying Consolidated Statements of Financial Condition. DTC's obligation to return such cash collateral to Participants is also reflected in Payable to Participants.

Federal Reserve Stock. DTC is a member of the FRBNY and, as a member, is required to maintain a minimum level of investment in FRB stock based on the Company's capital. The FRB stock is carried at cost, classified as a restricted security and periodically evaluated for impairment based on ultimate recovery of par value. Based on this evaluation, the Company determined there is not an other-than-temporary impairment as of December 31, 2018 and 2017. The FRB stock, amounting $6,402,000 at December 31, 2018 and 2017, is included in Other non-current assets on the accompanying Consolidated Statements of Financial Condition.

Other Participants' assets and Payable to Participants. The Company receives cash and stock dividends, interest, reorganization and redemption proceeds on securities registered in the name of its nominee, Cede and Co., and interest and redemption proceeds on bearer securities, which it distributes to Participants. These balances are included in Other Participants' assets with a corresponding liability recorded in Payable to Participants on the accompanying Consolidated Statements of Financial Condition.

Restricted cash. As a result of the adoption of Accounting Standards Update (ASU) 2016-18, *Statement of Cash Flows: Restricted Cash* under the full retrospective method of adoption, (see Note 3), the Company has reported the cash and cash equivalents related to Participants' segregated cash, Participants' and Clearing Funds cash deposits, Cash in Other Participants' assets within the beginning and ending balances of Cash and cash equivalents, Participants' segregated cash, Participants' and Clearing Funds cash deposits, Cash in Other Participants' assets on the accompanying Consolidated Statements of Cash Flows.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

A reconciliation of Cash and cash equivalents, Participants' segregated cash, Clearing Fund cash deposits, Cash in Other Participants' assets, reported within the accompanying Consolidated Statements of Financial Condition that sum to the total of the same such amounts shown on the accompanying Consolidated Statements of Cash Flows as of December 31, 2018 and 2017 follows (in thousands):

	2018	2017
Cash and cash equivalents	$ 8,641,036	$ 5,075,318
Participants' segregated cash	77,988	20,120
Participants' and Clearing Funds cash deposits (see Note 7)	16,332,668	14,312,520
Cash in Other Participants' assets (see Note 5)	517,665	862,057
Total Cash and cash equivalents, Participants' segregated cash, Participants' and Clearing Funds cash deposits, Cash in Other Participants' assets shown on the Consolidated Statements of Cash Flows	$ 25,569,357	$ 20,270,015

As a result of this accounting change, net cash provided by operating activities of approximately $2 billion is primarily driven by the change in Participants' and Clearing Funds liabilities and Payable to Participants.

Impacts to previously reported results

The impact of the new cash flows standard on the Company's previously reported results for the year ended December 31, 2017 follows (in thousands):

	As Previously Reported	New Restricted Cash Standard Adjustment	As Restated
CASH FLOWS FROM OPERATING ACTIVITIES			
Other Participants' assets	$ 92,717	$ (93,509)	$ (792)
Participants' and Clearing Funds liabilities, net	—	(1,258,042)	(1,258,042)
Net cash provided by/(used in) operating activities	396,745	(1,351,551)	(954,806)
CASH FLOWS FROM INVESTING ACTIVITIES			
Change in Participants' segregated cash	$ (4,234)	$ 4,234	$ —
Net cash provided by/(used in) investing activities	(30,494)	4,234	(26,260)

Premises and equipment. Premises and equipment are stated at cost, net of accumulated depreciation. Routine maintenance, repairs and replacement costs are expensed as incurred, while improvements that extend the useful life of the assets are capitalized. When equipment is sold or otherwise disposed of, the cost and related accumulated depreciation are removed from the accounts and any resulting gain or loss is recognized in the accompanying Consolidated Statements of Income. Premises and equipment are reviewed for impairment whenever events or changes in circumstances indicate the related carrying amount may not be recoverable. The following table summarizes how the Company depreciates Premises and equipment:

Premises and equipment	Amortization Period	Amortization Method
Leasehold improvements	Shorter of useful life or remaining term of the lease	Straight-line
Furniture and equipment	5 to 7 years	Straight-line
Building and improvements	39 years	Straight-line

Depreciation expense for leasehold improvements, furniture and equipment, and buildings and improvements is included in Depreciation and amortization in the accompanying Consolidated Statements of Income.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

Goodwill and Intangible assets

Goodwill. The Company records Goodwill upon the completion of a business combination as the difference between the purchase price and the fair value of the net assets acquired. Subsequent to initial recognition, Goodwill is not amortized but is tested for impairment annually or more frequently if events occur or circumstances change that indicate an impairment may exist. The Company has the option to first assess qualitative factors to determine whether the existence of events or circumstances leads to a determination that it is more likely than not that the fair value of a reporting unit is less than its carrying amount. If after assessing the totality of events or circumstances, the Company determines it is more likely than not that the fair value of a reporting unit is greater than its carrying amount, then performing the two-step test is not required. However, if the Company concludes otherwise, then it is required to perform the first step of the two-step impairment test that compares the estimated fair value of the reporting unit with its carrying value, including goodwill. If the estimated fair value of the reporting unit exceeds its carrying value, it is not considered to be impaired; however, if the carrying value of the reporting unit were to exceed its estimated fair value, a second step would be performed that compares the implied fair value of the reporting unit's goodwill with the carrying value of its goodwill. An impairment loss would be recognized to the extent the carrying value of goodwill exceeds the implied fair value.

Intangible assets. The Company's intangible assets include customer relationships and capitalized software.

Capitalized software. The Company capitalizes eligible costs associated with the acquisition or development of internal-use software projects that provide new or significantly improved functionality. The Company capitalizes software costs expected to result in long-term operational benefits, such as replacement systems or new applications that result in significantly increased operational efficiencies or functionality. All other costs incurred in connection with internal-use software are expensed as incurred.

The following table summarizes how the Company amortizes and when it tests Intangible assets for impairment:

Intangible Asset	Life/ Amortization Period	Amortization Method	Impairment Testing Frequency
Customer relationships	Finite/ 12 Years	Straight-line	If a triggering event occurs
Capitalized software	Finite/ 3 to 5 Years	Straight-line	If a triggering event occurs

Commercial paper. NSCC issues unsecured short-term promissory notes (Commercial paper) with maturities generally less than one year. In February 2018, the SEC approved NSCC's proposal to increase the program limit from $5 billion to $10 billion. The proceeds from the issuance of the Commercial paper constitute liquid resources of NSCC that, together with other liquid resources of NSCC, will enable it to effect the settlement of its payment obligations in the event of the default of any of its Participants in accordance with NSCC's rules and procedures. Pending use by NSCC of the proceeds of the Commercial paper issuance for this purpose, the funds raised are invested in highly liquid short-term instruments in accordance with NSCC's investment policy.

Revenue recognition. On January 1, 2018, the Company adopted ASU 2014-09, *Revenue from Contracts with Customers* under the full retrospective method of adoption. See Note 3 for additional information.

The Company recognizes revenue to depict the transfer of promised services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those services. To achieve that principle, the Company applies the following steps: identify the contract(s) with the customer, identify the performance obligations in the contract(s), determine the transaction price, allocate the transaction price to the performance obligations in the contract and recognize revenue when (or as) the entity satisfies a performance obligation.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

The Company recognizes revenue from contracts with customers as performance obligations are satisfied when promised services are transferred to the customer. The majority of the promised services and related performance obligations are recognized at the point in time when the control of the promised service is transferred to the customer.

The amount of revenue recognized reflects the consideration the Company expects to be entitled to for transferring the promised services to the customer. For certain contracts with customers, the consideration in which the Company expects to be entitled to in exchange for transferring promised service to a customer consists of variable consideration. The variable consideration primarily relates to volume based discounts or rebates for certain services, however, the volume targets or thresholds typically reset on a monthly basis therefore, the variable consideration does not have an impact on the revenue recognition.

The Company derives its revenue from transaction fees, subscription revenue and support services, professional services, and other services. Revenue from transaction fees is recognized at a point in time on the transaction date, as the customer obtains the control and benefit of the service at that point. Subscription and support revenues are recognized ratably over the performance period of the relevant contract using a time elapsed measure of progress as the customer receives the benefits of the services throughout the term of the contract. Professional services and other revenues, when sold with subscription and support offerings, are accounted for separately when these services have value to the customer on a standalone basis and are recognized as the performance obligation is satisfied and control of the service is transferred to the customer, otherwise they are recognized ratably over the contract term. Other services, which represent fees generated from offering referential based data and business processing solutions to financial institutions globally, is recognized when services are provided based on contractual terms.

Revenue streams

Details for each revenue stream presented in the Company's Consolidated Statements of Income follow:

S*ettlement and asset services.* DTC provides settlement services for equity, corporate and municipal debt trades and money market instruments in the U.S. The payment and transfer of securities ownership occurs at DTC, which provides custody and asset servicing for securities. Asset services include underwriting, corporate actions processing, securities processing, global tax services and issuer services.

Clearing services. The Company's subsidiaries, NSCC and FICC, deliver clearing services across the U.S. equities and fixed income markets. Clearing services include continuous net settlement, mortgage backed securities clearing, and government securities clearing.

Matching and data services. DTCC's Institutional Trade Processing (ITP) service provides trade processing solutions combined with DTCC's global solution for LEIs and its settlement capabilities with pre-trade and matching services. ITP offers buy-side, sell-side, and custodian firms an end-to-end straight-through-processing solution for their trading activity. Matching and data services include trade enrichment, trade agreement, and data analytics.

Repository services. The Global Trade Repository service supports data submissions including real-time price reporting, transaction details, confirmation records and valuation data. The Trade Information Warehouse's Trade Reporting Repository enables regulators and market participants to view the market's overall risk exposure to over-the-counter (OTC) credit derivatives instruments by operating and maintaining the centralized, electronic database for credit default swap contracts outstanding in the global marketplace. Repository services include OTC derivatives reporting and trade reporting.

Wealth management services. NSCC provides wealth management services that include centralized, automated processing and information services for mutual fund, alternative investment, and insurance and retirement products. These businesses drive centralized, automated processing and information services. Wealth management services enable seamless, end-to-end communications with broker/dealers and other distribution partners for funds, asset managers and insurance companies and their service providers.

Other services. The Company offers referential and activity-based, announcement, security reference, and liquidity data through the DTCC Data Services product. These offerings are delivered in fixed or configurable formats, sourced from the Company's transaction, reference, position and asset servicing data.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

Accounts receivable and deferred revenue

The period in which the Company recognizes revenue may differ from the timing of payments received from customers. The Company typically bills its customers 30 days in arrears. The Company records a receivable when revenue is recognized prior to payment and there is an unconditional right to payment. See Note 6, Due from Participants and customers for services, net, for the Company's receivables related to revenues from contracts with customers. Alternatively, when payment precedes the provision of the related services, the Company records deferred revenue until the performance obligations are satisfied. Deferred revenue represents the Company's contract liabilities related to billings or payments received in advance for subscription and support services, as well as professional service fees, where the performance obligation has not yet been satisfied. Deferred revenue was $12,311,000 and $16,612,000 at December 31, 2018 and December 31, 2017, respectively, and is included in Other current liabilities on the accompanying Consolidated Statements of Financial Condition.

Impacts to previously reported results

The impact of the new revenue recognition standard on the Company's previously reported results for the year ended December 31, 2017 follows (in thousands):

	For the year ended December 31, 2017		
	As Previously Reported	New Revenue Standard Adjustment	As Restated
Interest income	$ 139,303	$ 74,374	$ 213,677
Refunds to Participants	(89,220)	(74,374)	(163,594)

Investment (loss) income. Investment (loss) income represents changes in the fair values of investment assets related to the Company's deferred compensation plan (structured as a Rabbi Trust). All of the marketable securities of the Rabbi Trust are classified as trading securities and are recorded at fair value.

Non-qualified deferred compensation plan. DTCC maintains a self-directed, non-qualified deferred compensation plan structured as a "Rabbi Trust" for certain executives and other highly compensated employees. Under the plan, Participants may elect or be required to defer receipt of a portion of their annual compensation and invest it in various mutual funds. All such investments are held in the Rabbi Trust and the plan requires settlement in cash. The investment assets of the Rabbi Trust are recorded at fair value and included on the accompanying Consolidated Statements of Financial Condition in Other non-current assets as long-term incentive plan assets. The amount of compensation deferred under the plan is credited to each Participant's deferral account and a deferred compensation liability is recorded in Other non-current liabilities on the accompanying Consolidated Statements of Financial Condition. In 2018 and 2017, the investment assets of the Rabbi Trust were classified as trading securities, and accordingly, changes in their fair values are recorded in Investment (loss) income in the accompanying Consolidated Statements of Income. In addition, changes in the fair value of the plan's investments were recorded in Employee compensation and related benefits in the accompanying Consolidated Statements of Income. The Investment (loss) income on the change in fair value of these investments was $4,806,000 and $14,804,000 for the years ended December 31, 2018 and 2017, respectively.

Long-term incentive plan. DTCC's Long-term incentive plan is provided to certain designated employees of DTCC to establish retention incentives for certain key employees. The performance period is a three-year period commencing January 1 of each calendar year, unless modified, extended or terminated by the Board of Directors and the Compensation and Human Resources Committee. Only those employees specifically designated by the Compensation Committee are eligible to participate in the plan. The associated liabilities for the plan are classified in Other current liabilities and Other non-current liabilities on the accompanying Consolidated Statements of Financial Condition.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

Defined contribution retirement plans. The Company sponsors two defined contribution plans for U.S. employees, The Depository Trust & Clearing Corporation Employee Savings Plan (Employee Savings Plan) and The Depository Trust & Clearing Corporation Operations Level Employee Savings Plan (Operations Level Savings Plan). The Plans are administered by the Company's Employee Benefit Plans Committee, which is appointed by the Board of Directors of the Company and is composed of designated Company officers. The Employee Savings Plan is a single employer plan covering non-bargaining unit employees. The Operations Level Savings Plan is a single employer plan covering bargaining unit employees. All investments, except loans receivable, are included in The Depository Trust & Clearing Corporation Master Savings Plan Trust and are administered by the Plans' trustee, State Street Bank & Trust Company. Conduent Inc. serves as the recordkeeper for the Plans. Both Plans are subject to the provisions of the Employee Retirement Income Security Act of 1974 (ERISA).

Pension and postretirement plans. DTCC has a qualified non-contributory defined benefit pension plan (the Pension Plan), under which employees hired or rehired before May 1, 2009 are eligible to participate upon attainment of age 21 and completion of six months of service. The Pension Plan is closed to new participants, but existing participants continue to accrue benefits. The Pension Plan is qualified under Section 401(a) of the Internal Revenue Code of 1986, as amended. It is subject to the provisions of ERISA. The Pension Plan provides benefits to retired or vested terminated employees or their beneficiaries. The Pension Benefit Guarantee Corporation, a United States governmental agency, guarantees most vested normal age retirement benefits subject to certain limitations. Pension benefits under the Pension Plan are determined based on an employee's length of service and earnings. DTCC's funding policy requires the Company to make contributions to the Pension Plan that meet or exceed the minimum funding standards under the ERISA and the Internal Revenue Code.

DTCC provides health care and life insurance benefits to DTCC eligible retired employees in Retiree Medical and Life Insurance Plans. The Retiree Medical Plan is available to certain eligible retired employees and their dependents. DTCC maintains a 401(h) account to fund the retiree medical plans. Life insurance coverage is available to certain retired employees who have completed twenty years of full time service and their dependents.

DTCC also sponsors a Supplemental Executive Retirement Plan (SERP) and a Restoration Plan that are non-qualified non-funded defined benefit plans, which provide additional retirement benefits to certain employees. Benefits paid to retirees are based on age at retirement, years of credited service and average compensation. The cost of non-qualified defined benefits is determined using substantially the same actuarial methods and economic assumptions as those used for the qualified pension plan. The Company maintains certain assets in trust for non-qualified retirement benefit obligations.

The annual measurement date for DTCC's defined benefit plans is December 31. Plan assets are determined based on fair value generally representing observable market prices. The projected benefit obligations are determined based on the present value of projected benefit distributions at an assumed discount rate. The discount rate utilized is based on the yield curves of high-quality corporate bonds available in the marketplace. The net periodic pension expense or income includes service costs, interest costs based on an assumed discount rate, an expected return on plan assets based on an actuarially derived market-related value and amortization of prior years' actuarial gains and losses. On January 1, 2018, the Company adopted ASU 2017-07, *Compensation: Retirement Benefits* under the retrospective method of adoption, which required service costs, interest costs, and all other costs to be classified as Employee compensation and related benefits, Interest expense, and Other non-operating income, respectively. Previously the entire net periodic pension expense or income was reported in Employee compensation and related benefits. See Note 3 and Note 16 for additional information.

Actuarial gains and losses include the impact of plan amendments, gains or losses related to changes in the amount of the projected benefit obligations or plan assets resulting from experience different from the assumed rate of return, changes in the discount rate or other assumptions. To the extent an actuarial gain or loss exceeds 10% of the greater of the projected benefit obligation or the market-related value of plan assets, the excess is recognized over the future lifetime of the defined benefit plans.

The expected long-term rate of return on plan assets is based on anticipated returns for each applicable asset class. Anticipated returns are weighted for the expected allocation for each asset class and are based on forecasts for prospective returns in the equity and fixed income markets, which should track the long-term historical returns for these markets. The Company also considers the growth outlook for the U.S. and global economies, as well as current and prospective interest rates.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

The market-related value utilized to determine the expected return on plan assets is based on the fair value of plan assets adjusted for the difference between expected returns and actual performance of plan assets. The difference between actual experience and expected returns on plan assets is included as an adjustment in the market-related value over a 4-year period.

Income taxes. The Provision for income taxes is computed using the asset and liability method. The tax currently payable is based on taxable income for the year. Taxable income differs from Income before taxes as reported in the accompanying Statement of Income because it excludes items of income or expense that are taxable or deductible in other years and it further excludes items that are never taxable or deductible. The Company records a deferred income tax (benefit) provision when there are differences between assets and liabilities measured for financial reporting and for income tax return purposes. These temporary differences result in taxable (deferred tax liability) or deductible (deferred tax asset) amounts in future years and are measured using the tax rates and laws that will be in effect when such differences are expected to reverse. Valuation allowances are recognized if, based on the weight of available evidence, it is more likely than not that some portion of the deferred tax asset will not be realized. Deferred tax assets and liabilities are reported net in non-current assets or liabilities on the accompanying Statements of Financial Condition. It is the Company’s policy to provide for uncertain tax positions and the related interest and penalties based upon management’s assessment of whether a tax benefit is more likely than not to be sustained upon examination by the tax authorities.

On December 22, 2017, the Tax Cuts and Jobs Act of 2017 (Tax Reform Act) was signed into law making significant changes to the Internal Revenue Code. Changes include a Federal corporate tax rate decrease from 35% to 21% for tax years beginning after December 31, 2017, imposing a mandatory one-time transition tax on accumulated earnings of foreign subsidiaries and enactment of a tax on global intangible low-taxed income (GILTI). The Company accounted for the tax effects of the Tax Reform Act on a provisional basis in its 2017 Financial Statements and completed the related accounting in the fourth quarter of 2018. The Company has made an accounting policy election to recognize income tax expense associated with GILTI as incurred.

In February 2018, new guidance was issued that allows companies the option to reclassify tax effects stranded in accumulated other comprehensive income as a result of the Tax Reform Act to retained earnings. The guidance is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2018 and early adoption is permitted. The Company adopted the guidance in the fourth quarter of 2018 and reclassified stranded tax effects of $33,676,000.

Foreign currency. Assets and liabilities denominated in foreign currencies are translated at rates of exchange prevailing on the dates of the accompanying Consolidated Statements of Financial Condition. Revenues and expenses are translated at average rates of exchange during the year. Gains or losses on foreign currency transactions are included in the accompanying Consolidated Statements of Income. Gains or losses on translation of the financial statements of foreign subsidiaries, when the functional currency is other than the U.S. dollar, are included in the accompanying Consolidated Statements of Comprehensive Income.

Derivatives and hedging. The Company uses forward contracts to hedge net investments in certain foreign subsidiaries whose functional currencies are not the U.S. dollar. The Company formally documents all relationships between the hedging instruments and hedged items, as well as the Company's risk-management objectives and strategy for undertaking various hedging transactions. Hedge accounting is applied when a derivative is highly effective at reducing the risk associated with the hedged exposure and the risk management objective and strategy are documented. Hedge documentation identifies the derivative hedging instrument, the asset or liability and type of risk hedged, and how the effectiveness of the derivative is assessed prospectively and retrospectively. For hedging instruments that qualify for hedge accounting, changes in the fair value of the derivatives are recorded in Other comprehensive (loss) income. If it is determined that a derivative is not highly effective at hedging the designated exposure, the Company discontinues hedge accounting and changes in fair value of the hedging instrument are recorded in earnings.

3. ACCOUNTING AND REPORTING DEVELOPMENTS

Standard	Description	Impact on the financial statements or other significant matters
Financial Accounting Standards Board Standard Issued, but not yet Adopted		
ASU 2018-14 Changes to the Disclosure Requirements for Defined Benefit Plans *Issued August 2018*	• Eliminates requirements for certain disclosures that are no longer considered cost beneficial and requires new ones that the Financial Accounting Standard Board (FASB) considers pertinent.	• Effective January 1, 2021. • The Company is evaluating the impact on related disclosures in its Consolidated Financial Statements.
ASU 2018-18 Clarifying Interactions of the Revenue Recognition and Collaborative Arrangements Standards *Issued November 2018*	• Amends Collaborative Arrangement standard to clarify that certain transactions between participants in a collaborative arrangement should be accounted for under new Revenue Recognition standard when the collaborative partner is considered the customer. Requires revenues from such collaborative contracts to be recognized upon transfer of control of a good or service in the amount of consideration expected to be received from the collaborative partner. • Precludes an entity from presenting collaborative arrangement consideration as revenue from contracts with customers if the collaborative partner is not considered the customer.	• Effective January 1, 2020. • The Company is evaluating the impact on its Consolidated Financial Statements and related disclosures.
ASU 2018-15 Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement (CCA) That Is a Service Contract Issued August 2018	• Implementation costs incurred by customers in a CCA that is a service contract are deferred if they would be capitalized by customers in software licensing arrangements under the internal-use software guidance.	• Effective January 1, 2020. • The Company is evaluating the impact on its Consolidated Financial Statements and related disclosures.
ASU 2018-13 Changes to the Disclosure Requirements for Fair Value Measurement Issued August 2018	• Entities will no longer be required to disclose the amount of and reasons for transfers between Level 1 and Level 2 of the fair value hierarchy (see Note 15). • Public companies will be required to disclose the range and weighted average used to develop significant unobservable inputs for Level 3 fair value measurements. • Modifies certain disclosure requirements for nonpublic entities to make them less burdensome.	• Effective January 1, 2020. • The Company is evaluating the impact on its Consolidated Financial Statements and related disclosures.

3. ACCOUNTING AND REPORTING DEVELOPMENTS (CONTINUED)

Standard	Description	Impact on the financial statements or other significant matters
Financial Accounting Standards Board Standard Issued, but not yet Adopted (Continued)		
ASU 2017-04 Intangibles —Goodwill and Other *Issued January, 2017*	• Eliminates the second step from the goodwill impairment test. If a reporting unit's carrying amount exceeds its fair value, an entity will record an impairment charge based on that difference. The impairment charge will be limited to the amount of goodwill allocated to that reporting unit.	• Effective January 1, 2020. • The Company is evaluating the impact on related disclosures in its Consolidated Financial Statements.
ASU 2016-13 Customer's Financial Instruments - Credit Losses *Issued June,2016*	• Replaces the current incurred loss approach for credit losses with an "expected loss" model for instruments measured at amortized cost. • Requires all lifetime credit losses for financial assets held at the reporting date to be estimated based on factors such as historical experience, current conditions and forecasts. • Requires entities to record allowances for available-for-sale debt securities.	• Effective January 1, 2020. • The Company is evaluating the impact on related disclosures in its Consolidated Financial Statements.
ASU 2016-02 Leases *Issued February 2016*	• Requires a lessee to recognize leases with terms of longer than 12 months within balance sheet assets and liabilities. • Changes the recognition measurement and presentation of expenses and cash flows arising from a lease depending on its classification as a financing or operating leases as determined by the lessee. • Lessor accounting will remain largely unchanged from current GAAP. Leases of fewer than 12 months are exempt from the updated standard.	• The Company will adopt the new lease accounting standard as of January 1, 2019 through a cumulative-effect adjustment without revising prior comparative period and elected the practical expedients permitted under the transition guidance within the new lease accounting standard, which permits the Company not to reassess the following for any expired or existing contracts: i) whether any contracts contain leases; ii) lease classification (i.e. operating lease or finance/capital lease); and iii) initial direct cost. • The Company estimates that the adoption of the New Lease Accounting Standard will result in the recognition of right-of-use assets of approximately $260 million and lease liabilities of approximately $300 million on the Consolidated Statements of Financial Condition at January 1, 2019, consisting primarily of operating leases relating to real estate. The new lease accounting standard did not have a material impact in the Consolidated Statements of Income.

3. ACCOUNTING AND REPORTING DEVELOPMENTS (CONTINUED)

Standard	Description	Impact on the financial statements or other significant matters
Recently Adopted Accounting Standards		
ASU 2018-02 Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income *Issued February 2018*	• Allows companies to reclassify the stranded tax effects associated with the enactment of the Tax Reform Act from Accumulated Other Comprehensive Income to Retained Earnings. • In the period of adoption, companies must disclose whether or not such an election was made and a description of the tax effects that are reclassified, if any. • May be applied either in the period of adoption or retrospectively to the period in which the tax effects associated with the Tax Act are recognized.	• Adopted October 1, 2018. • The Company recorded a net increase to Retained earnings as a result of the reclassification of $34 million of stranded tax effects previously recorded in Accumulated Other Comprehensive Income. See Note 2 for additional information.
ASU 2017-07 Compensation - Retirement Benefits *Issued March 2017*	• Requires the components of net periodic pension and postretirement benefit costs (service cost, interest cost and actuarial gain/losses) to be reported separately from one another in the Company's Statements of Income. • Requires retrospective application and presentation in the Consolidated Statements of Income.	• Adopted January 1, 2018. • The adoption of the standard did not change the Company's Consolidated Net Income, but required the Company to reclassify other components of net periodic pension cost from Total operating income to Total non-operating income. The service cost component is presented in Employee compensation and related benefits, the interest cost component is presented in Interest expense, and all other components of net periodic pension cost are presented in Other non-operating income in the accompanying Consolidated Statements of Income. See Note 16 for additional information.
ASU 2016-18 Statement of Cash Flows - Restricted Cash *Issued November 2016*	• Requires inclusion of restricted cash in the cash and cash equivalents balances in the Consolidated Statements of Cash Flows. • Requires additional disclosures to supplement the Consolidated Statements of Cash Flows. • Requires retrospective application to all periods presented.	• Adopted April 1, 2018. • The Company adopted the standard under the retrospective method of adoption. • The adoption of the standard did not change the Company's Consolidated Statements of Financial Condition or Consolidated Statements of Income; however, it resulted in a presentation change related to the Consolidated Statements of Cash Flows by broadening the definition of cash and cash equivalents to include items that are not on the balance sheet's cash line, e.g., Participants' segregated cash, Participants' and Clearing Funds cash deposits and Cash in Other Participants' assets. See Note 2 for additional information.

3. ACCOUNTING AND REPORTING DEVELOPMENTS (CONTINUED)

Standard	Description	Impact on the financial statements or other significant matters
Recently Adopted Accounting Standards (Continued)		
ASU 2016-01 Recognition and Measurement of Financial Assets and Financial Liabilities *Issued January 2016*	• Requires the fair value measurement of unconsolidated equity investments, except those accounted for under the equity method. • Requires measurement of these investments at the end of each reporting period and recognition of the changes in fair value in net income. • Will no longer be able to recognize unrealized gains and losses on equity securities classified as available-for-sale in other comprehensive income. • Requires a modified retrospective approach but specifies prospective transition for equity investments without a readily determinable fair value.	• Adopted January 1, 2018. • The Company adopted the standard under the prospective transition method of adoption. • The Company elected to measure equity method investments at fair value when a transaction price is observed for the identical or similar security. • The adoption of the standard did not have a material impact on the accompanying Consolidated Financial Statements.
ASU 2014-09 Revenue from Contracts with Customers *Issued May 2014*	• Requires revenue from contracts with customers to be recognized upon transfer of control of a good or service in the amount of consideration expected to be received. • Changes the accounting for certain contract costs, including whether they may be offset against revenue in the accompanying Consolidated Statements of Income, and requires additional disclosures about revenue and contract costs. • May be adopted using a full retrospective approach or a modified, cumulative effect approach wherein the guidance is applied only to existing contracts as of the day of initial application, and to new contracts transacted after that date.	• Adopted January 1, 2018. • The Company adopted the standard under the full retrospective transition method of adoption. • The Company's implementation efforts included the identification of revenue within the scope of the standard and the evaluation of revenue contracts using the practical expedient portfolio approach. • The adoption of the standard did not have a material impact to the recognition and timing of its revenues, but required the Company to change the presentation of Interest Income and Refunds to Participants from a net basis to a gross basis in the accompanying Consolidated Statements of Income. See Note 2 for additional information.

4. BUSINESS DISPOSITIONS

On February 6, 2017, the Company, along with Clarient Global LLC's (Clarient) minority interest owners, signed a definitive agreement to sell their interests in Clarient to the Thomson Reuters Corporation (Thomson Reuters). On the same day, the Company also signed a definitive agreement to sell Avox Ltd (Avox) to Thomson Reuters. Both sales closed on March 14, 2017. As a result of these transactions, the Company disposed of Clarient and Avox, effective March 14, 2017. The Company's gain on the sales, net of the gain attributable to non-controlling interests related to Clarient, totaled $31,136,000 and was included in Other non-operating income in the Company's accompanying Consolidated Statements of Income. The agreements were subject to indemnity clauses for which there were indemnification escrows that were released in September 2018.

Details of the gain on sales follow (in thousands):

	Clarient	Avox	Total
Gain on sale included in Other non-operating income	$ 39,082	$ 7,919	$ 47,001
Less: Gain on sale attributable to non-controlling interest	(15,865)	—	(15,865)
Net gain on business dispositions	$ 23,217	$ 7,919	$ 31,136

Details of the balances related to the business dispositions follow (in thousands):

	Clarient	Avox	Total
Consolidated assets:			
Cash and cash equivalents	$ 708	$ 3,122	$ 3,830
Accounts receivable - net	531	3,488	4,019
Other current assets	848	51	899
Premises and equipment	—	1,215	1,215
Goodwill	—	7,836	7,836
Intangible assets	6,932	2,674	9,606
Other non-current assets	476	—	476
Total assets	$ 9,495	$ 18,386	$ 27,881
Consolidated liabilities:			
Accounts payable	$ 257	$ 252	$ 509
Other current liabilities	28,239	6,043	34,282
Total liabilities	$ 28,496	$ 6,295	$ 34,791

5. PARTICIPANTS' SEGREGATED CASH, OTHER PARTICIPANTS' ASSETS AND PAYABLE TO PARTICIPANTS

Details for Participants' segregated cash, Other Participants' assets and Payable to Participants as of December 31, 2018 and 2017 follow (in thousands):

	2018	2017
Assets:		
Participants' segregated cash	$ 77,988	$ 20,120
Other Participants' assets:		
Cash in Other Participants' assets	517,665	862,057
Other	450	5,979
Total	$ 596,103	$ 888,156
Liabilities:		
Payable to Participants	$ 596,103	$ 888,156

Participants' segregated cash represents cash received from Participants to facilitate their compliance with SEC 15c3-3 customer protection rules. Unclaimed balances are remitted to the appropriate authority when required by abandoned property laws.

Payable to Participants included $127,000 and $435,000 of cash collateral received from Participants, representing 130% of short positions as of December 31, 2018 and 2017, respectively. Unclaimed balances are remitted to the appropriate authority when required, pursuant to abandoned property laws.

6. ACCOUNTS RECEIVABLE

Details for Accounts receivable as of December 31, 2018 and 2017 follow (in thousands):

	2018	2017
Due from Participants and customers for services	$ 165,554	$ 161,935
Allowance for doubtful accounts	(1,650)	(205)
Due from Participants and customers for services, net	163,904	161,730
Other receivables	13,976	12,726
Total	$ 177,880	$ 174,456

Total write-offs in the allowance for doubtful accounts were $382,000 and $520,000 for the years ended December 31, 2018 and 2017, respectively.

7. PARTICIPANTS' AND CLEARING FUNDS

Details for the Participants' and Clearing Funds as of December 31, 2018 and 2017 follow (in thousands):

	2018			
	DTC	NSCC	FICC	Total
Required deposits	$ 1,150,000	$ 6,830,444	$ 18,053,674	$ 26,034,118
Excess deposits	684,363	1,435,091	8,468,550	10,588,004
Total	$ 1,834,363	$ 8,265,535	$ 26,522,224	$ 36,622,122

	2017			
	DTC	NSCC	FICC	Total
Required deposits	$ 1,150,000	$ 3,360,160	$ 14,970,573	$ 19,480,733
Excess deposits	621,078	631,610	6,282,044	7,534,732
Total	$ 1,771,078	$ 3,991,770	$ 21,252,617	$ 27,015,465

Cash deposits, Investments in marketable securities and Securities on deposit. Details for cash deposits, investments in marketable securities and securities on deposit of the Participants' and Clearing Funds, which may be applied to satisfy obligations of the depositing Participant, other Participants, or the Company as provided in the rules of the relevant subsidiaries of the Company, as of December 31, 2018 and 2017 follow (in thousands):

	2018			
	DTC	NSCC	FICC	Total
Cash deposits	$ 1,834,363	$ 7,651,033	$ 6,847,272	$ 16,332,668
Securities on deposit - at fair value	—	614,502	19,674,952	20,289,454
Total	$ 1,834,363	$ 8,265,535	$ 26,522,224	$ 36,622,122

	2017			
	DTC	NSCC	FICC	Total
Cash deposits	$ 1,771,078	$ 3,725,574	$ 8,815,868	$ 14,312,520
Investments in marketable securities	—	—	25,000	25,000
Securities on deposit - at fair value	—	266,196	12,411,749	12,677,945
Total	$ 1,771,078	$ 3,991,770	$ 21,252,617	$ 27,015,465

Details for the Participants' and Clearing Funds cash deposits and investments in marketable securities as of December 31, 2018 and 2017 follow (in thousands):

	2018			
	DTC	NSCC	FICC	Total
Bank deposits	$ 1,834,363	$ 5,720,033	$ 5,466,272	$ 13,020,668
Money market fund investments	—	1,556,000	931,000	2,487,000
Reverse repurchase agreements	—	375,000	450,000	825,000
Total	$ 1,834,363	$ 7,651,033	$ 6,847,272	$ 16,332,668

	2017			
	DTC	NSCC	FICC	Total
Bank deposits	$ 1,771,078	$ 2,820,574	$ 6,116,868	$ 10,708,520
Money market fund investments	—	595,000	2,139,000	2,734,000
Reverse repurchase agreements	—	310,000	560,000	870,000
U.S. Treasury bills	—	—	25,000	25,000
Total	$ 1,771,078	$ 3,725,574	$ 8,840,868	$ 14,337,520

8. PREMISES AND EQUIPMENT

The cost, accumulated depreciation and net book value of Premises and equipment for the years ended December 31, 2018 and 2017 follow (in thousands):

	Furniture and Equipment	Leasehold Improvements	Capital Leases	Buildings and Improvements	Land	Total
Cost:						
January 1, 2017	$ 391,824	$ 187,619	$ 44,755	$ 33,160	$ 4,221	$ 661,579
Additions	37,220	8,998	160	1,340	—	47,718
Disposals	(73,549)	(3,284)	(877)	(3,713)	—	(81,423)
As of December 31, 2017	355,495	193,333	44,038	30,787	4,221	627,874
Additions	28,484	7,865	129	228	—	36,706
Disposals	(21,603)	(15)	(20,995)	(9,010)	—	(51,623)
As of December 31, 2018	$ 362,376	$ 201,183	$ 23,172	$ 22,005	$ 4,221	$ 612,957
Accumulated Depreciation:						
January 1, 2017	$ 281,442	$ 87,306	$ 31,449	$ 10,591	$ —	$ 410,788
Depreciation expense	43,833	9,839	7,975	914	—	62,561
Disposals	(72,170)	(2,710)	(717)	(3,713)	—	(79,310)
As of December 31, 2017	253,105	94,435	38,707	7,792	—	394,039
Depreciation expense	40,910	9,009	5,033	709	—	55,661
Disposals	(19,844)	(5)	(20,995)	(9,010)	—	(49,854)
As of December 31, 2018	$ 274,171	$ 103,439	$ 22,745	$ (509)	$ —	$ 399,846
Net Book Value:						
January 1, 2017	$ 110,382	$ 100,313	$ 13,306	$ 22,569	$ 4,221	$ 250,791
As of December 31, 2017	$ 102,390	$ 98,898	$ 5,331	$ 22,995	$ 4,221	$ 233,835
As of December 31, 2018	$ 88,205	$ 97,744	$ 427	$ 22,514	$ 4,221	$ 213,111

During 2018 and 2017, disposals of premises and equipment resulted in losses of $1,769,000 and $898,000, respectively, and are included in General and administrative in the accompanying Consolidated Statements of Income.

9. GOODWILL AND INTANGIBLE ASSETS

The gross carrying value, accumulated amortization and net carrying values of Goodwill and Intangible assets for the years ended December 31, 2018 and 2017 follow (in thousands):

	Goodwill	Customer Relationships	Capitalized Software	Total
Gross carrying value:				
January 1, 2017	$ 65,535	$ 239,774	$ 1,078,229	$ 1,383,538
Additions	—	—	86,310	86,310
Disposals	(7,836)	(8,074)	(297,141)	(313,051)
Impairment	—	—	(19,797)	(19,797)
As of December 31, 2017	57,699	231,700	847,601	1,137,000
Additions	—	—	93,215	93,215
Impairment	—	—	(14,161)	(14,161)
As of December 31, 2018	$ 57,699	$ 231,700	$ 926,655	$ 1,216,054
Accumulated amortization:				
January 1, 2017	$ —	$ 68,076	$ 851,232	$ 919,308
Amortization expense	—	19,385	97,262	116,647
Disposals	—	(5,400)	(289,613)	(295,013)
As of December 31, 2017	—	82,061	658,881	740,942
Amortization expense	—	19,310	84,557	103,867
Impairment	—	—	(5,573)	(5,573)
As of December 31, 2018	$ —	$ 101,371	$ 737,865	$ 839,236
Net carrying value:				
January 1, 2017	$ 65,535	$ 171,698	$ 226,997	$ 464,230
As of December 31, 2017	$ 57,699	$ 149,639	$ 188,720	$ 396,058
As of December 31, 2018	$ 57,699	$ 130,329	$ 188,790	$ 376,818

During 2017, disposals of software resulted in losses of $596,000 and are included in General and administrative in the accompanying Consolidated Statements of Income. In addition, during 2017, disposals of customer relationships and software related to the dispositions of Clarient and Avox (see Note 4) resulted in charges of $6,932,000 and $2,674,000, respectively, and are included in Other non-operating income in the accompanying Consolidated Statements of Income, as part of the Company's net gain on the sales.

Goodwill impairment testing. DTCC completed its annual goodwill impairment test in the fourth quarter of 2018 and concluded that goodwill was not impaired. DTCC performed a qualitative assessment to test the goodwill for impairment and determined it was more likely than not that the fair value of each reporting unit exceeded their carrying value and therefore goodwill was deemed not impaired.

Intangible assets. The Company recognized impairment charges of $8,588,000 and $19,797,000 related to capitalized software for the years ended December 31, 2018 and 2017, respectively, that were determined to have no realizable value. The impairment charges were included in Impairment of Intangible assets in the accompanying Consolidated Statements of Income.

During 2018, the Company's evaluation of internally developed software projects resulted in the recognition of an impairment of internally developed software, as previously noted above.

9. GOODWILL AND INTANGIBLE ASSETS (CONTINUED)

During 2017, the re-platforming of the Company's Global Trade Repository (GTR) system triggered the evaluation of its internally developed software for impairment. The evaluation concluded that the $5,009,000 carrying value of certain GTR business internally developed software was not recoverable and exceeded its fair value. As a result, the Company recognized an impairment charge of $5,009,000 for the year ended December 31, 2017.

In addition, during 2017, the delayed revenue generation and losses sustained for DTCC-Euroclear GlobalCollateral LTD (DEGCL), triggered the evaluation of the Company's internally developed software for DEGCL for impairment. The evaluation concluded that the $14,788,000 carrying value of the Company's internally developed software for DEGCL was not recoverable and exceeded its fair value. As a result, the Company recognized an impairment charge of $14,788,000, for the year ended December 31, 2017, which reduced the carrying value of the Company's internally developed software for DEGCL to zero.

Details for estimated amortization expense for each of the next five years and thereafter follow (in thousands):

2019	$	93,911
2020		83,070
2021		56,156
2022		32,884
2023		19,308
Thereafter		33,790
Total future estimated amortization	$	319,119

10. EQUITY METHOD INVESTMENTS

Details for DTCC's Equity method investments as of December 31, 2018 and December 31, 2017 follow (in thousands, except ownership percentage):

		2018		2017
European Central Counterparty N.V.				
Percentage ownership		20%		20%
Carrying value	$	10,491	$	10,394
DTCC-Euroclear GlobalCollateral, LTD				
Percentage ownership		50%		50%
Carrying value	$	—	$	—

European Central Counterparty N.V. (ECCP N.V.), a joint venture with ABN AMRO Clearing Investments B.V., NASDAQ AB, BATS Trading Limited and Euronext N.V., provides a pan-European clearing solution offering economies of scale and risk management expertise to European market participants. ECCP N.V. uses the risk management framework and customer service organization of European Multilateral Clearing Facility N.V. (EMCF), and conducts its operations using the technology platform and infrastructure of EMCF.

10. EQUITY METHOD INVESTMENTS (CONTINUED)

DTCC-Euroclear GlobalCollateral LTD (DEGCL), a joint venture with Euroclear plc, provides support to financial institutions in addressing significant regulatory, operational and industry challenges related to the management of margin calls and collateral impacting the over-the-counter (OTC) derivatives market.

The Company's contributions to DEGCL for the years ended December 31, 2018 and 2017 follow (in thousands):

	Amount
April 6, 2017	$ 10,000
November 10, 2017	5,000
June 19, 2018	5,000
December 5, 2018	6,000
Total (1)	$ 26,000

(1) DTCC maintained the same ownership percentage as the joint venture partner, Euroclear plc, who also contributed a total of $26,000,000

Based on the delayed revenue generation and losses sustained by DEGCL services, a triggering event resulted during 2017 that required DTCC to assess its investment in DEGCL for other-than-temporary impairment. DTCC utilized a discounted cash flow methodology based on the forecasted cash flows for DEGCL to determine fair value for both its investment and internally developed software related to DEGCL. DTCC applied a discount rate of 25%, which reflected the weighted-average cost of capital adjusted for the risks inherent in the future cash flows. As a result, DTCC determined the fair value of its investment in DEGCL was less than its carrying value and concluded that this loss was other-than temporary. DTCC recognized an impairment charge of $9,881,000, which is included in Impairment of Equity method investments in the accompanying Consolidated Statement of Income for the year ended December 31, 2017. Cash contributions made to DEGCL subsequent to impairment were for the funding of prior losses of DEGCL and will be included in Net loss from Equity method investments in the accompanying Consolidated Statements of Income until financial conditions improve. DTCC continues to maintain its relationship with the DEGCL joint venture.

11. OTHER ASSETS

Details for Other assets as of December 31, 2018 and 2017 follow (in thousands):

	2018	2017
Prepaids	$ 81,774	$ 63,203
Prepaid taxes	24,645	22,130
Other current assets	27,541	16,321
Total other current assets	133,960	101,654
Long-term incentive plan assets	148,549	171,995
Cash surrender value on insurance policies	61,035	59,618
Prepaids	44,978	24,036
Deferred tax assets	44,952	86,242
Equity investments	11,750	5,411
Investment in Federal Reserve Stock	6,402	6,402
Other non-current assets	1,913	132
Total other non-current assets	319,579	353,836
Total	$ 453,539	$ 455,490

Prepaids primarily represent the interest and up-front fees paid for lines of credit maintained to support potential default liquidity resources for DTC and NSCC and maintenance contracts for various hardware and software services.

11. OTHER ASSETS (CONTINUED)

The Company purchased life insurance policies for employees who participated in DTCC's long-term incentive plans. Cash surrender value on insurance policies represents the amounts receivable from various insurance companies upon cancellation of the life insurance policies purchased for employees and is classified in Other non-current assets on the accompanying Consolidated Statements of Financial Condition. The associated liability for these deferred compensation plans and the loans drawn against these policies are classified in Other current liabilities and Other non-current liabilities on the accompanying Consolidated Statements of Financial Condition.

12. OTHER LIABILITIES

Details for Other liabilities as of December 31, 2018 and 2017 follow (in thousands):

	2018	2017
Compensation payable	$ 143,837	$ 137,446
Long-term incentive plan liabilities	51,979	44,072
Deferred rent	829	5,053
Other current liabilities	64,032	63,358
Total other current liabilities	260,677	249,929
Long-term incentive plan liabilities	206,758	224,791
Unrecognized tax benefits (1)	40,153	81,601
Deferred rent	35,136	36,117
Deferred tax liabilities	970	—
Other payables	5,317	27,733
Total other non-current liabilities	288,334	370,242
Total	$ 549,011	$ 620,171

(1) See Note 17 for additional information.

13. COMMERCIAL PAPER

Details for Commercial paper as of December 31, 2018 and December 31, 2017 follow (in thousands):

	2018	2017
Commercial paper - net of unamortized discount of $43,856 and $3,371 as of December 31, 2018 and 2017, respectively	$ 7,436,141	$ 3,222,571
Weighted-average interest rate	2.59%	1.43%

Interest expense on Commercial paper included in the accompanying Consolidated Statements of Income was $104,714,000 and $32,171,000 for the years ended December 31, 2018 and 2017, respectively.

Details for the cash flows associated with the issuance and maturities of Commercial paper for the years ended December 31, 2018 and 2017 follow (in thousands):

	2018	2017
Maturities less than 90 days:		
Proceeds from/(Repayments of) Commercial paper less than 90 days, net	$ 1,051,025	$ 880,352
Maturities greater than 90 days:		
Proceeds from Commercial paper	7,176,146	2,217,232
Repayments of Commercial paper	(4,038,455)	(2,429,033)
Proceeds from/(Repayments of) Commercial paper greater than 90 days, net	3,137,691	(211,801)
Change in Commercial paper, net	$ 4,188,716	$ 668,551

14. LONG-TERM DEBT

Details for Long-term debt as of December 31, 2018 and 2017 follow (in thousands):

	2018	2017
Notes payable	$ 36,375	$ 39,025
Capital lease obligations	—	5,227
Total long-term debt	36,375	44,252
Less: Current portion of long-term debt	(2,650)	(7,877)
Non-current portion of long-term debt	$ 33,725	$ 36,375

Details for principal payments due on Long-term debt for each of the next five years and thereafter follow (in thousands):

	Notes Payable
2019	$ 2,650
2020	2,650
2021	2,650
2022	2,650
2023	2,650
Thereafter	23,125
Total	$ 36,375

Notes payable. Details for notes payable as of December 31, 2018 and 2017 follow (in thousands):

			Outstanding Balance	
Issue Date	Maturity	Rate	2018	2017
April 26, 2012	April 26, 2032	3.83%	$ 19,575	$ 21,025
September 28, 2012	September 28, 2032	3.93%	16,800	18,000
Total			$ 36,375	$ 39,025

The weighted-average interest rate was 3.88% as of December 31, 2018 and 2017, respectively. Total Interest expense on notes payable included in the accompanying Consolidated Statements of Income was $1,465,000 and $1,663,000 for the years ended December 31, 2018 and 2017, respectively.

Capital lease obligations. Leased property meeting certain criteria is capitalized and the present value of the related lease payments is recorded as a liability. During the first quarter of 2018, the Company extinguished its remaining capital lease obligations.

14. LONG-TERM DEBT (CONTINUED)

The weighted-average interest rate was 0.00% and 1.80% as of December 31, 2018 and December 31, 2017, respectively. Total Interest expense on capital lease obligations included in the accompanying Consolidated Statements of Income was $68,000 and $339,000 for the years ended December 31, 2018 and 2017, respectively.

Lines of credit. DTCC maintains a committed line of credit for general funding purposes while certain of its subsidiaries, DTC and NSCC, also maintain committed lines of credit to support settlement.

Details for the terms of the outstanding lines of credit as of December 31, 2018 and December 31, 2017 follow:

	2018	2017
DTCC		
Committed Amount	$500 million	$500 million
Denomination	USD	USD
No. of Participants/Lenders	10/10	10/10
DTC		
Committed Amount	$1.9 billion	$1.9 billion
Denomination	USD	USD
No. of Participants/Lenders	33/41	32/41
Uncommitted Amount	C$150 million (1)	C$150 million (1)
Denomination	CAD	CAD
No. of Participants/Lenders	1/1	1/1
NSCC		
Committed Amount	$12.1 billion	$12.2 billion
Denomination	USD	USD
No. of Participants/Lenders	33/41	32/41

(1) Used to support Canadian settlement.

There were no borrowings under the line of credit during 2018 and 2017.

14. LONG-TERM DEBT (CONTINUED)

Details for debt covenants related to the notes payable and lines of credit as of December 31, 2018 and December 31, 2017 follow:

	2018	2017
Notes Payable		
DTCC		
Minimum Net Worth	$400 million	$400 million
Maximum Priority Debt	20% of Net Worth	20% of Net Worth
Lines of Credit		
DTCC		
Minimum Net Worth	$1.1 billion	$1.1 billion
Maximum Priority Debt	$200 million	$200 million
DTC		
Minimum Net Worth	$150 million	$150 million
Minimum Participants' Fund deposits	$750 million	$750 million
NSCC		
Minimum Net Worth	$125 million	$125 million
Minimum Clearing Fund deposits	$1 billion	$1 billion

As of December 31, 2018 and 2017, the Company was in compliance with its debt covenants.

Credit Ratings. DTCC, DTC, FICC and NSCC are rated by Moody's Investors Service, Inc. (Moody's) and S&P Global Inc. (S&P). Details for senior debt ratings and ratings outlooks for DTCC and its three clearing agency subsidiaries as of December 31, 2018 follow:

	Moody's (1)			S&P		
	Long-term	Short-term	Outlook	Long-term	Short-term	Outlook
DTCC	Aa3	N/A	Stable	AA-	A-1+	Stable
DTC	Aaa	P-1	Stable	AA+	A-1+	Stable
FICC	Aaa	P-1	Stable	AA	A-1+	Stable
NSCC	Aaa	P-1	Stable	AA+	A-1+	Stable

(1) Moody’s categorizes the long-term issuer ratings of DTC, FICC and NSCC as clearing counterparty ratings (CCR) under the agency's Clearing Houses Rating Methodology.

15. FAIR VALUE MEASUREMENTS

Valuation hierarchy

U.S. GAAP provides for a three-level valuation hierarchy based on the transparency of inputs to the valuation of an asset or liability as of the measurement date. Details for the description of the three levels follow:

- Level 1 — Inputs to the valuation methodology are unadjusted quoted market prices for identical assets or liabilities in active markets as of the valuation date.

- Level 2 — Inputs to the valuation methodology are quoted market prices for similar assets and liabilities in active markets; quoted market prices for identical or similar assets or liabilities in markets that are not active; inputs other than quoted prices that are observable for the asset or liability; and inputs that are derived principally from or corroborated by observable market data by correlation or other means.

- Level 3 — Inputs to the valuation methodology are unobservable and reflect the Company's own assumptions about the estimates market participants would use pricing the asset or liability based on the best information available in the circumstances (e.g., internally derived assumptions surrounding timing and amount of expected cash flows).

A financial asset or liability's categorization within the valuation hierarchy is based on the lowest level of input that is significant to the fair value measurement.

15. FAIR VALUE MEASUREMENTS (CONTINUED)

Financial Assets and Liabilities measured at fair value on a recurring basis. For financial assets and liabilities measured at fair value on a recurring basis, the Company applies the following valuation techniques to measure fair value:

Product/ Instrument	Valuation Methodology	Classification in the valuation hierarchy
Assets - Participants' and Clearing Funds - Securities on deposit		
U.S. Treasury Securities U. S. Agency Issued Debt Securities (Non-Callable)	Obtained from pricing services engaged by the Company, and the Company receives one price for each security. The fair values provided by the pricing services are estimated using pricing models, where the inputs to those models are based on observable market inputs.	Level 1
U. S. Agency Issued Debt Securities (Callable) U.S. Agency Residential Mortgage-Backed Securities	Quoted market price of recent trades of similar securities obtained from pricing services engaged by the Company.	Level 2
Non-Current Assets - Other non-current assets		
Rabbi Trust	Obtained from pricing services engaged by the Company, and the Company receives one price for each security.	Level 1
	Quoted market price of recent trades of similar securities obtained from pricing services engaged by the Company.	Level 2
Liabilities - Participants' and Clearing Funds - Securities on deposit		
Participants' and Clearing Funds liabilities	Derived from the corresponding Participants' and Clearing Funds assets (see above).	Level 1 and Level 2

15. FAIR VALUE MEASUREMENTS (CONTINUED)

Fair value measurements of those items measured on a recurring basis as of December 31, 2018 and 2017 follow (in thousands):

	2018			
	Level 1	Level 2	Level 3	Total
Assets - Participants' and Clearing Funds				
Securities on deposit	$ 16,659,680	$ 3,629,774	$ —	$ 20,289,454
Non-current assets				
Long-term incentive plan assets	113,151	35,398	—	148,549
Total	$ 16,772,831	$ 3,665,172	$ —	$ 20,438,003
Participants' and Clearing Funds - Securities liabilities	$ 16,659,680	$ 3,629,774	$ —	$ 20,289,454
Total	$ 16,659,680	$ 3,629,774	$ —	$ 20,289,454

	2017			
	Level 1	Level 2	Level 3	Total
Assets - Participants' and Clearing Funds				
Securities on deposit	$ 10,900,451	$ 1,777,494	$ —	$ 12,677,945
Non-current assets				
Long-term incentive plan assets	135,087	36,908	—	171,995
Total	$ 11,035,538	$ 1,814,402	$ —	$ 12,849,940
Participants' and Clearing Funds - Securities liabilities	$ 10,900,451	$ 1,777,494	$ —	$ 12,677,945
Total	$ 10,900,451	$ 1,777,494	$ —	$ 12,677,945

There were no transfers between levels in the fair value hierarchy, nor were any financial assets and liabilities measured at fair value on a recurring basis classified as Level 3 as of December 31, 2018 and 2017.

15. FAIR VALUE MEASUREMENTS (CONTINUED)

Financial Assets and Liabilities measured at other than fair value. For financial assets and liabilities that are not required to be carried at fair value on a recurring basis the Company applies the following valuation techniques to measure fair value:

Product/ Instrument	Valuation Methodology	Classification in the valuation hierarchy
Assets - Current Assets - Clearing Fund Investments in marketable securities		
U.S. Treasury bills	Obtained from pricing services engaged by the Company, and the Company receives one price for each security. The fair values provided by the pricing services are estimated using pricing models, where the inputs to those models are based on observable market inputs.	Level 1
Liabilities - Current Liabilities		
Long-term debt	Discounted cash flows using current market rates for similar instruments of the same remaining maturity or quoted prices for the same of similar issues.	Level 2

Financial assets and liabilities whose carrying value approximates fair value. The carrying values of certain assets and liabilities approximate their fair values because they are short-term in duration, have no defined maturity or have market-based interest rates. These instruments include Cash and cash equivalents, Participants' segregated cash, Short-term investments, Participants' and Clearing Funds - Cash deposits, Other Participants' assets, Commercial paper, Accounts payable and accrued expenses, Participants' and Clearing Funds - Cash deposit liabilities, Payable to Participants and Long-term debt.

15. FAIR VALUE MEASUREMENTS (CONTINUED)

The carrying values, fair values and fair value hierarchy levels of all financial instruments measured at other than fair value on the accompanying Consolidated Statements of Financial Condition as of December 31, 2018 and 2017 follow (in thousands):

	2018				
	Carrying Amount	Total Fair Value	Level 1	Level 2	Level 3
Assets:					
Cash and cash equivalents	$ 8,641,036	$ 8,641,036	$ 8,641,036	$ —	$ —
Participants' segregated cash	77,988	77,988	77,988	—	—
Short-term investments	800,000	800,000	—	800,000	—
Participants' and Clearing Funds:					
Cash deposits	16,332,668	16,332,668	15,507,668	825,000	—
Other Participants' assets	518,115	518,115	517,665	450	—
Total	$ 26,369,807	$ 26,369,807	$ 24,744,357	$ 1,625,450	$ —
Liabilities:					
Commercial paper	$ 7,436,141	$ 7,436,141	$ —	$ 7,436,141	$ —
Accounts payable and accrued expenses	104,013	104,013	—	104,013	—
Participants' and Clearing Funds Cash deposit liabilities	16,332,668	16,332,668	16,332,668	—	—
Payable to Participants	596,103	596,103	596,103	—	—
Long-term debt	36,375	36,035	—	36,035	—
Total	$ 24,505,300	$ 24,504,960	$ 16,928,771	$ 7,576,189	$ —

	2017				
	Carrying Amount	Total Fair Value	Level 1	Level 2	Level 3
Assets:					
Cash and cash equivalents	$ 5,075,318	$ 5,075,318	$ 5,075,318	$ —	$ —
Participants' segregated cash	20,120	20,120	20,120	—	—
Participants' and Clearing Funds:					
Cash deposits	14,312,520	14,312,520	13,442,520	870,000	—
Investments in marketable securities	25,000	24,920	24,920	—	—
Other Participants' assets	868,036	868,036	862,057	5,979	—
Total	$ 20,300,994	$ 20,300,914	$ 19,424,935	$ 875,979	$ —
Liabilities:					
Commercial paper	$ 3,222,571	$ 3,222,571	$ —	$ 3,222,571	$ —
Accounts payable and accrued expenses	118,345	118,345	—	118,345	—
Participants' and Clearing Funds Cash deposit liabilities	14,337,520	14,337,520	14,337,520	—	—
Payable to Participants	888,156	888,156	888,156	—	—
Long-term debt	44,252	45,822	—	45,822	—
Total	$ 18,610,844	$ 18,612,414	$ 15,225,676	$ 3,386,738	$ —

15. FAIR VALUE MEASUREMENTS (CONTINUED)

Financial assets measured at fair value on a non-recurring basis. Certain assets are subject to measurement at fair value on a non-recurring basis. For these assets, measurement at fair value in periods subsequent to their initial recognition is applicable if they are determined to be impaired or when an observable event occurs.

The Company recognized impairment charges on certain Intangible assets and Equity method investments as disclosed in Note 9 and Note 10, respectively. The fair values of the Intangible assets and Equity method investments were determined based on a discounted cash flow method which reflected estimated future cash flows associated with the identified assets at the measurement date, and is within Level 3 under the fair value hierarchy on a non-recurring basis. The Intangible assets and Equity method investments were determined to be fully impaired and were written down to a fair value of zero on the impairment date.

The rollforward of Equity investments categorized within Level 3 in the fair value hierarchy for the year ended December 31, 2018 follow (in thousands):

	Investment at December 31, 2017	Transfers Into Level 3 (1)	Purchases(2)	Unrealized Gain	Fair Value at December 31, 2018
Equity investments	$ —	$ 5,411	$ 1,104	$ 5,235	$ 11,750

(1) On January 1, 2018, the Company adopted the new standard related to fair value measurement of unconsolidated equity investments under the prospective transition method of adoption. See Note 3 for additional information.

(2) On June 25, 2018, the Company made an additional cash investment of $1,104,000 in Equity investments, which increased the Company's total investment in Equity investments, to $11,750,000, including a $5,235,000 mark-to-market investment gain included in Other non-operating income in the accompanying Consolidated Statements of Income.

The Company's primary level 3 financial asset, the valuation techniques used to measure the fair value of the financial asset and the significant unobservable inputs as of December 31, 2018 follow (in thousands):

Financial Instruments Owned	Fair Value (in thousands)	Valuation Technique	Unobservable Inputs	Input Range	Weighted Average
Equity Investments	$11,750	Last Round of Financing	Price Per Share(1)	$15 - $107(2)	$71(2)

(1) Price is determined using the latest valuation from the most recent round of financing of equity investments.

(2) The unobservable input range and weighted-average are driven by the individual equity investments.

16. PENSION AND POSTRETIREMENT BENEFITS

Defined contribution retirement plans. The Company matches 50% of the first 6% of the employee's contributions up to the Internal Revenue Service compensation limits. Company matching contributions and employee contributions vest immediately. In addition, the Company also makes a service contribution of a percentage of base and incentive pay based on years of service (3% for less than five years, 4% for five years but less than ten years, and 5% for 10 or more years). Company service contributions vest at the rate of 20% for each year of service or at age 55. Total expense for the defined contribution retirement plans included in Employee compensation and related benefits in the accompanying Consolidated Statements of Income was $37,510,000 and $38,953,000 for the years ended December 31, 2018 and 2017, respectively.

Defined benefit pension and other postretirement benefit plans.
Benefit obligations. The reconciliation of the beginning and ending balances of the projected benefit obligations for defined benefit plans follow (in thousands):

	Pension Benefits		Other Benefits	
	2018	2017	2018	2017
Benefit obligations, beginning of year:	$ 1,135,910	$ 1,056,165	$ 72,062	$ 63,064
Service cost	5,868	7,089	744	668
Interest cost	37,289	38,278	2,188	2,122
Plan amendments	—	—	—	2,357
Gross benefits paid	(66,178)	(55,690)	(3,498)	(3,800)
Expenses paid	(1,900)	(3,222)	—	—
Actuarial loss	(96,943)	93,290	(7,294)	7,651
Total benefit obligations at end of year	$ 1,014,046	$ 1,135,910	$ 64,202	$ 72,062
Total accumulated benefit obligations at end of year	$ 1,009,611	$ 1,128,916	N/A	N/A

The Accumulated Benefit Obligations are defined as the actuarial present value of postretirement benefits attributed to employee services rendered before December 31, 2018 and 2017, respectively, and based on employee service and compensation prior to the applicable date.

Funded status. The funded status of the plans, as of December 31, 2018 and 2017, follow (in thousands):

	Pension Benefits		Other Benefits	
	2018	2017	2018	2017
Benefit obligations at end of year:				
Qualified plan	$ 894,461	$ 1,010,203	$ —	$ —
Other plans	119,585	125,707	64,202	72,062
Total benefit obligations at end of year	1,014,046	1,135,910	64,202	72,062
Fair value of qualified plan assets at end of year	863,953	896,442	—	—
Fair value of unqualified plan assets at end of year	—	—	—	—
Total fair value of plan assets at end of year	863,953	896,442	—	—
Unfunded status	$ (150,093)	$ (239,468)	$ (64,202)	$ (72,062)
Amounts recognized in the balance sheet consist of:				
Current liability	$ (11,996)	$ (16,723)	$ (4,613)	$ (4,614)
Non-current liability	(138,097)	(222,745)	(59,589)	(67,448)
Amount recognized, end of year	$ (150,093)	$ (239,468)	$ (64,202)	$ (72,062)

16. PENSION AND POSTRETIREMENT BENEFITS (CONTINUED)

Plan assets. The summary and reconciliation of the beginning and ending balances of the fair value of the plans' assets follow (in thousands):

	Pension Benefits		Other Benefits	
	2018	2017	2018	2017
Change in plan assets:				
Fair value of plan assets, beginning of year	$ 896,442	$ 814,352	$ —	$ —
Actual return on plan assets	(25,275)	97,025	—	—
Employer contribution	60,864	43,977	3,498	3,800
Gross benefits paid	(66,178)	(55,690)	(3,498)	(3,800)
Expenses paid	(1,900)	(3,222)	—	—
Fair value of plan assets, end of year	$ 863,953	$ 896,442	$ —	$ —

Investments are classified based on the lowest level of input that is significant to the fair value measurement. Details of the classification of plan assets in accordance with the three-tier fair valuation hierarchy and current asset allocations as of December 31, 2018 and 2017, follow (in thousands, except percentages):

	Target Allocation 2018	Percentage of Plan Assets, December 31, 2018	Total	Quoted Prices in Active Markets for Identical Assets (Level 1)
Pension assets as of December 31, 2018:				
Short-term investment fund(1)	0.50%	0.60%	$ 5,154	$ —
Equity Portfolio:				
Domestic large cap growth(1)			26,979	—
Domestic large cap value(1)			26,418	—
Domestic large cap core(1)			53,836	—
Domestic small core			10,065	10,065
International core			16,756	16,756
International emerging markets			5,733	5,733
Total equity securities	17.50%	16.18%	139,787	32,554
Fixed income portfolio:				
Domestic liability driven investment(1)	80.00%	82.43%	712,191	—
Guaranteed insurance contracts:				
Annuity fund(1)	2.00%	0.79%	6,821	—
Total pension assets as of December 31, 2018			$ 863,953	$ 32,554

16. PENSION AND POSTRETIREMENT BENEFITS (CONTINUED)

	Target Allocation 2017	Percentage of Plan Assets, December 31, 2017	Total	Quoted Prices in Active Markets for Identical Assets (Level 1)
Pension assets as of December 31, 2017:				
Short-term investment fund[(1)]	—%	1.76%	$ 15,776	$ —
Equity Portfolio:				
Domestic large cap growth[(1)]			44,455	—
Domestic large cap value[(1)]			43,675	—
Domestic large cap core[(1)]			88,898	—
Domestic small core			16,684	16,684
International core			26,210	26,210
International emerging markets			9,058	9,058
Total equity securities	25.00%	25.55%	228,980	51,952
Fixed income portfolio:				
Domestic liability driven investment[(1)]	73.00%	71.91%	644,670	—
Guaranteed insurance contracts:				
Annuity fund[(1)]	2.00%	0.78%	7,016	—
Total pension assets as of December 31, 2017			$ 896,442	$ 51,952

(1) Certain investments that were measured at net asset value per share (or its equivalent) have not been classified in the fair value hierarchy. The fair value amounts presented in the table are intended to permit the reconciliation of the fair value hierarchy to the amounts presented on the accompanying Consolidated Statement of Financial Condition. See Note 15 for further information. The Company did not hold defined benefit plan assets designated as Level 2 or Level 3 as of December 31, 2018 and 2017.

Net periodic benefit expense (income). Details of the components of net periodic benefit expense (income) and amortization recognized in OCI, excluding taxes, follow (in thousands):

	Pension Benefits		Other Benefits	
	2018	2017	2018	2017
Components of net periodic benefit expense (income):				
Expected return on plan assets	$ (39,564)	$ (37,449)	$ —	$ —
Interest cost	37,289	38,278	2,188	2,123
Service cost	5,868	7,089	744	668
Amortizations:				
Prior service cost (credit)	933	933	(5,926)	(5,926)
Actuarial loss	8,731	6,692	2,188	1,112
Settlement loss	444	198	—	—
Net periodic benefit expense (income)	$ 13,701	$ 15,741	$ (806)	$ (2,023)

16. PENSION AND POSTRETIREMENT BENEFITS (CONTINUED)

Impacts to previously reported results. On January 1, 2018, the Company adopted ASU 2017-07, *Compensation: Retirement Benefits* under the retrospective method of adoption. See Note 3 for additional information. The impact of the new retirement benefits standard on the Company's previously reported results for the year ended December 31, 2017 follows (in thousands):

	For the year ended December 31, 2017		
	As Previously Reported	New Retirement Benefits Standard Adjustment	As Restated
Employee compensation and related benefits	$ 653,731	$ (5,961)	$ 647,770
Interest expense	(36,438)	(40,401)	(76,839)
Other non-operating income	45,261	34,440	79,701

Changes in OCI. Details of the changes in plan assets and benefit obligations recognized in OCI (excluding taxes) follow (in thousands):

	Pension Benefits		Other Benefits	
	2018	2017	2018	2017
Other changes recognized in OCI:				
Prior service cost arising during the period	$ —	$ —	$ —	$ 2,356
Net loss arising during the period	(32,104)	33,713	(7,294)	7,651
Amortizations:				
Prior service (cost) credit	(933)	(933)	5,926	5,926
Actuarial and settlement loss	(9,175)	(6,890)	(2,188)	(1,112)
Net other changes in OCI	$ (42,212)	$ 25,890	$ (3,556)	$ 14,821

Details of the net amount recognized in Accumulated other comprehensive income on the accompanying Consolidated Statements of Financial Condition (excluding taxes) follow (in thousands):

	Pension Benefits		Other Benefits	
	2018	2017	2018	2017
Amount not yet reflected in net periodic benefit (cost) and included in Accumulated other comprehensive loss:				
Prior service (cost) credit	$ (3,502)	$ (4,434)	$ 17,680	$ 23,606
Accumulated loss	(242,541)	(283,821)	(14,944)	(24,426)
Accumulated other comprehensive (loss) income	(246,043)	(288,255)	2,736	(820)
Cumulative net periodic benefit (cost) in excess of employer contributions	95,950	48,787	(66,938)	(71,242)
Net amount recognized at year-end	$ (150,093)	$ (239,468)	$ (64,202)	$ (72,062)

16. PENSION AND POSTRETIREMENT BENEFITS (CONTINUED)

The estimated actuarial loss (gain) and prior service (cost) credit that will be amortized from accumulated other comprehensive loss into the accompanying Consolidated Statement of Income through net periodic benefit (cost) or expense over the next fiscal year follow (in thousands):

	Pension Benefits		Other Benefits	
	2018	2017	2018	2017
Prior service credit (cost)	$ (933)	$ (933)	$ 5,926	$ 5,926
Net loss	(5,270)	(9,131)	(1,270)	(2,528)
Total	$ (6,203)	$ (10,064)	$ 4,656	$ 3,398

Assumptions for net periodic benefit expense (income). Details for the defined benefit plans assumptions used by actuaries to determine net periodic benefit expense (income) as of December 31, 2018 and 2017 follow:

	Pension Benefits		Other Benefits	
	2018	2017	2018	2017
Weighted-average assumptions used to determine net periodic benefit expense (income) for the years ended December 31:				
Discount rate	3.73%	4.39%	3.62%	4.19%
Expected long-term rate of return on plan assets	4.75%	4.75%	n/a	n/a
Rate of compensation increase	n/a	n/a	n/a	n/a
Assumed health care cost trend rates as of December 31:				
Health care cost trend rate assumed for next year			6.89%	7.31%
Rate to which the cost trend rate is assumed to decline				
(the ultimate trend rate)			4.46%	4.46%
Year that the rate reaches the ultimate trend rate			2038	2040

To develop the expected long-term rate of return on assets assumptions, DTCC considered the historical returns and the future expectations for returns for each asset class, as well as the target asset allocation of the pension portfolio. This resulted in the selection of the 4.75% long-term rate of return assumptions as of December 31, 2018 and 2017.

The discount rate reflects the rate at which defined benefit plan obligations could be effectively settled. The Company projects the benefits to be paid by each plan for each year in the future, the sum of which is the projected benefit obligations. The benefits are then discounted using the Above Mean Mercer Yield Curve spot rates for the corresponding maturity years.

The total of the present values for the benefit payment years is used to calculate the single rate that discounts the benefit cash flows to the same total present value. The single rate is the basis for the final effective discount rate.

16. PENSION AND POSTRETIREMENT BENEFITS (CONTINUED)

Details for the defined benefit plans assumptions used by actuaries to determine benefit obligations as of December 31, 2018 and 2017 follow:

	Pension Benefits		Other Benefits	
	2018	2017	2018	2017
Weighted-average assumptions used to determine benefit obligations as of December 31:				
Discount rate	4.41%	3.73%	4.30%	3.62%
Rate of compensation increase	n/a	n/a	n/a	n/a
Assumed health care cost trend rates as of December 31:				
Health care cost trend rate assumed for next year			6.46%	6.89%
Rate to which the cost trend rate is assumed to decline (the ultimate trend rate)			4.46%	4.46%
Year that the rate reaches the ultimate trend rate			2038	2040

Assumptions for defined benefit obligations. Mortality is a key assumption used to determine the benefit obligations for the Company's defined benefit plans. The mortality assumption for all plans uses MRP-2006 generational tables projected with scale MMP-2018. The mortality projection scale was changed from scale MMP-2016 to scale MMP-2018. The mortality tables use a white collar adjustment for the SERP, Restoration Plan and non-union Retiree Medical and Life Insurance Plans and a blue collar adjustment for the union Retire Medical and Life Insurance Plans. The Pension Plan continues to use no collar adjustment. On a lump sum basis, mortality is based on IRS prescribed tables projected using scale MP-2018, with segmented interest rate adjustments. This projection scale was changed from MP-2016 to MP-2018.

Expected cash flows. The Company contributed $55,000,000 to the Pension Plan in 2018 and expects to contribute approximately $10,000,000 during 2019. Settlement losses relate to early retirement of executives who elected lump-sum and periodic payments. There were no settlement losses in 2018 and 2017. There were no participant contributions to the plans in 2018 and 2017.

Details for the benefit payments for the pension plans and other plans for 2018 and 2017 follow (in thousands):

	2018	2017
Pension plans	$ 66,177	$ 55,690
Other plans	3,498	3,800
Total	$ 69,675	$ 59,490

Details for estimated amounts to be paid in each of the next five years and the five year period thereafter follow (in thousands):

	Pension	Employer Benefits Payments	Medicare Subsidy Receipts
2019	$ 67,555	$ 4,613	$ 12
2020	82,753	4,790	11
2021	67,863	4,890	11
2022	67,118	4,930	10
2023	60,162	4,912	9
Thereafter	327,169	22,806	37
Total	$ 672,620	$ 46,941	$ 90

17. INCOME TAXES

DTCC and its subsidiaries file a consolidated Federal income tax return and various state tax returns. DTCC and its subsidiaries also file other state and non-U.S. jurisdiction income tax returns on a separate company basis.

Details for the components of the Company's Provision for income taxes for the years ended December 31, 2018 and 2017 follow (in thousands):

	2018	2017
Current income tax:		
Federal	$ 10,397	$ 53,857
State and local	24,785	5,174
Foreign	23,539	17,480
Total current income tax	58,721	76,511
Deferred income tax/(benefit):		
Federal	22,993	21,919
State and local	(35,641)	21,074
Foreign	1,051	8,226
Total deferred income tax/(benefit)	(11,597)	51,219
Provision for income taxes	$ 47,124	$ 127,730

The Company recognized a provisional income tax charge of $52,736,000 in 2017 as a result of the Tax Reform Act, which was included as a component of the Company's Provision for income taxes. The Company completed its analysis within the one-year measurement period from the enactment date and recorded a tax benefit of $11,216,000 for the year ended December 31, 2018.

The 2018 and 2017 effective tax rates differ from the 21% and 35% Federal statutory tax rate, respectively, mainly due to state and local taxes, change in unrecognized tax benefits, the enactment of the Tax Reform Act, and settlements of tax audits. Details for the reconciliation of the U.S. Federal statutory tax rate to the Company's effective tax rate on Income before taxes for the years ended December 31, 2018 and 2017 follow:

	2018	2017
U.S. statutory tax rate	21.0%	35.0%
State and local income taxes, net of Federal income tax benefit	4.9	2.4
Income from foreign operations	(0.6)	(6.9)
Change in unrecognized tax benefits	(9.4)	1.9
Non-controlling interest	—	(1.5)
Disposition of Clarient and Avox	—	(6.2)
Enactment of the Tax Reform Act	(3.2)	17.3
Settlements of tax audits	2.3	0.1
Other	(1.4)	(0.3)
Effective tax rate	13.6%	41.8%

17. INCOME TAXES (CONTINUED)

Details for the components of deferred tax assets and liabilities as of December 31, 2018 and 2017 follow (in thousands):

	2018	2017
Deferred tax assets:		
Accrued compensation and benefits	$ 117,299	$ 138,768
Deferred rent	9,011	10,488
Other	29,443	44,300
Total deferred tax assets	155,753	193,556
Deferred tax liabilities:		
Capitalized software	(44,826)	(46,699)
Investment tax basis difference	(39,685)	(38,875)
Depreciation	(27,260)	(21,740)
Total deferred tax liabilities	(111,771)	(107,314)
Net deferred tax assets	$ 43,982	$ 86,242

The deferred tax assets are expected to be fully realized and, accordingly, no valuation allowance was established.

For certain of its non-U.S. subsidiaries, the Company has not provided additional U.S. income taxes and foreign withholding taxes on the undistributed earnings of certain foreign subsidiaries as of December 31, 2018. As a result of the Tax Reform Act's one-time mandatory transition tax on the accumulated earnings of foreign subsidiaries, the Company expects the unrecognized deferred tax liability attributable to indefinitely reinvested earnings to be immaterial.

Details for unrecognized tax benefits, included in Non-current liabilities, for the years ended December 31, 2018 and 2017 follow (in thousands):

	2018	2017
Beginning balance	$ 53,008	$ 45,410
Increases based on prior period tax positions	2,586	17,592
Decreases based on prior period tax positions	(22,192)	(2,201)
Increases based on current period tax positions	1,444	400
Decreases related to lapses in statute	(734)	(8,076)
Decreases related to settlements with taxing authorities	(5,420)	(117)
Unrecognized tax benefit	28,692	53,008
Accrued interest	11,461	28,593
Ending balance	$ 40,153	$ 81,601

The Company classifies interest and penalties related to unrecognized tax benefits, if incurred, in Provision for income taxes in its accompanying Consolidated Statements of Income. The Company recognized a decrease in accrued interest and penalties of $17,132,000 for the year ended December 31, 2018 primarily related to the settlement of state tax audits.

17. INCOME TAXES (CONTINUED)

Details for the periods currently under examination and remaining subject to examination by jurisdiction as of December 31, 2018 follow:

	Tax Years	
Jurisdiction	**Under Examination**	**Subject to Examination**
U.S. Federal - Internal Revenue Service	-	2015 - 2017
New York State	-	2015 - 2017
New York City	2010 - 2014	2015 - 2017
State of Illinois	2012 - 2013	2014 - 2017
State of Florida	2013 - 2016	2017

Unrecognized tax benefits are estimated based on judgment, assessment of relevant risks, facts and circumstances. Actual results could differ materially from those estimates. The Company believes that the liability for unrecognized tax benefits is the best estimate in relation to the potential for additional assessments. Unexpected results from one or more such tax audits could significantly adversely affect the Company's income tax provision and results of operations.

18. SHAREHOLDERS' EQUITY

DTCC Series A Preferred stock. All 10,000 shares of DTCC Series A Preferred stock are issued and outstanding and held of record by Stock Clearing Corporation, a wholly owned subsidiary of the New York Stock Exchange LLC, the successor-in-interest to the New York Stock Exchange Inc. In the event of DTCC's voluntary or involuntary liquidation, dissolution or winding-up, the holders of Series A Non-Cumulative Perpetual Preferred stock are entitled to a liquidation preference of $30.00 per share.

DTCC Series B Preferred stock. All 10,000 shares of DTCC Series B Preferred stock are issued and outstanding and held of record by National Clearing Corporation, a wholly owned subsidiary of the Financial Industry Regulatory Authority Inc. ("FINRA"). In the event of DTCC's voluntary or involuntary liquidation, dissolution or winding-up, the holders of Series B Preferred stock are entitled to a liquidation preference of $30.00 per share.

DTCC Series C Fixed-to-Floating Rate Non-Cumulative Perpetual Preferred stock. DTCC issued 1,600 shares of Fixed-to-Floating Rate Non-Cumulative Perpetual Preferred stock, Series C, $0.50 par value per share, with a liquidation preference of $250,000 per share. When declared by DTCC's Board of Directors, dividends on the Series C Preferred stock are payable in arrears on June 15 and December 15 of each year through June 15, 2020 at a fixed rate of 4.875% per annum. From June 15, 2020 onward, dividends will accrue at a floating rate equal to three-month LIBOR plus 3.167% per annum. DTCC may redeem the Series C Preferred Stock at its option, for cash, i) in whole or in part, from time to time, on any dividend payment date on or after June 15, 2020 at a redemption price equal to $250,000 per share, plus any declared and unpaid dividends to, but excluding the redemption date, or ii) in whole but not in part, at any time within 90 days following a Regulatory Capital Treatment Event, as defined in the Series C Preferred Stock Offering Memorandum, at a redemption price equal to $250,000 per share, plus any declared and unpaid dividends to, but excluding, the redemption date.

On April 17, 2018 and October 17, 2018, in accordance with the Amended Certificate of Incorporation of DTCC, the Board of Directors approved and declared dividends in the amount of $6,093.75 per share on 1,600 shares outstanding of its Series C Preferred Stock. The semi-annual aggregate dividend of $9,750,000 was paid on June 15, 2018 and December 15, 2018, to the holders of the Series C Preferred Stock as of record date May 31, 2018 and November 30, 2018, respectively.

DTC Series A Non-Cumulative Perpetual Preferred stock. Under a plan adopted by the Board of Directors, each Participant of DTC is required to own shares of DTC Series A preferred stock. There was $150,000,000 of DTC Series A preferred stock (1,500,000 shares at par value of $100 per share) outstanding as of December 31, 2018 and 2017. Annual dividends are accrued based on the weighted-average rate of interest paid by the Company on required Participants' Fund deposits during the dividend period as disclosed in the DTC's rules. The 2018 annual dividend amount of $2,340,000 was approved and declared by the Board of Directors in February 2019, and will be paid in April 2019, to the holders of DTC Series A Preferred stock during 2018.

19. CAPITAL REQUIREMENTS

The capital requirement for each of the clearing agencies is equal to the sum of the general business risk capital requirement and corporate contribution, as described below. The clearing agencies must meet the capital requirements by holding liquid net assets funded by equity, as described in rule 17Ad-22(e)(15) of the CCAS and the Clearing Agency Policy on Capital Requirements.

General Business Risk Capital Requirement. The general business risk capital requirement is determined according to Rule 17Ad-22(e)(15) of the CCAS and the Clearing Agency Policy on Capital Requirements. The capital requirement is held to cover potential general business losses so that the clearing agencies can continue operations and provide services as a going concern if those losses materialize. It is determined based on the general business risk profile and estimated time to execute a recovery or orderly wind-down of critical operations for each of the clearing agencies and, at a minimum, is equal to six months of operating expenses.

Corporate Contribution. The clearing agencies maintain an amount referred to as the corporate contribution, to be applied to losses as provided in each of the respective clearing agencies rules. The amount of the corporate contribution is generally equal to 50% of each clearing agency's general business risk capital requirement.

Details of the general business risk capital requirement, corporate contribution and liquid net assets funded by equity for the clearing agencies as of December 31, 2018 and 2017 follow (in thousands):

	2018		
	DTC	NSCC	FICC
General business risk capital requirement	$ 169,119	$ 153,054	$ 107,845
Corporate contribution	84,559	76,527	53,922
Total requirement	253,678	229,581	161,767
Liquid net assets funded by equity	529,478	445,732	265,724
Excess	$ 275,800	$ 216,151	$ 103,957

	2017		
	DTC	NSCC	FICC [(a)]
General business risk capital requirement	$ 159,181	$ 142,035	$ 93,203
Corporate contribution	79,590	71,017	46,602
Total requirement	238,771	213,052	139,805
Liquid net assets funded by equity	444,265	397,540	236,922
Excess	$ 205,494	$ 184,488	$ 97,117

(a) Restated due to the retrospective adoption of ASU 2017-07 *Compensation: Retirement Benefits*, which resulted in a reclassification of certain components of net periodic pension cost allocated from Total operating income to Total non-operating income (expense). See Note 3 for additional information.

Regulatory capital. DTCC's regulated subsidiaries maintain and report regulatory capital in accordance with all relevant laws, rules and guidelines. As a multinational enterprise, various DTCC subsidiaries are subject to regulatory capital regimes, as applicable. Certain DTCC subsidiaries submit regulatory capital reports to various regulators, including, but not limited to, FRBNY, the NYSDFS and the Commodity Futures Trading Commission in the United States; Ontario Securities Commission in Canada; and the Monetary Authority of Singapore in Singapore.

Capital adequacy. Certain DTCC subsidiaries are subject to capital guidelines issued by United States federal and state banking regulators. During the year DTCC engaged in banking activities under DTC.

19. CAPITAL REQUIREMENTS (CONTINUED)

DTC capital ratios filed with the FRBNY and the NYSDFS, and included in DTC's Financial Statements submitted to the SEC as of December 31, 2018 follow:

	DTC	Minimum Capital Ratio[a]	Well Capitalized Ratio[a]
Tier 1 capital ratio [1]	97.57%	6.00%	8.00%
Total capital ratio [1]	97.57%	8.00%	10.00%
Tier 1 leverage ratio [2]	19.69%	4.00%	4.00%

(a) As defined by the regulations issued by the Federal Reserve, Office of the Comptroller of the Currency and the Federal Deposit Insurance Corporation.

(1) Tier 1 capital ratio primarily includes preferred stock, common stock and retained earnings. DTC’s tier 1 capital and total capital ratios are based on tier 1 capital and total risk-weighted assets.
(2) Tier 1 leverage ratio is based on tier 1 capital and quarterly average total assets.

20. TRANSACTIONS WITH RELATED PARTIES

DTCC has agreements with DEGCL to provide various support services and office facilities. Expense reimbursements under these agreements follow (in thousands):

	Other Services[1]		Other Receivables[2]	
Related parties	2018	2017	2018	2017
DEGCL	$ 14,313	$ 21,792	$ 982	$ 3,065

(1) Included in Other services revenue in the accompanying Consolidated Statements of Income.

(2) Included in Accounts receivable on the accompanying Consolidated Statements of Financial Condition.

21. COMMITMENTS AND CONTINGENCIES

Litigation. The Company is involved in legal proceedings and litigation arising in the ordinary course of business. In the opinion of management, the outcome of such proceedings and litigation is not expected to have a material effect on the accompanying Consolidated Statements of Financial Condition, Income or Cash Flows.

Lease commitments. The Company leases office space and equipment. Total rental expense under the leases were $29,764,000 and $25,870,000 for the years ended December 31, 2018 and 2017, respectively.These amounts are included in Occupancy and Information technology in the accompanying Consolidated Statements of Income.

The Company sublets office space in some of its leased offices. Rental income under these subleases was $1,843,000 and $659,000 for the years ended December 31, 2018 and 2017, respectively. These amounts are included in Other non-operating income in the accompanying Consolidated Statements of Income.

Details for estimated future minimum rental payments under all noncancelable leases follow (in thousands):

2019	$	33,981
2020		33,804
2021		33,879
2022		29,779
2023		29,716
Thereafter		232,344
Total minimum rental payments (1)	$	393,503

(1) Future minimum rental payments were not reduced by minimum sublease rentals of $52,639,000 due in the future under noncancelable subleases.

22. GUARANTEES

Certain DTCC subsidiaries (NSCC and FICC) provide CCP services, including clearing, settlement and risk management services. Acting as a CCP, NSCC and FICC (through GSD and MBSD) guarantee the settlement of trades in the event one or more of their Participants' defaults. A Participant default is defined in the respective rules of NSCC, GSD and MBSD. In their guarantor role, each clearing subsidiary has equal claims to and from Participants, as applicable, on opposite sides of the netted transactions. To cover their guarantee risk, NSCC and FICC (through GSD and MBSD) use risk-based margining to collect cash and securities collateral through their Clearing Funds.

NSCC is the leading provider of clearance, netting, risk management and settlement for virtually all U.S. broker-to-broker trades involving equities, corporate and municipal debt, exchange traded funds and unit investment trusts. Through its Continuous Net Settlement (CNS) system, NSCC is interposed between Participants in securities clearance and settlement. CNS transactions are generally guaranteed at the point of trade comparison and validation for bilateral submissions or the point of trade validation for locked-in submissions. Since NSCC stands between the Participants delivering and receiving CNS trades, the failure of Participants to deliver securities to NSCC on settlement date, and the corresponding failure of NSCC to redeliver the securities, results in open positions. Open CNS positions are marked-to-market daily. Such marks are debited from or credited to the involved Participants through the settlement process.

FICC, through GSD, provides real-time trade matching, clearing, netting, risk management and settlement for trades in U.S. government debt including buy-sell transactions and repurchase agreement transactions. Securities processed by GSD include Treasury bills, bonds, notes, zero-coupon securities, government agency securities and inflation-indexed securities. The U.S. Government securities market is predominantly an over-the-counter market and most transactions are settled on trade date plus one day (T+1). Trades are guaranteed and novated upon comparison. The guarantee of GSD net settlement positions may result in a potential liability to FICC. Guaranteed positions that have not yet settled are margined and collateralized twice-daily through the Clearing Fund and marked-to-market twice-daily through the funds-only settlement process. In addition, a Participant may be subject to an additional amount referred to as the intra-day supplemental required fund deposit, which, if applicable, may be collected on an intra-day basis through the Clearing Fund.

MBSD provides real-time trade matching, clearing, netting , risk management and settlement for trades in the U.S. mortgage-backed securities market. Specifically, MBSD processes to-be-announced transactions, specified pool trades and stipulated trades. FICC's guarantee of MBSD transactions may result in potential liability to FICC. Guaranteed positions that have not yet settled are margined and collateralized daily through the Clearing Fund. The daily Clearing Fund includes a mark-to-market component that is calculated using guaranteed positions and prices as of prior end-of-day. In addition, a Participant may become subject to an intra-day mark-to-market charge which, if applicable, may be collected on an intra-day basis through the Clearing Fund.

If a Participant defaults in either NSCC or FICC, such Participant's deposits to the applicable Clearing Fund are the first source of funds and collateral that the NSCC and FICC would use to cover any losses that may result from the close-out and liquidation of the defaulting Participant’s positions. To address potential tail losses, NSCC and FICC each separately maintain additional prefunded resources. These consist of (i) the CCP’s Clearing Fund that, in the aggregate, currently serves as the CCP’s default fund, and (ii) the CCP's corporate contribution, (see Note 19).

22. GUARANTEES (CONTINUED)

If, after closing out and liquidating a defaulting Participant's positions, the CCP were to suffer a loss, such loss would be satisfied as follows: (i) first, applying the defaulter's Clearing Fund deposit, including any amounts available under cross-guaranty agreements to which the CCPs are a party, described below; (ii) next, the CCPs may apply their corporate contribution (or such higher amount as approved by their Board of Directors), and (iii) by allocating any remaining loss to Participants.

Amounts that may be available under cross-guaranty agreements include, for NSCC, amounts available under the netting contract and limited cross-guaranty between DTC and NSCC relating to collateralization across the DTC-NSCC interface, or for FICC, amounts available under the cross-margining agreements between GSD and the Chicago Mercantile Exchange Inc., which may provide for additional funds if the defaulting member was a cross-margining Participant.

DTC, NSCC, FICC and The Options Clearing Corporation (OCC) have also entered into a multilateral netting contract and limited cross-guaranty agreement. In accordance with these agreements, these clearing agencies have agreed to make payments to each other for any remaining unsatisfied obligations of a common defaulting Participant to the extent that these clearing agencies have excess resources belonging to the defaulting Participant. Under this agreement, no party ever needs to pay out of pocket and no party can receive more than its loss.

Details for open CCP positions for which a trade guarantee applied as of December 31, 2018 and 2017 follow (in billions):

	2018	2017
FICC		
GSD	$ 1,160	$ 1,039
MBSD	333	312
NSCC	176	135

There were no defaults by Participants to these obligations.

23. OFF BALANCE SHEET AND CONCENTRATION OF CREDIT RISKS

DTCC is exposed to significant credit risk to third-parties including its Participants, which extends to companies in the global financial services industry. Customers are based in the United States of America and overseas and include participating brokers, dealers, institutional investors, banks, trust issuers, mutual fund companies, insurance carriers, hedge funds and other financial intermediaries - either directly or through correspondent relationships. Credit risk represents the potential for loss due to the default or deterioration in credit quality of a Participant. The Company's exposure to credit risk is primarily derived from clearing and settlement service operations. Credit risk also comes from financial assets, which consist principally of cash and cash equivalents, investments, accounts receivable and Participants' and Clearing Funds.

Given that NSCC and FICC are CCPs, they are exposed to significant credit risk of third parties, including their customer base, which extends to companies within the global financial services industry.

Concentrations of credit risk may arise due to large connected individual exposures and significant exposures to groups of Participants whose likelihood of default is driven by common underlying factors, including economic conditions affecting financial markets, the securities industry and debt-issuing countries.

Cash and cash equivalents. The Company maintains cash and cash equivalents with various financial institutions including the FRBNY. These financial institutions are located in various geographical regions, and the Company's policy is designed to limit exposure with any one financial institution. As part of its credit and risk management processes, the Company performs periodic evaluations of the relative credit standing of the financial institutions with whom it places funds. The Company generally makes deposits with financial institutions with a credit rating of at least BBB+/Baa1 or better from recognized rating agencies and that are approved via its internal credit review process. The Company also monitors the condition of the financial institutions with whom it places funds on an ongoing basis to identify any significant change in a financial institution's condition. If such a change takes place, the amounts deposited with such financial institutions may be adjusted.

23. OFF BALANCE SHEET AND CONCENTRATION OF CREDIT RISKS (CONTINUED)

Marketable securities. In addition to investing in reverse repurchase agreements, money market funds and bank deposits, the Company also directly invests in U.S. Treasury securities and debt obligations of the U.S. government or those U.S. government agencies guaranteed by the U.S. government. Credit risk related to marketable securities involves the risk of nonperformance by the counterparty, which could result in a material loss.

Accounts receivable. Credit risk related to accounts receivable involves the risk of non-payment by the counterparty. Credit risk is diversified due to the large number of Participants comprising the Company's customer base. The Company also performs ongoing credit evaluations of the financial conditions of its customers and evaluates the delinquency status of the receivables.

Participants' Fund and Clearing Funds. In addition to risk management policies described above for cash and cash equivalents, when Participants provide cash deposits to the Participants' and Clearing Funds, the Company may invest the cash in bank deposits at the FRBNY or reverse repurchase agreements (reverse repos). Reverse repos are collateralized and the collateral must have a market value greater than or equal to 102% of the cash invested. The Company bears credit risk related to reverse repos only to the extent cash advanced to the counterparty exceeds the value of collateral received. Securities purchased under reverse repos are generally U.S. Treasury and Agency securities having minimal credit risk due to low probability of U.S. government default, coupled with the highly liquid nature of these securities. Reverse repos are typically placed with financial institutions with a credit rating of BBB+/Baa1 or better from recognized rating agencies and that are approved via the Company's credit review process. To avoid concentration of credit risk exposures, the Company sets credit limits for each counterparty.

Participants' and Clearing Funds cash deposits may also be invested in money market mutual funds under Rule 2a-7 of the Investment Company Act of 1940 with a credit rating of AAA/Aaa from recognized rating agencies. Credit risk is mitigated by investing in highly rated money market mutual funds and having cash returned daily.

Credit risk arises at DTCC should a Participant fail to fulfill its settlement obligation. The Company manages and mitigates this risk by identifying, measuring and responding to these risks in order to protect the safety and soundness of the DTCC clearing and settlement system. Various tools are utilized to mitigate these risks including, but not limited to: setting capital adequacy standards; assessing new applicants; performing continuous monitoring of Participants financial condition; reviewing Participants daily trading activity and determining appropriate collateral requirements; maintaining the Participants' Fund and Clearing Fund; netting trades continuously; marking unsettled trades to market; and utilizing a variety of advanced quantitative analytical methodologies, such as back and stress testing.

To become a participating member at any of DTCC's clearing agency or registered clearing house subsidiaries, an applicant must meet minimum eligibility criteria that are specified in the subsidiaries' respective rules. All applicants must provide the Company with certain financial and operational information. This information is reviewed to ensure the applicant has sufficient financial resources to make anticipated contributions to the relevant subsidiary's Participants' Fund or Clearing Fund and to meet its obligations to the subsidiary. The credit quality of the Participant is evaluated at the time of application and monitored on an ongoing basis to determine if the Participant continues to be financially stable and able to meet the financial requirements of membership. As part of its review, the Company utilizes an internal credit risk rating matrix to risk-rate its Participants. The resulting rating determines the level of financial review to be performed on each Participant and may impact their Participants' Fund and Clearing Fund requirements.

Collateralization controls and net debit caps are employed by DTC to protect Participants against the risk that one or more Participants may fail to pay for their settlement obligations. DTC's collateralization controls prevent the completion of transactions that would cause a Participant's net debit balance to exceed the value of collateral in its account. The controls are designed to provide DTC with sufficient collateral to obtain funding for settlement in the event a Participant fails to pay its settlement obligation. DTC's net debit cap controls limit the net settlement debit that each Participant can incur to an amount, based upon activity level, which would be covered by DTC's liquidity resources. The net debit cap requires DTC to maintain sufficient liquidity to complete settlement should any single Participant or Participant family fail to settle.

23. OFF BALANCE SHEET AND CONCENTRATION OF CREDIT RISKS (CONTINUED)

NSCC and FICC collect Clearing Fund deposits from their Participants using a risk-based margining methodology. The risk-based methodology enables them to identify the risks posed by a Participant's unsettled portfolio and to quickly adjust and collect additional deposits as needed to cover those risks. At multiple times during the day, Clearing Fund requirements are calculated for each Participant based on their then-current unsettled and pending transactions. Security pricing is updated on an intraday basis and additional charges may be collected to cover significant price movements from those Participants with a significant exposure in the identified security. The Company monitors Participants overall trading activities throughout the trading day to determine whether exposures exist that would require special actions to increase their Clearing Fund deposits.

The Company regularly performs back and stress testing of the quality and accuracy of its risk management systems to ensure the adequacy of Clearing Fund requirements and to respond to other risk factors the tests may reveal.

DTC and NSCC maintain committed, secured lines of credit to support potential liquidity needs in the event of a Participant default.

The Company also limits its exposure to potential losses from default by Participants through multilateral netting contracts and limited cross-guaranty agreements with other clearing agencies. These arrangements are designed to provide a mechanism for the sharing of excess net resources of a common defaulting Participant held at one clearing agency to cover losses incurred at another clearing agency. NSCC, FICC and DTC have a multilateral netting contract and limited cross-guaranty agreement with each other and with OCC under which these clearing agencies have agreed to make payment to each other for any remaining unsatisfied obligations of a common defaulting Participant to the extent they have excess resources of the defaulting Participant. NSCC and OCC also have an agreement providing for payments to each other relating to the settlement of certain option exercises and assignments in the event of a mutual Participant's failure. Further, DTC and NSCC have a netting contract and limited cross-guaranty agreement, which includes certain arrangements. Securities delivered by DTC to NSCC to cover CNS system allocations are fully collateralized.

If a DTC Participant defaults, such Participant's deposits to the Participants Fund would be liquidated to satisfy an outstanding obligation and/or loss incurred by DTC. If those funds are insufficient to cover the defaulting Participant's outstanding obligations, DTC may use other Participant deposits in the Participants' Fund or apply a portion of its retained earnings to cover the loss.

24. PARENT COMPANY CONDENSED FINANCIAL STATEMENTS

Condensed financial statements for DTCC (the Parent Company Condensed Financial Statements) that follow should be read in conjunction with the accompanying Consolidated Financial Statements of the Company and its subsidiaries and the notes thereto. The Parent Company Condensed Financial Statements as of December 31, 2018 and 2017 require management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues and expenses. Management believes that the estimates utilized in the preparation of the condensed financial statements are reasonable. Actual results could differ materially from these estimates.

The DTCC Parent Company Condensed Statements of Financial Condition follow (in thousands):

	As of December 31,	
	2018	2017
ASSETS:		
Cash and cash equivalents	$ 519,894	$ 454,341
Investments in subsidiaries	1,730,200	1,434,850
Due from subsidiaries	190,060	381,160
Premises, equipment and intangible assets	174,353	197,037
Other assets	379,305	384,327
TOTAL ASSETS	$ 2,993,812	$ 2,851,715
LIABILITIES AND SHAREHOLDERS' EQUITY:		
LIABILITIES:		
Long-term debt and other borrowings	$ 36,375	$ 44,252
Pension and postretirement benefits	214,445	311,698
Other liabilities	560,757	616,538
Total liabilities	811,577	972,488
SHAREHOLDERS' EQUITY:		
Preferred stock	391,116	391,116
Common stock	5,091	5,091
Paid-in capital	411,065	411,065
Retained earnings	1,571,298	1,261,309
Accumulated other comprehensive loss, net of tax	(196,335)	(189,354)
Total shareholders' equity	2,182,235	1,879,227
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY	$ 2,993,812	$ 2,851,715

24. PARENT COMPANY CONDENSED FINANCIAL STATEMENTS (CONTINUED)

DTCC Parent Company has an agreement with its subsidiaries whereby the DTCC Parent Company pays for substantially all of the expenses for the operations of its subsidiaries. The related expenses are allocated to subsidiaries based upon their estimated use of such goods or services as determined by applicable allocation factors. Further, the agreement provides that the DTCC Parent Company performs credit and quantitative risk services, and certain other services for its subsidiaries, including among other things, administrative, internal audit, finance and legal services. The billing for these services as a percentage of total allocated expenses ranged from 104% to 108% in 2018 and 2017, excluding pass-through charges and the impact of capitalized software. The fee, representing the amount over actual cost, is included in Interest and other income in the Condensed Statements of Income below.

The DTCC Parent Company Condensed Statements of Income follow (in thousands):

	For the years ended, December 31,	
	2018	**2017**
REVENUES:		
Equity in earnings of subsidiaries	$ 223,596	$ 177,588
Interest and other income	114,596	133,275
Total revenues	338,192	310,863
OPERATING EXPENSES:		
Professional services	19,874	20,941
Other	23,969	88,257
Impairment of Intangible assets	—	14,729
Total operating expenses	43,843	123,927
Income before taxes	294,349	186,936
Provision (benefit) for income taxes	(1,464)	22,044
Net income attributable to DTCC	$ 295,813	$ 164,892

24. PARENT COMPANY CONDENSED FINANCIAL STATEMENTS (CONTINUED)

The DTCC Parent Company Condensed Statements of Cash Flows follow (in thousands):

	For the years ended, December 31, 2018	2017
CASH FLOWS FROM OPERATING ACTIVITIES:		
Net income	$ 295,813	$ 164,892
Adjustments to reconcile net income to net cash provided by operating activities:		
Equity in earnings of subsidiaries	(223,596)	(177,588)
Depreciation and amortization	55,302	59,931
Impairment of Intangible assets	—	14,729
Deferred income taxes	20,856	(14,665)
Business dispositions	—	10,509
Net change in:		
Due from subsidiaries	191,100	(177,551)
Other operating assets and liabilities	(140,684)	113,507
Net cash provided by / (used in) operating activities	198,791	(6,236)
CASH FLOWS FROM INVESTING ACTIVITIES:		
Investments in subsidiaries	(165,000)	—
Distributions from subsidiaries	93,246	105,063
Purchases of Intangible assets and Premises and equipment	(34,174)	(54,339)
Net cash (used in) / provided by investing activities	(105,928)	50,724
CASH FLOWS FROM FINANCING ACTIVITIES:		
Preferred stock dividend payments	(19,500)	(19,500)
Repayments on debt and capital lease obligations	(7,877)	(20,468)
Net cash (used in) provided by financing activities	(27,377)	(39,968)
Effect of foreign exchange rate changes on Cash and cash equivalents	67	820
Net increase in Cash and cash equivalents	65,553	5,340
Cash and cash equivalents - Beginning of year	454,341	449,001
Cash and cash equivalents - End of year	$ 519,894	$ 454,341
SUPPLEMENTAL DISCLOSURES:		
Cash income taxes paid (refunds) - net	$ 20,588	$ (17,306)
Cash interest paid	$ 1,133	$ 1,735
Non-cash financing activity - capitalized lease	$ 3,640	$ —

25. SUBSEQUENT EVENTS

The Company evaluated events and transactions occurring after December 31, 2018 through March 27, 2019, for potential recognition or disclosure in these accompanying Consolidated Financial Statements. Other than previously disclosed in Note 18, Shareholders' Equity, no events or transactions occurred during such period that would require recognition or disclosure in these accompanying Consolidated Financial Statements.