

TURNING HEADWINDS INTO TAILWINDS

2017 ANNUAL REPORT

DTCC

Securing Today. Shaping Tomorrow.®

TABLE OF CONTENTS

OUR LEADERSHIP 4

Letter from the President & CEO

Letter from the Non-Executive Chairman

Board of Directors

Management Committee

RESPONDING TO CHANGE. 27

A Conversation with Andrew Gray,

Tim Keady, and Murray Pozmanter

TURNING HEADWINDS INTO TAILWINDS. 33

An Exercise in Crisis

Industry-Wide Partnership Drives Move to T+2

Managing Risk Through Political Uncertainty

Collaboration drives success in issuing LEIs

Local School Kids Grab a Slice of STEM Education

CORPORATE RESPONSIBILITY 47

Corporate Social Responsibility

Diversity & Inclusion

OUR PERFORMANCE. 63

Letter from the CFO

Performance Dashboard



01

OUR LEADERSHIP

A MESSAGE FROM OUR CEO

Michael Bodson



Dear Stakeholders:

This past year marked my fifth anniversary as CEO of DTCC. It continues to be an honor to lead this great organization and a privilege to build on the successes of my predecessors. It is their leadership, along with the dedication and commitment of our employees and the strong support of our clients, that have made DTCC recognized around the world as a source of strength and stability in protecting the global financial system for 45 years.

Looking back over the past half-decade, our industry has faced many challenges, yet today we are in a much stronger position than at any time since the '08 crisis. We have successfully managed through market events, maintained stability during a period of geopolitical disruption and recovered from the devastation of Superstorm Sandy in the U.S. And while the implementation of new regulations, the rise of fintech, the growing threat of cyberattack and increased competition from new players are transforming many parts of the industry, the markets remain secure, global economic growth is improving, public confidence in our sector is rising and firms are more resilient to withstand shocks to the system. That is not to suggest the current environment is without challenges. Multiple headwinds continue to put enormous pressure on financial institutions in all parts of the world.



DELIVERING VALUE TO OUR CLIENTS

In looking back over the past five years at DTCC, I am proud of the important role we have played in helping our clients navigate these choppy waters and contributing to their successes. We value the deep relationships we have nurtured with all our stakeholders and are committed to delivering even more for them in the future.

In 2017, we reaffirmed our reputation for superior execution, innovation and steady leadership. Over the course of the year, we processed \$1.6 quadrillion in securities transactions – a massive volume of work that is critical to maintaining the stability and smooth operations of the global financial system. The same is true of our efforts in OTC derivatives. Our Global Trade Repository handled more than 15 billion messages last year alone, helping to bring greater transparency to this once-opaque market.

Central to our ability to serve the industry is continuing to improve our financial performance, including growing our net income margin, so that we have the resources to make strategic investments to benefit the industry and the ability to weather swings in market activity or tough economic times. In 2017, our revenues remained strong at \$1.7 billion despite fee reductions of \$75 million, and our net income margin rose to 9.7%, an improvement of 30% over the previous year. As an industry-owned and governed organization, we are finely tuned to the rhythm of the marketplace and are committed to keeping our expenses low to deliver maximum value to our clients. Toward that end, we successfully reduced our expense base by \$100 million over the past two years through a series of targeted internal and external initiatives.

Across the entire organization, we had many achievements worth celebrating – from collaborating with the industry to lead the move to T+2 settlement in the U.S. to successfully completing the industry-wide business resilience exercise under the U.S. Securities and Exchange Commission's (SEC) Regulation SCI. We also delivered significant product innovation, such as going live with the Inventory Management Service (IMS) offered through our GlobalCollateral joint venture, finalizing the rollout of our MBS Novation product, launching the Centrally Cleared Institutional Tri-Party (CCIT) Service for the buy-side and enabling clients to meet the Regulatory Technical Standards (RTS) under European Securities and Markets Authority (ESMA). In addition to this, we continued to invest in our employees and promote an inclusive work environment that celebrates our diversity in all its forms. I was especially proud to be one of the inaugural signers of the CEO Action for Diversity & Inclusion™ pledge. We also gave back to the local communities where we work through volunteerism and philanthropy, closely aligning our activities with our CSR pillars of expanding access to STEM education, promoting economic stability and inclusion and leading on issues related to environmental sustainability and conservation.

\$1.6
QUADRILLION

SECURITIES
TRANSACTIONS
PROCESSED

ACHIEVEMENTS WORTH CELEBRATING

-  MOVED TO T+2 SETTLEMENT IN THE U.S.
-  COMPLETED REGULATION SCI TEST IN THE U.S.
-  INVENTORY MANAGEMENT SYSTEM WENT LIVE
-  LAUNCHED CENTRALLY CLEARED INSTITUTIONAL TRI-PARTY SERVICE
-  HELPED MEET REGULATORY TECHNICAL STANDARDS (RTS) UNDER ESMA

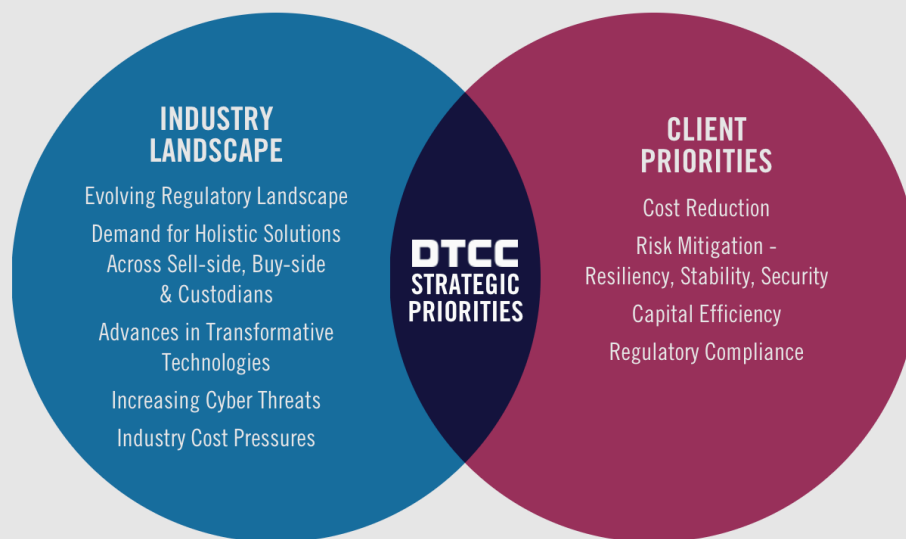
TURNING HEADWINDS INTO TAILWINDS

A significant part of my time as CEO is devoted to building on our heritage to solve new challenges facing the industry. To that end, my executive leadership team and I began a series of strategic client meetings in 2017 to validate our corporate strategy and ensure we are focused on our clients' top needs as well as to identify other potential areas of opportunity to address industry-wide pain points. What we heard only reinforces our belief that our agenda is fully aligned with the industry's top priorities. From sell-side to buy-side firms and custodian banks, we listened to stories of how cost, risk and regulatory pressures have become even more intense as they have compounded year over year for the past decade. The actions taken by many firms – closing business lines, eliminating staff, reorganizing, consolidating and automating – have produced savings, but significant organic growth remains difficult to achieve. These dialogues reaffirmed our commitment to working even closer with our clients in the future.

We believe DTCC can turn these headwinds into tailwinds by further reducing friction and fragmentation in the post-trade environment – two of the most significant drivers of inefficiencies and increased costs and risks for the industry. Over the past 45 years, we have amassed the widest breadth of capabilities in the world across this ecosystem, with a focus on cash securities processing and OTC derivatives. We have also developed unparalleled knowledge and expertise in risk management as well as a strong record of success in adopting innovative technologies to improve the post-trade process. And because of our industry ownership, there is always strong alignment between our capabilities and our clients' top needs.

DTCC'S STRATEGIC PRIORITIES

At the Intersection of the Market Environment and Client Needs



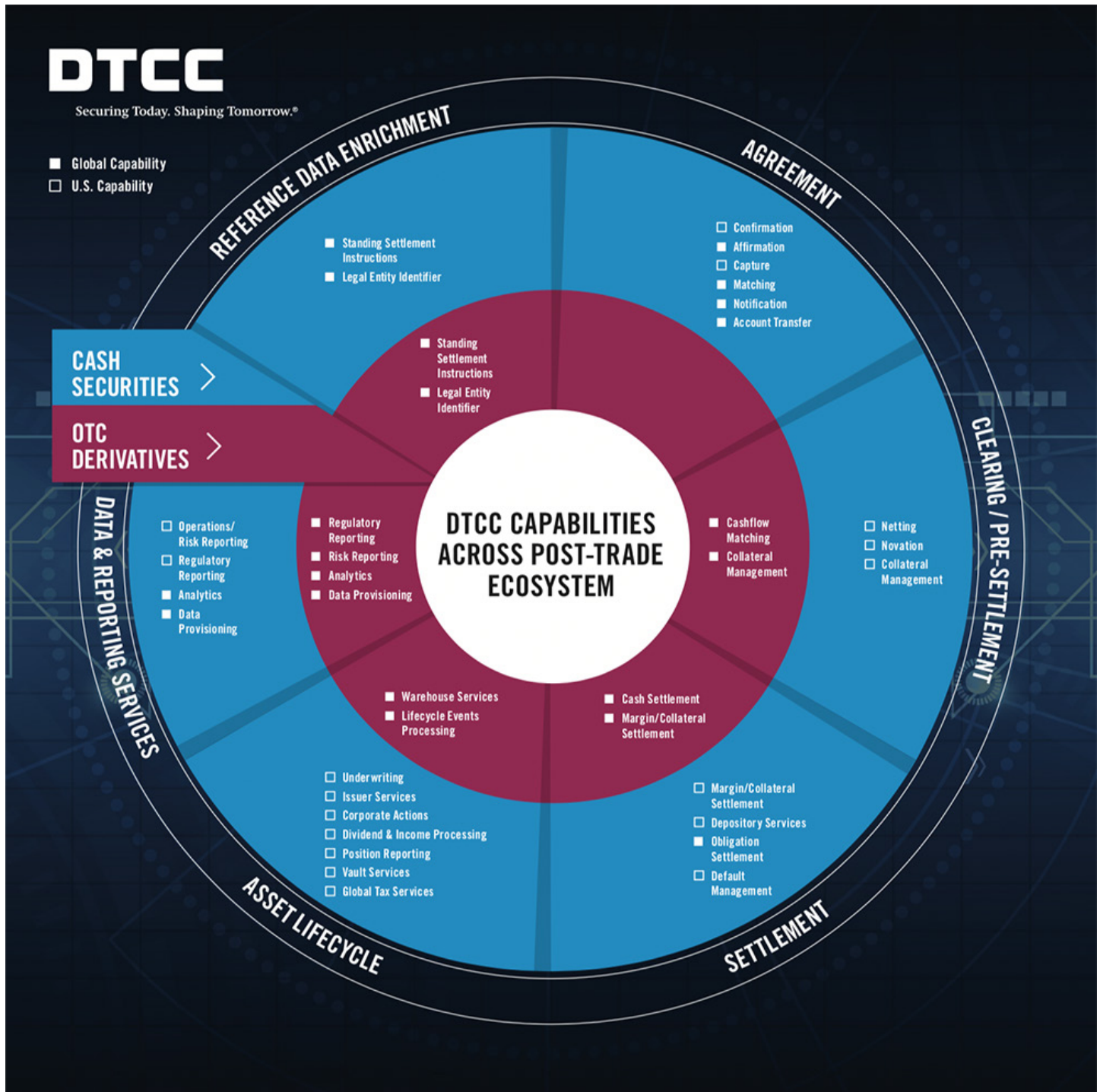
THE NEVER-ENDING PURSUIT OF EFFICIENCY, COST REDUCTION & RISK MITIGATION

In 2017, we aggressively moved forward with executing our refreshed corporate strategy, which calls for leveraging the full resources of DTCC to develop new and creative ways to support our clients across cash securities processing and OTC derivatives. We plan to strengthen and enhance our capabilities in these areas and prioritize integrating our products and services to create cohesive solutions that enable greater straight-through processing and eliminate post-trade friction and fragmentation. Our clients have told us they want this, and our experience tells us it will help eliminate the complexity and expense they face today when buying, patching together and interoperating myriad products and services into their own systems.

One example of this was our decision last year to fully integrate our Omgeo business into DTCC and align it with the GMEI utility under a new business line, Institutional Trade Processing (ITP). Our vision is to create an end-to-end, straight-through-processing solution for buy-side, sell-side and custodian firms. The first product in this suite, DTCC Exception Manager, was delivered to market in just six months and solves a major industry pain point around trade exceptions. We have taken a similar approach in OTC derivatives by aligning Global Trade Repository and the Trade Information Warehouse (TIW) with DTCC-Euroclear GlobalCollateral Ltd. under a single business line to capitalize on synergies among these products. We believe these moves will foster greater innovation in our work and enable us to better meet the diverse needs of our clients globally.

This focus on delivering for our clients is also reflected in work we are undertaking to assess our pricing models, further improve the client experience and explore opportunities for creating a single gateway into DTCC across our full portfolio of solutions. As you can see, our agenda is the byproduct of extensive discussion and collaboration with the industry – your priorities directly reflected in the initiatives we are pursuing. We expect that our clients will begin to see the benefits of these efforts starting in 2018, with the impact increasing in the years ahead.

We are also committed to meeting the evolving needs of clients by bringing our offerings to market quicker than we have in the past and releasing them iteratively during development to provide continuous value and gain feedback from those on the frontlines using them. By leveraging Agile practices, we are confident we can operate with the nimbleness that our clients require in today's fast-moving environment.



REGULATORY & LEGISLATIVE CHALLENGES

The regulatory landscape continues to be demanding for the industry, and the political environment remains as dynamic as ever. The rhetoric of nationalism and isolationism that has recently become commonplace in many parts of the world has not translated into public policy yet, and our hope is that lawmakers and regulators globally recognize that there is too much to lose if nations turn inward. We continue to believe that the globalization of markets and collaboration across jurisdictions serve the best interest of all market participants, including the investing public. Toward that end, we are closely following the Brexit negotiations in Europe and engaging with policymakers globally to address the myriad issues that could impact our ability to serve the industry. We remain strong advocates for greater transparency, increased harmonization of regulations across jurisdictions and a principles-based approach to rulemakings.

This engagement serves another important purpose by giving us critical insights that help drive innovation within DTCC, particularly around product development. This can be seen in the work we did last fall to meet the huge surge in requests for legal entity identifier (LEI) registrations and renewals in response to new requirements under the Markets in Financial Instruments Directive (MiFID II) in Europe. As the largest supplier of LEIs in the world today, our GMEI utility issued 122,600 new registrations and 134,400 renewals in 2017, an increase in renewals of 53% over the previous year. Meeting client demand, especially around a regulatory mandate, is among our top priorities.

257,000

NEW LEI REGISTRATIONS AND RENEWALS

53%

INCREASE OVER 2016

That commitment to helping clients meet their regulatory mandates underpins our plans for developing a real-price observation data service to support industry compliance with a new requirement known as Fundamental Review of the Trading Book (FRTB), issued by the Basel Committee on Banking Supervision. Over the course of 2017, we developed and released a proof of concept, published a white paper that discussed how using pooled transaction data could reduce banks' risk capital charges and secured widespread industry support for the initiative. And because we are determined to bring our solutions to market faster than we have in the past and with continuous feedback from our community of users, I am proud to report that we are on track to deliver a beta release in mid-2018.

THE RISE OF FINTECH

One of the big stories of 2017 was the continued focus on how the industry can use fintech to address the cost, risk and regulatory challenges it faces. This topic is of paramount importance to us because a key question underpinning all this work is how fintech innovation and market stability can peacefully coexist. We have devoted a lot of time and thought to this issue, and in a white paper we published last year, we unveiled an original framework that firms can use to assess the risks of implementing new technologies.

For DTCC, balancing innovation and stability sits at the intersection of two of our core strengths — managing risk for the industry and leveraging technology to enhance the efficiency of post-trade processing. While many fintech offerings across the industry are still in their early stages, the transformational benefits they can deliver over time are significant. Based on use cases we are pursuing, we remain excited by the potential of distributed ledger technology (DLT), cloud computing, artificial intelligence (AI) and robotic process automation (RPA). In time, we believe all these technologies can be game changers for the industry.

With regard to DLT, as expectations have shifted of what can be achieved in the short term due to the technology's current limitations in scale and processing power, we continue to advocate for identifying use cases in areas of the post-trade environment that remain highly manual and where volumes are small — a recommendation we first made in our 2016 white paper on the topic.

At the same time, new technology isn't always needed to drive innovation. As we demonstrated last September, the move to a T+2 settlement cycle in the U.S. was achieved using current technology — and we were proud to lead this initiative with the Securities Industry and Financial Markets Association (SIFMA) and the Investment Company Institute (ICI). This accomplishment highlighted DTCC's long-standing ability to settle trades on an accelerated basis.

While the return on investment for large-scale DLT solutions in highly efficient, deep and mature markets does not exist today, there are many instances where the technology can deliver immediate benefits in other areas of the industry. For example, last year we began re-platforming our Trade Information Warehouse (TIW) for credit derivatives using DLT and the cloud, and we expect to begin testing the next generation of the service later this year. By leading one of the industry's largest and most complex DLT projects to date, we are gaining deep experience in the digital transformation of the post-trade environment, and we're using this knowledge to shape our fintech strategy to enhance our product development.

Cloud computing is another area where we see significant opportunity because it offers more capabilities, better security and resiliency, and increased cost efficiencies over proprietary data centers — a view we shared in a white paper last year. Similarly, we are excited to pioneer several use cases in robotic process automation to streamline operations and drive greater efficiencies across the organization. To lead these efforts, we established an Automation Center of Excellence in 2017, and our action plan calls for creating a virtual workforce to perform highly manual and repetitive tasks in areas as diverse as billing, underwriting and onboarding. This, in turn, is opening new opportunities for our employees to focus on more productive, higher-value work to support our clients.

THANK YOU FOR YOUR SUPPORT

This is one of the most exciting times to work in financial services. The issues we confront each day challenge us intellectually and allow us to exercise our full creativity. I am fortunate to lead DTCC at this pivotal moment, and I am grateful to be surrounded by outstanding people who devote every ounce of their energy and passion to protecting the marketplace and serving the industry. This begins with our Board of Directors, led by Bob Druskin, our non-executive

chairman. The Board brings insight and diverse perspectives to every issue on our agenda. It extends to our Management Committee and the senior leadership of the firm, who are committed to creating long-term value for our clients. And, of course, our employees — the backbone of our company — are a smart and disciplined group of people whose dedication, curiosity and good judgment enable us to consistently perform at the highest levels. Having the opportunity to work with all these individuals is truly the best part of my job.

I also want to recognize and thank our clients because they are the foundation of all we do. They are foremost in our minds each day we come to work, and their needs drive the innovative spirit of our people. We value the trust they place in us, and we are committed to strengthening this bond in the future.

The headwinds facing the industry today may be strong, but we firmly believe we have the experience, knowledge and skills to turn them into tailwinds. And tailwinds have a way of swelling, increasing in strength and intensity and gaining force over time. We intend to continue creating momentum, capturing tailwinds and serving our clients and all our stakeholders in 2018 and beyond.



MICHAEL BODSON PRESIDENT & CEO

A MESSAGE FROM OUR NON-EXECUTIVE CHAIRMAN OF THE BOARD

Robert Druskin



Dear Stakeholders:

Much as we have done for the past 45 years, DTCC continues to provide the certainty and stability that is critical for global markets to flourish. Today, as the industry responds to major shifts in the economic, regulatory, political and social environments, we see an opportunity to play an even more vital role supporting our shareholders, clients and other stakeholders. The qualities that make DTCC unique – our ownership and governance model, our expertise in post-trade processing and our strong record of collaboration – position the firm to deliver even greater value now and in the future.

Last year was an especially busy one for our Board as we provided guidance and input on a broad range of topics. While our primary focus remains on ensuring DTCC meets its fundamental responsibilities of mitigating risk, reducing costs and increasing transparency, we also devoted a significant amount of time to partnering with management to develop and refine the company's refreshed strategy, leveraging the outputs of a Board-level Strategic Planning Committee that we formed in 2016. During our discussions, one of the topics we debated was whether the firm's industry-owned and governed model is still the best structure to support our clients, particularly when access to capital is a priority for virtually all market participants. We considered many alternatives but concluded that this structure remains the best option to serve the industry.

That point was reinforced multiple times in discussions we held with a broad cross-section of industry representatives last year. They told us they believe DTCC is uniquely qualified to address their top needs by creating a more comprehensive post-trade experience. We couldn't agree more. The firm's fundamental strategy is to build upon our leadership in cash securities processing and over-the-counter (OTC) derivatives – two areas that sit at the nexus of where our clients require greater support and where DTCC's capabilities are second to none. We are confident that successfully delivering against this strategy will position us to make an even more positive impact.

As the performance of the organization continues to strengthen and we increase our financial flexibility, we will be able to make the investments needed to strengthen our core processes as well as develop new capabilities. The flawless execution of our clearance and settlement responsibilities, which are essential to mitigating risk and providing stability, is our foremost priority. At the same time, the Board strongly supports DTCC's leadership in applying new technologies, such as distributed ledgers and cloud computing. Toward that end, the firm is collaborating with other leading industry firms to forge consensus on common standards and a consistent approach to governance as well as to ensure that the core principles of risk reduction and market transparency are embedded in future solutions.

Among the most important responsibilities of the Board and management is our ongoing engagement with regulators. We continue to work with our supervisors globally to review our compliance with the highest standards of risk management, to share information on future initiatives that will bring new levels of safety and security to the global marketplace and to lend expertise and knowledge on emerging issues, such as the potential of fintech and the challenges of cyber security. This ongoing dialogue is essential in an environment where systemically important organizations like DTCC face more rigorous requirements than ever before and at a time when changes in technology, market structure and the nature and complexity of risk are occurring so rapidly.

Managing such a diverse set of issues requires a Board of equally diverse experiences and backgrounds. We are thankful to all our Directors for contributing so much of their time, experience and hard work to the firm. As I do each year, I want to extend my appreciation to those who left the Board in 2017 – David Crawford, Suni Harford, Darryll Hendricks, Cynthia Meyn, Lisa Pollina, Nick Ogurtsov, Derek Ross and Paul Walker. They made many important contributions, and the positive impact of their efforts will carry forward for years to come. I also want to welcome Michael Herskovitz, Pinar Kip, Kathleen Lynch, Ann Reese, Umesh Subramanian, Lee Waite and Lara J. Warner to the Board. The fresh perspectives they bring are already paying dividends.

At this important moment in time for the industry, DTCC remains true to our history, but at the same time we are evolving into a more commercially minded organization that can capitalize on the opportunities before us. We are optimistic about our future direction, confident in our capabilities to deliver and committed to working with all our stakeholders to realize our vision.



ROBERT DRUSKIN

NON-EXECUTIVE CHAIRMAN OF THE BOARD

BOARD OF DIRECTORS



MICHAEL C. BODSON

President and Chief Executive Officer

Michael C. Bodson is President and Chief Executive Officer of DTCC. He is also President and Chief Executive Officer of DTCC's principal operating subsidiaries, DTC, FICC and NSCC, and a member of DTCC's Board of Directors.

In his prior position as DTCC's Chief Operating Officer, Bodson had enterprise-wide responsibility for all Information Technology and Operations and oversaw DTCC Deriv/SERV LLC and EuroCCP. He previously served as Chairman of various DTCC subsidiaries, including DerivSERV and Omgeo.

Bodson joined DTCC in 2007 as Executive Managing Director for Business Management and Strategy. Prior to this, he held a number of senior management positions with Morgan Stanley over a 20-year period. In his last position at Morgan Stanley, Bodson was Global Head of the Institutional, Retail and Asset Management Operations Department. He previously served as Divisional Operations Officer for the Institutional Securities Group and Head of the Enterprise Information Group. He served as Head of Finance, Administration and Operations for Morgan Stanley Japan in Tokyo, and prior to that, he held similar responsibilities for Morgan Stanley Asia in Hong Kong. Prior to joining Morgan Stanley, Bodson worked at Bear Stearns and Price Waterhouse.

Bodson is a CPA and graduated Magna Cum Laude from Boston College. He currently is a member of the Board of Digital Asset Holdings, American Red Cross Metropolitan New York North Region and is a Trustee of the World Economic Forum's Financial Services Initiative.



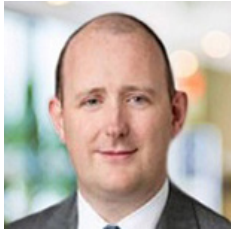
ROBERT L.D. COLBY

Chief Legal Officer of the Financial Industry Regulatory Authority (FINRA)

Robert L.D. Colby is the Chief Legal Officer of the Financial Industry Regulatory Authority (FINRA), which he joined in June 2012. In this capacity, he oversees FINRA's corporate and regulatory General Counsel functions, as well as FINRA's Advertising and Corporate Financing Departments, the Office of Hearing Officers and Dispute Resolution.

Previously, Colby was a partner in the Washington, D.C., office of Davis Polk & Wardwell LLP, where he advised on regulatory and compliance matters involving securities and derivatives for financial institutions, markets and clearing organizations.

Before joining Davis Polk in 2009, Colby served for 17 years as Deputy Director of the Securities and Exchange Commission's Division of Trading and Markets. In that role, he was responsible for the regulation of broker-dealers, securities markets and clearing organizations. Previously, for 11 years he was Chief Counsel of the Division and Chief of the Division's Branch of Market Structure.



PHIL DAVIES

Managing Director and Global Head of Operations at Morgan Stanley

Phil Davies is a Managing Director and Global Head of Operations at Morgan Stanley. In this capacity, Davies oversees all operations support to the Institutional Securities Group, and the Wealth Management and Investment Management businesses. He is a member of the Firm's Management Committee.

Prior to this, Davies served as Global Head of ISG Product Operations, where he was responsible for the creation and management of Institutional Securities Group Product Operations, managing the support to the Institutional Sales & Trading businesses across all asset classes.

Before Morgan Stanley he worked at Goldman Sachs in London.

He is vice chair of the Operations & Technology Steering Committee at SIFMA.



ROBERT DRUSKIN

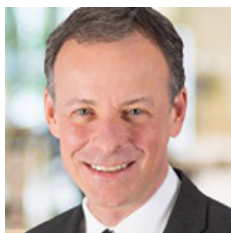
DTCC Non-Executive Chairman of the Board

Robert Druskin is Non-Executive Chairman of DTCC's Board and Chairman of the Board Executive Committee. Druskin served as Executive Chairman from April 2011 to December 31, 2015.

Previously, Druskin was Lead Director of E*Trade from May through December 2009, interim Chief Executive Officer from December 2009 to March 2010, and Chairman of the Board from December 2009 to March 2011.

Prior to that, Druskin spent nearly 16 years at Citigroup and its predecessor companies in a number of senior executive positions across the organization, including Chief Operating Officer and Member of the Office of the Chairman. He also spent four years at Citi's Global Corporate and Investment Banking division, the last three as Chief Executive Officer.

Druskin was with Salomon Smith Barney (and previously Smith Barney) for nine years and held a number of senior positions, including Chief Administrative Officer. Prior to joining Smith Barney, he was Chief Financial Officer of Shearson Lehman Brothers.



DAVID S. GOONE

Chief Strategy Officer of Intercontinental Exchange, Inc. (NYSE: ICE)

David S. Goone is Chief Strategy Officer of Intercontinental Exchange, Inc. (NYSE: ICE). He is responsible for all aspects of ICE's product line, including futures products and capabilities for ICE's electronic platform.

Goone represents ICE on industry boards including the Options Clearing Corporation and National Futures Association. Additionally, Goone is a Director of Maroon Holding LLC, the governing Board of MERSCORP Holdings, Inc., where ICE has a majority ownership interest. He is also Vice Chairman of the Cetip Board of Directors, a leading operator of capital and credit markets in Brazil, a publicly traded company in which ICE is a minority shareholder.

Prior to joining ICE in 2001, Goone was Managing Director and Head of Product Development and Sales at the Chicago Mercantile Exchange. Before joining the CME in 1992, Goone served as a Vice President at Indosuez Carr Futures, where he was instrumental

in developing institutional and corporate business. Prior to joining Indosuez, Goone worked at Chase Manhattan Bank, where he developed and managed the company's exchange-traded foreign currency options operation at CME.

Goone earned a Bachelor of Science degree in Accountancy from the University of Illinois at Urbana-Champaign.



MICHAEL HERSKOVITZ

Director of Fixed Income Risk Operations and Technology and Co-head of Enterprise Operational Risk at AllianceBernstein

Michael Herskovitz is the Director of Fixed Income Risk Operations and Technology and Co-Head of Enterprise Operational Risk at Alliancebernstein. Herskovitz joined AB in 2006 from UBS, where he was the Managing Director for the Risk and Finance Technology. He has held senior technology management and quantitative research positions with Morgan Stanley, including the London-based role of international CIO, Merrill Lynch and Zurich Scudder Investments.

Over his 25+ year career in financial services, he has had extensive analytical and technical experience with fixed income, commodities, derivative products and risk management. Herskovitz has co-authored two books and many research papers on mortgage-backed securities pricing and analytics.

He holds a BS in operations research and an MS in industrial administration from Carnegie Mellon University. He has served as Chairperson of the Asset Managers Forum and is currently a member of SIFMA's Operations and Technology Steering Committee.



LORI HRICIK

Former Chief Executive Officer and Head of JPMorgan Treasury Services

Lori Hricik is the former Chief Executive Officer and Head of JPMorgan Treasury Services. She is the Chairman of the DTCC Business, Technology and Operations Committee and Compensation/Human Resources Committee. She also serves on the DTCC Executive Committee and the Risk Committee and the Governance Committee.

Hricik retired from JPMorgan in 2008, having become a globally recognized leader in delivering technology-driven treasury, cash management, liquidity, trade finance and information solutions to corporations, financial services companies and government entities worldwide. She worked extensively with the industry and regulators on global payments initiatives.

Hricik joined Chase in 1976 from the Securities Industry Automation Corporation and held a number of executive positions in technology, operations, administration and finance. She earned an MBA from Columbia University.



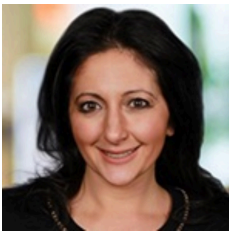
DAVID R. KIMM

Executive Vice President, Chief Risk Officer and Treasurer of TD Ameritrade Holding Corp.

David R. Kimm is Executive Vice President, Chief Risk Officer and Treasurer of TD Ameritrade Holding Corporation (“TDA”), with responsibility for enterprise-wide risk/control strategies and functions, as well as oversight of liquidity, funding and asset/liability management for TDA and its subsidiaries. He also serves as a member of TDA’s Senior Operating Committee (SOC), which shapes the organization’s strategic focus.

Previously, Kimm was Senior Vice President/Chief Risk Officer for Wachovia Securities LLC/Wells Fargo Advisors. In that role he established the risk management organization for the third-largest U.S. brokerage firm and was responsible for all aspects of enterprise risk management strategy and execution.

Prior to joining Wachovia, Kimm held senior financial and operational roles at LPL Financial, Fidelity Investments, Cowen & Co. and PaineWebber. He holds an MBA from the Stern School, NYU.



PINAR KIP

Executive Vice President, Global Strategic Operations, State Street

Pinar Kip is Executive Vice President, Global Strategic Operations at State Street and leads the organization that encompasses Global Custody, Location Governance, and Strategic Enterprise Business Solutions. Her Global Custody responsibilities include Business Onboarding and Transitions, Global Settlements, Self-Custody, and Self-Clearing functions as well the sub-custodian network. Through Global Location Strategy

& Governance, she oversees the joint-venture operations in India and Philippines and the strategy and alignment across all State Street global hubs (Poland, Hangzhou, and India). Kip also serves as the Global Design Lead for State Street Beacon.

Kip is a director of State Street Syntel Services, State Street HCL Services India, State Street HCL Services Manila and State Street Mumbai. She also serves on the Global Advisory Board of the Professional Women’s Network, and serves as the executive sponsor of the company’s Leadership Development Program and Global Operations Diversity Council.

Prior to State Street, Kip was a strategy consultant with Booz & Company, with expertise in capital markets. Additionally, she worked in Bank of America’s Securities Global Structured Finance division.

Kip attended Massachusetts Institute of Technology (MIT) and received two B.S. degrees in Electrical Engineering/Computer Science and Management Science with a minor in Economics. Kip also holds an MBA degree from Harvard Business School.



KATHLEEN LYNCH

Chief Operating Officer for UBS Americas and Wealth Management Americas (WMA)

Kathleen Lynch is Chief Operating Officer for UBS Americas and Wealth Management Americas (WMA). She serves as a member of the UBS Americas Holding LLC Board of Directors, Combined U.S. Operations Management Committee and WMA Executive Committee.

As WMA COO, Lynch is responsible for the oversight of the front to back control environment and supports the execution of the business division’s strategy, while also ensuring operational efficiency and effectiveness to make WMA a better place to be a client and an employee. Critical areas in her portfolio include technology and operations, risk management, and UBS’s regulatory framework.

In her role as Americas COO, Lynch is focused on further integrating all of the firm's businesses and support functions across the region. She also supports the President of UBS Americas in all regulatory activities and oversees the governance and control framework in the region.

Lynch joined UBS in June 2012 as an advisor to senior management on a number of key initiatives, including the strengthening of UBS's regulatory and operating framework in the Americas Region.

Most recently, Lynch was Chief Operating Officer of Bank of America Merrill Lynch Global Research, responsible for Publishing & Distribution, Supervisory Analysts, Business Management, and various support functions.



LESTER J. OWENS

Managing Director, Global Head of Wholesale Banking Operations, JPMorgan

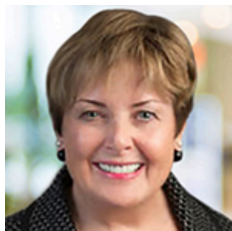
Lester J. Owens is a Managing Director at J.P. Morgan responsible for Wholesale Banking Operations across 50+ sites. He manages a global staff of approximately 7,000 employees worldwide, and his primary responsibility is managing one of the largest Payment Operations globally.

Prior to joining JPMorgan in 2008, Owens worked for Deutsche Bank as a Managing Director responsible for Transaction Banking Operations as well as serving on the Executive Committee for the Global Transaction Bank.

Before joining Deutsche Bank, Owens was the Site Director at Citibank in Delaware, which included Nationwide Receivables, Check Clearing and Customer Investigations. Prior to Citibank, Owens worked for Bankers Trust and Chemical Bank.

Owens holds a B.A. from Long Island University, an Executive M.B.A. from Fairleigh Dickinson University, and he also attended the Harvard University Executive Management program.

Owens is a Board Member of RWJ Barnabas Health in New Jersey.



ANN N. REESE

Founder and Co-Executive Director, The Center for Adoption Policy

Ann N. Reese founded the Center for Adoption Policy in New York in 2001 and serves as its Co-Executive Director. The organization provides research, analysis, advice and education to practitioners and the public about current legislation and practices governing ethical domestic and intercountry adoption. Prior to that, Reese served as a Principal with Clayton, Dubilier & Rice, a private equity investment firm, in 1999 and 2000.

From 1995 to 1998, she was Executive Vice President and Chief Financial Officer of ITT Corporation, a hotel and gaming company.

Reese also serves as a Director on the Boards of Xerox Corporation, Sears Holdings and Genesee & Wyoming Inc. She has extensive executive experience in corporate finance, financial reporting and strategic planning through her position as a public company chief financial officer as well as corporate governance expertise gained from her experience on other public company boards.

She is a Trustee of the University of Pennsylvania, where she is a member of the Executive Committee and chair of the Audit Committee. She is also a member of the Board of Overseers of the School of Social Policy and Practice (SP2) at Penn and a member of the Trustees Council of Penn Women.

Reese has an MBA from the Stern School of Business at New York University and a BA from the University of Pennsylvania.

**DOUG SHULMAN****Senior Executive Vice President of BNY Mellon and Global Head of Client Service Delivery**

Doug Shulman is Senior Executive Vice President of BNY Mellon and Global Head of Client Service Delivery (CSD), which includes the key business functions and service delivery areas of BNY Mellon. He is also a member of the company's Executive Committee, the organization's most senior management body.

Shulman joined BNY Mellon in September 2014 from McKinsey & Co., where he was a Senior Advisor, and Harvard's Kennedy School Center for Business and Government, where he was a Senior Fellow. From 2008 to 2012 he was the Commissioner of the U.S. Internal Revenue Service, where he led the 100,000-person agency and among other accomplishments was responsible for transforming the IRS's use of data analytics and implementing a major modernization of the IRS key technology.

Previous to the IRS, Shulman served in various roles at the Financial Industry Regulatory Authority (FINRA), including Vice Chairman. He joined FINRA's predecessor, NASD, in 2000 and ran a variety of functions, including Markets, Services, Technology, Strategy and Corporate Development. Previously, he was an entrepreneur and worked for a private investment firm.

Shulman holds a BA from Williams College, an MPA from the Kennedy School at Harvard University and a JD from Georgetown University Law Center.

**PAUL SIMPSON****Global Banking & Markets Operations Executive, Bank of America**

Paul Simpson is the Global Banking & Markets Operations executive at Bank of America. He leads a team responsible for operations for institutional and commercial, corporate, investment banking, and government clients, as well as small business and business banking clients. The team delivers end-to-end services, support and operations for sales, trading and underwriting businesses and comprehensive financial services solutions, including credit, depository, treasury and trade delivery and support. Simpson also leads the regional technology and operations teams in Asia Pacific, Europe, Middle East and Africa, and Latin America.

Prior to this role, Simpson was managing director and global head of Equity Asset Management Services at Bank of America Merrill Lynch. He was responsible for multiple Global Markets businesses, including: Prime Brokerage, Stock Loans, Swaps, Global Custody and Agency Services, Futures & Options, OTC Clearing, and Foreign Exchange Prime Brokerage.

Simpson previously led the Global Transactions Services business, which included payments, liquidity and investments, receivables, trade and supply chain finance, and custody and agency services. He has more than 25 years of experience working in the financial services industry, principally in treasury and trade services, public sector, and commodities.

Prior to joining the bank in 2011, Simpson was with Citigroup as global head of Treasury & Trade Solutions in the Global Transaction Services group. He joined Citi in 2007 as head of Global Public Sector & Healthcare Markets. Previously, Simpson was with JP Morgan Chase in roles with increasing responsibility within Treasury Services, Public Sector and Healthcare. Earlier in his career he spent time with Deutsche Bank as head of eCash Solutions and head of Trade Services; and with ANZ Banking Group in Trade and Commodity Finance.

He holds a BS in Russian from Georgetown University and an MBA in Finance, Economics and International Business from New York University Stern School of Business. He also studied in Moscow at the Pushkin Institute.



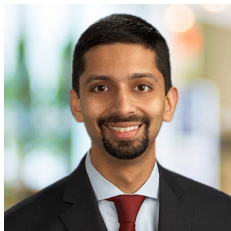
GARY H. STERN

Former President and Chief Executive Officer, Federal Reserve Bank of Minneapolis

Gary H. Stern was President and Chief Executive Officer of the Federal Reserve Bank of Minneapolis from March 1985 to September 2009. Stern joined the Federal Reserve Bank of Minneapolis in January 1982 as senior vice president and director of research. Before joining the Minneapolis Fed, Stern was a partner in a New York-based economic consulting firm. Stern's prior experience includes seven years at the Federal Reserve Bank of New York.

Stern serves on the board of directors of E*TRADE Financial Corporation, S&P Global Ratings, Ambac Assurance Corporation, the Council for Economic Education (CEE) and Hamline University. He is Lead Director and Chair of the DTCC Risk Committee. Stern is co-author of *Too Big to Fail: The Hazards of Bank Bailouts*, published by the Brookings Institution (2004). Stern is a member of the FDIC's Systemic Resolution Advisory Committee.

Stern holds an A.B. in economics from Washington University, St. Louis, and a Ph.D. in economics from Rice University, Houston. He formerly served as chair of the board of the Northwest Area Foundation, The Minneapolis Club, and Blue Cross Blue Shield of Minnesota. He was also a board member of FINRA, the Dolan Company, Minneapolis College of Art and Design, and ETS. Stern is the recipient of the 2009 Visionary Award from CEE and the Distinguished Alumnus Award from Washington University's College of Liberal Arts in 2010.



UMESH SUBRAMANIAN

Co-head of the Technology Division at Goldman Sachs

Umesh Subramanian is Co-Head of the Technology Division at Goldman Sachs. He is a member of the Firmwide Risk Committee, Firmwide Finance Committee, Firmwide Model Risk Control Committee, Firmwide Technology Risk Committee and Investment Banking Division Technology Investment Committee. Subramanian also chairs the Technology Americas Diversity Committee.

Previously, he was global head of the Finance Engineering team, which included Market, Credit, Liquidity and Operational risk functions along with the Capital and Controllers Engineering teams. Before that, Subramanian was global head of Investment Banking and Merchant Banking Division Strats, where his team provided quantitative structuring and analytical advice to Investment Banking clients and helped the divisions manage lending and investment-related risks.

He joined Goldman Sachs in 2005 and was named managing director in 2008 and partner in 2014. Prior to joining the firm, Subramanian worked at Morgan Stanley.

Subramanian earned a BTech in Mechanical and Industrial Engineering from the Indian Institute of Technology, Madras, in 1997 and an MS in Industrial Engineering and Operations Research from the University of Illinois at Urbana-Champaign in 1999. He is a CFA charterholder. University Stern School of Business. He also studied in Moscow at the Pushkin Institute.



LEE R. WAITE

Managing Director and Head North, America Markets and Securities Services at Citi

Lee Waite is Managing Director and Head of North America Markets and Securities Services as well as a member of the Markets and Securities Services Senior Executive team at Citi.

Prior to his current role, Waite led the Direct Custody and Clearing (DCC) business, with responsibility for the growth and strategic direction of the DCC global franchise, which services both the Broker Dealer and Global Custodian community of clients in 63 markets globally. Previously, he led the acquisition and global integration of the purchase of BISYS — a global fund administration firm. Before moving to transaction banking, Waite was Global Chief Operating Officer for the Equities Division of Citi, accountable for the technology, middle-office and operations functions.

With over three decades of broad financial industry expertise gained in Retail, Fixed Income, Equities and transactional banking at both the national and international level, Waite has deep industry expertise in the trade and post-trade industry. He is a leading securities services industry expert and seasoned public speaker on a broad range of topics on key industry trends. He is currently Vice Chairman of the International Securities Services Association (ISSA). He holds a degree in business administration from Towson State University and an M.B.A. from the Fuqua School of Business, Duke University.



LARA J. WARNER

Chief Compliance and Regulatory Affairs Officer, Credit Suisse Group and Credit Suisse

Lara J. Warner is the Chief Compliance and Regulatory Affairs Officer, Credit Suisse Group and Credit Suisse. As CCRO, Warner is responsible for all compliance and regulatory matters for Credit Suisse globally and across all businesses and functions.

From 2010 to 2015, Warner was the Chief Financial Officer (CFO) for the Investment Banking (IB) division and a member of the IB Operating Committee. Since 2013 through to her appointment as CCRO, she was also the Chief Operating Officer (COO) for the IB division.

Prior to her CFO and COO roles, she was the Global Head of Fixed Income and Economic Research, and also served as Head of U.S. Equity Research. Warner joined Credit Suisse in 2002 as a senior equity research analyst covering the cable television, wireline and wireless telecommunications services and satellite industries. Prior to joining the Credit Suisse, Warner was a senior research analyst at Lehman Brothers, where she covered the cable television industry. Before joining Lehman Brothers in March 2001, Warner spent 10 years at AT&T, where she held a number of leadership roles, including Director of Investor Relations and Chief Financial Officer for AT&T's Competitive Local Exchange business unit efforts in the U.S.

Warner is Chair of the Women's Leadership Board of Harvard University's John F. Kennedy School of Government, a Board Member of the Aspen Institute's Business and Society Program, as well as Member of the Board of Visitors of Smeal College, Pennsylvania State University. Warner holds a B.S. from Pennsylvania State University.

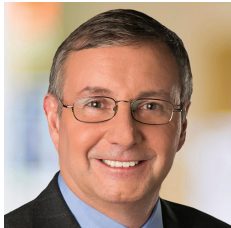
**JOSEPH WEINHOFFER****Treasurer and Chief Investment Officer of ED&F Man Capital Markets Inc. (MCM)**

Joseph Weinhoffer is Treasurer and Chief Investment Officer of EDF Man Capital Markets Inc. (MCM) with responsibility for firm financing, capital management, bank relationships, investing client segregated assets and supervising fixed income trading for MCM and its affiliates.

Prior to joining MCM in 2014, Weinhoffer was a Managing Director at Mitsubishi UFJ Securities (MUS) responsible for U.S. Treasury, repo and stock loan. Before joining MUS in 2009, Weinhoffer was at Annaly Capital Management, where he established RCap Securities. From 2001 until 2008, Weinhoffer was the Founder and CEO of Quadriserv, a stock loan marketplace. Prior to Quadriserv, Weinhoffer served at Morgan Stanley, Merrill Lynch and Bank of New York. Prior to his civilian career, Weinhoffer served in the U.S. Army for five years.

Weinhoffer is a graduate of the United States Military Academy and the Columbia Business School and is CFA and CAIA chartered. He is also Chairman of the Board of Trustees of Oratory Preparatory School in Summit, NJ.

MANAGEMENT COMMITTEE



MICHAEL C. BODSON

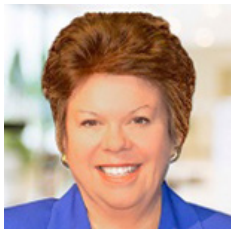
President and Chief Executive Officer

Michael C. Bodson is President and Chief Executive Officer of DTCC. He is also President and Chief Executive Officer of DTCC's principal operating subsidiaries, DTC, FICC and NSCC, and a member of DTCC's Board of Directors.

In his prior position as DTCC's Chief Operating Officer, Bodson had enterprise-wide responsibility for all Information Technology and Operations and oversaw DTCC Deriv/SERV LLC and EuroCCP. He previously served as Chairman of various DTCC subsidiaries, including DerivSERV and Omgeo.

Bodson joined DTCC in 2007 as Executive Managing Director for Business Management and Strategy. Prior to this, he held a number of senior management positions with Morgan Stanley over a 20-year period. In his last position at Morgan Stanley, Bodson was Global Head of the Institutional, Retail and Asset Management Operations Department. He previously served as Divisional Operations Officer for the Institutional Securities Group and Head of the Enterprise Information Group. He served as Head of Finance, Administration and Operations for Morgan Stanley Japan in Tokyo, and prior to that, he held similar responsibilities for Morgan Stanley Asia in Hong Kong. Prior to joining Morgan Stanley, Bodson worked at Bear Stearns and Price Waterhouse.

Bodson is a CPA and graduated Magna Cum Laude from Boston College. He currently is a member of the Board of Digital Asset Holdings, American Red Cross Metropolitan New York North Region and is a Trustee of the World Economic Forum's Financial Services Initiative.



PAULA ARTHUS

Managing Director, Head of Corporate Strategy & Chief of Staff, Office of the CEO

Paula Arthus is Managing Director, Head of Corporate Strategy & Chief of Staff, Office of the CEO, with responsibility for managing enterprise-wide strategic and operational issues, providing counsel and collaborating with senior leadership across all major functions. In addition, Arthus leads Corporate Strategy and the Office of Fintech Strategy, with responsibility for monitoring the competitive landscape of the firm; implementing business functional planning processes; leading our efforts to build a more fulsome Fintech strategy, including initiatives related to robotics and distributed ledger technology; driving forward important enterprise initiatives; and ensuring the company is equally focused on executing on today's priorities and progressing longer-term priorities.

Since joining DTCC in 2005, Arthus held a number of senior positions, including Managing Director and head of Relationship Management for the Equities and Fixed Income Clearance and Settlement, Asset Services, and Wealth Management Services businesses. She served on the Omgeo Board of Managers from 2008 to 2011. Prior to joining DTCC, Arthus had a long and successful career at JPMorganChase, including as Global Technology Executive for the firm's global custody business and head of the investment management operations in-sourcing business.

**SUSAN COSGROVE****Managing Director and Chief Financial Officer**

Susan Cosgrove is Managing Director and Chief Financial Officer, leading DTCC's global finance and treasury teams and overseeing the company's financial processes and liquidity and capital position. She is also responsible for strategic sourcing, real estate, corporate services and location strategy.

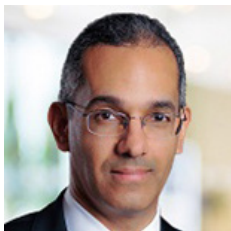
Cosgrove was previously Managing Director and General Manager of Settlement and Asset Services, overseeing all depository businesses. Prior to this role, she was the General Manager for DTCC's Equity and Fixed Income Clearing Services. Cosgrove is a member of DTCC's Management Committee and Management Risk Committee, and she co-chairs the firm's Investment and Operating Committee. Cosgrove is a member of the Board of Directors for DerivSERV and PENCIL, a not-for-profit organization leading collaboration between business and public education communities.

Prior to joining DTCC in 1999, she served as a Senior Vice President at Lehman Brothers in charge of Audit and Compliance for the company's Americas division. Before Lehman, she worked at Maxcor Financial Group for 10 years as Chief Financial Officer and Head of Compliance. Cosgrove began her career as a Senior Auditor for PricewaterhouseCoopers in their Financial Services Group.

**ROBERT GARRISON****Managing Director and Chief Information Officer**

Robert Garrison is DTCC's Managing Director and Chief Information Officer, with enterprise-wide responsibility for the ongoing development and testing of all the technology that supports DTCC's post-trade infrastructure, communications networks, processing and messaging systems, and the IT applications underlying DTCC's broad range of products and services.

Garrison became CIO in July 2011. Prior to joining DTCC in October 2010 as a Managing Director and Chief Development Officer of the Information Technology division, Garrison spent 25 years at Morgan Stanley working in various senior technology leadership positions.

**ANDREW GRAY****Managing Director, Group Chief Risk Officer**

Andrew Gray is Managing Director, Group Chief Risk Officer, with global responsibility for all aspects of DTCC's Risk Management, including Credit, Market & Liquidity Risk, Operational Risk Management and Systemic Risk, Information Security and Technology Risk Management, Business Continuity Management and Global Security Management. Gray also has responsibility for DTCC's Enterprise Data Management program. Prior to this role, Gray served as Managing Director, Core Business Management, with overarching responsibility for DTCC's businesses, including Clearance and Settlement of Equities and Fixed Income products, Asset Services, Wealth Management Services, Insurance & Retirement Services, Omgeo, and Data Services as well as the firm's Marketing & Communications function. Gray serves on the Board of the International Securities Services Association (ISSA) and is a member of the Board of Trustees of Global Association of Risk Professionals (GARP).

Before joining DTCC in September 2009, Gray spent more than a decade with Merrill Lynch. Most recently, he served as Managing Director and Chief Operating Officer for Merrill's Latin American and Canadian businesses. Prior to that, he was a Managing Director in Strategy and Business Development for Merrill's Global Markets and Investment Banking businesses and for Global Securities Research & Economics. Previously, Gray was a principal at Booz-Allen & Hamilton, the global management consulting firm.



TIMOTHY KEADY

Managing Director and Head of DTCC Solutions

Timothy Keady is responsible for leading DTCC's Solutions businesses of Derivatives and Collateral, Institutional Trade Processing and Data Services, as well as DTCC's joint venture, DTCC-Euroclear Global Collateral Ltd. Keady also leads the company's sales, relationship management, global solution delivery and marketing & communications functions, which support the company's global client base and drive increased enterprise-wide client value across all services.

Prior to his current role, Keady was Chief Client Officer at DTCC. Before that, he served as Managing Director, Sales & Solution Delivery, for Omgeo, overseeing the sales, relationship management, global partners, global marketing, sales planning & execution and integration teams. During his 20-year career in financial services, Keady has created multiple programs, products and initiatives that have successfully secured strategic partnerships, streamlined processes for maximum efficiency and penetrated new, international markets. He has consistently played a key role in recognizing clients' needs and aligning them with revenue-enhancing solutions worldwide.

Before joining Omgeo, Keady was an account executive at Thomson Financial ESG. He has also held sales positions at Fidelity Investments Institutional Services Co. and Keystone Mutual Funds.

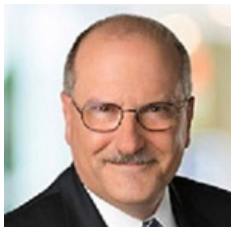


ANTHONY PORTANNESE

Managing Director, Human Resources

Anthony Portannese is Managing Director of Human Resources and a member of DTCC's Executive Committee and Operating Committee. He is responsible for leading all global human resources activities, including the planning, design and delivery of corporate compensation and benefit programs, executive compensation programs, employee relations, talent strategies and diversity.

Portannese joined The Depository Trust Company (DTC) in 1981. During his career at the company, he has held numerous leadership roles within Human Resources, Operations, Real Estate and Corporate Services. He was promoted to Managing Director in 2005 and serves as chair of the Scholarship Foundation Board of the Borough of Manhattan Community College.



MURRAY C. POZMANTER

Managing Director and Head of Clearing Agency Services and Global Ops

Murray Pozmanter is Managing Director and General Manager in charge of all DTCC's SIFMU (Systemically Important Financial Market Utility) businesses. He also leads a consolidated Clearing Agency Services team, where he has responsibility for the development and marketing of products and services related to DTCC's post-trade processing of transactions. In addition, Pozmanter oversees DTCC's Global Operations & Client Services teams.

Prior to joining DTCC in 2007 as Managing Director, Pozmanter was at Nomura Securities for 18 years, where the last position he held was Managing Director and Head of U.S. Operations. At Nomura, Pozmanter was responsible for all fixed income, equity, and derivatives operations for all U.S. subsidiaries of Nomura Holding America. Before joining Nomura, Pozmanter spent six years at Salomon Brothers Inc.

He is a member of the Treasury Market Practices Group, as well as SIFMA's Funding Division Executive Committee and Operations and Technology Steering Committee. He has also been a member of the DTCC's Operations Advisory Committee, serves as chair of the Scholarship Foundation Board of the Borough of Manhattan Community College.



ANN SHUMAN

Managing Director and General Counsel, DTCC

Ann Shuman is Managing Director and General Counsel at DTCC. As General Counsel, she is responsible for managing the company's global legal team and advising senior management and the firm's Board of Directors on legal and regulatory matters. Shuman is also a member of the Management Risk Committee.

Shuman joined DTCC in 2014 as Managing Director & Deputy General Counsel. She has served on both the Operating Committee and the New Initiatives Committee. Prior to joining DTCC, Shuman was a senior executive at CME Group for 13 years, holding positions in the legal and corporate development functions, where she worked on many of the company's significant strategic transactions and its responses to regulatory reform proposals.

Shuman began her legal career as a law clerk for the U.S. Court of Appeals for the Fifth Circuit and practiced at Sidley & Austin in Chicago before joining CME Group.



LARRY E. THOMPSON

Vice Chairman and Chairman of the Board of DTCC Deriv/SERV LLC

Larry E. Thompson is Vice Chairman of DTCC and Chairman of the Board of DTCC Deriv/SERV LLC. As Vice Chairman, Thompson leads DTCC's public policy engagement with key regulators and lawmakers globally and serves as a senior advisor to the firm. He is also the Chairman of the DTCC Operating Committee and a member of the Management Committee.

Thompson began his legal career with The Depository Trust Company (DTC) as Associate Counsel in 1981. He was elected Vice President and Deputy General Counsel in 1991, Senior Vice President in 1993, General Counsel of DTC in 1999, Managing Director and First Deputy General Counsel of DTCC in 2004, and to General Counsel in 2005. Previously, he was a partner at Lake, Bogan, Lenoir, Jones & Thompson. Thompson began his legal career at Davis Polk & Wardwell.

Thompson currently serves as Vice Chairman on the Board of Directors of The Federal Home Loan Bank of New York (FHLB NY). He is a 2005 David Rockefeller Fellow and also former Chairman of the Securities Clearing Group and former Co-Chairman of the Unified Clearing Group.

With legal and financial services industry expertise spanning decades, Thompson has been quoted in Bloomberg, Reuters, Financial Times, The Wall Street Journal, Financial News, Boersen Zeitung, L'Agefi Quotidien and Australian Financial Review. He has also appeared on CNBC and Channel News Asia.



02

RESPONDING TO CHANGE

A CONVERSATION WITH...



ANDREW



TIM



MURRAY

We recently sat down with **ANDREW GRAY**, Group Chief Risk Officer, **TIM KEADY**, Head of DTCC Solutions, and **MURRAY POZMANTER**, Head of Clearing Agency Services and Global Operations, to discuss how DTCC is responding to dramatic changes across financial services and their plans for enhancing how DTCC will support clients during this period of market transformation.

Q: 2018 MARKS THE 10-YEAR ANNIVERSARY OF THE COLLAPSE OF LEHMAN BROTHERS. WHAT HAVE BEEN THE MOST SIGNIFICANT CHANGES SINCE THEN, AND HOW HAVE THEY IMPACTED THE INDUSTRY?

TIM: Without a doubt, it's the regulatory environment. Markets are safer and more resilient today and firms are better capitalized to withstand a crisis thanks to new rules that have been enacted since 2008. However, regulatory regimes have become more complex as a result and significant resources are needed to ensure compliance across multiple jurisdictions. When you combine that with sustained pressures on liquidity, reduced margins, capital building and an intense focus on cost reduction to compensate for a lack of organic growth, many banks are struggling. Just look at return on equity – it remains in the single digits across large swaths of the industry.

ANDREW: From my perspective, we've witnessed significant changes in the nature, complexity and types of risks impacting the industry. Because of this, market participants must take a more comprehensive view of the risk landscape, including the extended enterprise, and protect against a wider variety of threats. In just the last year alone, the issue of fintech risk has emerged as an area of discussion as firms embrace new technologies. The question we need to ask is – what is their potential impact on financial stability? In an environment as dynamic as this, many firms are focused on building resilience, because we know that breakdowns are inevitable. That is why it's critically important to be able to detect problems early on and recover from them as quickly as possible.



Q: WITH THESE DYNAMICS SQUEEZING THE INDUSTRY FROM SO MANY ANGLES, HOW ARE FIRMS RESPONDING?

TIM: There's been significant retrenchment over the past decade, but most companies are still looking for areas to cut costs further. They're now training their sights on the middle and back offices as a prime area for savings. Some clients have told us they want to eliminate upwards of 50-70% of their post-trade costs by outsourcing most of these operations to a third party.

There's widespread agreement that the current ecosystem is highly efficient and low cost, but friction and fragmentation still exist in certain pockets, and this creates inefficiencies that lead to increased risks and costs. We believe we can eliminate this friction and deliver greater straight-through processing in cash securities processing and OTC derivatives – two areas where we have unmatched capabilities – by integrating our solutions across the post-trade lifecycle.

Q: THAT SOUNDS VERY EXCITING, BUT HOW DO YOU PLAN TO TURN IT INTO REALITY?

MURRAY: Let me give you one example on the clearing side of how we're advancing this idea right now. We're working to bring buy-side firms and custodians into the clearinghouse so that our clearing capabilities are open to the broadest cross-section of market participants. We're also looking at asset class expansion and clearing a wider array of instruments, such as securities lending and providing additional repo support for fixed income and equity collateral. We believe that adding new members to the clearinghouse across a larger number of asset classes will enable us to strengthen both the safety and efficiency of the marketplace and reduce post-trade costs for the industry.

Q: DTCC RECENTLY ISSUED A WHITE PAPER ON THE FUTURE OF EQUITY MARKET INFRASTRUCTURE. CAN YOU EXPLAIN HOW THIS WILL BENEFIT CLIENTS?

MURRAY: As you know, we helped lead the industry last year in shortening the settlement cycle in the U.S. from T+3 to T+2. This was a significant accomplishment that took years to complete. As we surveyed the landscape for other ways to improve cash securities processing in the U.S., we wanted to avoid another multi-year industry initiative like moving to T+1, which doesn't have widespread support at this time. However, through our research and client engagement, we brainstormed ways to innovate our processes and leverage synergies between the middle and back offices to achieve many of the same benefits in less time and at less expense to the industry.

Q: HOW CAN YOU DELIVER THE BENEFITS OF A SHORTER SETTLEMENT CYCLE WITHOUT ACCELERATING SETTLEMENT TIMES?

MURRAY: The key is re-engineering the night cycle. Currently, over half of all trades in the equity markets settle during the night cycle, but if we can bring the bulk of that activity to the start of the day, we think we can get one step closer to real-time gross settlement. What's exciting is the prospect that if we can execute a trade for T+1 and settle it first thing the next morning, we've reduced the settlement period from T+2 to as little as 12 hours without changing the trade lifecycle or core processes.

TIM: To build on Murray's point, by optimizing the post-trade workflow through Match-to-Instruct (M2I) enhancements and DTCC Exception Manager, trades will move more smoothly and quickly to the optimized settlement cycle, with users able to review and resolve exceptions in a timelier manner both pre-settlement and post-settlement. This is a great example of how we can integrate our services to reduce costs and risks for our clients.

Q: ARE THERE SIMILAR OPPORTUNITIES LIKE THIS IN THE OTC DERIVATIVES MARKET?

TIM: Without a doubt. The OTC derivatives market is a maze of products, services and providers right now. The degree of friction and fragmentation far outweighs what we see in the U.S. cash markets, which means the opportunities and benefits are potentially greater. Let me give you one example of how we're addressing this. We can create a stronger linkage between ALERT and Margin Transit Utility (MTU), which are closely aligned, because the functionality of the collateral standing settlement instructions (SSI) is a critical component of MTU to complete the margin call process. By doing this, we will bring increased efficiency and cost savings to the market. We also see connections between the Global Trade Repository (GTR) and MTU. We're currently defining similar points of connection among all our services as well as identifying gaps that we can fill to support greater straight-through processing.

Q: LET'S TURN TO RISK FOR A MOMENT BECAUSE THAT'S ONE OF DTCC'S CORE STRENGTHS. ARE THERE PLANS TO LEVERAGE THESE CAPABILITIES TO HELP CLIENTS MANAGE THEIR OWN RISK?

ANDREW: Absolutely. We see a number of opportunities to support the risk management needs of the industry by allowing firms to tap into our data analytics, tools and expertise. Over the past few years, we've done a tremendous amount of work to revamp our risk technology, create a data warehouse across our clearing agency subsidiaries, build sophisticated new resources that allow our teams to access critical information more quickly and implement new risk models for our central counterparties (CCPs). We've seen such a positive outcome that we're now starting to make these tools available to our clients. We believe giving clients access to our core risk management capabilities and data from our three clearing agency subsidiaries will help them more effectively manage risk, increase their risk operational efficiency and support their growing regulatory compliance requirements. It's a win for DTCC and for our clients.

Q: DTCC HAS HISTORICALLY USED NEW TECHNOLOGY TO IMPROVE THE SERVICES IT PROVIDES, AND MORE RECENTLY, HAS BEEN A LEADER ON FINTECH ISSUES. WHAT ROLE WILL FINTECH PLAY IN THE LAUNCH OF NEW CAPABILITIES AND SERVICES?

TIM: A very significant one in my opinion. We see Fintech as a key enabler of our strategy, and we're moving aggressively to leverage distributed ledgers, cloud computing, robotics and machine learning to drive greater efficiencies and risk and cost reductions. We created an Office of Fintech Strategy in 2016 and established an Automation Center of Excellence last year to drive our work in these areas, and we're currently leading one of the largest and most complex fintech initiatives in the industry — the replatforming of our Trade Information Warehouse using distributed ledger technology (DLT) and the cloud.

Q: DOES THIS SAME STRATEGY CARRY OVER TO RISK MANAGEMENT?

ANDREW: I'm really excited about how we can use artificial intelligence and machine learning to enhance our risk management capabilities. As we've studied the technology, we've seen several opportunities to further harness our data and processing power to deepen our ability to analyze and mitigate risk. For example, we are using these techniques in our cybersecurity functions to detect patterns of anomalous activities and also exploring use cases in operational incident analysis, credit risk reviews and model development and validation.

Q: YOU HAVE ALL PAINTED A COMPELLING PICTURE OF THE FUTURE. WHAT'S BEEN THE REACTION FROM CLIENTS?

TIM: There's a lot of enthusiasm to say the least, but they want to see how all the pieces fit together and can support their needs holistically. DTCC is an organization that touches virtually every part of the industry. Because of this, we need to continue to get better at explaining the range of services we offer and how they tie together to form cohesive solutions. We're doing a lot of work now to simplify how we go to market so that our clients can better envision how we can support them across the post-trade lifecycle.

Q: CAN EACH OF YOU IDENTIFY ONE KEY ENABLER TO BRING THIS VISION TO LIFE?

TIM: For me, I think it is critical that we continue to focus on our clients and our regulators. We want to take client-centricity to a new level and act as true partners to all our stakeholders. We want to be laser focused on their success and deliver high-quality products and services quickly and with value along the development cycle.

MURRAY: Our people are fundamental to our success. We're incredibly fortunate to have such a talented and committed global team, but we need to bring an even greater degree of innovation to the client experience, product development and our engagement in the future.

ANDREW: I definitely agree with Murray and Tim, but I would also add organizational agility. If you think about the nature of risk over the past decade, it has changed dramatically. Cyber risk, technology risk, vendor risk – none of these risks were considered top concerns just 10 years ago. The pace of change is quicker than ever, which means that we need to have foresight to get ahead of trends and the ability to reorient what we're doing in response to new external dynamics. At the same time, we need to keep our eye on the ball to ensure we are fulfilling our core responsibilities of day-to-day risk management.

MURRAY: We're acutely aware of the trust our clients and the industry place in us. We've made the markets more efficient, transparent, cost effective and safe for almost half a century, and we're excited to make an even bigger impact in the future.



03

TURNING HEADWINDS INTO TAILWINDS



**2017 WAS ANOTHER YEAR OF CHANGE
AND TRANSFORMATION FOR OUR INDUSTRY**



**FINANCIAL FIRMS CONTINUED
TO FACE MULTIPLE HEADWINDS...**



MARKET CRISES

BREXIT

CYBER ATTACKS

COMPETITION

**...WHICH HAVE BEEN COMPOUNDING
SINCE THE FINANCIAL CRISIS**

RISE OF FINTECH

ISOLATIONISM

COST PRESSURES

NEW REGULATIONS



**AT DTCC, WE'RE TURNING THESE
HEADWINDS INTO TAILWINDS**

An aerial photograph of a river, possibly the Amazon, with a blue grid overlay. The text is centered over the river.

**READ OUR STORIES OF HOW WE'RE
HELPING THE INDUSTRY NAVIGATE
THROUGH THESE CHALLENGING TIMES**



Michele Clifford, David LaFalce and Kevin Hanley tested DTCC's ability to operate from backup sites in the event of a crisis.

AN EXERCISE IN CRISIS

THIS WAS NO ORDINARY DAY AT DTCC. FOR ONE THING, IT WAS A SATURDAY. IT WAS JUST before 6:00 a.m. And in a moment, the critical systems that control the clearance and settlement of hundreds of millions of dollars in financial transactions each day were about to be shut down in DTCC's New York data centers and resumed at its backup site in Dallas. In a large conference room in the company's New York office, Kevin Hanley and David LaFalce of DTCC's Risk Management group and Michele Clifford of Enterprise Infrastructure began teleconferencing with colleagues across the U.S., Europe and Asia in preparation for activating the firm's disaster recovery (DR) systems.

Although this was a war game, the team had an unforgivable deadline – at noon, DTCC's clearing agencies needed to be ready to accept transactions at its backup site. It was up to this group, along with hundreds of their colleagues in IT, Business Operations, Client Services and other areas across the firm, to make sure that all test transaction activity would be processed into the clearing agencies' core applications.

This massive industry-wide effort, organized in concert with SIFMA, involved 175 securities firms, market organizations and utilities all testing their ability to process orders and transactions from backup sites in the event that a crisis rendered key technology systems at their primary sites inoperable. The exercise was designed to comply with the requirements of Reg SCI – a regulation adopted by the U.S. Securities and Exchange Commission (SEC) in 2014 to strengthen the technology infrastructure of the U.S. securities markets.

"There's no room for error when it comes to clearing and settlement," said David, who leads Business Continuity

Management (BCM) for DTCC. “We need to be perfect every day. That’s why exercises like this are so critical. They help us identify potential issues in the event of a disruption and allow us to collaborate with our colleagues across the industry so we’re trained and ready should a real crisis occur.”

As the hours passed, Michele, Kevin and David worked with their DTCC colleagues in preparation for opening the firm’s disaster recovery systems to the street. They ran through extensive checklists and troubleshoot potential client access or transaction processing issues before matters could escalate further. When the moment of truth arrived, the first transaction came through...and then another. Kevin and David were manning the client hotline ready to address client issues. But all they heard on the other end was the satisfying sound of silence.

Throughout the day, hundreds of contingency communication links were established between DTCC, its clearing agencies’ member firms and key market utilities – each one a critical connection to transmit market data. By the end of the exercise, DTCC and the industry achieved a 98% success rate.

“We were confident everything would go smoothly, but with so many variables at play, there’s always the possibility of something going wrong,” Michele said, “Through extensive industry planning and solid execution of our disaster recovery capabilities, we were able to demonstrate that we have robust plans in place to continue serving our clients should a crisis occur that impacts our technology infrastructure.”



John Abel served as DTCC's point person on shortening the U.S. settlement cycle.

INDUSTRY-WIDE PARTNERSHIP DRIVES MOVE TO T+2

ORCHESTRATING THE TRANSITION OF THE U.S. CAPITAL MARKETS TO A SHORTER settlement cycle required three years of work and coordination among more than 600 market participants. But when you're making the most significant change to the settlement cycle in over 20 years – a move that impacts more than 90 million daily transactions valued at more than \$960 billion – no detail is too small.

And over Labor Day weekend 2017, all the planning, analyzing and designing would be put to the test as the industry readied to move the settlement cycle to trade date plus two days, known as T+2. The last time the settlement cycle was shortened, from T+5 to T+3, was 1995, and in the 20-plus years since, the market had changed dramatically.

“There was no playbook to follow, so we had to write one from scratch,” said John Abel, who oversees Settlement and Asset Servicing Strategy at DTCC and was the firm's point person on the initiative.

“We meticulously detailed every process in the U.S. equity, corporate and municipal bond and unit investment trust (UIT) trade lifecycle and determined how each event would be impacted by the move to T+2. We then documented this information and shared the results with the industry to guide them through the change.

The move to T+2, which brought the U.S. settlement cycle into alignment with other major markets, including most European Union member states and countries in the Asia-Pacific region, gained momentum over the past several years as many in the industry rallied for the benefits of reduced credit and counterparty risk, improvements to operational processes, efficiencies in cash deployment, increased market liquidity and lower collateral requirements.

The highly coordinated effort involved hundreds of banks, broker-dealers, custodians and other key market stakeholders, including regulators. Adding to the challenge, the Canadian markets joined the U.S. in transitioning to the shortened cycle that same weekend, which was carefully selected to avoid high-volume trading days and large corporate action days.

DTCC, along with SIFMA and the Investment Company Institute, helped drive this industry-led initiative. A Steering Committee and Working Group comprised of senior-level representatives from industry associations and firms that represent various segments of the market were formed. In addition, more than 600 industry subject-matter experts participated in the Sub-Working Groups to determine the required changes to various business processes within each of their workstreams.

With years of planning and organizing behind them, John and his partners from the T+2 Industry Steering Committee entered the 2017 Labor Day weekend confident in the extensive, industrywide testing that had been completed. They staffed a virtual “command center” ready to troubleshoot any issues that might arise, but as the time passed, it became increasingly clear that the hard work and cross-industry collaboration had paid off. Everything went smoothly that weekend, and on September 7, 2017, all trades successfully settled on the new T+2 schedule.

John said, “This was one of the most exciting initiatives I’ve worked on in my career, and I’m looking forward to continuing the collaboration to further reduce risks and costs in the markets.”



Angela Evans, Enrico Giardina and Tim Cuddihy helped provide stability when markets spiked downward during the U.S. Presidential election.

MANAGING RISK THROUGH POLITICAL UNCERTAINTY

AS THE IMPROBABLE BECAME REALITY, THE FINANCIAL MARKETS SPIKED DOWNWARD. Donald Trump had been elected President of the United States, sparking a level of market volatility not seen since the UK's decision to leave the European Union just a few months earlier. Dow futures sank nearly 900 points and the Mexican peso hit an all-time low, while stock indexes in the Asian markets closed down by as much as 5%. In a year of unpredictability, DTCC's Market and Liquidity Risk Group was well aware that geopolitical events could prompt material changes in exposures and prices very quickly – and they knew the coming hours and days could be volatile.

Of utmost concern were the implications on the clearing/participant funds of DTCC's clearing agencies, which enable the firm to manage the counterparty risk associated with processing trillions of dollars in financial transactions each day. In the event of a client default, these funds allow DTCC's clearing agencies to complete clearance and settlement in an orderly manner and without broader impacts to the industry. For Tim Cuddihy, who oversees market and liquidity risk for DTCC, it's his responsibility to make sure that as markets fluctuate, margin requirements are adjusted to reflect changes in client risk profiles.

On the night of the U.S. Presidential election, Tim, assisted by Rick Giardina, Angela Evans, Mike Reed and Bjorn Thordarson, began by re-running the mark-to-market engine for the U.S. fixed income markets because prices had changed significantly since U.S. bond markets closed. Then they evaluated the overnight trading queues, including both fixed income securities and equities, to understand the implications of heightened trading volumes that were expected post-election. As part of this, they also reviewed changes in positions and prices to gain real-time insight on movements across equity and fixed income markets as volumes jumped. With hundreds of millions of dollars of trading activity in the queue, these calculations would determine if clients needed to post additional margin to cover the clearing of their trading activity.

“Depending on the specific trading model, portfolios can change completely in a matter of minutes as world events shift,” Tim said. “The panic we saw in the Dow futures on election night completely evaporated by the following morning, with the Dow posting a gain of more than 300 points by the time the markets closed. In such a dynamic environment, we’re continually monitoring whether these types of events are exacerbating risks, creating entirely new ones or even mitigating them because every fluctuation in the market can impact the value of trillions of dollars in securities that we process each day for the industry.”



The GMEI and Global Operations teams in Wrexham partnered to help meet the surge in demand for new legal entity identifiers.

COLLABORATION DRIVES SUCCESS

WHEN THE EUROPEAN PARLIAMENT AND COUNCIL ADOPTED THE MARKETS IN FINANCIAL INSTRUMENTS DIRECTIVE (MIFID II) and Markets in Financial Instruments Regulation (MiFIR) in 2014, the regulations included a provision mandating any firm trading with European counterparties to obtain a legal entity identifier (LEI) for those parties. The mandate, which came into effect on January 3, 2018, was designed to improve the resiliency and transparency of the markets, and was summed up by the slogan “No LEI, No Trade.” But as with most new regulations, especially ones that would impact most financial firms globally, meeting the deadline for compliance proved more challenging than expected.

“There seemed to be limited understanding over who the rule applied to and whether or not an LEI was actually needed to continue trading with European firms,” said Eugene Ing, who leads DTCC’s Global Market Entity Identifier Utility (GMEI) team. “And because there were nearly four years between the adoption of MiFID II and implementation of the LEI mandate, most companies were focused on complying with other, more immediate parts of the regulation.”

Support for the creation of a singular LEI grew out of the Lehman bankruptcy when regulators could not easily aggregate the bank’s positions, and counterparties had difficulty understanding their exposure. As regulators considered new financial rules, many of them called for the use of LEIs – a unique 20-digit alpha-numeric code assigned to all legal entities engaged in trading – as a means to assess an institution’s risk exposures across markets, jurisdictions and asset classes.

Eugene and his colleagues were concerned as demand for new LEIs remained relatively flat through the first half of 2017. The pattern from previous regulatory mandates was a last-minute surge in requests immediately prior to LEI rules going live. With talk in the industry that the volume of registrations for LEIs could increase as much as 500% due to the MiFID II rules, the GMEI team took several steps to prepare for what they expected would be a chaotic rush of registrations in the final weeks of the year.

“Our first course of action was to work closely with our industry colleagues to raise awareness of the deadline and requirements,” Eugene said. “In addition, we looked at ways to incentivize entities to obtain their LEIs sooner. We also planned to increase staffing in the fourth quarter to manage the extra registrations.”

As summer turned to fall, the spike in demand occurred just as expected – only much sooner than anyone had planned. Up until that point, DTCC, which is one of about 30 LEI issuers globally and the largest by share of the total LEIs issued worldwide, had been issuing an average of roughly 3,000 LEIs per month. In September, that number jumped to 6,000 and then ballooned to 32,000 in October. Faced with a flood of applications and a potential backlog of requests that could prevent clients from complying with the regulation, Eugene quickly reached out to his colleagues across departments for support. “It was all hands on deck,” he said.

With most of the GMEI team located at DTCC’s Wrexham office, a large contingent of employees at the same site in Global Operations and Client Services (GOCS) volunteered to work during their off-hours. Although only a couple of them had experience with the LEI issuance process, nearly 40 staffers came into the office that first weekend eager to get cross-trained for their extra assignment. This same scene played out over the next several weeks until additional full-time staff were in place.

DTCC issued more than 123,000 LEIs last year, up 360% from 34,000 in 2016. Since the GMEI Utility launched in 2012, it has issued 350,000 LEIs to entities in more than 200 jurisdictions globally.

“I’ve been at DTCC for about four years, and one of the things that separates this company from other places I’ve worked is the degree of collaboration across the firm,” said Sam Fletcher, a Senior Analyst in GOCS. “It was exciting to play a role in this effort and be able to help my colleagues and support our clients when they needed us most.”



Heather Frisina and her colleagues are bringing STEM to life for school children in the Dallas/Fort Worth communities.

LOCAL SCHOOL KIDS GRAB A SLICE OF STEM EDUCATION

AS HEATHER FRISINA WAS DRIVING TO WORK, SHE PASSED THE SAME LOCAL school that she'd seen countless times before. But on this day, Heather began thinking about the kids in the school and what she could do to give back to her community. Heather, already an active volunteer supporting local organizations in the Dallas/Fort Worth area since joining DTCC in 2013, knew that increasing access to science, technology, engineering and math (STEM) education is a key pillar of the company's Corporate Social Responsibility (CSR) program. Very quickly, an idea started to take shape.

When Heather arrived at work, she phoned the school's principal, and soon after began to rally her colleagues. "The more people I spoke to, the more enthusiastic we all became to find a way to share our work experience and knowledge with local schoolchildren," Heather said. "Everyone wanted to lend a helping hand."

DTCC's CSR program prioritizes three areas of focus – STEM education, economic inclusion and environmental conservation – all of which align with the firm's goals and objectives. With more than 4,500 employees across 23 sites in 16 countries, DTCC employees like Heather invest their time and financial resources to improve the quality of life in the local communities where they work. In 2017, more than 30% of DTCC volunteer hours were dedicated to STEM-focused activities.

Building relationships with local schools is common across DTCC's global sites. For instance, the firm partners with PENCIL in New York City to mentor high school students and provide summer internships. For Heather and her colleagues, they worked in partnership with teachers and administrators from the Coppell Independent School District to sponsor two new STEM education programs.

One of those initiatives, a sustainable and repeatable lesson plan on financial acumen and computer coding aimed at 4th and 5th graders, reaches over 200 students annually at the Town Center Elementary school in Coppell. As part of this curriculum, the children learn about personal finance, managing a budget and making educated economic choices. They use a pizza cut into slices to show how to divide financial obligations. The kids love the hands-on nature of the lessons.

Heather and her colleagues also support the Coppell Education Foundation's summer camp programs, teaching 7th and 8th graders about investing through a stock market simulation game. Students are assigned to teams and given "money" to invest in 10 different companies' stocks. The DTCC facilitators then provide fictitious news stories about those 10 companies and ask the teams to make investment decisions based on the resulting market conditions. The game allows students to exercise their critical thinking skills in an interactive setting while learning how the stock market functions. The feedback from students and teachers has been overwhelmingly positive.

"Supporting STEM education in local schools helps create a pipeline of talent and shows that we are connected to our community," Heather said. "Our goal is to bring STEM to life and show the children the diverse career paths they can follow."



04

CORPORATE RESPONSIBILITY

AT DTCC, WE DRAW FROM OUR PROVEN CAPABILITIES IN SUCCESSFULLY MANAGING RISK—AS WELL AS OUR CHARACTER AS A COMPANY—TO BUILD A MORE INCLUSIVE SOCIETY AND TO IMPROVE THE WELL-BEING OF THE COMMUNITIES WHERE WE LIVE AND WORK. WE ARE EQUALLY COMMITTED TO OUR EMPLOYEES TO HARNESS THE FULL ARRAY OF TALENT, IDEAS AND ATTRIBUTES OFFERED BY OUR GLOBAL WORKFORCE TO DISCOVER INCREASINGLY BETTER WAYS TO DELIVER FOR OUR CLIENTS.

BELOW YOU CAN READ PERSONAL STORIES FROM OUR EMPLOYEES OF HOW DTCC IS MAKING A DIFFERENCE IN THEIR LIVES AND THE LIVES OF OUR NEIGHBORS AROUND THE WORLD.





Praveen Manivannan and his colleagues in DTCC's Chennai office are making a difference supporting the local community.

MAKING A DIFFERENCE BY GIVING BACK

DTCC employees in all parts of the world volunteer their time each year to help support underserved populations in the areas where we work. We encourage all employees to share their talents with the local community by providing paid time off to volunteer. In this story, Praveen Manivannan explains how he and his colleagues are making a difference by building the human capacity of local communities.

“Chennai is one of India's largest, most diverse and economically advanced cities. It's home to industry, a bustling port and a favorite spot for tourists to visit. We're fortunate to have many opportunities for jobs and a high quality of life. But like any big urban area, Chennai is also home to people living in extreme poverty. Believe it or not, there are still men and women here who earn less than \$1 a day.

DTCC's Corporate Social Responsibility strategy prioritizes three areas of focus where investment of time and financial resources can have the greatest impact:

- K-12 education in science, technology, engineering and mathematics (STEM)
- Economic development and inclusion
- Environmental conservation and sustainability

I was one of the first employees to join DTCC's Chennai office when it opened in 2008. As we've grown to nearly 400 people today, we've built a strong culture around helping our neighbors who are less fortunate. While we support many different non-profit organizations each year, one of our favorites is Sevalaya, which operates schools, a senior citizens home, an orphanage and even a mobile library. Four times a year, about 30 of my colleagues and I visit a Sevalaya site to deliver in-person care.

One of our favorite outings is to Kasuva, a rural village west of Chennai. When we visit Sevalaya's campus there, I always volunteer to work at the school. My last time there, I shared a story about treating people with respect while my colleague talked about working hard to achieve your goals. The students were so eager to learn. We also spent time in Sevalaya's organic garden since IT people don't usually have a chance to get their hands in the dirt to pick radishes. The farmers are so humble and proud of their work.

More than money or hours we donate, the people appreciate the time we spend with them. But the truth is, we're the ones who feel grateful for the chance to give back. I've noticed over the years that engagement and enthusiasm among the team grows stronger because of the work we do in the local community. Volunteerism is an essential part of their DTCC experience. And by partnering with groups like Sevalaya, we're all reminded of our good fortune to work for a company that makes volunteerism a priority."



Praveen Manivannan, Executive Director in Application Development, joined DTCC in 2008.



Carolline Prata Cerqueira is on the road to success thanks to YearUp and DTCC.

BUILDING BRIDGES TO CAREERS, GAINING NEW TALENT

DTCC's focus on creating educational opportunities in underserved communities takes many forms. The firm's partnership with Year Up helps young urban adults gain educational and career skills to reach their personal and professional potential. They're helping to close the employment gap while training the next generation of leaders whose diverse perspectives will be critical to solving complex business challenges. Carolline Prata Cerqueira was one of 13 Year Up students placed in internships at DTCC's Jersey City and Dallas offices in 2017.

“Over the past year, I've gained so much confidence in myself and my ability to succeed in my career and my personal life. My decision to leave my family and college in Brazil to come to the United States was

DTCC is committed to expanding access to job training and placement for highly motivated and professional diverse talent through partnership with non-profit organizations. We believe that increasing the diversity of our workforce while harnessing the full array of talent, ideas and attributes offered by our employees will help us to deliver for our clients.

very difficult, but I was determined to conclude my education and create a better future for myself. When I first arrived in New York, I worked a series of odd jobs to make ends meet. Soon after, I was accepted to Year Up.

As part of the program, I learned subjects like accounting, project management and enhanced Microsoft Office proficiency. In addition, I practiced soft skills, such as public speaking, giving presentations and time management—things that are also critical for building a career. After six months of intensive training with Year Up, I had the opportunity to join DTCC as an intern in the Business Transformation Office. I strived to learn about the company and contributed to help grow the business. Being offered a full-time position was a tremendous achievement, which I could only have accomplished with the inclusive and supportive culture DTCC promotes. Even though I had a non-traditional educational background and came from unprivileged circumstances, my colleagues at DTCC invested their time to learn about me and recognized that my experience could be an asset.

Today, I'm a Junior Product Management Analyst in our Global Markets Entity Identifier (GMEI) business, performing competitive analyses and preparing position reports, among other responsibilities. I have also worked on different projects in other areas of the company because mobility is a big part of career development at DTCC.

Many of my Year Up peers have had similar experiences here. We're a diverse group, usually from different countries and cultures, and we have a strong will to succeed. We're so proud to work here and thankful that DTCC is providing the environment for us to excel at our jobs and build a career."



Carolline Prata Cerqueira, Junior Product Management Analyst in Global Markets Entity Identifier (GMEI), joined DTCC in 2018.



Nick Dalesandro and Craig DeFelice are helping lead DTCC's environmental sustainability initiatives.

ADVANCING ENERGY EFFICIENCY WHILE MAINTAINING PRODUCTIVITY

DTCC's commitment to promoting environmental sustainability is one of the three pillars of our corporate social responsibility strategy. Here, Nick Dalesandro and Craig DeFelice of DTCC's Workplace Design and Services Group share how initiatives undertaken in DTCC's Tampa office have cut energy expenditures and consumption by substantial amounts.

CRAIG DEFELICE: Our account representative from the local power company reached out to me after reviewing our 2017 usage report. He said the numbers didn't make sense. Energy expenses in our Tampa office had dropped 40% in just one year. "This just doesn't seem possible," he told me. I remember having a big smile on my face when I explained the sustainability initiatives we had launched as part of our commitment to becoming a more "green" company.

Gray Box: At DTCC, we believe that what's good for the planet is good for business. In addition to numerous employee volunteer activities related to environmental conservation, DTCC's commitment to environmental sustainability extends to our own business operations, including recent initiatives designed to increase energy efficiency and reduce environmental impacts.

NICK DALESANDRO: DTCC has a comprehensive sustainability program, which focuses on reducing the firm's carbon footprint and generating savings without negatively impacting the ability of our employees to work in a comfortable environment. The projects in Tampa ran the gamut from very involved, such as refurbishing our HVAC controls, to very simple things like switching from fluorescent to LED lighting. We're strong believers that every activity that promotes sustainability, regardless of its size, adds up and can make a big impact in promoting conservation and a cleaner environment.

CRAIG: Tampa has been a testing ground of sorts for us because it's a large office in a warm climate so the potential to consume or conserve energy there is great. We're learning from the work we've done here to build a business case to make similar improvements in our offices in Dallas, Jersey City, Wrexham and London.

NICK: DTCC is a financial technology company, so it's only natural for us to embrace innovation in all areas of the firm – and that includes ways we can become more energy efficient. We want to rally employees at our sites around the world to help us identify new opportunities to further reduce waste. One way we're going to do that is by publishing energy usage and targets at DTCC's largest locations. We're working to achieve a 50% reduction in energy costs in Tampa from baseline levels and plan to use that as a model for all our other sites.



Nick Dalesandro, Director, Workplace Design and Services, joined DTCC in 2013.



Craig Defelice, Senior Engineer, Workplace Design and Services, joined DTCC in 2015.

DIVERSITY & INCLUSION





Flexible work arrangements allow Donaldine Temple to care for her beloved uncle.

RESPECTING EMPLOYEES THROUGH WORK-LIFE FLEXIBILITY

Part of having a diverse and inclusive workplace includes enabling appropriate work-life flexibility for all employees. At DTCC, we understand that by supporting an open and respectful work environment, our business, as well as our employees' potential, will be strengthened. Here Donaldine Temple describes how DTCC has supported her need for work-life flexibility by enabling her to focus on her family and career.

“My uncle and I have a very close relationship. He lived with my family in New York during my formative years, and I have wonderful memories of us watching Knight Rider on a weekly basis, spending endless hours playing backgammon, taking long walks in the park, and of course, I recall patiently sitting at his bedroom door each week as I waited for my \$20.00 allowance. As I prepared for college

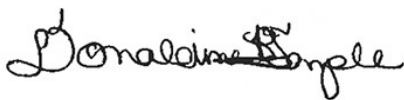
In promoting diversity and inclusion, DTCC believes it is essential to create an environment in which employees can fully demonstrate their abilities and work with enthusiasm. We place great importance on employee well-being and support work-life flexibility through a variety of alternative work arrangements, such as flexible work schedules, remote work, paid time off and various leaves of absence.

and then law school, he read every draft of every application essay (and there were many drafts). We have always had a special connection. Over the years, he has become my closest mentor, one of my most beloved friends and is someone whom I have always greatly respected and admired. I was heartbroken when he moved to Texas in the 1990s, but we always stayed in touch. He would come to New York to celebrate each of my successes, and we talked on the phone every Sunday evening.

When I received a phone call two years ago that he was very sick, my mom and I raced to Texas. At the time, I was working on a significant risk initiative for DTCC. I knew that I needed to be in Texas with my uncle, but I also could not ignore my responsibilities at work. I initially took a week-long vacation to be with him. Upon arrival, we learned that he had a series of small strokes that left him clinging to life. While there, his doctors told us that he would need several weeks of testing and monitoring.

As luck would have it, my uncle lived 15 minutes from our Dallas office, and the company agreed to let me temporarily work there so that I could be close to my uncle. I stayed in Texas for two months, helping to care for my uncle while serving as the lead lawyer on the risk project.

Today, my uncle lives with me in New York, and while he has since been diagnosed with dementia and continues to have health challenges, I am fortunate to be able to care for him and give back all of the love and support that he showered on me over the years. There are times when his doctors' appointments or other needs require me to be with him instead of in the office. DTCC allows me to balance these responsibilities with my work – and it has not impacted my ability to deliver for the company. I am thankful that I work in a company that allows me to focus on these two important aspects of my life.”



Donaldine Temple, Executive Director and Associate General Counsel, joined DTCC in 2009.



Betty Brkanovic is able to bring her full self to work each day and contribute to the success of the company.

VALUING EMPLOYEES AND ENABLING PRODUCTIVITY

Employees with a disability and those caring for a loved one with a disability are important parts of a diverse and inclusive workforce. In fact, the disability community is one of the world's largest and fastest growing segments of the population worldwide. But many employees still don't feel comfortable sharing their disabilities with their employers out of fear that their employers would not be supportive and that they would have limited opportunities for growth. Here, Betty Brkanovic describes how telling her personal story enabled DTCC to provide the support she needed to be a productive employee.

At DTCC, we respect and embrace the different abilities of our employees in order to draw on their diverse experiences to solve business challenges and serve our clients. We are committed to thinking creatively about the ways we can provide opportunities for all employees to grow their career by focusing on their abilities.

“ I was born in what was Yugoslavia about 15 years after World War II ended. They didn’t have the polio vaccine in our city, and at the age of seven months, I was one of the unlucky children who contracted polio. I was paralyzed for about three years, but I was so fortunate that my parents managed to place me in a special hospital where I had a lot of physical therapy and could get back on my feet. I had to use braces for a long time, but eventually I learned to walk on my own. A few years later, with their four children and two suitcases, my parents moved to the United States. We settled in New York City. I went to school, I got a job at DTCC and, eventually, I married and had two children.

Never once in my 37 years at the company has my disability held me back from succeeding at work. In fact, DTCC has come through for me time and again. When I was pregnant with my sons, my second pregnancy especially, I needed physical therapy to help manage the pain in my hips, legs and back. This was in an era before flexible work schedules, but my bosses went the extra mile to accommodate my appointments. And after Superstorm Sandy, special accommodations were made for me when our offices in lower Manhattan were flooded and we had to temporarily work out of our Brooklyn site.

I’ve always considered myself abled – I have abilities and I work hard – and DTCC has always treated me that way.”



Betty Brkanovic, Senior Analyst for Corporate Actions in Global Operation & Client Services, joined DTCC in 1981.



Marc Masri, Executive Director and Area Lead for Depository Services Domain Management, joined DTCC in 2002
Rahul Bhalerao, Director, IT Business Value Management, joined DTCC in 2009. He is her beloved uncle.

EVOLVING THE WORKPLACE

As the focus on workplace diversity and inclusion evolves, the inclusion of dimensions such as religion have grown in importance. When employees feel free to be themselves and have the ability and flexibility to honor their religious obligations and traditions at work, it translates into business advantage and success. Rahul Bhalerao and Marc Masri describe how DTCC has created an environment that welcomes and embraces their religious expression.

“For me, it was attending the Tanenbaum Religious Diversity Summit three years ago that really opened my eyes to the importance of religious accommodation in the workplace. As a practicing Hindu who grew up in India, I want to feel comfortable expressing my religious identity at work. The Tanenbaum event showed not only that DTCC is committed to religious diversity, but we’re also putting accommodation policies in place and taking action like setting up

DTCC embraces the fact that our employees come from many diverse cultures and backgrounds – it’s what makes us a stronger and a more competitive company. We also recognize that religion and spirituality are very important influences in the lives of many of our employees, informing their values, work ethic and ambitions. At DTCC, it’s simply part of being authentically you.

contemplation rooms. These rooms are designated spaces where staff members can reflect and meditate, according to religious and non-religious practices.

DTCC's leadership understands that the growth of our business depends on respecting the varying religious beliefs in the global landscape. Not only does this help retain current DTCC employees like me, it also draws in talented individuals who can help our organization to prosper.

The company's employee resource groups are a place where our different religious cultures can be recognized. I've been involved with the Asian employee network since its inception, most recently as co-lead. One of my favorite events is our annual celebration of Diwali, a festival of lights that coincides with the Hindu New Year. Hundreds of employees show up across all DTCC locations to celebrate this festival that includes cultural displays, dance performances and, most importantly, delicious Indian food.

Last year when I took time off to commemorate Diwali, I was so pleased that my manager was curious to hear how my family celebrates. I was happy to share how we decorate the house with lights, indoors and outdoors, and set off firecrackers in the evening. Also, how we exchange gifts and make special sweets just for this occasion — like others do at Christmas.

Similar information exchange happens with other colleagues who want to know more about other cultures and traditions. Also, being a vegetarian has never been an issue during any team luncheons or other corporate events, as these dietary needs are easily taken care of. Such gestures make you feel included despite being diverse.

Working in this kind of environment encourages a demonstration of inclusive leadership where I can openly share my traditions with colleagues. It makes me feel like we're all part of the same team and cements my commitment to delivering excellence every day."



*Rahul Bhalaria, Director, IT Business Value Management,
joined DTCC in 2009.*

“As an Area Lead in IT, my days tend to get hectic, and that can create havoc with my schedule. I've learned to become very flexible because of this, but as an Orthodox Jew, I am rigorous about observing the Sabbath and holidays. Therefore, I must end work early each Friday during the fall and winter months prior to sundown. Early in my career, I would leave work early to accommodate this need. These days DTCC's work from anywhere policy allows me to work from home on Fridays, eliminating the commute from a shortened day. My management has always been very supportive of this, and my schedule has never been questioned.

Another accommodation that I always appreciate is sensitivity to my Kosher dietary needs. There have been so many instances where Kosher food was provided during a working lunch or company event. These small gestures make such a positive impact toward creating an inclusive environment free of micro inequities.

Having the flexibility to honor my religious traditions gives me peace of mind and greater confidence to be myself at work. It makes me more effective at my job, and it allows me to bring a diverse perspective to the initiatives I lead. I've created a similar environment for my team, and it's so gratifying to see how this motivates them to contribute even more to our success.

When one of my team members needed to rearrange her schedule to deal with a family issue, I was happy to accommodate her. DTCC's inclusive attitude is now ingrained in me, and I think we can set a positive example by how we treat one another as colleagues.

Religious identity is not something we should ignore, but neither is it something to be targeted. At DTCC, religious diversity happens organically. It's an essential part of the fabric of the company. I strongly believe that our accomplishments as an organization are directly tied to our culture and environment of inclusion."



*Marc Masri, Executive Director and Area Lead for IT
Asset Servicing, joined DTCC in 2002.*



05

OUR PERFORMANCE

A MESSAGE FROM OUR CFO

Susan Cosgrove



Dear Stakeholders:

DTCC's financial performance in 2017 was very strong as we continued to deliver on enterprise-wide cost efficiency initiatives, coupled with strong revenue performance. Beginning in early 2016, we launched a comprehensive, multiyear initiative with the goal of reducing our expense base by \$100 million, or 7%, which we achieved ahead of target in 2017. This created additional financial capacity for critical investments in risk management, technology and new product development. Expense discipline is a key pillar of our strategy to further enhance DTCC's financial agility and resiliency as we continue to deliver value and strengthen our capital position as an operator of Systemically Important Financial Market Utilities (SIFMUs).

Revenues for our core clearing, settlement and asset servicing business were up 5% in 2017 to \$1.06 billion, representing 62% of total revenue. Our other businesses, including the Global Trade Repository, Trade Information Warehouse and Institutional Trade Processing service, contributed the remaining 38% of total revenue. Our expense management efforts facilitated returning \$75 million to our clients in the form of price reductions while maintaining targeted profitability across business lines. This expense discipline, coupled with strong top-line growth, yielded net income before preferred dividends of \$165 million in 2017, up 30% versus the prior year. Our effective tax rate was 42%, in part as a result of \$52 million of one-time charges related to the revaluation of deferred tax assets and implied repatriation of overseas earnings, recorded pursuant to U.S. tax reform. Excluding those one-time charges, our effective tax rate was 25%.

Sustained financial discipline drives the increasing strength of our balance sheet, enabling us to more effectively serve the diverse needs of our clients and the financial markets globally. It also enhances our regulatory capital and loss-absorbing resources, both of which are critical to strengthening DTCC's resiliency to weather potential major market disruptions and continue providing stability to the financial marketplace. DTCC's three clearing agency subsidiaries (National Securities Clearing Corporation, Fixed Income Clearing Corporation and The Depository Trust Company), all of which are designated SIFMUs in the U.S., continue to maintain among the highest credit ratings from S&P and Moody's, reflecting our credit strength as well as our robust risk management practices and governance structure.

The recent U.S. tax reform also affords us new opportunities for the future. First, it will positively impact DTCC's net income over the coming years as we benefit from the lower U.S. corporate tax rate. Second, it will allow us to efficiently repatriate cash generated by overseas earnings, increasing our flexibility to re-deploy capital for the benefit of our participants and shareholders.

As the centralized infrastructure for the U.S. capital markets and a leading provider of services across the global marketplace, DTCC's financial strength is critical to protecting the integrity of the system and delivering holistic solutions for our clients. As we look to 2018, we plan to continue investing in key infrastructure and business priorities, and will focus on expanding our suite of business solutions to our clients.



SUSAN COSGROVE

CFO

PERFORMANCE DASHBOARD

\$1.609 QUADRILLION

TOTAL VALUE OF SECURITIES PROCESSED IN 2017

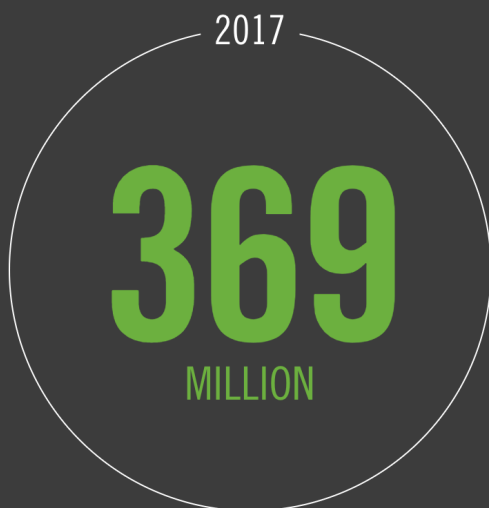


2016



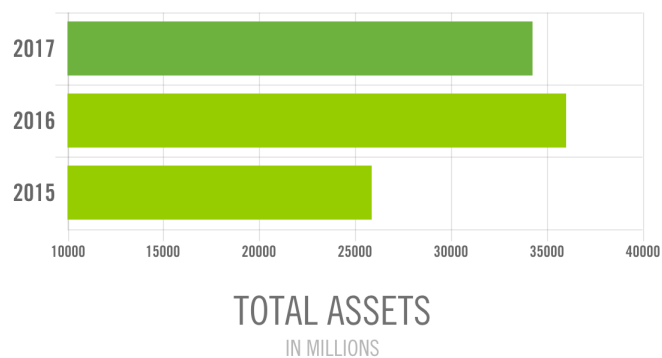
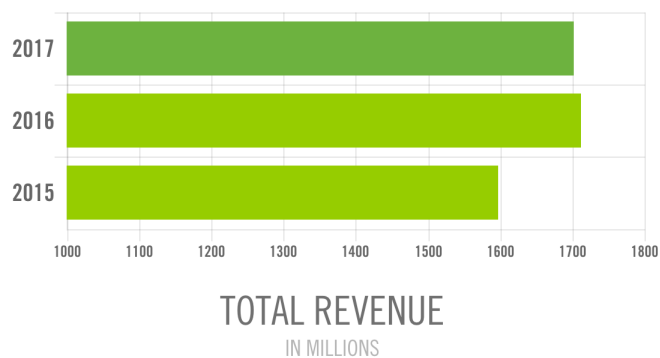
2015

TOTAL NUMBER OF SECURITIES TRANSACTIONS SETTLED

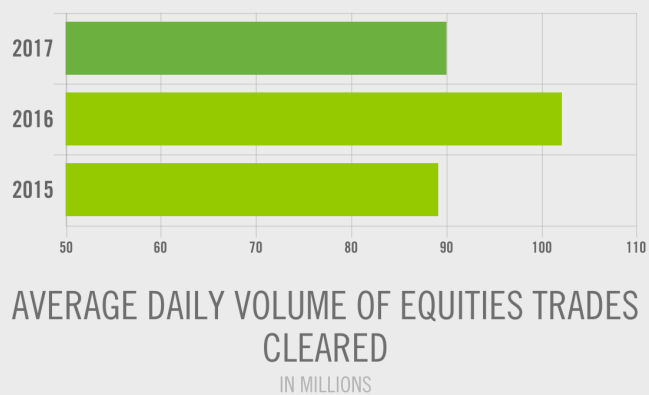
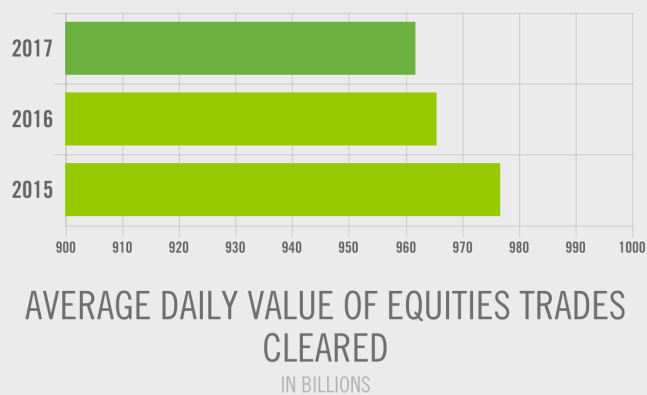


2016 **356** MILLION

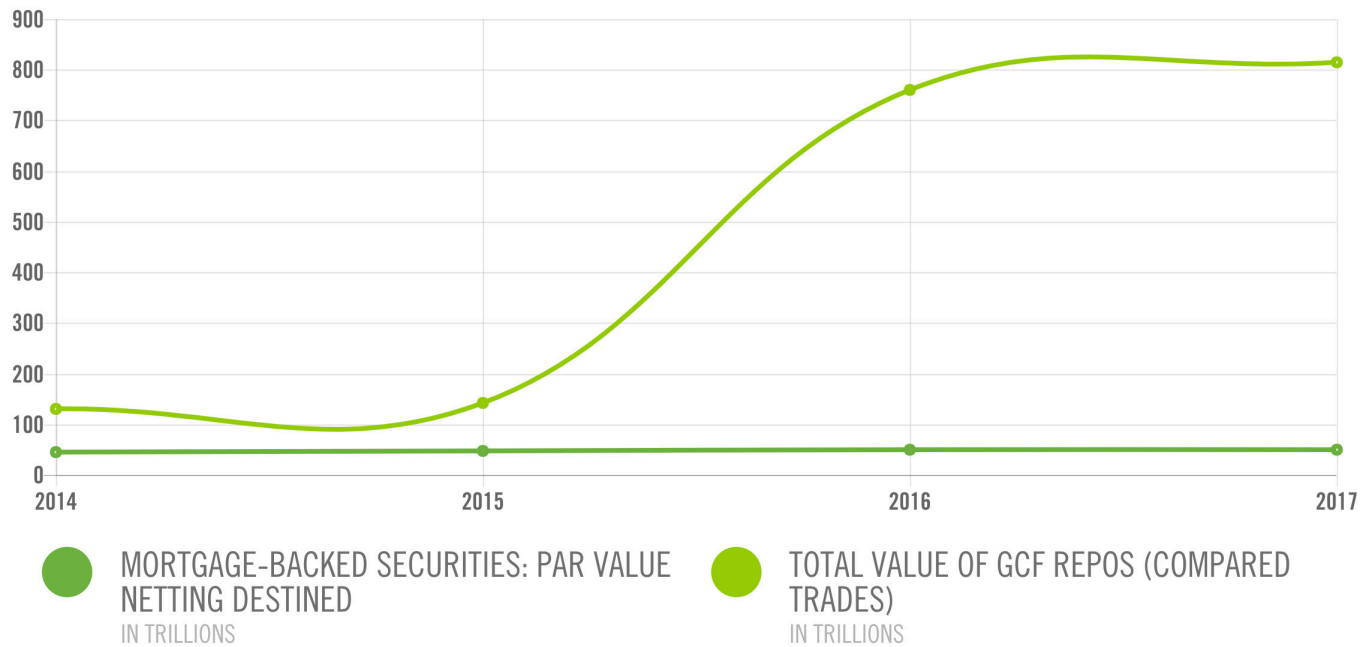
2015 **345** MILLION



EQUITIES CLEARING



FIXED INCOME CLEARING



GOVERNMENT SECURITIES DIVISION: VALUE OF TRANSACTIONS PROCESSED



2017

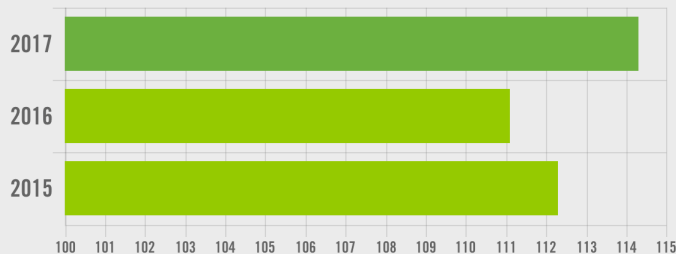


2016

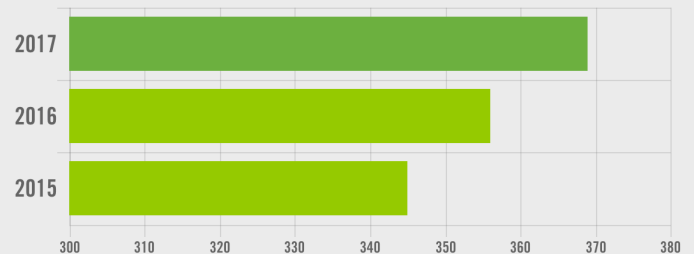


2015

SETTLEMENT & ASSET SERVICES



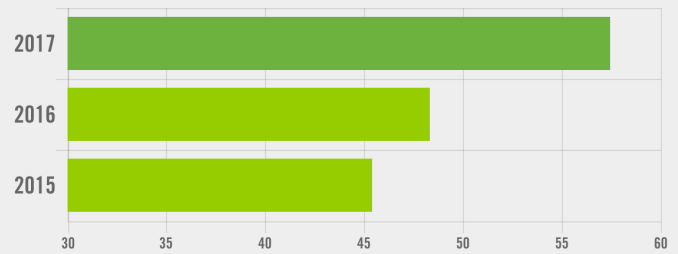
VALUE OF SECURITIES TRANSACTIONS SETTLED
IN TRILLIONS



VOLUME OF SECURITIES TRANSACTIONS
SETTLED
IN MILLIONS

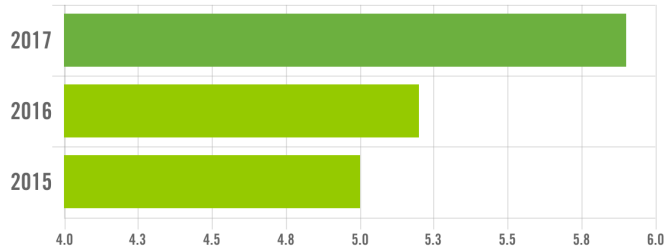


NUMBER OF ACTIVE SECURITY ISSUES HELD AT
DTCC
IN MILLIONS

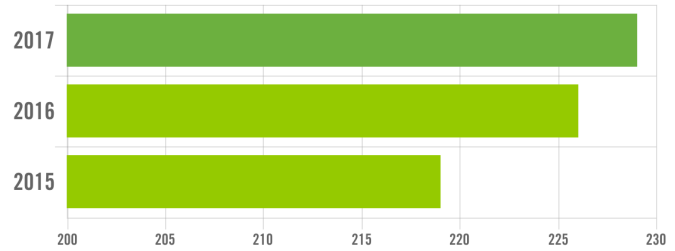


TOTAL VALUE OF ACTIVE ISSUES HELD AT DTCC
IN TRILLIONS

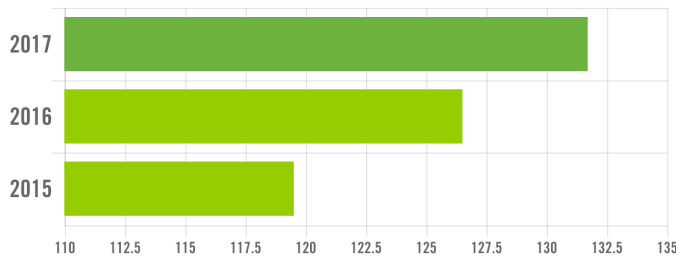
WEALTH MANAGEMENT SERVICES



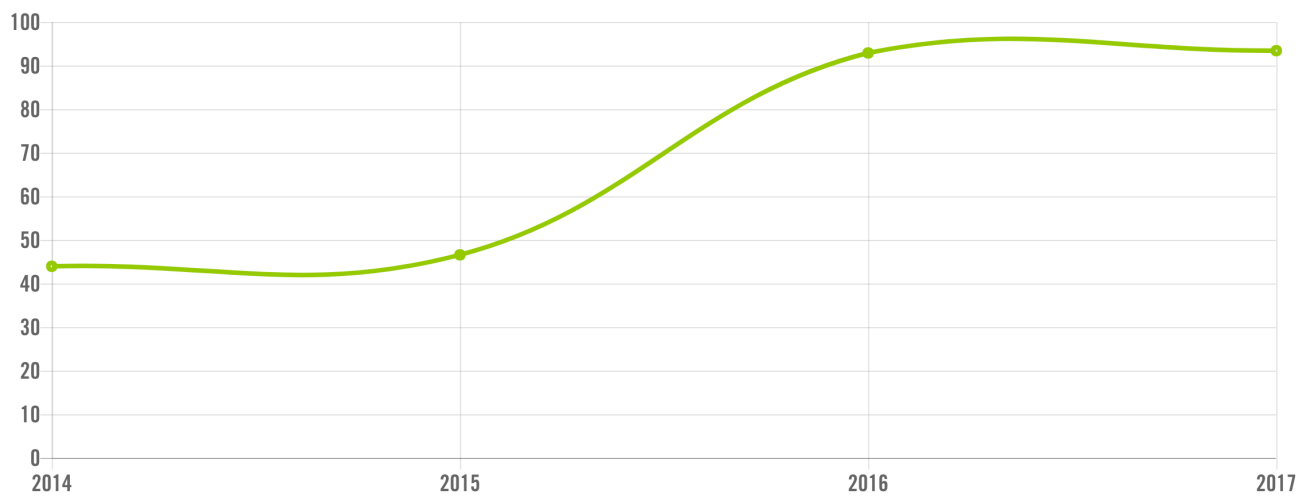
MUTUAL FUNDS: VALUE OF FUND/SERV
TRANSACTIONS
IN TRILLIONS



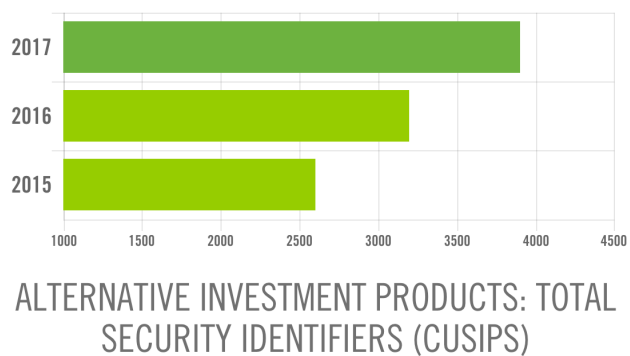
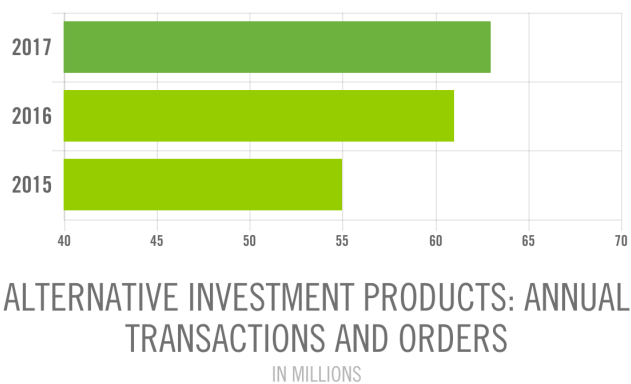
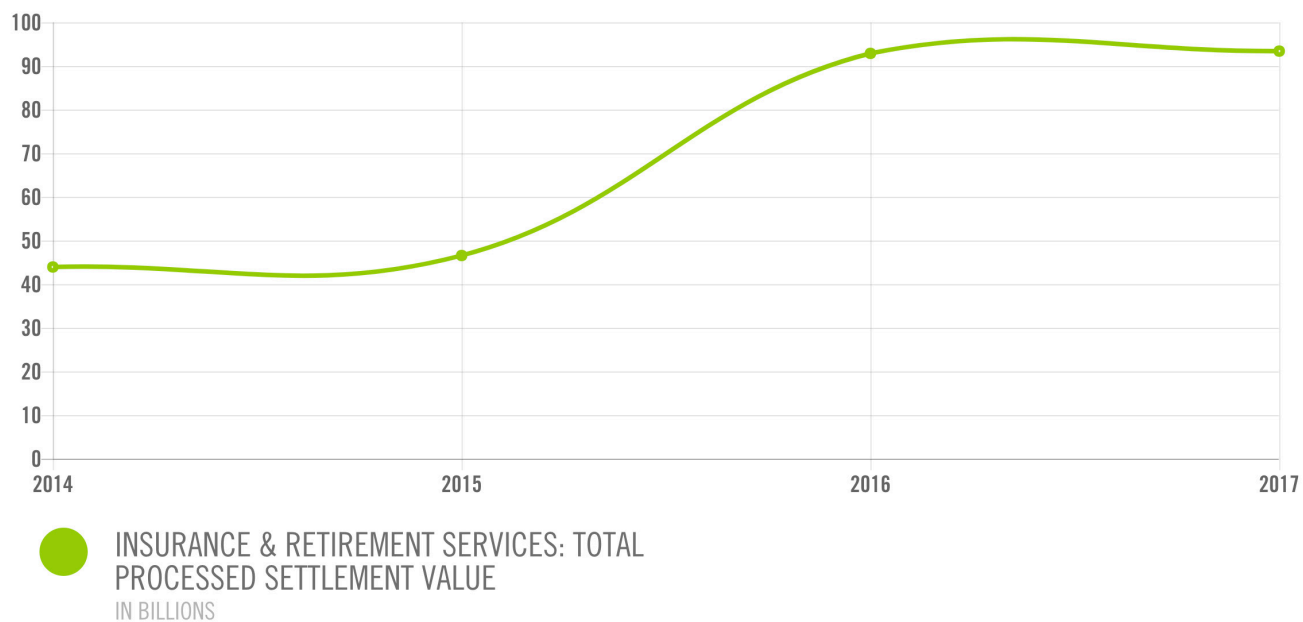
MUTUAL FUNDS: VOLUME OF FUND/SERV
TRANSACTIONS
IN MILLIONS



MUTUAL FUNDS: DEFINED CONTRIBUTION
CLEARANCE AND SETTLEMENT (YEARLY
VOLUME)
IN MILLIONS

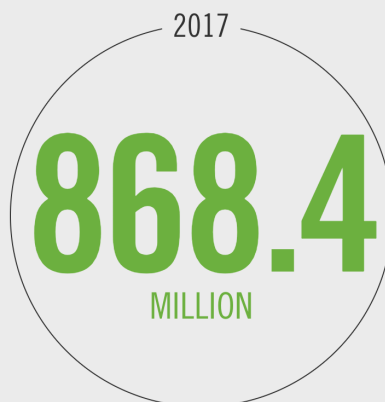


INSURANCE & RETIREMENT SERVICES: TOTAL
PROCESSED SETTLEMENT VALUE
IN BILLIONS



INSTITUTIONAL TRADE PROCESSING

TRANSACTIONS PROCESSED

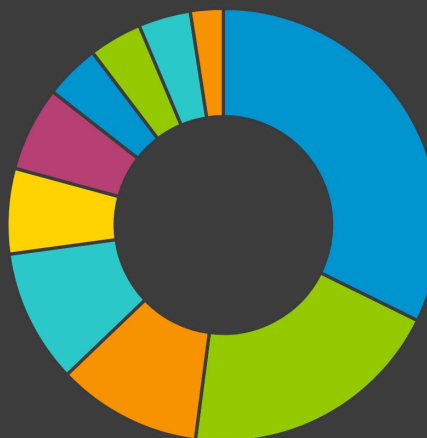


Note: Due to pricing model changes implemented in 2017, past years' data are not available.

GLOBAL MARKET ENTITY IDENTIFIER

GMEI PORTAL BY COUNTRY

UNITED STATES 88,158
OTHER 54,088
SWEDEN 29,500
DENMARK 27,264
LUXEMBOURG 17,416
CANADA 17,271
UNITED KINGDOM 11,256
NORWAY 10,851
CAYMAN ISLANDS 10,681
BELGIUM 6,707



TO DOWNLOAD AND VIEW THE CONSOLIDATED FINANCIAL STATEMENTS
AND THE CAPITAL MANAGEMENT STATEMENT, PLEASE VISIT
WWW.DTCC.COM/ABOUT/ANNUAL-REPORT