2019 ANNUAL REPORT

Into tomorrow

Transforming OCC

OCC

In 2008, global financial markets awakened to the reality that stability and integrity should not be left to chance.

Which is why OCC has always been the central counterparty that investors need and rely on.

And our commitment—to meet the demands of an ever-changing world—will continue, well into tomorrow.

2019 was a banner year for OCC, complete with near-record volumes and key milestones in our ongoing transformation.

Year in Review

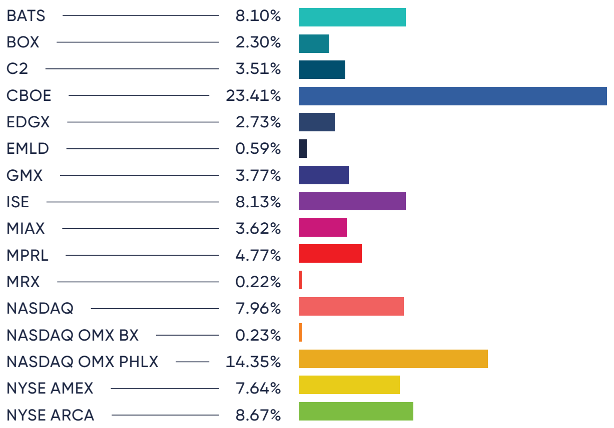
OPTIONS VOLUME

BATS TOTAL CONTRACTS	396,796,395	
Equity	396,450,601	99.91%
Index	345,794	0.09%
BOX TOTAL CONTRACTS	112,597,175	
Equity	112,597,175	100.00%
C2 TOTAL CONTRACTS	171,698,126	
Equity	170,696,007	99.42%
Index	1,002,119	0.58%
CBOE TOTAL CONTRACTS	1,147,034,647	
Equity	674,087,418	58.77%
Index	472,947,229	41.23%
EDGX TOTAL CONTRACTS	133,844,192	
Equity	133,677,251	99.88%
Index	166,941	0.12%
EMLD TOTAL CONTRACTS	28,734,098	
Equity	28,734,098	100.00%
GMX TOTAL CONTRACTS	184,636,951	
Equity	184,518,626	99.94%
Index	118,325	0.06%
ISE TOTAL CONTRACTS	398,331,710	
Equity	397,257,151	99.73%
Index	1,074,559	0.27%
MIAX TOTAL CONTRACTS	177,520,123	
Equity	177,085,434	99.76%
Index	434,689	0.24%
MPRL TOTAL CONTRACTS	233,794,910	
Equity	233,794,910	100.00%
MRX TOTAL CONTRACTS	10,708,978	
Equity	10,708,978	100.00%
NASDAQ TOTAL CONTRACTS	390,007,372	
Equity	390,007,372	100.00%
NASDAQ OMX BX TOTAL CONTRACTS	11,063,646	
Equity	11,063,646	100.00%
NASDAQ OMX PHLX TOTAL CONTRACTS	702,977,046	
Equity	700,585,126	99.66%
Index/Other	2,391,920	0.34%
NYSE AMEX TOTAL CONTRACTS	374,339,448	
Equity	374,333,028	100.00%
Index	6,420	0.00%
NYSE ARCA TOTAL CONTRACTS	424,951,742	
Equity	424,945,947	100.00%
Index	5,795	0.00%
OCC TOTAL OPTIONS CONTRACTS	**4,899,036,559**	
Equity	**4,420,542,768**	**90.23%**
Index	**478,493,791**	**9.77%**

FUTURES VOLUME

CFE TOTAL CONTRACTS	62,756,299	
Index/Other Futures	62,756,299	100.00%
NFX TOTAL CONTRACTS	7,816,046	
Index/Other Futures	7,816,046	100.00%
ONE TOTAL CONTRACTS	7,369,800	
Single Stock Futures	7,369,800	100.00%
OCC TOTAL FUTURES CONTRACTS	**77,942,145**	
Single Stock Futures	**7,369,800**	**9.46%**
Index/Other Futures	**70,572,345**	**90.54%**

OPTIONS EXCHANGE MARKET SHARE



Clearing the path to a stable tomorrow.

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Leadership

OCC Executive Chairman Craig Donohue, CEO John Davidson, and COO Scot Warren provide their views of our progress across many important fronts in 2019.

CHAPTER 2

Transformation

Learn how the Renaissance Initiative is acting as a catalyst for unprecedented change across every area of the organization.

CHAPTER 3

Market Participants

Dale Petroskey (Dallas Regional Chamber) and Jim Toes (Security Traders Association) discuss the positive ripple effects of OCC's ongoing transformation on the broader economic landscape.

CHAPTER 4

People

In the pursuit of excellence, there is no substitute for talent—which is why OCC invests so significantly in cultivating it internally and recruiting additional talent when necessary.

Even with the progress we've achieved, we continue to look ahead.

CRAIG S. DONOHUE

> OCC has accomplished a great deal during the last several years: embracing what needed to be done, and acting on what still needs to be done.

MESSAGE FROM THE EXECUTIVE CHAIRMAN

On behalf of the Board of Directors and my OCC colleagues, I am pleased to share with you our 2019 annual report.

For the past five years, OCC has been engaged in a comprehensive transformation effort to strengthen our financial resiliency, our people, our compliance processes, and our technology to meet heightened regulatory obligations and to better serve market participants and the investing public.

These enhancements are taking place during a period of historic market growth. OCC's total cleared contract volume reached 4.98 billion contracts in 2019—the second highest in the history of the U.S. equity derivatives markets and only down 5.1 percent compared to 2018's record-breaking pace.

This illustrates how OCC continues to deliver on its key services for our participant exchanges, clearing member firms, and market participants, and underscores our critical role as the foundation for secure markets.

Our report also includes commentary from two market participants with interesting perspectives on how OCC has adapted and grown as an organization: Dale Petroskey, President and CEO of the Dallas Regional Chamber, and Jim Toes, President and CEO of the Security Traders Association.

ENHANCING OUR RESILIENCY

At OCC, we take seriously our designation as a Systemically Important Financial Market Utility (SIFMU). We are committed to operating as a covered clearing agency and maintaining the highest standards of regulatory compliance throughout our organization.

As part of our ongoing transformation, on September 4, 2019, we announced that we reached a settlement agreement with the U.S. Securities and Exchange Commission (SEC) and the U.S. Commodity Futures Trading Commission (CFTC), regarding allegations that OCC failed to comply with certain SEC and CFTC regulations.

In reaching their settlement with OCC, both agencies considered our cooperation and remediation efforts. The SEC noted that OCC developed and provided remediation plans to the Commission staff and had already obtained SEC approval to enhance the company's margin policy and incorporate stress testing and liquidation costs into its clearing fund and margin methodologies, respectively, among other approvals. The CFTC specifically noted that "OCC developed remediation plans to bring OCC into compliance with [clearing agency] Core Principles and Regulations."

The settlement agreement contains additional undertakings that OCC is addressing, which we believe will strengthen OCC. Our Board of Directors, management, and our entire team in Chicago, Dallas, and Washington, D.C. will work tirelessly to continue to earn the trust and confidence of our clearing member firms, participant exchanges, business partners, and regulators.

To achieve operational excellence, OCC has made significant progress in strengthening its financial resiliency. In January 2020, the SEC approved our new Capital Management Policy, which ensures that OCC maintains appropriate financial resources to continue providing critical services to our exchanges, our clearing member firms, and their customers in the unlikely event of a material operational loss.

Capitalization sufficient to withstand such a loss is a critical component of OCC's role as a SIFMU to reduce systemic risk, increase market transparency, and provide capital and operational efficiencies for market participants. We appreciate the work done by the SEC to approve this new policy, and we have benefitted from the feedback we received from our clearing member firms and other market participants.

> **The Renaissance Initiative will make our company more agile, enhance our resiliency, and further strengthen our compliance posture.**

In addition to regulatory matters, OCC's Renaissance Initiative is laying the groundwork for far-reaching organizational transformation. It represents our evolution to a completely new technology architecture, which will power a new operating model, automated workflows, and increased collaboration. The Renaissance Initiative will make our company more agile, enhance our resiliency, and further strengthen our compliance posture. It also will help our colleagues deliver more efficient and effective services to the users of our markets.

When the Renaissance Initiative is completed, OCC's systems will have a modular architecture that includes independent and integrated Clearing, Risk, and Data platforms. This will clear the path for automated tools, allowing OCC colleagues to rely on data and analytics to run the business more efficiently.

STRENGTHENING OUR GOVERNANCE AND MANAGEMENT STRUCTURE

Our Board of Directors has deep expertise in risk management, technology, operations, compliance, regulatory policy, and audit. In 2019, our Board was strengthened with the addition of Stuart M. Bourne from Bank of America Merrill Lynch; Maria Chiodi from Credit Suisse Securities (USA), LLC; Christopher A. Isaacson from Cboe Global Markets, Inc.; Kevin J. Kennedy from Nasdaq, Inc. and Susan G. O'Flynn from Morgan Stanley. In addition, the following directors were re-elected to the OCC Board of Directors in April 2019: Kurt M. Eckert, Wolverine Trading; Susan E. Lester, financial executive; Robert R. Litterman, Kepos Capital, LP; Jonathan B. Werts, Bank of America Merrill Lynch; and William T. Yates, TD Ameritrade.

On behalf of our Board, I want to thank Jonathan B. Werts, Edward T. Tilly from Cboe, Christine L. Show from SG Americas Securities, Thomas A. Wittman from Nasdaq, Inc. and Mark F. Dehnert from Goldman Sachs, for their years of service as members of our Board of Directors. Their industry experience and insights were instrumental in setting OCC's course as an important market utility and industry advocate as well as helping drive our progress with the Renaissance Initiative. Their work and that of their Board colleagues supports OCC's continued efforts to bring resiliency, innovation, and growth to our company and to the U.S. equity derivatives markets.

Our management structure continued to evolve in 2019 with several key leadership hires and promotions, including: Janet Angstadt, who oversees the strategic direction of OCC's legal programs with a focus on compliance and regulatory requirements; Saqib Jamshed, who is responsible for enhancing OCC's model risk management program; Pat Hickey, who manages OCC's product and business ecosystems; and Sandeep Maira, who is responsible for aligning our evolving technology solutions with our business objectives. I also want to acknowledge and congratulate Carla Dawson on her promotion to Senior Vice President and Chief Human Resources Officer.

ADVOCATING FOR OUR INDUSTRY

For several years, OCC has led the efforts of the U.S. Securities Markets Coalition, which engages in regular educational outreach to policy makers in Washington, D.C. to discuss the potential impacts of various regulatory and tax proposals on investors who use the markets we clear.

We commend the actions of the Federal Reserve Board of Governors, the Federal Deposit Insurance Corporation, and the Office of the Comptroller of the Currency for finalizing a rule in 2019 to update how certain bank-affiliated clearing member firms measure counterparty credit risk posed by derivative contracts under the agencies' regulatory capital rules. The new methodology, called the Standardized Approach for Counterparty Credit Risk (SA-CCR), replaces the current exposure methodology (CEM) for calculating exposures to derivatives contracts such as listed options under the capital rules, and in the words of Federal Reserve Chairman Jerome Powell, "would appropriately recognize the counterparty risks on derivatives, including the lower risks on most centrally cleared derivatives."

This action addresses some of the issues OCC and the U.S. listed options industry have highlighted with policymakers for several years. We appreciate the agencies' work to finalize this important measure, which provides rational capital efficiencies for clearing firms and facilitates the provision of vital clearance and settlement services in our industry.

Our advocacy is complemented by our educational work through The Options Industry Council (OIC), whose development of unbiased content since 1992 has made a significant contribution to the continued education of the users of the U.S. exchange-listed options markets. In 2019, OIC's robust digital programming attracted over 100,000 participants. We also collaborated on educational initiatives with several of our clearing member firms and participant exchanges.

IN CLOSING

My OCC colleagues have accomplished a great deal during the last several years as we continue to transform our company. We embraced what was needed to be done, and we are acting on what still needs to be done.

As a SIFMU, OCC is more committed than ever to our mission to serve as the foundation for secure markets. We will continue to work tirelessly as a team to earn the trust and confidence of our clearing members and participant exchanges, our business partners, and our regulators in order to help grow the U.S. equity derivatives industry.

Craig S. Donohue
Executive Chairman

We pursue excellence today to ensure stability tomorrow.

JOHN P. DAVIDSON
SCOT E. WARREN

OCC successfully cleared and settled 4.98 billion contracts in 2019—the second-highest volume in the history of our industry.

MESSAGE FROM THE CHIEF EXECUTIVE OFFICER AND THE CHIEF OPERATING OFFICER

On behalf of our colleagues, we are pleased to report that in 2019, OCC continued to provide world-class risk management, clearance, and settlement services to the users of the U.S. equity derivatives and securities lending markets. This was done by delivering operational excellence while transforming our processes and technology to better serve stakeholders and market participants.

2019 HIGHLIGHTS

As a Systemically Important Financial Market Utility (SIFMU), we focus on flawless execution and the delivery of operational and capital efficiencies to the users of our markets. OCC cleared and settled 4.98 billion contracts in 2019—the second-highest volume in the history of our industry. This reflects the stability and integrity we provide the users of our markets as the foundation for secure markets.

We began our multi-year effort to modernize our technology infrastructure with the launch of the Renaissance Initiative. We continued to maintain robust daily operations while transforming our risk culture and reducing the backlog of regulatory findings.

CAPITAL MANAGEMENT POLICY

After the disapproval of our capital plan by the SEC, OCC undertook decisive action to ensure that it had sufficient capital to remain operationally resilient while allowing for the return of $150 million of capital previously invested by OCC's stockholders.

In January 2020, the SEC approved our new Capital Management Policy, which addresses these core elements:

- It identifies the considerations made in determining OCC's level of target capital on an annual basis;
- It describes how OCC will monitor its capital levels to identify whether OCC's capital has fallen, or is in danger of falling, below defined thresholds triggering further action; and,
- It establishes a replenishment plan for accessing additional capital should OCC's equity capital fall below those defined thresholds.

To align the interests and incentives of OCC management with its clearing member firms, OCC also will contribute the funds held under its Executive Deferred Compensation Plan (EDCP), to the extent such funds are deposited on or after January 1, 2020, on a pro-rata basis with clearing member clearing fund draws. We believe the inclusion of the EDCP funds is appropriate to strengthen the alignment of interests between OCC's management and our clearing member firms to maintain the necessary level of pre-funded financial resources.

TRANSFORMATION

2019 was a year of progress for OCC's Renaissance Initiative: our multi-year technology modernization project designed to enhance our resiliency. We selected Cinnober as the developer of our new Clearing platform and began our work to build the new Clearing platform. When completed, Renaissance will deliver increased business agility, more efficient and effective operations, and improved technology resiliency. All of this will help us better serve the users of our markets.

There also will be multiple benefits for market users: intuitive clearing member interfaces, self-service reporting, strengthened analytics with enhanced access to data, customized solutions, an ongoing commitment to data and cybersecurity protection, and increased confidence in OCC's ability to deliver in times of market stress.

Our colleagues will benefit from the opportunity for enhanced performance via simpler processes and more intuitive tools to do their jobs. An increased focus on business process reengineering will allow them to engage in even more challenging work that will shape our industry. It also will allow them to have defined roles and competencies that will align the interests of OCC with available skills and opportunities.

By the end of 2019, we completed eight Clearing and Transaction Solutions sprints, launched our Data platform along with the loading of historical, market, and operational data, determined the future state and integrated architecture for the Risk and all other platforms, and developed an infrastructure to support cloud hosting, subject to regulatory review.

> **The Renaissance Initiative will improve agility, resiliency, security, and efficiency.**

Cloud solutions, if approved, will enhance our resiliency in several ways, including improved redundancy via multiple data centers operating across diverse U.S. geographic regions and the ability to quickly model and create or decommission development and test environments for back-testing, stress-testing, and general software development needs.

To continue to support this transformation, OCC has already hired or internally onboarded over 100 experts specializing in high-performance Cloud computing, quant model integration, risk analytics, and next-generation risk technology.

The Renaissance Initiative also gives us the opportunity to think about how we operate. Our Business Process Reengineering team is identifying ways to redesign existing processes and provide input to system requirements. As OCC has traditionally focused on documenting and incrementally improving existing processes, this team is helping us determine the best ways possible to maximize our efficiency and effectiveness to better serve our customers.

In 2019, we formalized four business outcomes from OCC's Renaissance-led transformation:

Sustaining our legal framework. Integral to being a SIFMU is safeguarding the integrity of cleared markets through expected safe and sound practices.

Reducing cost to run and maintain. Lowering the overall cost of clearance and settlement will be delivered through economies of skill and scale.

Producing capital efficiency. Flexibility, agility, and transformational business capabilities are three key attributes that will enable us to grow and support our customers; providing an environment where authorized business users can explore and analyze data with minimal information technology support.

Bringing new products to market quickly. Market users demand a sustainable product development process that expedites OCC's ability to help drive industry innovation.

Throughout the financial sector and at OCC, information and cybersecurity remains a significant concern given the increasing sophistication and determination of cyber adversaries. OCC has strengthened its information security controls to identify,

protect, and respond to asymmetric cyberattacks. As we transform our information technology operating environment through Renaissance, we are designing and implementing cybersecurity capabilities and processes to support the confidentiality, integrity, and availability of critical OCC business processes and information.

> **In 2019, we supported the launch of 57 new products to help grow the equity derivatives and securities lending markets.**

OCC also supports the needs of industry renewal and expansion. In 2019, we supported the launch of 57 new products to help grow the equity derivatives and securities lending markets, and prepared for the launch of clearing services for a new futures market, the Small Exchange.

OUR PEOPLE

Our greatest asset is our people. OCC cannot deliver on its mission if we do not perform our functions every day as a SIFMU. Our transformation will move forward only through the effort, dedication, and wisdom of our people. Maintaining a high-performance culture and providing our colleagues in Chicago, Dallas, and Washington, D.C. with a collaborative work environment are critically important if we are to deliver on our purpose to ensure confidence in the financial markets and the broader economy.

That is why we are pleased to report that in 2019, OCC's overall performance was very well received by market participants: 100 percent of the exchanges and 93 percent of the clearing member firms who responded to our survey said they were satisfied or very satisfied with the level of service they received from OCC last year. They are encouraged by the opportunity presented with the Renaissance Initiative. Well over 90 percent of our exchanges and clearing member firms said they were satisfied or very satisfied with key interactions with various OCC departments. These high satisfaction levels reflect why OCC was named Best Clearing House by Markets Media in 2019.

While we are pleased with these results, we understand there are still opportunities for OCC to improve on its service levels, and we are committed to increasing these satisfaction levels in 2020.

IN CLOSING

We are grateful for the continued confidence placed in OCC by our participating exchanges, clearing member firms, and market participants. We do not take that confidence for granted, and we know we must deliver operational excellence every day to the users of our markets so we can clear the path for continued growth for the equity derivatives and securities lending markets. Through the Renaissance Initiative and the continued dedication of our entire team, we are working to make OCC a more effective and agile business that can help drive growth in options, futures, and stock lending in 2020 and beyond.

John P. Davidson
Chief Executive Officer

Scot E. Warren
Chief Operating Officer

TRANSFORMATION AT OCC

New technology and a new ethos.

While our ongoing transformation includes modernizing our technology, it also encompasses our people and our processes. We are deepening our technical expertise. We are using automation to work smarter. All to better serve market participants, our colleagues, and the investing public.

PEOPLE & PROCESS

We created a more collaborative environment for our colleagues in Chicago, Dallas, and Washington, D.C.

Chapter 2 — Transformation

NEW EFFICIENCIES

We are working together to redesign processes.

BUSINESS PROCESS REENGINEERING

The clearest path to getting work done.

Our workflows are transforming to accommodate the needs of our stakeholders—as well as the parameters of our legacy systems. A new modular architecture lets us redesign our processes so we can deliver operational excellence while increasing value to customers.

AGILE

Using collaboration and iterative processes to drive smarter innovation and change.

CLOUD ARCHITECTURE

Resiliency and security are just the beginning.

As OCC drew up requirements for the Renaissance Initiative's architecture, we quickly saw that hosting it in the Cloud made perfect sense. The Cloud allows us to reduce turnaround times for new development and testing environments, and more easily leverage automation to improve efficiency.

ROBUST DATA CAPABILITY

New opportunities to turn data into insights.

OCC's new Data platform will allow us to store and retrieve data in a distributed manner, to handle polystructured data, to perform at scale, and to continue to process ever-fluctuating volumes. Most importantly, it will provide OCC and market participants with new opportunities to leverage data.

BETTER VISIBILITY

Making data simple creates real value for all who access the platform.

DALE PETROSKEY

President and CEO,
Dallas Regional Chamber

Using wise investments to grow intellectual capital.

DALE PETROSKEY ON EXPANDING OCC'S TALENT POOL

The Cypress Waters move has transformed OCC's brand in the Dallas region—helping it attract top talent.

The Dallas Regional Chamber serves as the voice of business and the champion of economic growth in the Dallas metropolitan area.

Dallas-Fort Worth is at the epicenter of the financial services and technology industries. Having a transformative company like OCC in our market is a testament to these strengths. As our fintech sector grows, the Dallas Regional Chamber has worked with many companies on expansion and relocations.

OCC's decision to move to the Cypress Waters campus has significantly enhanced its ability to attract millennials and Gen Z candidates from the region's very competitive pool of talented, educated workers. Like Dallas-Fort Worth itself, OCC has made a very real investment to become the kind of place where the best and the brightest want to work.

JIM TOES
President and CEO,
Security Traders Association

Advocating on behalf of market participants.

JIM TOES ON OCC'S ADVOCACY EFFORTS

OCC's ability to transform itself clearly shows its commitment to the stability and security of the markets it serves.

The Security Traders Association (STA) raises awareness of market structure issues among legislators and regulators on behalf of the financial services industry.

The objectives of STA and those of OCC are closely aligned, in that both organizations seek regulatory and legislative changes which benefit the options ecosystem. Consider the Options Markets Stability Act (H.R. 5749) of 2019. The result of collaboration between OCC and the U.S. Securities Markets Coalition, this legislation helped ensure that market makers and other liquidity providers can provide vital liquidity for investors who use the U.S. equity options markets to help manage their financial risk.

These efforts to transform the industry on the regulatory side echo OCC's work on the market side. As new financial products (e.g., ETFs) appear, new options contracts follow—which OCC continues to support.

Chapter 4 — People

THE PEOPLE OF OCC

Transforming how we do business.

What OCC has accomplished would not be possible without the talented people in our Chicago, Dallas, and Washington, D.C. offices. We continue to attract individuals with the experience and vision we seek—bolstering our expertise in compliance, internal audit, enterprise risk management, model validation, and information security.

IN GOOD COMPANY

United by a passion for understanding and serving customers.

ALL FOR ONE

To drive innovation that matters to customers, we rely on all our colleagues.

SPECIALIZED TALENT

Expanding our capacity for innovation.

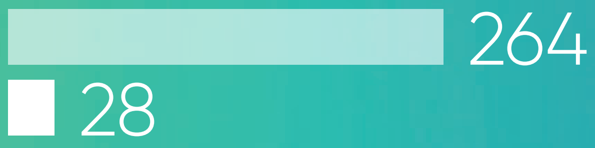
The ability to innovate is essential for OCC, and requires special talent. To support the work of the Renaissance Initiative, OCC already has more than 100 experts in high-performance Cloud computing, quant model integration, risk analytics, and next-generation risk technology.

2019 Performance Highlights

4.9B+

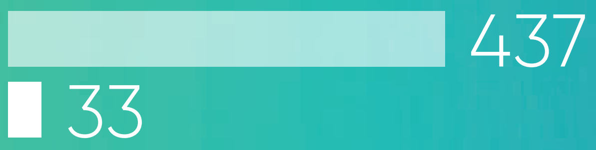
CONTRACTS CLEARED

AVERAGE CONTRACTS PER CLEARED TRADE



AVERAGE MONTH-END OPEN INTEREST
IN MILLIONS

AVERAGE PREMIUM PER CONTRACT
IN DOLLARS



CONTRACTS EXERCISED
IN MILLIONS

Performance

EQUITY INDEX FUTURES NOT DEPICTED

$118B

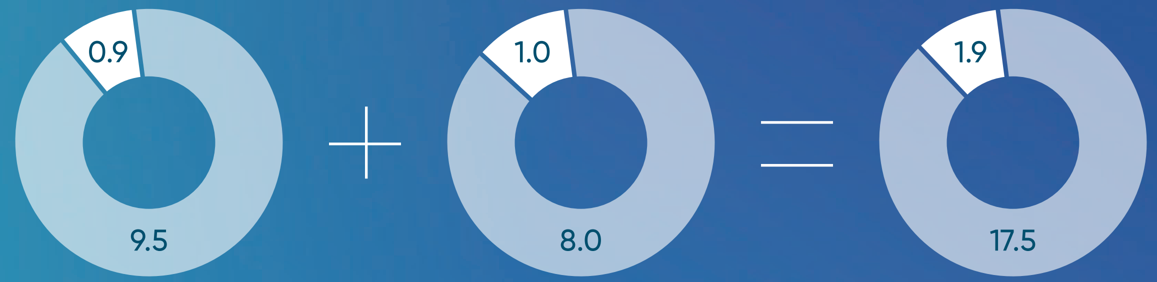
MARGIN HELD AT YEAR END

$11B

CLEARING FUND HELD AT YEAR END

$0.047

AVERAGE FEE PER CONTRACT SIDE



AVERAGE DAILY CALL VOLUME
IN MILLIONS

AVERAGE DAILY PUT VOLUME
IN MILLIONS

AVERAGE DAILY CONTRACT VOLUME
IN MILLIONS

CRAIG S. DONOHUE
Executive Chairman, OCC

ANDREJ BOLKOVIC
Chief Executive Officer,
ABN AMRO Clearing
Chicago LLC

STUART M. BOURNE
Managing Director, Head of
Americas Asset Management
Services, Bank of America
Merrill Lynch
Commenced service July 17, 2019

THOMAS R. CARDELLO
Founding Member, Venice
Financial Management LLC

MARIA CHIODI
Managing Director,
General Counsel Department,
Credit Suisse Securities (USA) LLC
Commenced service
November 19, 2019

MARK F. DEHNERT
Managing Director,
Goldman Sachs & Co.
Served until December 31, 2019

KURT M. ECKERT
Partner and Head of Market
Structure, Wolverine Trading

THOMAS A. FRANK
Executive Vice President & CIO,
Interactive Brokers LLC

MEYER S. FRUCHER
Vice Chairman, Nasdaq, Inc.

DAVID S. GOONE
Chief Strategy Officer,
Intercontinental Exchange Inc.

CHRISTOPHER A. ISAACSON
Executive Vice President,
Chief Operating Officer,
Cboe Global Markets, Inc.
Commenced service
January 8, 2019

KEVIN J. KENNEDY
Senior Vice President, Head of
Product Management for North
American Market Services,
Nasdaq, Inc.
Commenced service
December 30, 2019

ELIZABETH K. KING
Chief Regulatory Officer,
Intercontinental Exchange &
General Counsel, NYSE Group

SUSAN E. LESTER
Former Financial Executive

RICHARD R. LINDSEY
Managing Partner, Windham
Capital Management, LLC

ROBERT R. LITTERMAN
Chairman, Risk Committee,
Kepos Capital LP

STEPHEN LUPARELLO
General Counsel,
Citadel Securities

SUSAN G. O'FLYNN
Managing Director and
Global Head of CCP Strategy
and Resource Optimization,
Morgan Stanley
Commenced service July 17, 2019

CHRISTINE L. SHOW
Managing Director and Global
Head of Listed Derivative
Operations, SG Americas
Securities LLC
Served until April 16, 2019

EDWARD T. TILLY
Chairman, President and
Chief Executive Officer,
Cboe Global Markets, Inc.
Served until January 8, 2019

JONATHAN B. WERTS
Managing Director,
Head of Midwest, Bank of America
Merrill Lynch
Served until May 20, 2019

ALICE PATRICIA WHITE
Economist

THOMAS A. WITTMAN
Executive Vice President,
Head of Global Trading and
Market Services, Nasdaq, Inc.
Served until December 30, 2019

WILLIAM T. YATES
Treasurer, TD Ameritrade

Board Committees and Senior Officers

AS OF DECEMBER 31, 2019

BOARD COMMITTEES

Audit Committee
Susan E. Lester (CHAIR)
Kurt M. Eckert
Elizabeth K. King
Richard R. Lindsey
Stephen Luparello
Susan G. O'Flynn
Alice Patricia White
William T. Yates

Compensation and Performance Committee
Richard R. Lindsey (CHAIR)
Andrej Bolkovic
Mark F. Dehnert
Craig S. Donohue
Meyer S. Frucher
David S. Goone
Christopher A. Isaacson
Robert R. Litterman

Governance and Nominating Committee
Alice Patricia White (CHAIR)
Maria Chiodi
Meyer S. Frucher
Elizabeth K. King
Susan E. Lester
Richard R. Lindsey
William T. Yates

Risk Committee
Richard R. Lindsey (CHAIR)
Thomas R. Cardello
Mark F. Dehnert
Craig S. Donohue
Thomas A. Frank
David S. Goone
Robert R. Litterman
Alice Patricia White

Technology Committee
Thomas R. Cardello (CHAIR)
Andrej Bolkovic
Stuart M. Bourne
Craig S. Donohue
Thomas A. Frank
Christopher A. Isaacson

Ad Hoc Regulatory Oversight Working Group
(until November 20, 2019)
Richard R. Lindsey (CHAIR)
Thomas R. Cardello
Elizabeth K. King
Susan E. Lester
Robert R. Litterman
Stephen Luparello
Alice Patricia White

Regulatory Committee
(beginning November 20, 2019)
Richard R. Lindsey (CHAIR)
Thomas R. Cardello
Susan E. Lester
Robert R. Litterman
Alice Patricia White

TERM EXPIRATIONS

(Member Directors and Public Directors)

April 2020
Andrej Bolkovic
Mark F. Dehnert
Richard R. Lindsey
Susan G. O'Flynn

April 2021
Thomas R. Cardello
Maria Chiodi
Thomas A. Frank
Stephen Luparello
Alice Patricia White

April 2022
Stuart M. Bourne
Kurt M. Eckert
Susan E. Lester
Robert R. Litterman
William T. Yates

SENIOR OFFICERS

Craig S. Donohue
Executive Chairman

John P. Davidson
Chief Executive Officer

Scot E. Warren
Chief Operating Officer

Janet M. Angstadt
Executive Vice President and General Counsel

Julie W. Bauer
Executive Vice President, Government Relations and Investor Education

John J. Fennell
Executive Vice President and Chief Risk Officer

Dale A. Michaels
Executive Vice President, Financial Risk Management

Joseph P. Adamczyk
Senior Vice President and Chief Compliance Officer

Daniel T. Busby
Senior Vice President, Operations

Carla Dawson
Interim Chief Human Resources Officer

Timothy J. Dwyer
Senior Vice President, Strategic Systems

Patrick H. Hickey
Senior Vice President, Product and Business Development

David A. Hoag
Senior Vice President and Chief Information Officer

J. Matthew Hughes
Senior Vice President, Renaissance Program Business Lead

Saqib Jamshed
Senior Vice President, Model Risk Governance

Joseph P. Kamnik
Senior Vice President and Chief Regulatory Counsel

Denise Knabjian
Senior Vice President, Investor Education

Mark J. Morrison
Senior Vice President and Chief Security Officer

Hugo A. Mugica
Senior Vice President and Chief Audit Executive

David P. Prosperi
Senior Vice President, Corporate Communications

Amy C. Shelly
Senior Vice President and Chief Financial Officer

Vishal Thakkar
Senior Vice President, Enterprise Risk Management

Lauren W. Wong
Senior Vice President, Quantitative Risk Management

Another strong year of world-class service.

AMY C. SHELLY
Chief Financial Officer

MESSAGE FROM THE CHIEF FINANCIAL OFFICER

In 2019, OCC experienced another strong year of providing world-class clearance, settlement, and risk management services for the U.S. equity options, futures, and securities lending markets. OCC's total cleared contract volume for the year was 4.98 billion contracts, with average daily volume exceeding 19.7 million contracts. This was the second highest annual volume in our history, and it underscores OCC's importance as the foundation for secure markets.

Our colleagues continue to have a relentless focus on delivering operational excellence to our exchanges, clearing member firms, and market participants. We remain dedicated to managing costs in a fiscally responsible manner in order to better serve the users of our markets.

During the last few years, we have taken steps to significantly strengthen OCC's financial resiliency. In 2014, OCC had only \$25 million of capital on the balance sheet. Today, we maintain equity capital, separate from our clearing fund capital, above our target level of \$247 million. We worked with our clearing member firms, market participants, and regulators to finalize our plans to manage OCC's capital, including a replenishment plan, in the unlikely event that capital falls below that level due to an operational loss of the company. At the end of 2019, we held nearly $118 billion in margin on behalf of our customers, and over $11 billion in our clearing fund.

We fortified our financial posture by successfully renewing our syndicated bank credit facility. We added one new bank and retained all 18 facility participants for a total of 19 banks in the facility. We also maintained pre-funded financial resources available to OCC by requiring a minimum of $3 billion in cash in the clearing fund, which is held at the Federal Reserve Bank of Chicago.

On January 24, 2020, the Securities and Exchange Commission (SEC) approved, pursuant to authority delegated to the Division of Trading and Markets, our new Capital Management Policy, which is designed to reduce systemic risk, increase market transparency, and provide capital and operational efficiencies to the users of our markets.

The policy addresses these core elements:

- Provides OCC's approach to determining clearing fees inclusive of an operating margin based on the variance in daily volume;
- Identifies the considerations made in determining OCC's level of target capital on an annual basis;
- Describes how OCC will monitor its capital levels to identify whether OCC's capital has fallen or is in danger of falling below defined thresholds triggering further action; and
- Establishes a replenishment plan for accessing additional capital should OCC's equity capital fall below those defined thresholds.

Under the policy, if OCC's capital is above 110 percent of its target plus approved capital for infrastructure needs, tools would be used to lower or waive clearing fees to return to the 110 percent level plus approved capital needs. In the event of a clearing member default, the amount of equity capital above 110 percent of the target capital requirement will be available to offset the loss after utilizing the margin and clearing fund contributions of the default clearing member. We worked with our clearing members, market participants, and regulators on finalizing our replenishment plan in the unlikely event that we fall below that level due to uninsurable business or operating losses.

We are pleased to be the first SEC-registered clearing agency to offer an innovative approach to 'skin-in-the-game' by including a deferred compensation component. In approving our Capital Management Policy, the SEC said, "OCC also proposes to charge losses remaining after the application of OCC's excess capital to OCC senior management's deferred compensation as well as non-defaulting clearing members. The Commission understands these aspects of the proposal to constitute the first instance where a covered clearing agency is seeking Commission consideration of a 'skin-in-the-game' component to financial risk management for central clearing."

In another example of our increased financial resiliency, Phase II of OCC's Financial Safeguards Framework was approved by the SEC in December 2019, making changes to OCC's rules, clearing fund, and stress testing and margin methodologies to supplement and enhance the 2018 implementation of Phase I of our Financial Safeguards Framework.

Lastly, OCC has an "AA" credit rating with S&P Global (S&P), which places us in the top four percent of all global companies and sovereigns rated by S&P and compares favorably to other global central counterparties.

Whether financial markets are calm or volatile, OCC must deliver seamless clearance, settlement, and risk management services to market participants without exception. In 2019, as in years past, we fulfilled the fiduciary responsibility that our exchanges, clearing member firms, and investors expect from OCC.

We intend to continue that course in 2020 and beyond.

Amy C. Shelly
Chief Financial Officer

Financials

OCC

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Statements of Financial Condition

DECEMBER 31 (IN THOUSANDS)	2019	2018
Assets		
Current Assets:		
Cash and cash equivalents NOTE 2	$ 321,512	$ 393,675
Accounts receivable	59,226	54,898
Exchange billing receivable NOTE 12	87,996	109,159
Due from participant exchanges NOTE 12	194	184
Other current assets	27,996	22,480
Total Current Assets	496,924	580,396
Property and equipment – net NOTE 2	65,765	38,713
Clearing fund deposits NOTES 6, 16	11,060,938	9,457,879
Other assets NOTES 10, 16	52,677	46,572
Deferred income taxes NOTE 13	7,043	8,270
Total Assets	$ 11,683,347	$ 10,131,830
Liabilities and Shareholders' Equity		
Current Liabilities:		
Accounts payable and other	$ 51,207	$ 50,418
SEC transaction fees payable NOTE 12	39,132	27,857
Exchange billing payable NOTE 12	87,996	109,159
Payable to shareholders	–	116,050
Other accrued liabilities	50,175	64,250
Total Current Liabilities	228,510	367,734
Clearing fund deposits NOTES 6, 16	11,060,938	9,457,879
Other liabilities NOTES 14, 15	42,587	38,745
Total Liabilities	11,332,035	9,864,358
Shareholders' Equity: NOTE 7		
Common stock	500	500
Paid-in capital	–	37,827
Retained earnings	384,596	261,438
Accumulated other comprehensive loss NOTES 14, 15 (net of tax benefit of $11,906 in 2019 and $17,816 in 2018)	(33,784)	(32,293)
Total Shareholders' Equity	351,312	267,472
Total Liabilities and Shareholders' Equity	$ 11,683,347	$ 10,131,830

SEE NOTES TO THE FINANCIAL STATEMENTS

Statements of Income and Comprehensive Income

FOR THE YEARS ENDED DECEMBER 31 (IN THOUSANDS)	2019	2018	2017
Revenues			
Clearing fees NOTE 9	$ 467,925	$ 455,283	$ 295,468
Data service fees	4,737	4,795	4,901
Exercise fees	4,895	4,548	3,749
Other	3,431	3,212	285
Total Revenues	480,988	467,838	304,403
Expenses			
Employee costs	163,777	148,374	117,526
Information technology	61,417	58,426	47,742
Professional fees and outside services	63,730	69,871	83,241
General and administrative	45,975	49,044	33,553
Rental, office and equipment	11,884	10,473	7,245
Depreciation and amortization	14,261	12,330	6,064
Loss on sale, property and equipment	–	23	54
Total Expenses	361,044	348,541	295,425
Total Operating Income	119,944	119,297	8,978
Non-Operating Income (Expense)			
Investment income NOTES 8, 10	39,053	60,467	35,780
Interest income NOTE 6	106,998	97,297	19,436
Interest expense NOTE 6	(106,998)	(91,792)	–
Other non-operating expense NOTE 2	(2,036)	(1,904)	(2,693)
Total Non-Operating Income (Expense)	37,017	64,068	52,523
Income Before Income Taxes	156,961	183,365	61,501
Provision for Income Taxes NOTE 13	29,529	49,640	28,989
Net Income	127,432	133,725	32,512
Other Comprehensive Income, Net of Tax			
Pension and postretirement benefit plan adjustments, net of tax of $(234) in 2019, $735 in 2018 and $(494) in 2017	(1,491)	2,722	(807)
Comprehensive Income	$ 125,941	$ 136,447	$ 31,705

SEE NOTES TO THE FINANCIAL STATEMENTS

Statements of Shareholders' Equity

(IN THOUSANDS)	COMMON STOCK	PAID-IN-CAPITAL	ACCUMULATED OTHER COMPREHENSIVE LOSS	RETAINED EARNINGS	TOTAL
Balance - December 31, 2016	$ 500	$ 147,827	$ (27,919)	$ 127,474	$ 247,882
Net income				32,512	32,512
Dividends declared				(32,512)	(32,512)
Amounts included in other comprehensive income, net of tax:					
Changes in unamortized gain			281		281
Changes in unamortized prior service (cost)			(1,088)		(1,088)
Subtotal			(807)		(807)
Balance - December 31, 2017	$ 500	$ 147,827	$ (28,726)	$ 127,474	$ 247,075
Net income / loss				133,725	133,725
Distribution of shareholders' equity		(110,000)		(6,050)	(116,050)
ASU No 2018-02 adoption			(6,289)	6,289	–
Amounts included in other comprehensive income, net of tax:					
Changes in unamortized gain			4,103		4,103
Changes in unamortized prior service (cost)			(1,381)		(1,381)
Subtotal			2,722		2,722
Balance - December 31, 2018	$ 500	$ 37,827	$ (32,293)	261,438	267,472
Net income / loss				127,432	127,432
Distribution of shareholders' equity		(37,827)		(4,274)	(42,101)
Amounts included in other comprehensive income, net of tax:					
Changes in unamortized gain/(loss)			(575)		(575)
Changes in unamortized prior service (cost)			(916)		(916)
Subtotal			(1,491)		(1,491)
Balance - December 31, 2019	$ 500	–	$ (33,784)	$ 384,596	$ 351,312

SEE NOTES TO THE FINANCIAL STATEMENTS

Statements of Cash Flows

DECEMBER 31 (IN THOUSANDS)	2019	2018	2017
Cash Flows From / (Used In) Operating Activities			
Net income	$ 127,432	$ 133,725	$ 32,512
Adjustments to reconcile net income to net cash flows from / (used in) operating activities:			
Unrealized (gains) losses on investments	(3,165)	2,585	(2,014)
Depreciation and amortization	14,261	12,330	6,064
Loss on sale, property and equipment	–	23	54
Deferred income taxes	848	3,323	16,284
Changes in assets and liabilities:			
Accounts receivable and other receivables	16,825	(26,117)	(5,087)
Other current assets	246	8,443	9,236
Restricted cash (clearing fund)	(136,866)	2,793,165	170,144
Other assets	(486)	(2,160)	(2,248)
Purchases of investments included in other assets	(2,376)	(1,925)	(44,530)
Sales of investments included in other assets	(77)	(21)	42,411
Accounts payable and other liabilities	(21,565)	61,900	6,020
Refundable clearing fees	–	(78,716)	32,124
Net Cash Flows From / (Used In) Operating Activities	(4,923)	2,906,555	260,970
Cash Flows (Used In) / From Investing Activities			
Capital expenditures	(35,952)	(32,179)	(14,137)
Net Cash Flows (Used In) / From Investing Activities	(35,952)	(32,179)	(14,137)
Cash Flows (Used In) / From Financing Activities			
Issuance of notes	1,000	–	1,000
Borrowings on revolving line of credit	10,000	60,700	35,000
Repayments on revolving line of credit	(10,000)	(60,700)	(35,000)
Proceeds from liquidity facility repurchase agreements	–	60,000	360,000
Payments for liquidity facility repurchase agreements	–	(60,000)	(360,000)
Payments for debt issuance costs	(11,003)	(5,890)	(6,756)
Dividends paid	–	(32,512)	(25,614)
Distribution to shareholders	(158,151)	–	–
Net Cash Flows (Used In) / From Financing Activities	(168,154)	(38,402)	(31,370)
Net increase/ (decrease) in cash, cash equivalents and restricted cash	(209,029)	2,835,974	215,463
Cash, cash equivalents and restricted cash, beginning of year	5,697,220	2,861,246	2,645,783
Cash, cash equivalents and restricted cash, end of year	$ 5,488,191	$ 5,697,220	$ 2,861,246
Reconciliation of Cash, Cash Equivalents and Restricted Cash			
Cash and cash equivalents	321,512	393,675	350,866
Restricted cash (clearing fund)	5,166,679	5,303,545	2,510,380
Total	$ 5,488,191	$ 5,697,220	$ 2,861,246
Noncash Investing Activities			
Distribution of shareholders' equity	–	(116,050)	–
Accounts payable for capital expenditures	5,362	–	–
Total Noncash Investing Activities	$ 5,362	$ (116,050)	$ –
Supplemental disclosure of cash flow information:			
Cash paid for income taxes	$ 65,255	$ 15,469	$ 11,236
Cash paid for interest	467	283	66

SEE NOTES TO THE FINANCIAL STATEMENTS

Notes to the Financial Statements

AS OF DECEMBER 31, 2019 AND 2018, AND FOR THE YEARS ENDED DECEMBER 31, 2019, 2018 AND 2017

NOTE 1. NATURE OF OPERATIONS

The Options Clearing Corporation ("OCC" or "the Corporation") is a central counterparty ("CCP") and the world's largest equity derivatives clearing organization. Founded in 1973, OCC operates under the jurisdiction of the Securities and Exchange Commission ("SEC") as a Registered Clearing Agency, the Commodity Futures Trading Commission ("CFTC") as a Derivatives Clearing Organization, and under prudential regulation by the Board of Governors of the Federal Reserve System (the "Federal Reserve") as a systemically important financial market utility ("SIFMU"). OCC provides CCP clearing and settlement services to 20 exchanges and trading platforms for options, financial futures, security futures and securities lending transactions. OCC clears contracts based on several types of underlying interests, including equity interests; stock, commodity and other indexes; foreign currencies; interest rate composites; debt securities and precious metals. OCC is headquartered in Chicago, Illinois and has offices in Texas and Washington DC.

NOTE 2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

BASIS OF PRESENTATION AND USE OF ESTIMATES
The financial statements have been prepared in conformity with accounting principles generally accepted in the United States of America ("GAAP"). The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. Although these estimates and assumptions are based on the best available information, actual results could differ from those estimates.

CASH AND CASH EQUIVALENTS Management defines cash and cash equivalents to include cash from banks and highly liquid investments. OCC considers all highly liquid investments with an initial maturity of three months or less from the date of purchase to be cash equivalents. In 2019 and 2018, cash equivalents are comprised of investments in reverse repurchase agreements with major banking institutions, which mature on the next business day. Under these agreements, OCC purchases United States of America ("U.S.") Treasury securities and the counterparties agree to repurchase the instruments the following business day at a set price, plus interest. During the term of the agreements, the underlying securities are transferred through the Federal Reserve to a custodial account maintained by the transacting bank for the benefit of OCC. The reverse repurchase agreements are secured with collateral that has a market value greater than or equal to 102% of the cash invested at the time the trade is placed. At December 31, 2019 and 2018, the carrying value of OCC's cash equivalents approximates fair value due to the short maturities of these investments.

PROPERTY AND EQUIPMENT Property and equipment are stated at historical cost, less accumulated depreciation and amortization. Depreciation is computed using straight-line and accelerated methods based on estimated useful lives that range from five to thirty-nine and one half years. Leasehold improvements are amortized over the shorter of the remaining term of the lease or the useful life of the asset.

OCC capitalizes direct and incremental costs, both internal and external, related to software developed or obtained for internal use in accordance with GAAP. Software, which includes capitalized labor, is amortized on a straight-line basis over a useful life of five years. In 2019, OCC capitalized software development costs of $17.7 million, including $6.2 million of internal labor costs. No internal costs were capitalized in 2018 or 2017. Amortization expense related to computer software was $1.9 million, $5.1 million and $4.8 million for 2019, 2018 and 2017, respectively.

Property and equipment consisted of the following:

AS OF DECEMBER 31, (IN THOUSANDS)	2019	2018
Leasehold improvements	$ 32,031	$ 27,606
Equipment, furniture and other	33,294	17,818
Software	150,915	131,436
Hardware leased	3,995	2,178
Software leased	6,254	6,137
Total property and equipment	226,489	185,175
Accumulated depreciation and amortization	(160,724)	(146,462)
Property and equipment - net	$ 65,765	$ 38,713

IMPAIRMENT OF LONG-LIVED ASSETS OCC reviews its long lived assets for possible impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be fully recoverable. If this review indicates that the carrying amount of a long-lived asset is not recoverable, the carrying amount is reduced to the fair value. As of December 31, 2019 and 2018, OCC determined that no assets were impaired, and no impairment charges were recorded in the financial statements.

INCOME TAXES The Corporation files U.S. federal income tax returns and state income tax returns in various states. OCC accounts for income taxes under the asset and liability method. Under this method, deferred tax assets and liabilities are recorded based on the differences between the financial accounting and tax bases of assets and liabilities. Deferred tax assets and liabilities are recorded based on the currently enacted tax rate expected to apply to taxable income in the year in which the deferred tax asset or liability is expected to be settled or realized. OCC may record uncertain tax positions and the related interest and penalties based on management's assessment of whether a tax benefit is more likely than not to be sustained upon examination by the tax authorities. Uncertain tax positions are classified as current only when OCC expects to pay in the next twelve months. Income taxes are discussed in more detail in Note 13.

INVESTMENTS OCC designates all of its investments as trading securities in accordance with GAAP and are recorded at fair value.

REVENUE RECOGNITION Revenue is recognized as services are rendered and performance obligations are satisfied. OCC's revenues primarily consist of clearing fee revenues, which include per contract charges for clearing services, which are billed on a monthly basis and recorded as a receivable. Collections are paid within five days after month-end. Data service fees are charged monthly based on a tiered fee structure and services provided may include access to OCC's proprietary clearing system and proprietary website, as well as receipt of files or report bundles. Exercise fees are charged for each item exercised and are also billed on a monthly basis. Investment and interest income is recorded on an accrual basis when earned. No estimates are used for recording the above fees as they are based on a published fee schedule or agreement.

In May 2014, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") 2014-09, *Revenue from Contracts with Customers, Topic 606*. The new revenue recognition standard provides a five step analysis of transactions to determine when and how revenue is recognized. The core principle is that a company should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects what the entity expects to be owed for those goods or services. The Corporation adopted the new standard effective January 1, 2019. The adoption of the new standard effective January 1, 2019 had no impact on the Corporation's financial statements.

STATEMENTS OF CASH FLOW In November 2016, the FASB issued ASU 2016-18, *Statement of Cash Flows (Topic 230)*, which amends ASC 230 to add and clarify guidance on the classification and presentation of restricted cash in the statement of cash flows. The Corporation adopted the new standard effective January 1, 2019 and was applied retrospectively. The adoption of the standard did not materially change the Corporation's financial statements. However, it resulted in a presentation change to the

Statements of Cash Flow by broadening the definition of cash and cash equivalents to include cash equivalents held by Clearing Members in the Clearing Fund (Note 6).

PENSION SERVICE COSTS In March 2017, the FASB issued ASU 2017-07, *Compensation – Retirement Benefits (Topic 715)*. This update requires an employer to report the service cost component in the same line item or items as other compensation costs arising from services rendered by the pertinent employees during the period. The other components are required to be presented in the income statement separately from the service cost component and outside a subtotal of income from operations. For nonpublic entities, this update was effective beginning after December 15, 2018. The Corporation adopted the new standard effective January 1, 2019 and was applied retrospectively. OCC has determined that all components of the net periodic costs for the qualified plans are to be reported as a non-operating expense on the Statements of Income and Comprehensive Income.

NEW ACCOUNTING PRONOUNCEMENTS In February 2016, the FASB issued ASU 2016-02 *Leases, Topic 842*, which supersedes Topic 840, *Leases*. This ASU increases the transparency and comparability of organizations by recognizing lease assets and lease liabilities on the balance sheet and disclosing key information about leasing arrangements. At the lease commencement date, a lessee recognizes a lease liability and right-of-use asset, which is initially measured at the present value of future lease payments. There are two approaches for amortizing the right-of-use asset. Under the finance lease approach, interest on the lease liability is recognized separately from amortization of the right-of-use asset. Repayments of the principal portion of the lease liability will be classified as financing activities and payments of interest on the lease liability and variable lease payments will be classified as operating activities in the statement of cash flows. Under the operating lease approach, the cost of the lease is calculated on a straight-line basis over the life of the lease term. All cash payments are classified as operating activities in the statement of cash flows. This ASU is effective for annual periods beginning after December 15, 2020 for nonpublic companies. OCC is evaluating the impact this change will have on its financial statements and disclosures.

In August 2018, the FASB issued ASU 2018-13, *Fair Value Measurement (Topic 820): Disclosure Framework – Changes to the Disclosure Requirements for Fair Value Measurement*, which amends ASC 820 to add, remove and modify fair value measurement requirements. For nonpublic entities, this update is effective for fiscal years beginning after December 15, 2019. OCC is evaluating the impact this change will have on the disclosures.

In June 2016, the FASB issued ASU 2016-13, *Financial Instruments – Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*. The ASU adds an impairment model (known as the current expected credit loss or CECL) that is based on expected losses rather than incurred losses. It's anticipated that adoption of the new guidance will result in more timely recognition of such losses. For nonpublic entities, this update is effective beginning January 1, 2023. OCC is evaluating the impact on its financial statements and disclosures.

On August 28, 2018, the FASB issued ASU 2018-14, *Compensation – Retirement Benefits – Defined Benefit Plans – General*. This ASU eliminates requirements for certain disclosures that are no longer considered cost beneficial and requires new ones that FASB considers pertinent. For nonpublic entities, this update is effective for fiscal years ending after December 15, 2021. OCC is evaluating the impact on its financial statements and disclosures.

On August 29, 2018, the FASB issued ASU 2018-15, *Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement (CCA) that is a Service Contract*. ASU 2018-15 aligns the accounting for costs incurred to implement a CCA that is a service arrangement with the guidance on capitalizing costs associated with developing or obtaining internal-use software. Specifically, the ASU amends ASC 350 to include in its scope implementation costs of a CCA that is a

service contract and clarifies that a customer should apply ASC 350-40 to determine which implementation costs should be capitalized in a CCA that is considered a service contract. For nonpublic entities, this update is effective for fiscal years ending after December 15, 2021. OCC is evaluating the impact on its financial statements and disclosures.

NOTE 3. GUARANTEES

OCC performs a guarantee function that ensures the financial integrity of the markets in which it clears contracts. In its role as guarantor and central counterparty, OCC ensures that the obligations of the contracts it clears are fulfilled. Through a novation process, OCC becomes the buyer for every seller and the seller for every buyer, protecting Clearing Members from counterparty risk and allowing the settlement of trades in the event of a Clearing Member default.

OCC does not assume any guarantor role unless it has a precisely equal and offsetting claim against a Clearing Member. OCC's obligations under the guarantee would arise if a Clearing Member were unable to meet its obligations to OCC. Margin deposits, collateral in lieu of margin deposits, and clearing fund deposits are required to collateralize Clearing Members' obligations and support OCC's guarantee.

As of December 31, 2019, and 2018, the amount of margin required by OCC to support its guarantee was $53.4 billion and $55.7 billion, respectively, which represents the aggregate market value of outstanding positions plus an additional amount to cover adverse price movements. Margin deposits and clearing fund deposits are discussed in Notes 5 and 6, respectively.

As OCC only assumes the guarantor role if it has an equal and offsetting claim, the fair value of the open interest of options and futures contracts and securities lending positions cleared and settled by OCC is not included in the Statements of Financial Condition. There were no events of default during the years ended 2019 or 2018 for which a liability should be recognized in accordance with GAAP.

NOTE 4. OFF-BALANCE SHEET RISK AND CONCENTRATION OF CREDIT RISK

Credit risk represents the potential for loss due to the deterioration in credit quality or default of a counterparty or an issuer of securities or other instruments. OCC's exposure to credit risk comes from its clearing and settlement operations and from financial assets, which consist primarily of cash and cash equivalents, accounts receivable, and margin and clearing fund deposits.

CASH AND CASH EQUIVALENTS OCC maintains cash and cash equivalents with various financial institutions. When Clearing Members provide margin and clearing fund deposits in the form of cash, OCC may invest the cash deposits in overnight reverse repurchase agreements.

OCC bears credit risk related to overnight reverse repurchase agreements to the extent that cash advanced to the counterparty exceeds the value of collateral received. These securities have minimal credit risk due to the low probability of U.S. government default and their highly liquid and short-term nature. Additionally, OCC requires 102% in market value of collateral received compared to the cash provided to the counterparties.

OCC is also exposed to risk related to the potential inability to access liquidity in financial institutions where it holds cash and cash equivalents. The financial institutions are in different geographical locations and OCC monitors their financial condition on an ongoing basis to identify any significant changes.

ACCOUNTS RECEIVABLE Credit risk related to accounts receivable includes the risk of nonpayment by the counterparty. OCC's credit risk is diversified due to the large number of Clearing Members composing OCC's customer base. OCC also conducts ongoing evaluations of the institutions with which it does business.

CLEARING MEMBERS, MARGIN AND CLEARING FUND OCC bears counterparty credit risk in the event that Clearing Members fail to meet their obligations to OCC.

OCC reduces its exposure through a risk management program that strives to achieve a prudent balance between market integrity and liquidity. This program of safeguards, which provides support to OCC's guarantee, consists of rigorous initial and ongoing financial responsibility standards for membership, margin deposits and clearing fund deposits. In 2019, OCC maintained two liquidity facilities to support potential liquidity needs in the event of a Clearing Member default, as described in Note 11. One facility is a syndicated line of credit with major domestic and foreign banks and the other is a repurchase facility with a large pension fund.

If a Clearing Member does not meet its settlement obligation to OCC or is declared in default, OCC may utilize the defaulting member's margin and clearing fund deposits to cover any losses resulting from the default. If those resources are exhausted, OCC may then use the respective clearing fund deposits of all Clearing Members on a pro-rata basis.

The collateral posted by Clearing Members is also subject to market and credit risk, as there is a risk of price fluctuations and nonperformance by the counterparty, which could result in a material loss. To mitigate this risk, OCC only allows collateral deposits at approved OCC banks or securities depositories, which OCC monitors on an ongoing basis.

NOTE 5. MARGIN DEPOSITS

OCC's rules require each Clearing Member representing the seller of an option to collateralize its contract obligations by either depositing the underlying security (i.e."specific deposits"), other securities in lieu of margin deposits or by maintaining specified margin deposits. Margin deposits are also required for futures, futures options positions and stock loan/borrow positions. Securities in lieu of margin and margin deposits may include cash, bank letters of credit, U.S. and Canadian Government securities, U.S. Government sponsored enterprise debt securities ("GSE debt securities") or other acceptable margin securities ("valued securities"), which may consist of common stocks and exchange-traded funds ("ETFs").

The margin deposits of each Clearing Member are available to meet the financial obligations of that specific Clearing Member to OCC. The market value of all obligations is determined on a daily basis and OCC may issue intra-day margin calls for additional margin deposits, if necessary. Margin deposits must meet specified requirements, as provided for in OCC's rules, and all margin deposits are held at approved securities depositories or banks, except letters of credit.

Since OCC does not take legal ownership of margin deposits or securities deposited in lieu of margin deposits, the below assets are not reflected in the Statements of Financial Condition. However, OCC has rights to these assets in the event of a Clearing Member default. At December 31, 2019 and 2018, margin deposits exceeded OCC's required margin.

The fair values of securities in lieu of margin deposits and margin deposits at December 31, 2019 and 2018 were as follows (foreign securities are converted to U.S. dollars using the year-end exchange rate):

AS OF DECEMBER 31, (IN THOUSANDS)	2019	2018
Valued securities	$ 49,985,843	$ 52,541,696
Specific deposits	30,399,949	19,922,389
Government securities	17,116,278	15,863,089
Cash and cash equivalents	2,192,261	4,756,692
Bank letters of credit	664,000	959,000
Total	$ 100,358,331	$ 94,042,866

VALUED SECURITIES Valued securities consist of common stock (including fund shares) and are traded on U.S. securities exchanges or in the NASDAQ National Market System and are principally valued using the composite closing price. Valued securities are included in margin calculations and the value ascribed to this collateral is based on OCC's margin methodology, rather than traditional haircuts. As a result, the margin calculations reflect the scope for price movements to exacerbate or mitigate losses on the cleared products in the account.

SPECIFIC DEPOSITS OCC also accepts specific deposits, which are pledges of underlying stock to OCC that cover a specified short equity call option series. Specific deposits are collateral deposited in lieu of margin and reduce the calculated Clearing Member's daily margin requirement. Specific deposits are also generally traded on U.S. securities exchanges or in the NASDAQ National Market System and are generally valued using the composite closing price.

GOVERNMENT SECURITIES AND GSE DEBT SECURITIES For margin requirements, Clearing Members may deposit U.S. and Canadian Government securities, as well as eligible GSE debt securities. GSE debt securities must be approved by OCC's Risk Committee and include debt securities issued by congressionally-chartered corporations, such as the Federal Home Loan Mortgage Corporation ("Freddie Mac") and the Federal National Mortgage Association ("Fannie Mae"). Coupon interest and maturity payments on delivered Government and GSE debt securities are initially paid to OCC and then credited to Clearing Members. For daily margin purposes, U.S. Government securities (excluding Treasury Inflation Protected securities) are included in margin calculations and the value ascribed to this collateral is based on OCC's margin methodology. OCC haircuts the market value of (i) U.S. and Canadian Government securities not included in margin calculations or (ii) GSE debt securities to provide a cushion against adverse price fluctuations. The haircuts for Government and GSE debt securities are based on a maturity schedule and range from 0.5% to 7%. Government securities are valued on the basis of evaluated prices provided by independent pricing services.

CASH AND CASH EQUIVALENTS Cash and cash equivalents held as margin deposits may be invested, and any interest or gain received, or loss incurred is included as Investment income in the Statements of Income and Comprehensive Income.

BANK LETTERS OF CREDIT Under OCC's rules, bank letters of credit are required to be irrevocable and may only be issued by banks or trust companies approved by OCC. No more than 50% of a Clearing Member's margin on deposit may include letters of credit, and no more than 20% may include letters of credit issued by any one institution. Letters of credit are valued at their commitment amount.

ESCROW DEPOSITS OCC has an Escrow Deposit Program ("Program") that allows a customer of a Clearing Member to deposit cash and/or fully-paid for securities (including common stock and fund shares in addition to U.S. Government Securities), held at OCC approved escrow banks, as supporting collateral to cover short positions in call and put index options and equity put options. Collateral consisting of securities must be pledged to OCC by the escrow banks via the Depository Trust and Clearing Corporation and cash escrow deposits must be held in a tri-party account between OCC, the escrow bank and the customer. Both the security and cash escrow deposits are viewable in OCC's collateral system by OCC, clearing members and escrow banks.

An escrow deposit is considered a deposit in lieu of margin, therefore, the covered short position is not subject to margining by OCC. OCC has specified collateral restrictions for escrow deposits. Escrow deposits for a short position in an equity or an index put option can consist of cash and U.S. Government securities in any combination. Escrow deposits related to a short position in an index call option can consist of cash, U.S. Government securities and common stocks (including fund shares) in any combination, that are listed on a national securities exchange or the NASDAQ Stock Market.

As of December 31, 2019 and 2018, deposits were held for 179,000 and 148,000 short equity and index options contracts in the Escrow Deposit Program, respectively, and the fair value of the underlying securities (times the unit of trading or the multiplier, as appropriate) was approximately $17.2 billion and $17.8 billion.

CROSS-MARGIN ARRANGEMENTS OCC also maintains a cross-margining arrangement with a U.S. commodities clearing organization. Under the terms of these arrangements, an OCC Clearing Member that is also a Clearing Member of a commodities clearing organization participating in the cross-margining arrangement, or that has an affiliate that is a Clearing Member of the commodities clearing organization, may maintain cross-margin accounts. Within these cross-margin accounts, the Clearing Members' positions in OCC-cleared options are combined with positions of the Clearing Member (or its affiliate) in futures contracts and/or options on futures contracts for purposes of calculating margin requirements. Margin deposits on the combined positions are held jointly by OCC and the participating commodities clearing organization and are available (together with any proceeds of the options and futures positions themselves) to meet financial obligations of the Clearing Members to OCC and the commodities clearing organization. In the event that either OCC or participating commodities clearing organization suffers a loss in liquidating positions in a cross-margin account, the loss is to be shared between OCC and the participating commodities clearing organization. Margin deposits for these cross-margin accounts may be in the form of cash, valued securities, U.S. Government securities, U.S. GSE debt securities or bank letters of credit, and are reflected in the margin deposit table. OCC's share of margin deposits subject to cross-margin agreements were $382.3 million and $449.2 million at December 31, 2019 and 2018, respectively.

NOTE 6. CLEARING FUND DEPOSITS

OCC calculates the required fund based upon a methodology intended to simulate potential losses in the event of a simultaneous default of its two largest Clearing Member Groups. The clearing fund size is established at an amount to be sufficient to protect OCC from loss under simulated default scenarios. A Clearing Member's contribution is the sum of $500,000 and a separate amount equal to the weighted average of the Clearing Member's proportionate shares of total risk, open interest and volume, in all accounts of the Clearing Member. As of December 31, 2019, and 2018, the weightings were: total risk 70%, open interest 15% and volume 15%.

The clearing fund mutualizes the risk of default among all Clearing Members. The entire clearing fund is available to cover potential losses in the event that the margin deposits and the clearing fund deposits of a defaulting Clearing Member are inadequate or not immediately available to fulfill that Clearing Member's outstanding financial obligations. In the event of a default, OCC is generally required to liquidate the defaulting Clearing Member's open positions. To the extent that the positions remain open, OCC is required to assume the defaulting Clearing Member's obligations related to the open positions. The clearing fund is available to cover the cost of liquidating a defaulting Clearing Member's open positions or performing OCC's obligations with respect to positions not yet liquidated.

Clearing fund deposits must be in the form of cash or U.S. and Canadian Government securities, as the clearing fund is intended to provide OCC with a highly liquid pool of assets. OCC discounts the fair value of U.S. and Canadian Government securities on a daily basis to provide a cushion against adverse price fluctuations. Cash held as clearing fund deposits may be invested at an approved bank, and any interest or gain received, or loss incurred on invested funds is recorded in the Statements of Income and Comprehensive Income.

OCC has an approved account at the Federal Reserve Bank of Chicago. As of December 31, 2019 and 2018, the balance held at the Federal Reserve Bank of Chicago totaled $5.1 billion and $5.1 billion, respectively. Interest earned is recorded as Interest Income under Non-Operating Income (Expense) in the Statements of Income and Comprehensive Income. Beginning March 1, 2018, with the SEC's approval of OCC's Financial Safeguards, clearing members are required to maintain a minimum of $3 billion in cash in the clearing fund. The cash resides in an account at the Federal Reserve Bank of Chicago. Interest earned on those funds is passed through to the clearing members on a proportional basis and shown on the Statement of Income and Comprehensive Income as Distribution of interest earned on clearing fund. OCC charges a cash management fee of 5 basis points monthly.

The U.S. Government securities included in the clearing fund are valued using inputs from pricing services that include interest accruing on the next coupon payment. Canadian Government securities are pledged, rather than delivered to OCC. Clearing Members maintain control of the interest payment for Canadian Government securities and, therefore, the accrued interest is not included in the fair value for these securities.

The fair value of the clearing fund is included in the Statements of Financial Condition as Clearing fund deposits. The collateral types and their fair values at December 31, 2019 and 2018 are as follows (Canadian Government securities are converted to U.S. dollars using the year-end exchange rate):

AS OF DECEMBER 31, (IN THOUSANDS)	2019	2018
U.S. Government securities	$ 5,737,748	$ 4,022,193
Cash and cash equivalents	5,166,679	5,303,545
Canadian Government securities	156,511	132,141
Total	$ 11,060,938	$ 9,457,879

NOTE 7. SHAREHOLDERS' EQUITY

OCC has Class A and Class B common stock, each with a $10 par value, 60,000 shares authorized, and 25,000 shares issued and outstanding at December 31, 2019. At December 31, 2018, OCC had Class A and Class B common stock each with 25,000 shares authorized, issued and outstanding and Class C common stock, with a $1,000 par value, 300,000 shares authorized, and no shares issued or outstanding.

The Class B common stock is issuable in twelve series of 5,000 shares each. In the event of liquidation of OCC, holders of Class A common stock and Class B common stock would first be paid the par value of their shares. Next, each holder of Class B common stock would receive a distribution of $1 million. Subsequently, an amount equal to OCC's shareholders' equity at December 31, 1998 of $22.9 million minus the distributions described above, would be distributed to those holders who acquired their Class B common stock before December 31, 1998. Finally, any remaining shareholders' equity would be distributed equally to all holders of Class B common stock.

The by-laws of OCC provide that any national securities exchange or national securities association, which meets specific requirements, may qualify for participation in OCC. Until 2002, exchanges qualified for participation by purchasing 5,000 shares of Class A common stock and 5,000 shares of Class B common stock. The purchase price for these shares was the aggregate book value of a comparable number of shares at the end of the preceding calendar month, but not more than $1 million. In 2002, OCC amended its by-laws to provide that exchanges would qualify for participation in OCC by purchasing a $1 million interest bearing promissory note. Five of OCC's participant exchanges were shareholders as of December 31, 2019 and 2018. Eleven participant exchanges were noteholders as of December 31, 2019 and ten participant exchanges as of December 31 2018. These interest-bearing notes are recorded in Accounts Payable and other in the Statements of Financial Condition and were $11.0 million at December 31, 2019 and $10.0 million at December 31, 2018.

OCC is a party to a Stockholders Agreement with its shareholders. The Stockholders Agreement provides that each shareholder appoints the members of the Governance and Nominating Committee of the Board of Directors as its proxy for purposes of voting its shares for the election of member directors, management director(s), and public director(s). The Governance and Nominating Committee nominates individuals for election as member directors and public directors. Under certain circumstances, it also provides for OCC to purchase all of the stock owned by any shareholder; however, the obligation to pay the purchase price will be subordinated to OCC's obligations to creditors, and the purchase price cannot be paid if the payment would reduce capital and surplus below $1 million. The purchase price is the lesser of the aggregate book value of the shares or the original purchase price paid, less $240,000, $180,000, $120,000, $60,000 or zero after the second, third, fourth, fifth or sixth year, respectively, from the date of sale of the stock.

OCC is also party to a Noteholders Agreement with the noteholders. The Noteholders Agreement provides OCC with the right to purchase all notes owned by any noteholder under certain circumstances; however, the obligation to pay the purchase price will be subordinated to OCC's obligations to creditors except that such obligation will not be subordinate to OCC's obligation to pay the purchase price to any other noteholder or any shareholder under the Stockholders Agreement. If OCC exercises these purchase rights, the purchase price for the two years following the date of OCC's execution is the original aggregate principal amount of the notes plus any accrued and unpaid interest reduced by $300,000. Thereafter, the purchase price is the original aggregate principal amount of the notes plus any accrued and unpaid interest, less $240,000, $180,000, $120,000, $60,000 or zero after the second, third, fourth, fifth or sixth year, respectively, from the date the note was executed.

NOTE 8. REVERSE REPURCHASE AGREEMENTS

Reverse repurchase agreements outstanding, including amounts in cash and cash equivalents and margin and clearing fund deposits, had a daily average of $1.6 billion and $4.0 billion during 2019 and 2018, respectively. The maximum amount outstanding was $3.7 billion during 2019 and $11.1 billion during 2018. Amounts outstanding and included in cash and cash equivalents in the Statements of Financial Condition at December 31, 2019 was $295 million. Amounts outstanding and included in cash and cash equivalents in the Statements of Financial Condition at December 31, 2018 was $365 million. No Clearing fund deposit amount was invested as of December 31, 2019. Clearing fund deposit amounts invested at December 31, 2018 were $70 million and were included within clearing fund deposits in the Statements of Financial Condition. Margin deposits had amounts outstanding at December 31, 2019 and 2018 of $1.1 billion and $4.2 billion, respectively.

Interest income earned on these reverse repurchase agreements totaled $31.7 million, $60.3 million, and $32.6 million for the years ending December 31, 2019, 2018 and 2017. This interest income is recorded within Investment income on the Statements of Income and Comprehensive Income.

NOTE 9. CLEARING FEES

OCC's Board of Directors ("Board") sets clearing fees to cover OCC's operating expenses plus an additional amount set by the Board in accordance with the Capital Management Policy (Note 18). For the year ending December 31, 2017, and in accordance with the then-approved Capital Plan, refunds were declared in an aggregate amount equal to 50% of the distributable earnings before taxes, which allowed for OCC to retain capital if required. Distributable earnings before taxes was established at 25% above operating expenses. In 2018, the Board of Directors elected to retain the capital above the 25% operating margin as well as taxes related to the capital retention, to be used for future capital expenditures. During 2017, OCC did not retain capital from earnings. Subsequent to the refund declaration in 2017 and in accordance with a then-approved Capital Plan, any distributable earnings after taxes remaining were distributed to stockholders in the form of a dividend. Refunds were $78.7 million for year ended December 31, 2017. No refund was recognized for the year ended December 31, 2019 or December 31, 2018. Clearing fees are recorded net of refunds, if any, in the Statements of Income and Comprehensive Income. On April 1, 2019, OCC increased its clearing fee from $0.05 to $0.055 per contract. The maximum per trade fee remains at $55.

NOTE 10. OTHER ASSETS

Other assets, which include investments for the supplemental executive retirement plan ("SERP") and the deferred compensation plan, consisted of the following:

AS OF DECEMBER 31, (IN THOUSANDS)	2019	2018
SERP NOTE 14	$ 31,750	$ 30,020
Executive deferred compensation plan NOTE 11	11,227	7,790
Other assets	9,700	8,762
Total other assets	$ 52,677	$ 46,572

SERP investments are recorded at fair value and changes in fair value are recorded as Investment Income under Non-Operating Income (Expense) in the Statements of Income and Comprehensive Income. The amount recorded as Investment income/(loss) for SERP investments for the years ended December 31, 2019, 2018 and 2017 was $4.1 million, ($746,000) and $2.0 million, respectively.

Investments held in the executive deferred compensation plan are recorded at fair value and changes in fair value are recorded as Investment Income under Non-Operating Income (Expense) in the Statements of Income and Comprehensive Income. The amount recorded in Investment Income and Employee costs for the executive deferred compensation plan investments for the years ended December 31, 2019, 2018 and 2017 was $1.3 million, ($291,000) and $1.2 million, respectively.

NOTE 11. COMMITMENTS

LEASES OCC leases office space, as well as data processing and other equipment. Rental expense under these leases for the years ended December 31, 2019, 2018 and 2017 was $52.1 million, $52.5 million and $39.8 million, respectively.

On December 15, 2017, OCC entered into an agreement with Banc of America Leasing & Capital, LLC ("BALC") for the lease of property improvements and fixtures for the office in Texas. The lease agreement has a principal amount of $4.7 million and a term of 7 years, at the end of which OCC has a bargain purchase option to repurchase the improvements at $1.

Future minimum aggregate rental payments under operating leases having initial or remaining noncancelable lease terms in excess of one year as of December 31, 2019 are as follows:

(IN THOUSANDS)	OPERATING LEASES	CAPITAL LEASES
2020	$ 13,401	$ 3,597
2021	10,226	1,937
2022	7,686	758
2023	7,293	757
2024	5,959	757
Thereafter	45,832	-
Total minimum lease payments	$ 90,397	$ 7,806
Amount representing interest	N/A	(377)
Present value of minimum lease payments	N/A	$ 7,429

EMPLOYEE COSTS OCC entered into employment agreements with certain senior officers. The aggregate commitment for future salaries and deferred compensation payments at December 31, 2019 and 2018, excluding bonuses, was approximately $1.7 million and $1.6 million, respectively.

Effective January 1, 2006, OCC implemented the Executive Deferred Compensation Plan ("Plan") for senior officers. At December 31, 2019 and 2018, the Plan was funded in the amount of $3.9 million and $3.0 million, respectively. Amounts contributed to the Plan prior to 2014 become vested and payable on the fifth anniversary of the date it is credited to the participants' account provided the participant remains continuously employed by OCC at the vesting date. All contributions made in 2014 and thereafter will vest and become payable on the third anniversary. The Plan investments, consisting primarily of mutual funds, are designated as trading under applicable accounting guidance.

Additionally, retention payments are credited to the Plan for certain employees. These payments vest in intervals over the next two years and are funded to the participant's accounts. Retention payments in the amount of $73,000 were made in 2019. Retention payments in the amount of $600,000 were made in 2018.

LINES OF CREDIT In 2019, OCC maintained two liquidity facilities which were available to enable OCC to meet Clearing Member default or suspension obligations or to cover certain other bankruptcy losses. One facility was a 364-day syndicated, committed, line of credit with major domestic and foreign banks in the amount of $2.5 billion at December 31, 2019, for which commitment fees were paid to the participating banks. OCC maintained a similar $2.0 billion, committed line of credit at December 31, 2018. The other facility was a 364-day, $1.0 billion committed, liquidity facility with the California Public Employees' Retirement System ("CalPERS") divided into two $500 million tranches for which commitment fees and interest were paid on a quarterly basis. Under this facility, OCC entered into a Master Repurchase Agreement with CalPERS and had the ability to sell U.S. Government securities with an agreement to repurchase those securities within thirty days. In 2019, OCC renewed the liquidity facility and extended the maturity of the $500 million tranche expiring in September until January 2020. No amounts were outstanding as of December 31, 2019 or 2018 under either of these facilities.

On August 16, 2019, OCC secured a 364-day, committed, line of credit with BMO Harris Bank N.A. in the amount of $35 million to finance working capital needs and for general corporate purposes. No amount was outstanding at December 31, 2019.

NOTE 12. RELATED PARTY TRANSACTIONS AND OTHER MARKET AGREEMENTS

OCC bills and collects transaction fees on behalf of certain exchanges for which it provides clearing and settlement services. Fees billed and uncollected by OCC, and not remitted to the exchanges, at December 31, 2019 and 2018 were $88.0 million and $109.2 million respectively, and are included in the Statements of Financial Condition as Exchange billing receivable and Exchange billing payable. In addition, OCC bills and collects Section 31 transaction fees on behalf of certain exchanges that are remitted to the SEC. At December 31, 2019, the Section 31 fees yet to be collected from Clearing Members was $13.4 million and included in the Statements of Financial Condition under Accounts receivable. The Section 31 fees already received, but not yet remitted to the SEC, are included in SEC transaction fees payable.

OCC is also a party to a Restated Participant Exchange Agreement dealing with the business relationship between and among OCC and each participant options exchange.

In 1992, OCC and its participant options exchanges formed an industry organization named The Options Industry Council ("OIC"). The total amounts expended by OCC on behalf of OIC, before reimbursement from the participant exchanges, for the years ended December 31, 2019, 2018 and 2017 were $5.4 million, $5.4 million, and $5.9 million, respectively. In 2018, a decision was made to no longer collect from the exchanges their share of OIC expenditures. The exchanges' share of OIC expenditures was $200,000 for the year ended December 31, 2017. At December 31, 2019 and 2018, the amounts due from participant exchanges for OIC and other related expenditures were $40,000.

OCC is also a party to clearing and settlement services agreements for certain commodity contracts with Cboe Futures Exchange, LLC, NASDAQ Futures, Inc., and One Chicago LLC, each of which is a designated contract market and an affiliated futures market as defined in OCC's by-laws.

NOTE 13. INCOME TAXES

The provision for income taxes is reconciled to the amount determined by applying the statutory federal income tax rate to income before taxes as follows:

YEARS ENDED DECEMBER 31, (IN THOUSANDS)	2019	2018	2017
Federal income tax at the statutory rate	$ 32,962	$ 38,507	$ 21,525
Permanent tax differences	1,652	3,777	799
State income tax effect	994	9,133	1,949
Rate changes	–	(1,034)	6,567
Federal R&D Credit - 2018 & 2019	(4,254)	–	–
Uncertain tax position	1,486	–	(2,646)
Impact for Amended Returns 2015-2017	(2,310)	–	–
Other	(1,001)	(743)	795
Provision for income taxes	$ 29,529	$ 49,640	$ 28,989

The components of OCC's income tax provision (benefit) for the years ended December 31, 2019, 2018 and 2017 are as follows (in thousands):

	2019	2018	2017
Current income tax (benefit)			
Federal	$ 27,337	$ 35,473	$ 14,540
State and local	1,344	10,844	(1,835)
Deferred income tax			
Federal	916	3,037	15,232
State and local	(68)	286	1,052
Provision for income taxes	$ 29,529	$ 49,640	$ 28,989

Uncertain income tax positions are recognized based on a "more likely than not" threshold. Penalties and interest are recognized in the Provision for Income Taxes in the Statements of Income and Comprehensive Income. The balance of unrecognized tax benefits as of December 31, 2019 was $1.72 million ($1.67 million net of the federal benefit of state matters), which if recognized would favorably affect the effective tax rate in any future periods. There were no unrecognized tax benefits as of December 31, 2018. The Company does not believe it is reasonably possible that, within the next twelve months, unrecognized domestic tax benefits will change by a significant amount. As of December 31, 2019, no liability for interest or penalties has been recognized.

OCC is subject to U.S. federal income tax, as well as income tax in various state and local jurisdictions. Currently, federal tax returns for the years 2016-2018 and various state returns for the years 2015-2018 remain open.

Amounts reported in the consolidated financial statements and the tax basis of assets and liabilities result in temporary differences. The deferred tax asset consists of the following:

AS OF DECEMBER 31, (IN THOUSANDS)	2019	2018
Compensation, employee benefits and prepaid expenses	$ (2,521)	$ (2,888)
Accelerated depreciation and amortization	(5,187)	(3,042)
Deferred rent	3,424	2,483
Pension, postretirement and deferred compensation	10,691	11,069
Other items	636	648
Total	$ 7,043	$ 8,270

NOTE 14. RETIREMENT PLANS

OCC has a trusteed, noncontributory, qualified retirement plan ("Retirement Plan") covering employees who meet specified age and service requirements. OCC also has a SERP that includes a benefit replacement plan. Retirement benefits under the Retirement Plan are primarily a function of both years of service and levels of compensation.

On January 1, 2002, OCC amended and restated its retirement plan and established a defined contribution plan for new employees effective March 7, 2002. Certain employees were frozen in the Retirement plan and were no longer eligible to earn future benefit service after December 31, 2002.

Additionally, effective December 31, 2014, the Board of Directors approved an amendment to freeze benefit accruals under the Retirement Plan and SERP.

OCC's funding policies are to contribute amounts determined on an actuarial basis and provide the Retirement Plan with assets sufficient to meet the benefit obligation of the plans, subject to the minimum funding requirements of U.S. employee benefit and tax laws. The OCC funds the SERP on a current basis as compensation is awarded.

Net periodic benefit cost of the plans consisted of the following:

YEARS ENDED DECEMBER 31 (IN THOUSANDS)	2019	2018	2017
Interest cost	$ 6,788	$ 6,274	$ 6,778
Expected return on assets	(5,553)	(4,972)	(4,728)
Amortization:			
Actuarial loss	1,812	1,877	1,786
Net periodic benefit cost	$ 3,047	$ 3,179	$ 3,836

Other changes in plan assets and benefit obligations recognized in other comprehensive income include:

YEARS ENDED DECEMBER 31 (IN THOUSANDS)	2019	2018	2017
Amortization of net actuarial (loss)	$ (1,812)	$ (1,877)	$ (1,786)
Net actuarial loss / (gain) for the period	1,888	(2,434)	2,872
Total recognized in other comprehensive income	76	(4,311)	1,086
Total recognized in net benefit cost and other comprehensive income	$ 3,123	$ (1,132)	$ 4,922

A net actuarial loss of $1.8 million recorded in Accumulated other comprehensive loss will be amortized as a component of net periodic benefit cost during 2020.

The Retirement Plan and SERP assets and the plans' benefit obligation and funded status are as follows:

AS OF DECEMBER 31, (IN THOUSANDS)	2019	2018
Change in benefit obligation:		
Benefit obligation at beginning of year	$ 163,888	$ 178,500
Interest cost	6,788	6,274
Actuarial loss / (gain)	17,415	(12,099)
Gross benefits paid	(9,406)	(8,787)
Benefit obligation at end of year	$ 178,685	$ 163,888
Change in plan assets:		
Fair value of plan assets at beginning of year	$ 134,320	$ 137,268
Actual return on plan assets	21,080	(4,693)
Employer contributions	2,364	10,532
Gross benefits paid	(9,406)	(8,787)
Fair value of plan assets at end of year	$ 148,358	$ 134,320
Funded status end of year:		
Fair value on plan assets - overfunded	$ 148,358	$ 134,320
Benefit obligation - overfunded	146,662	133,940
Benefit obligation - underfunded	32,023	29,948
Funded status	$ (30,327)	$ (29,568)
Amounts recognized in the statements of financial condition:		
Noncurrent asset	$ 1,696	$ 380
Current liability	(2,142)	(2,057)
Noncurrent liability	(29,881)	(27,891)
Total	$ (30,327)	$ (29,568)
Amounts recognized in accumulated other comprehensive loss consist of:		
Net actuarial loss	$ 57,299	$ 57,223
Net amount recognized	$ 57,299	$ 57,223

Gross benefits paid from the SERP were $2.3 million and $2.0 million for the years ended December 31, 2019 and 2018, respectively. Assets set aside for SERP are described in Note 10.

The accumulated benefit obligation for the Retirement Plan was $146.7 million and $133.9 million at December 31, 2019 and 2018, respectively.

The primary assumptions used to determine the accumulated benefit obligation and benefit costs are summarized below:

	RETIREMENT PLAN		SERP	
DECEMBER 31,	2019	2018	2019	2018
Accumulated benefit obligation:				
Discount rate	3.25%	4.25%	3.15%	4.20%
Benefit costs:				
Discount rate	4.25%	3.60%	4.20%	3.55%
Expected return on assets	4.25%	3.60%	N/A	N/A

The expected return on assets is derived using the plans' asset mix, historical returns by asset category and expectations for future capital market performance. Both the plans' investment policy and the expected long-term rate of return assumption are reviewed periodically. The plan's assets are allocated 100% in fixed income mutual fund investments.

In October 2019, the Society of Actuaries ("SOA") released updated mortality base tables called Pri-2012, reflecting mortality experience from 2010 through 2014. In the SOA study, contingent survivors were found to have higher rates of mortality than healthy retirees, therefore, separate tables were produced for retirees and contingent survivors. In addition, the SOA released an updated mortality improvement scale called MP-2019, which reflected one additional year of U.S. population mortality improvement data from the Social Security Administration ("SSA"). The additional data shows a very small year-over-year increase in mortality. As new mortality tables and projection scales have been released by the SOA, OCC has reviewed the tables and adopted them as they were deemed the best estimate of anticipated future plan experience. This change in mortality assumption did not have a material impact to the financial statements at December 31, 2019.

OCC's expected cash outlay for employer contributions for both plans in 2020 is $2.1 million, and future expected cash outlays for benefit payments are as follows:

(IN THOUSANDS)	
2020	$ 9,859
2021	10,263
2022	10,537
2023	10,795
2024	10,963
2025-2029	54,157

In 2014, OCC adopted a liability-driven investment strategy, in which the return on investments held in the Retirement Plan aims to match the yield of the corporate bonds utilized in the calculation of the discount rate. As a result, the mix of investments was shifted to and remains 100% fixed income mutual funds.

Retirement plan assets, which are comprised of registered mutual funds, $147.6 million and $133.5 million at December 31, 2019 and 2018, and money market funds, $735,000 and $715,000 at December 31, 2019 and 2018, are required to be reported and disclosed at fair value in the financial statements. See Note 16 for discussion about OCC's fair value policy. The shares of the underlying mutual funds are fair valued using quoted market prices in an active market, and therefore all of the assets were considered Level 1 within the fair value hierarchy as of December 31, 2019 and 2018. There have been no changes in the valuation methodologies and there were no transfers between Levels 1 and 2 within the fair value hierarchy for the years ended December 31, 2019 and 2018.

OCC maintains a defined contribution plan ("401(k) plan") qualified under Internal Revenue Code Section 401(k) for eligible employees who elect to participate in the plan. Eligible employees may elect to have their salaries reduced by an amount that is subject to applicable IRS limitations. This amount is then paid into the plan by OCC on behalf of the employee.

OCC makes matching contributions to the participant's account equal to 50% of deferrals (excluding "catch-up" deposits) up to the first 6% of eligible compensation that is deferred. OCC's expenses for the matching contributions to the 401(k) plan for the years ended December 31, 2019, 2018 and 2017 were $3.1 million, $2.7 million and $1.4 million, respectively.

The 401(k) plan also contains a profit-sharing component for individuals not eligible to earn future benefit service in the Retirement Plan, as discussed above. Profit sharing contributions accrued for the 401(k) plan were $6.3 million, $5.8 million and $3.8 million in 2019, 2018 and 2017, respectively.

NOTE 15. POSTRETIREMENT BENEFITS OTHER THAN PENSIONS

OCC has a postretirement welfare plan covering employees who meet specified age and service requirements. Retiree contributions to medical payments vary by age and years of service at retirement. The plan is a defined dollar benefit plan in which OCC's obligation is limited to a maximum amount per participant per year set by OCC at the time a participant retires.

During November 2014, the Board of Directors approved amendments to the postretirement welfare plan, including (1) eliminating the Medical Executive Retirement Plan, (2) eliminating the retiree life insurance coverage, (3) reducing the post-cap level amount, and (4) eliminating benefits for all participants retiring after December 31, 2014.

Net periodic benefit (income) cost consisted of the following:

YEARS ENDED DECEMBER 31 (IN THOUSANDS)	2019	2018	2017
Interest cost	$ 277	$ 259	$ 300
Expected return on assets	(382)	(634)	(598)
Amortization:			
Prior service cost	(1,754)	(1,754)	(1,754)
Actuarial loss	848	854	909
Total net periodic benefit (income) cost	(1,011)	(1,275)	(1,143)
Net benefit (income) cost	$ (1,011)	$ (1,275)	$ (1,143)

Other changes in plan assets and benefit obligations recognized in other comprehensive income include:

YEARS ENDED DECEMBER 31 (IN THOUSANDS)	2019	2018	2017
Amortization of net actuarial (loss)	$ (848)	$ (854)	$ (909)
Amortization of net prior service credit	1,754	1,754	1,754
Net actuarial loss for the period	131	(46)	(630)
Total recognized in other comprehensive income	1,037	854	215
Total recognized in net benefit cost and other comprehensive income	$ 26	$ (421)	$ (928)

Net actuarial losses of $909,000 recorded in accumulated other comprehensive loss are expected to be amortized as a component of net periodic benefit cost during 2020.

Plan assets, which are comprised of registered mutual funds and money market funds, are required to be reported and disclosed at fair value in the financial statements. At December 31, 2019, registered mutual funds totaled $10.1 million and money market funds totaled $140,000. At December 31, 2018, registered mutual funds totaled $8.5 million and money market funds totaled $1.5 million. See Note 16 for discussion about OCC's fair value policy. The shares of the underlying mutual funds are valued using quoted market prices in an active market, and therefore Level 1 within the fair value hierarchy as of December 31, 2019 and 2018. There have been no changes in the valuation methodologies and there were no transfers between Levels 1 and 2 within the fair value hierarchy for the years ended December 31, 2019 and 2018.

The primary investment objective for the plan is to maintain the plan's funded status. The plan's current target investment mix is 100% fixed income.

The actual asset allocation is as follows:

YEARS ENDED DECEMBER 31,	2019	2018
Fixed income funds	99%	85%
Domestic equity funds	1%	15%
Total	100%	100%

The plan's benefit obligation, plan assets and funded statuses are as follows:

YEARS ENDED DECEMBER 31, (IN THOUSANDS)	2019	2018
Change in benefit obligation:		
Benefit obligation at beginning of year	$ 6,934	$ 7,938
Interest cost	277	259
Actuarial loss (gain)	689	(448)
Gross benefits paid	(818)	(815)
Benefit obligation at end of year	$ 7,082	$ 6,934
Change in plan assets:		
Fair value of plan assets at beginning of year	$ 10,034	$ 10,942
Actual return on plan assets	940	232
Employer contributions	157	(325)
Gross benefits paid	(818)	(815)
Fair value of plan assets at end of year	$ 10,313	$ 10,034
Funded status end of year:		
Fair value of plan assets	$ 10,313	$ 10,034
Benefit obligation	7,082	6,934
Funded status	$ 3,231	$ 3,100
Amounts recognized in the statements of financial condition:		
Noncurrent asset	$ 3,231	$ 3,100
Net amount recognized	$ 3,231	$ 3,100
Amounts recognized in accumulated other comprehensive loss consist of:		
Net actuarial loss	$ 14,471	$ 15,188
Net prior service (credit)	(26,837)	(28,591)
Net amount recognized	$ (12,366)	$ (13,403)

Medicare-eligible retirees must purchase both Medicare supplement and prescription drug coverage in the individual marketplace, and OCC will reimburse both coverages up to the Medicare-eligible retirees' cap amount.

The primary assumptions used to determine the accumulated benefit obligation and benefit costs are summarized below:

YEARS ENDED DECEMBER 31,	2019	2018	2017
Accumulated benefit obligation:			
Discount rate	3.10%	4.15%	3.45%
Health care cost trend rate	5.25%	5.50%	5.50%
Ultimate rate	5.00%	5.00%	5.00%
Years to ultimate rate	1	1	2
Benefit costs:			
Discount rate	4.15%	3.45%	3.80%
Expected long-term rate of return	3.95%	6.00%	6.00%
Health care cost trend rate	5.25%	5.50%	5.75%
Ultimate rate	5.00%	5.00%	5.00%
Years to ultimate rate	1	2	3

A one percentage point increase in the assumed health care cost trend rate for each year would not have a material effect on the accumulated postretirement benefit obligation or net periodic benefit cost.

In October 2019, the SOA released updated mortality base tables called Pri-2012, reflecting mortality experience from 2010 through 2014. In the SOA study, contingent survivors were found to have higher rates of mortality than healthy retirees, therefore, separate tables were produced for retirees and contingent survivors. In addition, the SOA released an updated mortality improvement scale called MP-2019, which reflected one additional year of U.S. population mortality improvement data from the Social Security Administration (SSA). The additional data shows a very small year-over-year increase in mortality. This change in mortality assumption did not have a material impact to the financial statements at December 31, 2019.

OCC's expected cash outflows for future benefit payments are as follows:

(IN THOUSANDS)	
2020	$ 672
2021	620
2022	595
2023	539
2024	513
2025-2029	2,209

NOTE 16. FAIR VALUE MEASUREMENTS

OCC follows applicable accounting guidance for measuring all financial assets and liabilities that are recognized or disclosed at fair value in the financial statements on a recurring or nonrecurring basis.

Level 1 measurements consist of quoted prices in active markets for identical assets or liabilities. Level 2 measurements include significant other observable inputs, such as quoted prices for similar assets or liabilities in active markets; identical assets or liabilities in inactive markets; observable inputs, such as interest rates and yield curves; and other market-corroborated inputs. Level 3 measurements include significant unobservable inputs, supported by little or no market activity.

OCC uses Level 1 and 2 measurements to determine fair value. Level 1 measurements consist of registered mutual funds that publish a daily Net Asset Value. Level 2 measurements include U.S. and Canadian Government securities, which are generally valued using inputs from pricing services and are not quoted on active markets. There were no transfers between Level 1 and Level 2 during 2019 or 2018.

The SERP and executive deferred compensation plan assets comprise the full amount within the money market fund and registered mutual funds disclosed in the following table.

Assets measured at fair value on a recurring basis are summarized below:

DECEMBER 31, 2019 (IN THOUSANDS)	TOTAL	LEVEL 1	LEVEL 2
U.S. Government securities	$ 5,737,748	$ –	$ 5,737,748
Canadian Government securities	156,511	–	156,511
Other assets:			
Money Market funds	2,725	2,725	–
Registered mutual funds	41,429	41,429	–
Total	$ 5,938,413	$ 44,154	$ 5,894,259

DECEMBER 31, 2018 (IN THOUSANDS)	TOTAL	LEVEL 1	LEVEL 2
U.S. Government securities	$ 4,022,193	$ –	$ 4,022,193
Canadian Government securities	132,141	–	132,141
Other assets:			
Money Market funds	2,217	2,217	–
Registered mutual funds	36,316	36,316	–
Total	$ 4,192,867	$ 38,533	$ 4,154,334

Reverse repurchase agreements are recorded at carrying value and as such, are not included in the table above. Reverse repurchase agreements are generally valued based on inputs with reasonable levels of price transparency and the carrying value approximates fair value due to the short maturities of the investments.

NOTE 17. CONTINGENCIES

In the normal course of business, OCC may be subject to various lawsuits, claims, and other legal proceedings. At December 31, 2019, there is no outstanding litigation that would have a material adverse effect on the financial statements.

NOTE 18. CAPITAL MANAGEMENT POLICY

In 2015, the SEC initially approved OCC's Capital Plan (the Capital Plan) under which OCC's shareholders contributed $150 million of equity capital. The SEC's approval was remanded by the U.S. Court of Appeals for the District of Columbia Circuit on August 8, 2017. On February 13, 2019, the SEC disapproved the Capital Plan. As a result of the disapproval, OCC did not provide a refund to clearing firms or declare a dividend to shareholders for the years ended December 31, 2018 and 2019. Furthermore, during the year ended December 31, 2019, OCC returned to the shareholders the $150 million of the shareholders' equity capital.

On August 29, 2019, OCC filed with the SEC a proposed Capital Management Policy, which includes OCC's plan to replenish its capital in the event it falls close to or below target capital levels. The SEC approved the Capital Management Policy on January 24, 2020.

NOTE 19. SUBSEQUENT EVENTS

OCC has evaluated events subsequent to December 31, 2019 to assess the need for potential recognition or disclosure. These events have been evaluated through February 26, 2020, the date of report issuance.

LINES OF CREDIT – In January 2020, the CalPERS credit facility expired and was not renewed.

CLEARING FUND DEPOSITS – On January 2, 2020, OCC increased the minimum cash required by clearing members from $3.0 billion to $3.5 billion and was funded by January 6, 2020.

Report of Independent Registered Public Accounting Firm

TO THE SHAREHOLDERS AND THE BOARD OF DIRECTORS
OF THE OPTIONS CLEARING CORPORATION:

OPINION ON THE FINANCIAL STATEMENTS

We have audited the accompanying statements of financial condition of The Options Clearing Corporation (the "Corporation") as of December 31, 2019 and 2018, the related statements of income and comprehensive income, shareholders' equity, and cash flows for each of the three years in the period ended December 31, 2019, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Corporation as of December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2019, in conformity with accounting principles generally accepted in the United States of America.

BASIS FOR OPINION

These financial statements are the responsibility of the Corporation's management. Our responsibility is to express an opinion on the Corporation's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Corporation in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB and 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 financial statements are free of material misstatement, whether due to error or fraud. The Corporation is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits, we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Corporation's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Deloitte & Touche LLP

Chicago, IL
February 26, 2020

WE HAVE SERVED AS THE CORPORATION'S AUDITOR SINCE 1972.

Clearing Members

AS OF DECEMBER 31, 2019

A
ABN AMRO Clearing Chicago LLC
ADM Investor Services, Inc.
Advantage Futures LLC
American Enterprise Investment Services, Inc.
Amherst Pierpont Securities LLC
Apex Clearing Corporation
Archipelago Securities, L.L.C.
Axos Clearing LLC

B
B. Riley FBR Inc.
Barclays Capital Inc.
BB&T Securities, LLC
BBS Securities Inc.
BMO Capital Markets Corp.
BMO Nesbitt Burns, Inc.
BNP Paribas Securities Corp.
BofA Securities, Inc.
Broadridge Business Process Outsourcing, LLC

C
Canaccord Genuity Corp.
Cantor Fitzgerald & Co.
CF Secured, LLC
Charles Schwab & Co., Inc.
CIBC World Markets Corp.
CIBC World Markets Inc.
Citadel Clearing LLC
Citadel Securities LLC
Citigroup Global Markets Inc.
Clear Street LLC
Cowen Execution Services LLC
Credit Suisse Securities (USA) LLC
Curvature Securities LLC

D
Daiwa Capital Markets America Inc.
Dash Financial Technologies LLC
Davenport & Company LLC
Deutsche Bank Securities Inc.

E
E D & F Man Capital Markets Inc.
E*TRADE Securities LLC
Electronic Transaction Clearing, Inc.

G
Goldman Sachs & Co. LLC

H
Hilltop Securities Inc.
HSBC Securities (USA) Inc.

I
ICAP Corporates LLC
Industrial and Commercial Bank of China Financial Services LLC
ING Financial Markets LLC
Ingalls & Snyder LLC
Instinet, LLC
Interactive Brokers LLC
INTL FCStone Financial Inc.

J
J.P. Morgan Securities LLC
Janney Montgomery Scott LLC
Jefferies LLC
Jump Trading, LLC

L
Lakeshore Securities, L.P.
Lek Securities Corporation
LPL Financial LLC

M
Merrill Lynch Professional Clearing Corp.
Merrill Lynch, Pierce, Fenner & Smith Inc.
Mirae Asset Securities (USA), Inc.
Mizuho Securities USA LLC
Morgan Stanley & Co. LLC
Morgan Stanley Smith Barney LLC
MUFG Securities Americas Inc.

N
Nasdaq Execution Services, LLC
National Bank Financial Inc.
National Bank of Canada Financial Inc.
National Financial Services LLC
Natixis Securities Americas LLC
NatWest Markets Securities Inc.
Nomura Securities International, Inc.

O
Oppenheimer & Co. Inc.

P
Pershing LLC
Phillip Capital Inc.

Q
Questrade Inc.

R
R.J. O'Brien & Associates, LLC
Raymond James & Associates, Inc.
RBC Capital Markets, LLC
RBC Dominion Securities Inc.
Robert W. Baird & Co. Incorporated
Robinhood Securities, LLC

S
Safra Securities LLC
Sanford C. Bernstein & Co., LLC
Scotia Capital (USA) Inc.
Scotia Capital Inc.
SG Americas Securities, LLC
Stifel, Nicolaus & Company, Incorporated
StockCross Financial Services, Inc.
Straits Financial LLC

T
TD Ameritrade Clearing, Inc.
TD Prime Services LLC
TD Waterhouse Canada Inc.
Timber Hill LLC
TradeStation Securities, Inc.
Tradition Securities and Derivatives Inc.

U
UBS Financial Services Inc.
UBS Securities LLC

V
Vanguard Marketing Corporation
Virtu Americas LLC
Virtu ITG, LLC
Vision Financial Markets LLC
Volant Execution, LLC

W
Wedbush Securities Inc.
Wells Fargo Clearing Services, LLC
Wells Fargo Securities, LLC
Wolverine Execution Services, LLC

X
X-Change Financial Access, LLC

Z
Ziv Investment Company

Banks and Depository

AS OF DECEMBER 31, 2019

CLEARING BANKS

Bank of America, National Association
Bank of Montreal
Bank of New York Mellon
BMO Harris Bank, National Association
Brown Brothers Harriman and Co.
Citibank, N.A.
JPMorgan Chase Bank, National Association
U.S. Bank National Association

APPROVED DEPOSITORY

The Depository Trust Company

LETTER OF CREDIT BANKS

(U.S. Institutions)
Bank of America, National Association
Bank of New York Mellon
BMO Harris Bank, National Association
HSBC Bank USA, National Association
PNC Bank, National Association
U.S. Bank National Association
Wells Fargo Bank, National Association

(Non-U.S. Institutions)
Australia and New Zealand Banking Group Limited
National Australia Bank Limited

ESCROW DEPOSIT BANKS

Bank of America, National Association
Bank of New York Mellon
BMO Harris Bank, National Association
Citibank, National Association
Fifth Third Bank
JPMorgan Chase Bank, National Association
MUFG Union Bank, National Association
Northern Trust Company
PNC Bank, National Association
State Street Bank and Trust Company
U.S. Bank National Association
UMB Bank, National Association
Wells Fargo Bank, National Association

GOVERNMENT SECURITY BANKS

(U.S. Institutions)
Bank of New York Mellon
BMO Harris Bank, National Association
MUFG Union Bank, National Association
U.S. Bank National Association

(Non-U.S. Institutions)
Bank of Montreal

Operations Roundtable Members

AS OF DECEMBER 31, 2019

CLEARING MEMBERS

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Stephen F. Cody
Head of Cross Asset BO
SG Americas Securities, LLC

Craig Guadagno
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Merrill Lynch, Pierce, Fenner & Smith Inc.
Merrill Lynch Professional Clearing Corp.
BofA Securities, Inc.

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Chief Operations Officer
ABN AMRO Clearing Chicago LLC

Ian Miller
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Futures, Clearing and Collateral
Citigroup Global Markets Inc.

Lizabeth Miller
Director, Post Trade Operations
TD Ameritrade Clearing, Inc.

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National Financial Services LLC

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Wells Fargo Securities, LLC

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Wolverine Execution Services, LLC

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Morgan Stanley & Co. LLC

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Interactive Brokers LLC

Zhenxing Tang
Vice President,
Pershing LLC

EXCHANGES

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Cboe Global Markets, Inc.

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Intercontinental Exchange/NYSE Options

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Operations Support Center
Cboe Global Markets, Inc.

The Options Industry Council Roundtable Members

AS OF DECEMBER 31, 2019

CLEARING MEMBERS

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Schwab Trading Services

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Senior Vice President
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Frank A. Magnani
Global Prime Brokerage and
Institutional Sales
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Bank of America Merrill Lynch

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Equity Advisory Group
UBS

EXCHANGES

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Geralyn Endo
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Thomas Kennelly
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MIAX Exchange Group

Patty Schuler
Vice President
Business Development
BOX Exchange LLC

Christopher Twomey
Director, NYSE Options
New York Stock Exchange

OCC is the foundation for secure markets.

OUR BACKGROUND

Founded in 1973, OCC is the largest clearing organization in the world for equity derivatives. Operating under the jurisdiction of the U.S. Securities and Exchange Commission (SEC) and the U.S. Commodity Futures Trading Commission (CFTC), OCC issues and clears U.S.-listed options and futures on a number of underlying financial assets including common stocks and stock indexes. OCC's clearing membership consists of approximately 100 of the largest U.S. broker-dealers, U.S. futures commission merchants and non-U.S. securities firms representing both professional traders and public customers. The stockholder exchanges share equal ownership of OCC. This ownership, along with a significant clearing member and public director presence on the Board of Directors, ensures a continuing commitment to servicing the needs of OCC's participant exchanges, clearing members and their customers. OCC provides clearing services for options, financial and commodity futures, security futures, securities lending transactions and over-the-counter index options.

PARTICIPANT EXCHANGES

BOX Options Exchange LLC — Boston, MA
Cboe Exchange Inc. — Chicago, IL
Cboe BZX Options Exchange - Lenexa, KS
Cboe C2 Exchange Inc. — Chicago, IL
Cboe EDGX Options Exchange - Lenexa, KS
MIAX Emerald LLC — Princeton, NJ
MIAX Options Exchange — Princeton, NJ
MIAX PEARL LLC — Princeton, NJ
Nasdaq BX Options — Philadelphia, PA
Nasdaq GEMX — Philadelphia, PA
Nasdaq ISE — Philadelphia, PA
Nasdaq MRX — Philadelphia, PA
Nasdaq Options Market - Philadelphia, PA
Nasdaq PHLX LLC — Philadelphia, PA
NYSE American Options — New York, NY
NYSE Arca Options — San Francisco, CA

FUTURES MARKETS

Cboe Futures Exchange LLC — Chicago, IL
Nasdaq Futures Inc. — Philadelphia, PA
OneChicago LLC — Chicago, IL

ALTERNATE TRADING SYSTEMS

(Securities Lending)
Automated Equity Finance Markets Inc. — New York, NY

OCC THE FOUNDATION FOR SECURE MARKETS

125 S. Franklin Street, Suite 1200, Chicago, IL 60606 312 322 6200 **theocc.com**