ACS Chemistry for Life™

2019
Management's Statement of Responsibility
and
Audited Financial Statements

Management's Statement of Responsibility
March 12, 2020

The management of the American Chemical Society (ACS or the Society) is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with accounting principles generally accepted in the United States and, as such, the statements include amounts based on estimates and judgments by management.

The consolidated financial statements have been audited by the independent accounting firm KPMG LLP, which was given unrestricted access to all financial records and related data, including minutes of all meetings of the Board of Directors and its committees. Their report, which follows, expresses their opinion as to whether the consolidated financial statements, considered in their entirety, fairly present the Society's financial position, operating results, and cash flows in conformity with accounting principles generally accepted in the United States. Management believes that all representations made to the independent auditors during their audit were true and accurate.

The Society maintains a system of internal controls which is designed to provide reasonable assurance that assets are safeguarded, transactions are executed in accordance with management's authorization, and accounting records are reliable for preparing financial statements. The Society's internal controls are maintained through the establishment and communication of accounting and financial policies and procedures and by the selection and training of qualified personnel. There are, however, inherent limitations in the effectiveness of any system of internal controls, including the possibility of human error and the circumvention of controls. Accordingly, even an effective internal control system can provide only reasonable assurance with respect to financial statement preparation. Furthermore, the effectiveness of an internal control system can change with circumstances. Management believes that as of December 31, 2019 and 2018, the Society's system of internal controls was adequate to accomplish the objectives discussed herein.

The ACS Board of Directors fulfills its oversight responsibility for the consolidated financial statements through its Audit Committee, which is composed of Committee members who are independent of Society management. The Audit Committee has a charter in place that outlines its responsibilities, which include engaging the independent auditors and internal auditors, reviewing accounting, auditing, internal control, and financial reporting matters, and meeting with management and the independent auditors to ensure that each is carrying out their responsibilities. Recommendations made by the independent auditors are considered and appropriate action is taken with respect to these recommendations. The independent auditors and internal auditors have free and full access to the Audit Committee.

Thomas M. Connelly, Jr. Executive Director & CEO	Albert G. Horvath Treasurer & CFO

KPMG

AMERICAN CHEMICAL SOCIETY

Consolidated Financial Statements

December 31, 2019 and 2018

(With Independent Auditors' Report Thereon)

KPMG LLP
Suite 12000
1801 K Street, NW
Washington, DC 20006

Independent Auditors' Report

The Board of Directors
American Chemical Society:

Report on the Financial Statements

We have audited the accompanying consolidated financial statements of American Chemical Society and its subsidiary (the Society), which comprise the consolidated statements of financial position as of December 31, 2019 and 2018, and the related consolidated statements of activities and cash flows for the years then ended, and the related notes to the consolidated financial statements.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these consolidated financial statements in accordance with U.S. generally accepted accounting principles; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of consolidated financial statements that are 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 auditors' 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 entity's preparation and fair presentation of the consolidated financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity'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 American Chemical Society and its subsidiary as of December 31, 2019 and 2018, and the changes in their net assets and their cash flows for the years then ended, in accordance with U.S. generally accepted accounting principles.

Emphasis of Matters

As discussed in Note 2 to the consolidated financial statements, the Society adopted Accounting Standards Update (ASU) 2014-09, *Revenue from Contracts with Customers (Topic 606)*, as amended, and ASU 2018-08, *Not-for-Profit Entities – Clarifying the Scope and Accounting Guidance for Contributions Received and Contributions Made (Topic 958)*, effective January 1, 2019. Our opinion is not modified with respect to these matters.

Other Matters – Consolidating Information

Our audits were conducted for the purpose of forming an opinion on the consolidated financial statements as a whole. The consolidating information is presented for purposes of additional analysis and is not a required part of the consolidated financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the consolidated financial statements. The information has been subjected to the auditing procedures applied in the audit of the consolidated financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the consolidated financial statements or to the consolidated financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the consolidating information is fairly stated, in all material respects, in relation to the consolidated financial statements as a whole.

KPMG LLP

Washington, District of Columbia
March 12, 2020

AMERICAN CHEMICAL SOCIETY
Consolidated Statements of Financial Position
As of December 31
(in thousands)

	2019			2018
	Consolidating Information			
	ACS Programs	PRF Program	Total	Total
ASSETS				
Cash and Cash Equivalents	$ 87,309	$ 17,781	$ 105,090	$ 106,730
Accounts Receivable, Net	49,447	-	49,447	119,868
Interfund (Payable) Receivable	(12,693)	12,693	-	-
Investments	622,431	587,065	1,209,496	1,016,940
Buildings, Land, and Other Property, Net	132,073	47	132,120	125,525
Postretirement Benefits and Other	29,949	28	29,977	28,877
Total Assets	$ 908,516	$ 617,614	$ 1,526,130	$ 1,397,940
LIABILITIES AND NET ASSETS				
Accounts Payable	$ 26,351	$ 2	$ 26,353	$ 28,700
Accrued Expenses	42,640	-	42,640	37,670
Deferred Revenues	145,617	-	145,617	208,008
Grants Payable	100	17,518	17,618	17,670
Postretirement Benefits and Other	117,532	-	117,532	137,017
Total Liabilities	332,240	17,520	349,760	429,065
Net Assets Without Donor Restrictions	446,232	-	446,232	326,893
Net Assets With Donor Restrictions	130,044	600,094	730,138	641,982
Total Net Assets	576,276	600,094	1,176,370	968,875
Total Liabilities and Net Assets	$ 908,516	$ 617,614	$ 1,526,130	$ 1,397,940

See accompanying notes to consolidated financial statements.

AMERICAN CHEMICAL SOCIETY
Consolidated Statements of Activities
For the Years Ended December 31
(in thousands)

	2019			2018
	Consolidating Information			
	ACS Programs	PRF Program	Total	Total
Change in Net Assets Without Donor Restrictions from Operations				
Operating Revenues				
Electronic and Other Information Services	$ 545,730	$ -	$ 545,730	$ 522,049
Registration Fees and Booth Sales	12,112	-	12,112	13,040
Dues	10,889	-	10,889	11,288
Investment Income (loss)	11,836	(980)	10,856	10,476
Member Insurance Premiums, Refunds, and Fees	10,897	-	10,897	9,784
Net Assets Released from Restriction	5,771	22,409	28,180	28,576
Other	10,425	-	10,425	9,833
Total Operating Revenues	607,660	21,429	629,089	605,046
Operating Expenses				
Program Activities				
Information Services	395,024	-	395,024	375,201
Membership and Society Services	36,552	-	36,552	30,934
Education	17,255	-	17,255	16,457
Member Insurance Program	13,349	-	13,349	13,520
External Affairs and Communication	7,739	-	7,739	7,439
Scientific Advancement	3,774	20,175	23,949	24,978
Supporting Activities				
Finance, Administration and Human Resources	52,684	1,254	53,938	49,408
Information Technology	23,160	-	23,160	23,118
Marketing and Promotion	22,629	-	22,629	21,902
Total Operating Expenses	572,166	21,429	593,595	562,957
Change in Net Assets Without Donor Restrictions from Operations	35,494	-	35,494	42,089
Non-Operating Activities				
Net Investment Gains (Losses)	71,819	-	71,819	(27,943)
Change in Postretirement Benefits Obligations	12,025	-	12,025	(12,542)
Change in Net Assets - Non-Operating Activities	83,844	-	83,844	(40,485)
Change in Net Assets Without Donor Restrictions	119,338	-	119,338	1,604
Change in Net Assets With Donor Restrictions				
Contributions	3,599	-	3,599	3,765
Net Investment Gains (Losses)	17,643	76,479	94,122	(46,576)
Investment Income	2,796	15,820	18,616	15,412
Net Assets Released From Restriction	(5,771)	(22,409)	(28,180)	(28,576)
Change in Net Assets With Donor Restrictions	18,267	69,890	88,157	(55,975)
Change in Net Assets	137,605	69,890	207,495	(54,371)
Beginning Net Assets	438,671	530,204	968,875	1,023,246
Ending Net Assets	$ 576,276	$ 600,094	$ 1,176,370	$ 968,875

See accompanying notes to consolidated financial statements.

AMERICAN CHEMICAL SOCIETY
Consolidated Statements of Cash Flows
For the Years Ended December 31
(in thousands)

	2019			2018
	Consolidating Information			
	ACS Programs	PRF Program	Total	Total
Cash Flows From Operating Activities				
Change in Net Assets	$ 137,605	$ 69,890	$ 207,495	$ (54,371)
Adjustments to Reconcile Change in Net Assets to Net Cash Provided By (Used In) Operating Activities:				
Net Investment (Gains) Losses	(89,462)	(76,479)	(165,941)	74,519
Change in Postretirement Benefits Obligations	(12,025)	-	(12,025)	12,542
Depreciation and Amortization	33,330	10	33,340	32,873
Contributions Restricted for Long-Term Investment	(1,228)	-	(1,228)	(858)
Net Loss on Property Dispositions	853	-	853	282
Changes in Operating Assets and Liabilities:				
Decreases (Increases) in Assets:				
Accounts Receivable, Net	70,768	1	70,769	(1,524)
Interfund (Payable) Receivable	(3,143)	3,143	-	-
Other Assets	1,141	(16)	1,125	(3,548)
(Decreases) Increases in Liabilities:				
Accounts Payable	(2,342)	(5)	(2,347)	(8,407)
Accrued Expenses	4,979	(9)	4,970	2,847
Deferred Revenues	(62,391)	-	(62,391)	7,773
Grants Payable	(160)	108	(52)	174
Other Liabilities	(9,947)	-	(9,947)	(19,814)
Net Cash Provided by (Used in) Operating Activities	67,978	(3,357)	64,621	42,488
Cash Flows From Investing Activities				
Purchases of Investments	(87,996)	(1,046,557)	(1,134,553)	(1,137,408)
Sales and Maturities of Investments	79,807	1,027,809	1,107,616	1,145,439
Acquisitions of Buildings, Land, and Other Property	(40,552)	-	(40,552)	(34,951)
Net Cash Used in Investing Activities	(48,741)	(18,748)	(67,489)	(26,920)
Cash Flows From Financing Activities				
Contributions Restricted for Long-Term Investment	1,228	-	1,228	858
Net Cash Provided by Financing Activities	1,228	-	1,228	858
Net Increase (Decrease) in Cash and Cash Equivalents	20,465	(22,105)	(1,640)	16,426
Beginning Cash and Cash Equivalents	66,844	39,886	106,730	90,304
Ending Cash and Cash Equivalents	$ 87,309	$ 17,781	$ 105,090	$ 106,730

See accompanying notes to consolidated financial statements.

1. ORGANIZATION AND PURPOSE

The American Chemical Society (ACS or the Society) was founded in 1876. It is a U.S. not-for-profit corporation whose national charter was approved by the U.S. Congress on August 25, 1937. The Society's consolidated financial statements include the operations of its wholly owned for-profit subsidiaries and an insurance trust. The Society was organized for the purposes of encouraging the advancement of chemistry, promoting research in chemical science, increasing and diffusing chemical knowledge, and promoting scientific interests and inquiry through its meetings, reports, papers, and publications. The Society has more than 152,000 members.

The Society is generally exempt from federal income tax under Section 501(c)(3) of the Internal Revenue Code and accomplishes its exempt purpose through a number of educational meetings that provide forums for sharing scientific information, employment services, and public outreach. In addition, the Society provides expert testimony at the federal, state, and local government levels on topics relevant to the chemistry enterprise. The Society also provides a significant service to its members and the chemistry enterprise in the form of print and electronic scientific journals and databases pertaining to chemical and related scientific information.

The principal sources of funding for the Society's activities include net revenues generated by the Publications Division (Publications) and the Chemical Abstracts Service Division (CAS), collectively, Electronic and Other Information Services Revenue. Publications publishes a wide range of peer-reviewed scientific journals, periodicals, and books which are available to members and subscribers. CAS analyzes, organizes, and shares scientific information that drives discovery, providing innovative solutions that empower scientists, patent information professionals, and business leaders worldwide. Other sources of the Society's revenue include member dues, insurance premiums, registration fees, investment income, and contributions from individuals and institutions to support Society programs. Products and services are sold domestically and in overseas markets, principally in Europe and Asia. The Society's diverse clientele is composed of its members and other chemistry-related practitioners, corporations, academic institutions, and government agencies.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Principles of Presentation and Consolidation

The accompanying consolidated financial statements include the accounts of American Chemical Society and ACS International, Ltd., a wholly owned international marketing services subsidiary. The consolidated financial statements also include the accounts of the American Chemical Society Petroleum Research Fund (PRF), an endowment fund established to advance scientific education and research in the petroleum field, and the American Chemical Society Insurance Trust, a grantor trust established to enable members of the Society to purchase insurance coverage through group insurance policies. All significant inter-entity transactions have been eliminated. The assets and liabilities in the consolidated statements of financial position are presented in order of liquidity with the exception of investments, which have certain components that are considered short-term and others that are considered long-term (see Note 10). The accounts of the Society's chapters, referred to as local sections and divisions, are not included in the Society's consolidated financial statements because the Society does not have either a financial or governing controlling interest in its chapters.

Net Asset Classes

Based on the existence or absence of donor-imposed restrictions, resources are classified into two categories: without donor restrictions and with donor restrictions.

- Net assets without donor restrictions are free of donor-imposed restrictions. All revenues, gains, and losses that are not restricted by the donor are included in this classification. All expenses are reported as decreases in net assets without donor restrictions.

- Net assets with donor restrictions are subject to donor-imposed restrictions that will be met either by actions of the Society or the passage of time. These net assets include donor restricted endowments and unconditional pledges. Generally, the donor-imposed restrictions of these assets permit the Society to use all or part of the income earned (interest and dividend income) on the related investments for specific purposes; however, investment gains and losses are reinvested into the corpus.

Operating Measure

Operating results (change in net assets without donor restrictions from operations) in the consolidated statements of activities reflect all transactions that change net assets without donor restrictions. Non-operating activities include net investment gains and losses, change in postretirement benefits obligations, and other non-operating gains and losses, if any.

Use of Estimates

The preparation of the consolidated financial statements, in conformity with U.S. generally accepted accounting principles, requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the consolidated financial statements, and the reported amounts of revenues and expenses during the reporting period. The Society's most significant estimates include actuarial assumptions for postretirement benefits obligations and useful lives of buildings and other property. Actual results could differ from these estimates.

Cash Equivalents

Cash equivalents include money market funds which can be liquidated on a daily basis. These money market funds invest primarily in short-term U.S. Treasury securities, other short-term highly liquid investments, and certain fixed income securities. Cash and cash equivalents that are managed as part of investments are reported within investments, as these funds are not used for daily operating needs.

Investments

Investments are reported at fair value in the consolidated statements of financial position. Certain commingled trust funds, hedge funds, and a private real estate fund are reported at net asset value (NAV) as a practical expedient for fair value unless it is probable that all or a portion of the investment will be sold for an amount different than NAV. Fair values of certain commingled funds, similar to mutual funds, that are deemed to have a readily determinable fair value are measured at published NAV. The net asset values are provided by external investment managers and involve assumptions and estimation methods; therefore, the estimates could differ materially from actual results. The Society reviews and evaluates the values provided by the investment managers and agrees with the valuation methods and assumptions used in determining the net asset values. Certain investments reported at NAV are subject to withdrawal restrictions and are less liquid than the Society's other investments. As of December 31, 2019 and 2018, the Society had no plans or intentions to sell investments at amounts different from NAV.

The Society invests in various instruments including domestic and foreign equities, fixed income securities, and financial derivatives. Investments, in general, carry various risks such as interest rate, credit, currency, liquidity, and overall market risk. Due to the level of risk associated with certain investments, it is reasonably possible that changes in the values of investments may occur in the near term, and such changes could materially affect the amounts reported in investments.

The Society has authorized its investment managers to utilize various derivative instruments, including financial futures, options, interest rate swaps, and credit default swaps to either hedge risk or alter the exposure to certain asset classes. The Society has established procedures to monitor and manage the use of these derivative instruments and the related market, interest, and counterparty credit risks. Derivative instruments are recognized at fair value using quoted market prices for similar instruments and are reported within investments in the consolidated statements of financial position.

The Society's investment managers, may purchase and sell securities on a delayed delivery ("TBA securities"), when issued, or forward commitment basis. Settlements may take place one month or more after the date of the transaction. The underlying securities are valued at current market value with daily fluctuations in the market value included in net investment gains and losses. The Society has established procedures to monitor and manage the use of TBA securities and the related market, interest, and counterparty credit risks. Sufficient cash or liquid securities are held to cover its commitments. Losses may arise due to changes in the market value of the underlying securities or if the counterparty does not perform under the contract, or if the issuer does not issue the securities due to political, economic or other factors.

Changes in fair value are recognized as net investment gains or losses in the consolidated statements of activities. Investment income, net of related investment expenses, consisting of interest and dividends, is recognized when earned. Purchases and sales of investments are recorded on the trade date. Unsettled transactions, including forward purchases and sales of TBA securities or derivatives, that are managed as part of investments are reported within investments as the funds related to the settlements of such transactions stay within the investment pools and are not used for operating purposes.

Foreign Currency Forward Contracts

The Society recognizes foreign currency contracts (not related to its investment portfolios) as either accounts receivable, accounts payable, or deferred revenue in the consolidated statements of financial position at their respective fair values. The fair values of foreign currency forward contracts are based on quoted market prices for similar contracts at December 31. Changes in fair value are recognized as net investment gains or losses in the consolidated statements of activities.

Fair Value Measurements

Fair value is 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 fair value measurement standard establishes a three-tier fair value hierarchy that prioritizes the inputs used in measuring fair value. The standard requires that assets and liabilities carried at fair value be classified and disclosed in one of the following three categories:

- Level 1 – Observable inputs such as quoted or published prices in active markets for identical assets or liabilities (e.g., U.S. Treasury issues, equities, and mutual funds traded on major exchanges)
- Level 2 – Inputs other than quoted or published prices in active markets for identical assets or liabilities that are observable either directly or indirectly, such as interest rates, yield curves, and quoted prices in active markets for similar assets or liabilities (e.g., U.S. government and agency issues, corporate bonds, money market funds, commingled funds with published prices, that may not trade actively, and foreign exchange forward contracts)
- Level 3 – Unobservable inputs in which there is little or no market data, requiring the reporting entity to develop its own assumptions

The Society utilizes the best information available in measuring fair value, and financial assets and liabilities are classified based on the lowest level of input that is significant to the fair value measurement.

See Note 4 for the disclosure of the fair value of applicable financial assets and liabilities measured on a recurring basis.

Buildings and Other Property

Buildings and other property are carried at cost less accumulated depreciation and amortization. Improvements that extend the estimated useful life of an asset are capitalized. Internally developed software is capitalized in accordance with the Financial Accounting Standards Board's (FASB) Accounting Standards Codification (ASC) Subtopic 350-40, *Internal-Use Software* and ASC Subtopic 350-50, *Website Development Costs*. Software that will be included in a product or service or developed for resale purposes is recorded in accordance with ASC Subtopic 985-20, *Costs of Software to Be Sold, Leased, or Marketed*.

Assets are amortized on a straight-line basis over the useful life of the asset. One-half year's depreciation or amortization is taken in the year an asset is placed in service. Useful lives range from 3 to 7 years for software; 3 to 45 years for buildings and improvements; and 3 to 10 years for hardware, furniture, and equipment. Repairs and maintenance costs are charged to expense as incurred.

Long-Lived Assets

Long-lived assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable.

Member Insurance Program

The Society maintains a separate Member Insurance Program, American Chemical Society Insurance Trust (the Insurance Trust), which provides members with insurance coverage through several group insurance policies. The Insurance Trust maintains group insurance policies that provide term life, accidental death and dismemberment, hospital indemnity, long-term disability, long-term care, excess major medical, short-term medical, supplemental Medicare, auto, homeowners, and professional liability insurance coverage. Insurance carriers underwrite these policies while third-party administrators handle the processing and administration of claims.

The Insurance Trust generates revenue from premiums received from program participants, refunds from the insurance carrier based on favorable claims experience, endorsement fees, interest and dividends earned on investments, and interest income earned on reserves held by the insurance carrier to ensure the stability of the program. The Insurance Trust's expenses include the cost of purchasing group insurance policies, as well as the cost of administering the program. The activities of the Insurance Trust are included within ACS Programs in the consolidated statements of activities.

Revenue Recognition and Deferred Revenue

The Society's significant revenue streams are as follows (refer also to Recently Adopted Accounting Pronouncements below):

<u>Electronic and Other Information Service Revenue</u> – Electronic and other information service revenue consists primarily of CAS data and information licenses as well as Publications subscriptions.

Revenue is measured based on the consideration specified in the contract with the customer. The Society recognizes revenue when it satisfies a performance obligation by transferring control of a product or service to a customer, which generally occurs over time. License and subscription terms are generally one year. Certain agreements with customers may include multi-year pricing however, based on the terms of such license agreements, the Society has defined the period of performance to be 12 months. The fees negotiated may be invoiced monthly, quarterly or annually.

Revenue from the sale or license of electronic services (data and information) is recognized ratably over the period of time commensurate with the license or subscription term. Payments received before the start of the term for electronic services are recognized as deferred revenues.

<u>Registration Fees and Booth Sales</u> – Revenue for registration fees and booth sales is recognized when the events occur. Payments received in advance of the events are included in deferred revenues.

<u>Dues</u> – Revenue for membership dues is recognized ratably over the membership term, which is generally one year ending December 31. The Society renews membership agreements annually. Payments received in advance of the membership period are included in deferred revenues.

<u>Member Insurance Premiums, Refunds, and Fees</u> – Revenue for member insurance premiums, refunds, and fees is recognized ratably over the insurance policy period, which is generally one year ending December 31. Payments received in advance of the policy period are included in deferred revenues.

<u>Government and Private Grants and Contracts</u> – Revenue from government and private grants and contracts is recognized as either exchange transactions (if the resource provider receives commensurate benefit) or conditional contributions. Such revenue is recognized over the period of performance as qualifying allowable costs are incurred. Government grants and contracts are subject to audit by federal agencies. Grant and contract revenue is included in other revenues in the accompanying consolidated statements of activities.

Accounts Receivable

Effective January 1, 2019, accounts receivable are recorded only when the Society's right to consideration is unconditional (i.e., the contract is not cancellable). Accounts receivable are recorded at the invoiced amount and do not bear interest. The Society maintains an allowance for doubtful accounts for estimated losses. In establishing the allowance, management considers historical losses and past-due balances. ACS records accounts receivable and related contract liabilities (deferred revenue) for non-cancellable contracts with customers when there is a right to consideration.

Prior to January 1, 2019, the Society recorded receivables from electronic services contracts related to the next calendar year subscriptions billed before December 31 based on written commitments from customers and historically high renewal rates. Effective January 1, 2019, in conjunction with the adoption of ASU 2014-09, ACS no longer recognizes such accounts receivables and deferred revenues. Deferred revenue as of December 31, 2019, is expected to be recognized in 2020.

Contributions

Contributions, including unconditional promises to give, are recognized when received. Expirations of donor restrictions on net assets (i.e., the donor stipulated purpose has been fulfilled and/or the stipulated time period has elapsed) are reported as net assets released from restrictions in the consolidated statements of activities. Contributions which impose restrictions that are met in the same year they are received are reported as increases in net assets without donor restrictions.

Income Taxes

The Society is generally exempt from federal income taxes under Internal Revenue Code Section 501(c)(3). However, the Society is subject to taxation on any net unrelated business income. At December 31, 2019, the Society had pre-2018 operating loss carryforward for income tax purposes of $17,731,521, which expires over the years 2019 through 2037 and post-2018 net operating loss of $6,125,219, which can be carried forward indefinitely. A deferred tax asset has not been recorded for the net operating loss because the Society has determined, as of December 31, 2019 and 2018, it is not recoverable.

Management annually reviews its tax positions and has determined that there are no material uncertain tax positions that require recognition in the consolidated financial statements.

Petroleum Research Fund and Grants Payable

The American Chemical Society Petroleum Research Fund is a donor-restricted endowment fund established on October 25, 2000 as a result of The Agreement of Transfer of Trust (the Agreement) between the Society and Morgan Guaranty Trust Company of New York, approved by the Attorney General for the State of New York, and ordered by the Supreme Court of New York. The Agreement dissolved the Petroleum Research Fund Trust (the Trust) and transferred the assets to the Society to create the American Chemical Society Petroleum Research Fund (the Fund), the purpose of which is the same as the Trust. The Agreement made the Society responsible for the management and administration of the Fund in an account separate and apart from any other accounts of the Society. As a result of the transfer, the historic dollar value for the Fund was established at $72,500,000, the value of the securities originally donated in 1944 to create the Trust. This amount must be held inviolate as donor-restricted net assets.

The assets of the Fund consist primarily of domestic equities, foreign equities, fixed income securities and hedge funds. Under the terms of the Agreement, annual payouts from the Fund are capped at a maximum spending rate of 4% of the net asset value of the Fund over a rolling three-year average. The Society uses distributions from the Fund to make grants for advanced scientific education and fundamental research in the petroleum field. Grants are expensed when awarded by the Society's Board of Directors and accepted by the recipient. Amounts for grants awarded and accepted but not paid at December 31 are recorded as grants payable. The Fund awarded $17,555,000 in 2019 and $17,276,000 in 2018.

Risks and Uncertainties

Concentration of Credit Risk – The Society is subject to potential concentrations of credit risk in its cash and cash equivalents and investments. Deposits at financial institutions were insured by the Federal Deposit Insurance Corporation (FDIC) up to a maximum of $250,000 at December 31, 2019 and 2018. Investments at other financial institutions were insured by the Securities Investor Protection Corporation (SIPC) up to $500,000, which includes a $250,000 limit for cash. At December 31, 2019 and 2018, the aggregate balances were in excess of the insurance and, therefore, pose some risk since they are not collateralized. The Society has historically not experienced any losses on its cash and cash equivalents and investments in relation to FDIC and SIPC insurance limits.

Capital Market Risk – The Society invests in domestic equities, foreign equities, and fixed income securities, which are subject to market risk and may result in gains or losses due to changes in market value. In addition, the Society utilizes futures and options to hedge changes in the market value of underlying investments, and forward contracts to hedge changes in the value of revenues denominated in foreign currencies. These financial instruments are also subject to market risk and may result in gains or losses; however, they are not used to leverage market exposure, and any such gains or losses would be largely offset by changes in the market value of the underlying investments or foreign currencies.

Foreign Currency Risk – Portions of the Society's revenues and expenditures are in foreign currencies. The Society enters into foreign currency forward contracts to reduce the risk that exchange rate fluctuations will adversely impact the U.S. dollar value of future net revenues denominated in foreign currency.

Counterparty Risk – The Society enters into derivative instruments and TBA securities with counterparties. While there is risk that the counterparties may fail to meet their obligations, the Society does not have significant positions with any one counterparty.

Insurance Risk – Given the uncertainty of claims experience in any given year and the resulting impact on the level of experience refunds or charges from the insurance carrier, the Insurance Trust can have either a positive or a negative impact on the Society's consolidated statements of activities.

Recently Adopted Accounting Pronouncements

In May 2014, the Financial Accounting Standards Board (FASB) issued ASU 2014-09, Revenue from Contracts with Customers (Topic 606), as amended, which requires an entity to recognize revenue when the entity transfers promised goods and services to the customer in an amount that reflects the consideration that the entity expects to be entitled to in exchange for those goods or services. Additional disclosure is required to enable users of financial statements to understand the nature, amount, timing, and uncertainty of revenue and cash flows arising from contracts with customers. ACS adopted ASU 2014-09 in 2019 under the modified retrospective method. Additionally, ACS applied the practical expedients to account for revenues with similar characteristics as a collective group rather than individually, and to not disclose the transaction price allocated to unsatisfied performance obligations as of the end of the reporting period as the performance obligations relate to contracts generally less than one year. The adoption of this ASU did not materially impact the timing or amount of revenue recognized by ACS in the consolidated statements of activities. ACS made a change to its consolidated statements of financial position on January 1, 2019 to comply with ASU 2014-09, the impact of which is summarized as a reduction in both accounts receivable and deferred revenue of $77,856,000. The balances as of December 31, 2018 have not been adjusted.

In June 2018, the FASB issued ASU 2018-08, Not-for-Profit Entities – Clarifying the Scope and Accounting Guidance for Contributions Received and Contributions Made (Topic 958). This ASU provides a more robust framework to determine when a transaction should be accounted for as a contribution or as an exchange transaction and provides additional guidance about how to determine whether a contribution is conditional. ACS adopted ASU 2018-08 in 2019 under the modified prospective approach. The adoption of this ASU did not materially impact the consolidated financial statements for contributions received. The Society will adopt the requirements of the ASU for contributions made in 2020.

In March 2017, the FASB issued ASU 2017-07, Compensation – Retirement Benefits Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost (Topic 715). ASU 2017-07 requires the service cost component of net periodic benefit cost for pension and other postretirement benefits be presented as a component part of employee benefit expense. The other components of net periodic benefit cost, such as interest, expected return on plan assets, and amortization of other actuarially determined amounts, are required to be presented as a non-operating change in net assets without donor restrictions. The adoption of this ASU did not materially impact the consolidated financial statements for the service cost component.

Recent Accounting Pronouncements

In February 2016, the FASB issued ASU 2016-02, Leases (Topic 842). ASU 2016-02 requires recognition of rights and obligations arising from lease contracts as assets and liabilities on the statement of financial position. ASU 2016-02 is effective for ACS in 2020. Upon the adoption of ASU 2016-02, ACS expects to recognize assets and liabilities for its operating leases but does not expect the adoption to have a material impact on the consolidated financial statements.

3. ACCOUNTS RECEIVABLE

Accounts receivable consisted of the following as of December 31 (in thousands):

	2019	2018
Accounts Receivable	$ 52,088	$ 122,200
Less Allowance for Doubtful Receivables	2,641	2,332
Accounts Receivable, Net	$ 49,447	$ 119,868

4. INVESTMENTS AND FAIR VALUE OF FINANCIAL INSTRUMENTS

The following tables summarize the Society's investments and other financial instruments measured at fair value on a recurring basis according to the classification hierarchy as of December 31, 2019 and 2018 (in thousands):

December 31, 2019	Investments Measured at NAV (1)	Level 1	Level 2	Level 3	Total
Cash Equivalents	$ -	$ 7,203	$ -	$ -	$ 7,203
Deferred Compensation Plan Assets	-	11,868	-	-	11,868
Foreign Currency Forward Contracts	-	-	1,727	-	1,727
Investments:					
Cash Equivalents	-	28,429	8,845	-	37,274
Fixed Income:					
U.S. Government and Agencies	-	110,884	91,023	-	201,907
Foreign	-	259	147,578	-	147,837
Corporate and Other	-	45	172,392	-	172,437
Equity:					
Domestic	-	15,228	382,816	-	398,044
Foreign	182,802	7,599	43,611		234,012
Hedge Funds	33,379	-	-	-	33,379
Private Real Estate	53,256	-	-	-	53,256
Total Investments	269,437	162,444	846,265	-	1,278,146
Unsettled Transactions primarily for U.S. Treasuries and TBA Securities	(115)	(51,890)	(16,645)	-	(68,650)
Net Investment Pools	269,322	110,554	829,620	-	1,209,496
Total Financial Instruments	$ 269,322	$ 129,625	$ 831,347	$ -	$ 1,230,294

December 31, 2018	Investments Measured at NAV (1)	Level 1	Level 2	Level 3	Total
Cash Equivalents	$ -	$ 42,835	$ -	$ -	$ 42,835
Deferred Compensation Plan Assets	-	9,617	-	-	9,617
Foreign Currency Forward Contracts	-	-	798	-	798
Investments:					
Cash Equivalents		36,538	32,293	-	68,831
Fixed Income:					
U.S. Government and Agencies	-	129,485	39,548	-	169,033
Foreign	921	(141)	70,536	-	71,316
Corporate and Other	-	26,525	187,886	-	214,411
Equity:					
Domestic	-	34,983	251,588	-	286,571
Foreign	128,804	8,186	41,835	-	178,825
Hedge Funds	92,856	-	-	-	92,856
Total Investments	222,581	235,576	623,686	-	1,081,843
Unsettled Transactions primarily for U.S. Treasuries and TBA Securities	694	(11,799)	(53,798)	-	(64,903)
Net Investment Pools	223,275	223,777	569,888	-	1,016,940
Total Financial Instruments	$ 223,275	$ 276,229	$ 570,686	$ -	$ 1,070,190

(1) Certain investments are measured at fair value using NAV as a practical expedient and have not been classified in the fair value hierarchy. The NAV amounts have been presented to permit reconciliation of the fair value hierarchy to the amounts presented in the statements of financial position.

The following estimates and assumptions were used to determine the fair value of financial instruments within the fair value hierarchy:

- Cash equivalents – Cash equivalents consist of money market funds, and cash collateral held by custodians. Money market funds are classified as Level 1 given that they are valued at amortized cost, which approximates fair value. Cash equivalents held as collateral by custodians are classified as Level 2 based on prices for similar assets.
- Deferred compensation plan assets – The Society offers a non-qualified tax-advantaged deferred-compensation retirement plan to certain employees per Section 457 of the Internal Revenue Code. Assets of the plan comprise 25 mutual funds that are actively traded on major exchanges and are classified as Level 1.
- Foreign currency forward contracts – Foreign currency forward contracts are derivative instruments and recognized at fair value based on quoted prices, in active markets, for similar contracts and are classified as Level 2.
- Fixed income securities – Fixed income securities primarily include U.S. Treasury issues, U.S. government and agency issues, corporate securities, mortgage-backed securities, asset-backed securities, municipal bonds, fixed income mutual funds, forward purchases and sales, and credit default swaps. U.S. Treasury issues and certain fixed income mutual funds are valued using quoted prices in active markets for identical assets and are classified as Level 1. Fair values of investments in commingled funds, similar to mutual funds, that are deemed to have a readily determinable fair value, but not actively traded, are measured at published NAV and are classified as Level 2. The remainder of this investment class is valued using quoted prices in active markets for similar securities and is classified as Level 2.
- Equity investments – Equity investments consist primarily of common stock held in mutual funds, separate accounts, and commingled trust funds. Securities traded on active exchanges are priced using unadjusted

market quotes for identical assets and are classified as Level 1. Securities that are traded infrequently or that have comparable traded assets are priced using available quotes and other market data that are observable and are classified as Level 2. Fair values of investments in commingled funds, similar to mutual funds, that are deemed to have a readily determinable fair value, but not actively traded, are measured at published NAV and are classified as Level 2.

The Society maintains balanced investment portfolios structured to generate current income and long-term appreciation.

Liquidity and Certain Strategies

Investment liquidity of investments measured at NAV is aggregated below based on redemption or sale periods (in thousands):

December 31, 2019	**Less Than 30 Days**	**Quarterly**	**> 1 Year**	**Total**
Equity:				
Foreign	$ 182,687	$ -	$ -	$ 182,687
Hedge Funds	-	33,379	-	33,379
Private Real Estate	-	53,256	-	53,256
Total Investments	$ 182,687	$ 86,635	$ -	$ 269,322

December 31, 2018	**Less Than 30 Days**	**Quarterly**	**> 1 Year**	**Total**
Fixed Income:				
Foreign	$ 921	$ -	$ -	$ 921
Equity:				
Foreign	128,804	-	-	128,804
Hedge Funds	-	93,550	-	93,550
Total Investments	$ 129,725	$ 93,550	$ -	$ 223,275

The Society's investments carried at NAV as a practical expedient include commingled funds (both fixed income and equity) hedge funds, and private real estate. The commingled funds have redemption notice periods of 1-5 days, the hedge funds have 65-day redemption notice periods, and private real estate has a redemption notice period of 60 days. The Society does not have any unfunded commitments as of December 31, 2019 or 2018. The significant strategies of the commingled funds, hedge funds, and private real estate are as follows:

- Fixed income and equity commingled funds – are similar to mutual funds except that of an institutional investor class and for which NAV is not priced daily or published. Fixed income funds invest in securities to generate a total return, consisting of income and capital appreciation, while preserving capital. Equity investment funds invest in securities to achieve long-term growth primarily in a diversified portfolio of global equity securities that possess fundamental investment value.

- Hedge funds – includes an investment in a fund of hedge funds that contains 20 underlying hedge funds. The underlying hedge funds employ a variety of different strategies including long/short equity, fixed income arbitrage, distressed debt, credit and capital structure arbitrage, merger arbitrage, volatility arbitrage, and global asset allocation.

- Private Real Estate – includes an investment in a fund that contains 64 underlying real estate assets. The underlying assets are comprised of the following property types: 50% Office, 21% Industrial, 19% Residential and 10% Retail.

Investment Derivatives

The Society's investment managers may employ derivatives involving contractual or optional commitments for future settlement in order to manage market risks, arbitrage mispricing of securities, or replicate long or short positions in a cost effective manner. In no instance are derivatives used to speculate or leverage positions. Types of derivatives utilized include repurchase agreements, foreign currency contracts, credit and interest rate default swaps, and financial futures.

All repurchase agreements and derivative instruments are carried at fair value and are reported net in investments on the consolidated statements of financial position. The repurchase agreements and derivatives are held with 5 different counterparties and are subject to master netting agreements. The master netting agreements allow the Society to offset net positions by counterparty and available collateral held. The Society has no repurchase agreements as of December 31, 2019. The fair value of the repurchase as of December 31, 2018 was $11,800,000.

The following tables provide the fair value of investment derivatives as of December 31, 2019 and 2018 and gains and losses for the years ended December 31, 2019 and 2018 (in thousands):

	2019		
	Assets	**Liabilities**	**Gains (Losses)**
Derivatives:			
Foreign Currency Contracts	$ 30,583	$ (30,331)	$ 252
Credit Default Swaps	378	(38)	112
Interest Rate Swaps	1,411	(270)	1,016
Financial Futures and Other	542	(1,277)	(699)
Total Derivatives	$ 32,914	$ (31,916)	$ 681

	2018		
	Assets	**Liabilities**	**Gains (Losses)**
Derivatives:			
Foreign Currency Contracts	$ 23,355	$ (23,543)	$ (188)
Credit Default Swaps	227	(229)	(178)
Interest Rate Swaps	1,523	(1,024)	59
Financial Futures and Other	1,893	(1,751)	241
Total Derivatives	$ 26,998	$ (26,547)	$ (66)

As of December 31, 2019 and 2018, the foreign currency contracts had a notional value of $30,099,000 and $23,646,000, respectively.

As of December 31, 2019 and 2018, the total notional amount of credit default swap contracts for sell protection amounted to $(5,065,000) and $10,992,000, respectively. There were $9,147,000 and $22,660,000 buy protection credit default swaps as of December 31, 2019 and December 31, 2018, respectively.

The notional amounts related to interest rate swap contracts that pay based on fixed rates at December 31, 2019 and 2018 were $302,420,000 and $542,504,000, respectively. There were no notional amounts related to interest rate swap contracts that pay based on floating rates at December 31, 2019 or 2018.

Financial futures contracts had a notional value of $120,542,000 and $343,665,000 at December 31, 2019 and 2018, respectively.

Other Derivative Instruments

Foreign Currency Forward Contracts - The Society had unrealized gains of $348,000 and $222,000 for the years ended December 31, 2019 and 2018, respectively. The unrealized gains or losses are included in non-operating activities in the consolidated statements of activities.

The Society's foreign currency forward contracts are held with one counterparty and are subject to a master netting agreement, which allows for net settlement of positions with the counterparty. The foreign currency forward contracts are presented net in the consolidated statements of financial position within accounts receivable, accounts payable, and deferred revenue. The fair value of the foreign currency forward contracts as of December 31, 2019 and 2018 was as follows (in thousands):

	2019		
	Assets	Liabilities	Net
Foreign Currency Forwards	$ 1,969	$ (242)	$ 1,727

	2018		
	Assets	Liabilities	Net
Foreign Currency Forwards	$ 1,611	$ (813)	$ 798

The following table summarizes the notional amounts relating to unsettled foreign currency forward contracts maturing at various times through 2022 (in thousands):

	2019	2018
Contracts maturing in 2019	$ -	$ 67,157
Contracts maturing in 2020	72,339	40,898
Contracts maturing in 2021	40,437	4,893
Contracts maturing in 2022	4,472	-
Total Notional Amount of Unsettled Forward Contracts	$ 117,248	$ 112,948

In addition to unrealized gains and losses on foreign currency forward contracts, the Society incurred realized gains and losses throughout the year. To the extent that actual remittances in foreign currencies differ from contracted amounts and the exchange rates at time of settlement are different from contracted exchange rates, the Society realizes gains or losses on settlement. The Society recorded a realized gain of $25,000 and a realized loss of $441,000 in 2019 and 2018, respectively, from foreign exchange transactions.

5. BUILDINGS, LAND AND OTHER PROPERTY, NET

At December 31, buildings, land and other property consisted of the following (in thousands):

	2019	2018
Software	$ 195,438	$ 175,775
Buildings and Improvements	118,858	114,445
Hardware, Furniture and Equipment	84,252	75,958
Land	2,930	2,930
Total Cost of Buildings, Land and Other Property	401,478	369,108
Less Accumulated Depreciation and Amortization	269,358	243,583
Buildings, Land and Other Property, Net	$ 132,120	$ 125,525

6. POSTRETIREMENT BENEFITS

Defined-Benefit Pension Plan - The Society has a funded noncontributory defined-benefit pension plan (the Plan), which is qualified under Section 401(a) of the Internal Revenue Code and covers employees hired prior to September 1, 2007. The Society makes actuarially determined contributions to satisfy all funding requirements. Effective September 1, 2007, the Plan was closed to new employees. Effective October 31, 2009, the Society froze benefit accruals associated with the Plan, and all participants were transitioned to a defined-contribution retirement plan.

Defined-Contribution Retirement Plan (DCRP) and ACS ERISA 403(b) Plans – The Society's 401(a) DCRP and the ACS ERISA 403(b) plans are available to substantially all employees. The DCRP provides an employer contribution equal to 6% of base pay, plus an employer match equal to 50% of the first 6% a participant contributes to the DCRP and/or the ACS ERISA 403(b) plan, a tax-deferred investment program. Employer contributions to the DCRP totaled $16,533,000 and $15,641,000 in 2019 and 2018, respectively.

Postretirement Medical Plan – The Society provides postretirement medical benefits to all benefit-eligible employees who were employed as of October 31, 2001, have at least five years of service, reach retirement age while employed by the Society, and are collecting retirement benefits from the defined-benefit pension plan. The postretirement medical plan is contributory with participants' contributions adjusted annually. The prescription benefit is actuarially equivalent to Medicare Part D and eligible for the federal subsidy. The Society's contributions toward the overall cost of postretirement medical insurance for both current and future eligible retirees were capped at the 2009 level.

Effective January 1, 2016, the Society adopted a Medicare Advantage Plan for eligible retirees and spouses who are at least 65 years old. The Medicare Advantage Plan continues to provide eligible retirees with an option for medical coverage.

The following tables present the change in benefits obligations, change in plan assets, and the composition of accrued benefits costs and amounts recognized in the accompanying consolidated statements of financial position and consolidated statements of activities for the years ended December 31, 2019 and 2018 (in thousands).

Defined-Benefit Pension and Postretirement Medical Plans

	Defined-Benefit Pension Plan		Postretirement Medical Plan	
	2019	2018	2019	2018
Change in Benefits Obligation				
Benefits Obligation at January 1	$ 672,225	$ 727,601	$ 44,499	$ 47,657
Service Cost	-	-	502	603
Interest Cost	27,938	25,655	1,822	1,656
Plan Participants' Contributions	-	-	2,057	1,897
Actuarial Loss (Gain)	78,946	(42,308)	542	(2,389)
Benefits and Administrative Fees Paid	(40,069)	(38,723)	(3,959)	(4,925)
Benefits Obligation at December 31	739,040	672,225	45,463	44,499
Change in Fair Value of Plan Assets				
Plan Assets at January 1	594,832	646,600	-	-
Actual Return on Plan Assets	114,995	(28,045)	-	-
Employer Contributions	15,000	15,000	1,902	3,028
Plan Participants' Contributions	-	-	2,057	1,897
Benefits and Administrative Fees Paid	(40,069)	(38,723)	(3,959)	(4,925)
Plan Assets at December 31	684,758	594,832	-	-
Funded Status	$ (54,282)	$ (77,393)	$ (45,463)	$ (44,499)

	Defined-Benefit Pension Plan		Postretirement Medical Plan	
	2019	2018	2019	2018
Amounts Recognized in the Consolidated Statements of Financial Position				
Liabilities	$ (54,282)	$ (77,393)	$ (45,463)	$ (44,499)
Net Liability at December 31	$ (54,282)	$ (77,393)	$ (45,463)	$ (44,499)
Amounts Recognized in Net Assets Without Donor Restrictions not yet in Net Periodic Costs				
Unrecognized Loss	$ 230,584	$ 241,731	$ 22,385	$ 24,364
Unrecognized Prior Service Credit	-	-	(4,807)	(5,909)
Net Recognized in Net Assets Without Donor Restrictions	$ 230,584	$ 241,731	$ 17,578	$ 18,455

The estimated net actuarial loss for the defined-benefit pension plan that will be amortized from non-operating income for 2019 is $6,842,000.

The estimated net actuarial loss and prior service credit for the postretirement medical plan that will be amortized from non-operating income for 2019 are $2,346,000 and $(1,102,000), respectively.

Components of Net Periodic Benefit Cost (Credits) for the Year Ended December 31 (in thousands):

	Defined-Benefit Pension Plan		Postretirement Medical Plan	
	2019	2018	2019	2018
Service Cost	$ -	$ -	$ 502	$ 603
Interest Cost	27,938	25,655	1,822	1,656
Expected Return on Plan Assets	(32,262)	(35,076)	-	-
Amortization of Prior Service Credits	-	-	(1,102)	(3,028)
Amortization of Net Actuarial Loss	7,360	6,301	2,521	2,609
Net Periodic Benefit Cost (Credits)	$ 3,036	$ (3,120)	$ 3,743	$ 1,840

Other Changes in Plan Assets and Benefits Obligations Recognized in Non-Operating Activities:

The following table provides information for other changes in plan assets and benefits obligations recognized in net assets without donor restrictions for the years ended December 31 (in thousands):

	Defined-Benefit Pension Plan		Postretirement Medical Plan	
	2019	2018	2019	2018
Net Actuarial (Gain) Loss	$ (3,788)	$ 20,813	$ 542	$ (2,389)
Amortization of Prior Service Credit	-	-	1,102	3,028
Amortization of Net Actuarial Loss	(7,360)	(6,301)	(2,521)	(2,609)
Total Recognized in Net Assets Without Donor Restriction	$ (11,148)	$ 14,512	$ (877)	$ (1,970)

Assumptions

Assumptions used to determine benefits obligations at December 31 are as follows:

	Defined-Benefit Pension Plan		Postretirement Medical Plan	
	2019	2018	2019	2018
Discount Rate	3.16%	4.28%	3.13%	4.25%
Mortality Projection Scales	MP-2019	MP-2018	MP-2019	MP-2018

Assumptions used to determine net periodic benefit cost for the years ended December 31 are as follows:

	Defined-Benefit Pension Plan		Postretirement Medical Plan	
	2019	2018	2019	2018
Discount Rate	4.28%	3.62%	4.25%	3.59%
Expected Return on Plan Assets	4.75%	5.50%	N/A	N/A

The Society determines the long-term expected rate of return on plan assets by examining historic capital market returns, correlations between asset classes, and the Plan's normal asset allocation. Current and near-term market factors such as inflation and interest rates are then evaluated to arrive at the expected return on plan assets. Peer group and benchmarking data are also reviewed to ensure a reasonable return assumption.

Plan Assets

The Society's defined-benefit pension plan asset allocation as of December 31, by asset category, is as follows:

	Plan Assets	
	2019	2018
Domestic Equities	9%	10%
Foreign Equities	5%	6%
Fixed Income Securities	86%	84%
Total	100%	100%

The Society utilizes a total return on investment approach based on modern portfolio theory. Multiple asset classes are implemented in order to obtain the benefits of diversification and maximize long-term total return for a given level of risk. Risk tolerance is developed by reviewing the funded status of the Plan, the duration of the Plan liabilities, the income and liquidity requirements, legal constraints, and the financial condition of the Society.

The investment portfolio is comprised of a diversified combination of domestic equities, foreign equities, and fixed income securities. The investment policy incorporates a liability-driven investment approach that focuses on the funded status of the Plan and seeks to match the duration of the assets with that of the liabilities. As the Plan's funded status improves, asset allocation will be directed more toward long duration fixed income securities. The allocation among domestic equities, foreign equities, and fixed income securities is determined by the funded status of the Plan, prevailing market conditions, and relative valuations between asset classes. The Plan's financial condition is monitored on an ongoing basis by means of monthly funding reviews, quarterly investment portfolio reviews, an annual independent actuarial valuation, and periodic asset/liability studies.

The Society utilizes the best information available in measuring fair value of the Plan's assets and liabilities, and they are classified based on the lowest level of input that is significant to the fair value measurement. The fair value measurement principles for the Plan's assets are consistent with those disclosed in Note 2.

The following tables summarize valuations of the Society's defined-benefit pension plan assets according to the fair value hierarchy as of December 31, 2019 and 2018 (in thousands):

December 31, 2019	Investments Measured at NAV (1)	Level 1	Level 2	Level 3	Total
Cash Equivalents	$ 7,436	$ -	$ 3,677	$ -	$ 11,113
Fixed Income:					
U.S. government and agencies	-	191,027	3,493	-	194,520
Foreign	-	39	105,647	-	105,686
Corporate and Other	60,696	-	295,444	-	356,140
Equity:					
Domestic	-	-	62,902	-	62,902
Foreign	33,760	-	977	-	34,737
Unsettled Transactions, Net (2)	-	(80,340)	-	-	(80,340)
Net Plan Assets	$ 101,892	$ 110,726	$ 472,140	$ -	$ 684,758

December 31, 2018	Investments Measured at NAV (1)	Level 1	Level 2	Level 3	Total
Cash Equivalents	$ 6,023	$ -	$ 6,724	$ -	$ 12,747
Fixed Income:					
U.S. government and agencies	-	144,301	1,248	-	145,549
Foreign	-	(27)	76,541	-	76,514
Corporate and Other	54,483	-	224,603	-	279,086
Equity:					
Domestic	-	15,258	43,285	-	58,543
Foreign	25,476	866	2,653	-	28,995
Unsettled Transactions, Net (2)	-	(6,602)	-	-	(6,602)
Net Plan Assets	$ 85,982	$ 153,796	$ 355,054	$ -	$ 594,832

(1) Certain investments are measured at fair value using NAV as a practical expedient and have not been classified in the fair value hierarchy. The NAV amounts have been presented to permit reconciliation of the fair value hierarchy to the amounts reported as total plan assets.

(2) Includes pending settlements for TBA securities and purchased securities.

Liquidity and Certain Strategies

Plan assets, inclusive of investments stated at NAV as a practical expedient, have redemption liquidity of less than 30 days with no significant notice periods. The Plan has no investment funding commitments.

Derivatives

The Plan's fixed income investment manager may employ derivatives in order to manage market risks, arbitrage mispricing of securities, or replicate long or short positions in a cost-effective manner. In no instance are derivatives used to speculate or leverage positions.

The following tables provide the fair value of plan asset derivative agreements as of December 31, 2019 and 2018, and gains and losses for the years ended December 31, 2019 and 2018 (in thousands):

	2019		
	Assets	Liabilities	Gains (Losses)
Derivatives:			
Foreign Currency Contracts	$ 25,112	$ (25,087)	$ 25
Credit Default Swaps	1,376	(1,131)	674
Interest Rate Swaps	2,823	(2,841)	1,537
Financial Futures and Other	657	(1,349)	(581)
Total Derivatives	$ 29,968	$ (30,408)	$ 1,655

	2018		
	Assets	Liabilities	Gains (Losses)
Derivatives:			
Foreign Currency Contracts	$ 18,721	$ (18,824)	$ (103)
Credit Default Swaps	1,156	(728)	(33)
Interest Rate Swaps	5,755	(1,996)	3,711
Financial Futures and Other	4,257	(2,398)	1,847
Total Derivatives	$ 29,889	$ (23,946)	$ 5,422

As of December 31, 2019, and 2018, the foreign currency contracts had a notional value of $24,936,000 and $18,735,000, respectively.

The total notional amount of credit default swap contracts for buy protection as of December 31, 2019 and 2018 amounted to $50,588,000 and $43,950,000, respectively. The notional amount related to sell protection amounted to $ 28,400,000 and $44,450,000 as of December 31, 2019 and 2018, respectively.

The notional amount of interest rate swap contracts that pay based on fixed rates at December 31, 2019 and 2018 was $288,364,000 and $336,100,000, respectively. There were no notional amounts related to interest rate swaps that pay based on floating rates for 2019 or 2018. The Society has no financial futures at December 31, 2019. Financial futures as of December 31 2018 had a notional value of $1,117,030,000.

The Plan does not have significant positions with any one counterparty.

Projected Benefit Payments **-** The following are expected benefits payments in future years (in thousands):

	Defined-Benefit Pension Plan Payments	Postretirement Medical Plan Payments
Fiscal year 2020	$ 40,712	$ 3,049
Fiscal year 2021	41,492	3,037
Fiscal year 2022	42,322	3,013
Fiscal year 2023	42,824	2,998
Fiscal year 2024	43,491	2,989
Fiscal years 2025–2029	221,451	14,342

7. NET ASSETS

The following is a summary of net assets at December 31 (in thousands)

	2019	2018
Without Donor Restrictions		
Insurance Trust	$ 37,696	$ 34,677
Board Designated - ACS Programs	2,347	735
Other Net Assets	406,189	291,481
Total Without Donor Restrictions	446,232	326,893
With Donor Restrictions		
PRF Program	600,094	530,204
ACS Programs	130,044	111,778
Total With Donor Restrictions	730,138	641,982
Total Net Assets	$ 1,176,370	$ 968,875

Net assets released from restriction was $28,180,000 and $28,576,000 for the years ended December 31, 2019 and 2018, respectively and primarily represents PRF distributions for program expenses.

8. ENDOWMENTS

At December 31, 2019, the Society's endowments consisted of approximately 41 individual funds, established for a variety of purposes. The endowment includes both donor-restricted endowment funds and funds designated by the Society's Board of Directors to function as endowments. Net assets associated with endowment funds, including funds designated by the Board to function as endowments, are classified and reported based on the existence or absence of donor-imposed restrictions.

Interpretation of Relevant Law

The Society's Board of Directors evaluated the Uniform Prudent Management of Institutional Funds Act (UPMIFA) and decided to continue to require the preservation of the historical cost of the original gift, as of the gift date, of the donor-restricted endowment funds absent explicit donor stipulations to the contrary. As a result, the Society classifies as net assets with donor restriction the sum of a) the original value of gifts donated to the donor-restricted endowments, b) the original value of subsequent gifts to donor-restricted endowments, c) additions to the donor-restricted endowments made in accordance with explicit donor instructions stipulated in the gift instruments and d) the appreciation on donor-restricted endowment funds until those amounts are made available for expenditure in a manner consistent with the donor gift instrument, the program operating budgets, and the standard of prudence prescribed by UPMIFA.

In accordance with UPMIFA, the Society considers the following factors in making a determination as to the preservation and use of the donor-restricted endowment funds: the donor gift instrument; the duration and preservation of the fund; the purposes of the Society and the fund; general economic conditions; the effect of inflation and deflation; expected total return from income and the appreciation of investments; other resources of the Society; and the Society's investment policies.

Spending Policy

Funds are appropriated from the endowment funds when expenses are approved by management. Expenditures of endowment assets are recorded in accordance with the explicit donor instructions stipulated in the gift instruments.

Return Objective and Risk Parameters

Donor-restricted endowment funds are invested in accordance with the Society's investment policies. The investment policies are intended to assure the Society's Board of Directors and the Board Committee on Pensions and Investments that the assets of the Society are being invested in accordance with the best long-term interests of the Society and its donors, given the following considerations: the Society's risk tolerance; the need to obtain real, or inflation-adjusted growth in its investments; and the requirement for current income to support programs and activities.

The Society adopted investment policies for endowment assets that attempt to generate a sufficient level of funding for programs supported by endowments. Endowment assets include those assets of Board and donor-restricted funds intended to provide a permanent source of income to support the donor-specified programs. Under the policies, as approved by the Board Committee on Pensions and Investments, endowment assets are invested in a manner intended to provide sufficient inflation-adjusted returns to support annual spending policies and achieve real growth in the asset base while maintaining a moderate level of investment risk.

Strategies Employed for Achieving Objectives

To satisfy its long-term rate-of-return objectives, the Society relies on a total return strategy in which investment returns are achieved through both capital appreciation (realized and unrealized) and current yield (interest and dividends). The Society targets a diversified asset allocation that places a greater emphasis on equity-based investments to achieve its long-term return objectives within prudent risk constraints.

Underwater Endowment Funds

From time to time, the fair value of assets associated with donor-restricted endowment funds may fall below the original value. As of December 31, 2019 and 2018, there were no endowment funds with market value below the original gift amount.

Endowment net assets consist of the following as of December 31 (in thousands):

	2019		
	Without Donor Restrictions	**With Donor Restrictions**	**Total**
Board Designated Endowment Funds	$ 2,347	$ -	$ 2,347
Donor-Restricted Endowment Funds			
Endowment Corpus	-	147,297	147,297
Accumulated Investment Return	-	576,789	576,789
Total Endowment Net Assets	$ 2,347	$ 724,086	$ 726,433

	2018		
	Without Donor Restrictions	**With Donor Restrictions**	**Total**
Board Designated Endowment Funds	$ 735	$ -	$ 735
Donor-Restricted Endowment Funds			
Endowment Corpus	-	141,828	141,828
Accumulated Investment Return	-	494,103	494,103
Total Endowment Net Assets	$ 735	$ 635,931	$ 636,666

The following tables show the beginning balances of the Society's endowment funds as of January 1, changes in endowment net assets for the year, and ending balances as of December 31, 2019 and 2018, respectively (in thousands):

	2019		
	Without Donor Restrictions	With Donor Restrictions	Total
Beginning Endowment Net Assets	$ 735	$ 635,931	$ 636,666
Investment Return			
Investment Income	19	18,575	18,594
Net Gains	108	93,893	94,001
Investment Return, Net	127	112,468	112,595
Contributions	1,500	1,228	2,728
Net Assets Released from Restriction	(15)	(25,541)	(25,556)
Ending Endowment Net Assets	$ 2,347	$ 724,086	$ 726,433

	2018		
	Without Donor Restrictions	With Donor Restrictions	Total
Beginning Endowment Net Assets	$ -	$ 690,102	$ 690,102
Investment Return			
Investment Income	19	15,360	15,379
Net Losses	(21)	(46,478)	(46,499)
Investment Return, Net	(2)	(31,118)	(31,120)
Contributions	750	858	1,608
Net Assets Released from Restriction	(13)	(23,911)	(23,924)
Ending Endowment Net Assets	$ 735	$ 635,931	$ 636,666

The purposes of endowed net assets are for scientific-related grants and awards and program support.

9. EXPENSES

The composition of expenses for the years ended December 31 is as follows (in thousands):

	2019						
	Compensation and Benefits	Professional Services	Materials and Supplies	Depreciation Expense	Grants and Assistance	Other Operating Expenses	Total
Program:							
Information Services	$ 195,888	$ 101,836	$ 38,391	$ 26,348	$ 474	$ 32,087	$ 395,024
Society Programs:							
Membership and Society Services	14,436	5,127	3,360	1,641	1,326	10,662	36,552
Education	7,247	1,755	1,234	357	4,019	2,643	17,255
Member Insurance Program	-	12,558	6	-	-	785	13,349
External Affairs and Communications	4,973	516	574	204	207	1,265	7,739
Scientific Advancement	3,800	660	464	164	17,643	1,218	23,949
Supporting:							
Finance, Adminstration and Human Resources	37,153	7,458	4,076	1,668	8	3,575	53,938
Information Technology	12,436	1,961	5,316	2,952	-	495	23,160
Marketing and Promotion	6,938	13,626	485	6	325	1,249	22,629
Total Operating Expenses 2019	$ 282,871	$ 145,497	$ 53,906	$ 33,340	$ 24,002	$ 53,979	$ 593,595

	2018						
	Compensation and Benefits	Professional Services	Materials and Supplies	Depreciation Expense	Grants and Assistance	Other Operating Expenses	Total
Program:							
Information Services	$ 182,456	$ 103,967	$ 34,463	$ 25,386	$ 276	$ 28,653	$ 375,201
Society Programs:							
Membership and Society Services	12922	4565	2,955	1,627	1,202	7,663	30,934
Education	6,752	1,471	1,357	377	4,369	2,131	16,457
Member Insurance Program	393	12,495	8	-	-	624	13,520
External Affairs and Communications	4,808	514	550	239	172	1,156	7,439
Scientific Advancement	3,536	653	417	168	17,519	2,685	24,978
Supporting:							
Finance, Adminstration and Human Resources	36,109	4,885	4,535	2,766	8	1,105	49,408
Information Technology	12,600	2,383	4,955	2,303	-	877	23,118
Marketing and Promotion	6,547	13,568	320	7	242	1,218	21,902
Total Operating Expenses 2018	$ 266,123	$ 144,501	$ 49,560	$ 32,873	$ 23,788	$ 46,112	$ 562,957

Natural expense classes are comprised of Compensation and Benefits; Professional Services, which includes sales promotion and advertising services; Materials and Supplies, which includes building and office operations; Depreciation Expense; and Grants and Assistance, which includes research, travel and other grants, as well as fellowships and scholarships. Other Operating Expenses includes services related to conducting Society sponsored meetings and events and other expenses that support the operations of the Society.

Program services are comprised of Information Services and Society Programs. Information Services includes services performed by CAS (databases of chemical and related scientific information) and Publications Divisions (print and electronic scientific journals). Society Programs includes member-focused activities such as continuing education programs, national and regional meetings, employment services and public outreach, scientific advancement, as well as the member insurance program.

Supporting services include expenses associated with the institutional support of the Society, including administrative functions such as finance, human resources, the investment program, enterprise-wide technical infrastructure, promotion and marketing, and fundraising activities. The Society incurred direct fundraising expenses of $1,385,000 in 2019 and $1,433,000 in 2018. Expenses which are related to both program and supporting, including facilities and information technology costs, are allocated based on department headcount and salary.

10. LIQUIDITY AND AVAILABILITY OF FINANCIAL ASSETS

Financial assets available for general expenditure within one year of December 31, 2019 and 2018 are as follows (in thousands):

	2019	2018
Cash and Cash Equivalents	$ 87,309	$ 66,844
Accounts Receivable	43,164	115,518
Operating Investments	455,675	379,983
Total Financial Assets Available Within One Year	$ 586,148	$ 562,345

The Society manages its financial assets to be available as its operating expenditures, liabilities and other obligations come due and to comply with financial guidelines approved by the Society's Board of Directors. Cash in excess of daily requirements is invested short-term in interest-bearing deposit accounts, money market funds, and commercial paper. The Society's operating investments contain short-term and long-term instruments. The Society also has a long-term investment vehicle which is a diversified investment pool with an objective of achieving long-term growth while also producing current income; the underlying investments can be liquidated within one year.

11. COMMITMENTS AND CONTINGENCIES

Lawsuits and legal claims

The Society is involved in various claims and legal actions arising in the ordinary course of business. Based upon information currently available, management believes the ultimate disposition of these matters will not have a material adverse effect on the Society's consolidated financial position, change in net assets, or cash flows.

Uncertain tax provisions

The Society is subject to taxation in several jurisdictions and is currently under audit for the 2014-2019 tax years in a foreign territory, as a matter of conducting ordinary business activities in the country. The foreign tax authority has challenged the Society's position on its tax filing. The Society has appealed the tax rulings. Due to the uncertainty associated with the tax appeals, the Society has not recorded a provision in the consolidated financial statements. It is possible that at some future date, liabilities resulting from the audits could be incurred. Management intends to pursue all administrative and judicial remedies necessary to resolve the matter. Based on current legislation, and after consultation with outside tax advisors, management believes the ultimate resolution of the audits will not have a material adverse impact on the Society's financial condition taken as a whole.

12. SUBSEQUENT EVENTS

The Society has performed an evaluation of subsequent events through March 12, 2020, which is the date the consolidated financial statements were available to be issued, noting no adjustments or disclosures were required to the consolidated financial statements.