

**BlackRock**<sup>®</sup>

**Federal Retirement Thrift Investment Board  
Thrift Savings Plan**

**November 13, 2019**

# **BlackRock Overview**

# BlackRock at a glance

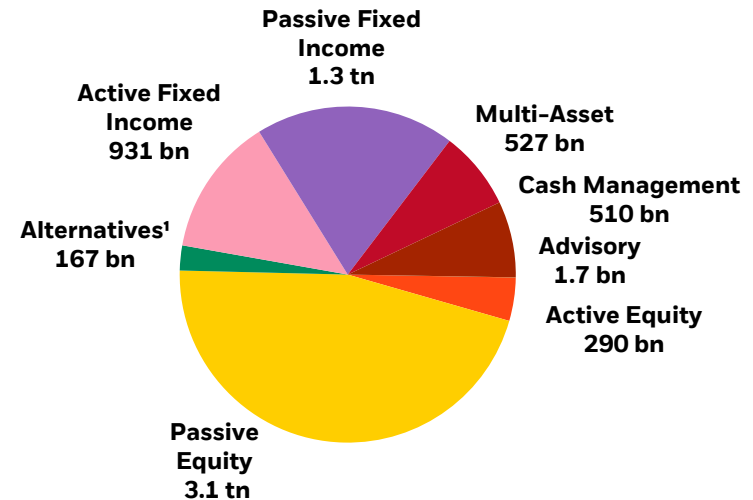
## BlackRock Purpose Statement

We help more and more people experience financial well-being

### BlackRock facts

- Established in 1988
- NYSE: BLK
- \$6.96 trillion assets under management
- Nearly 15,000 employees
- More than 2,000 investment professionals
- Offices in over 34 countries
- 25 primary investment centers globally
- Clients in over 100 countries
- Over 850 iShares® ETFs Globally
- Through BlackRock Solutions, the Firm provides risk management and enterprise investment services for over 200 clients
- Financial Markets Advisory business managed or advised on over \$8 trillion in asset and derivative portfolios
- Transition Management team partners with clients to save costs and reduce risks when changing investment exposures

### \$6.96 trillion managed across asset classes



Assets as of 30 September 2019

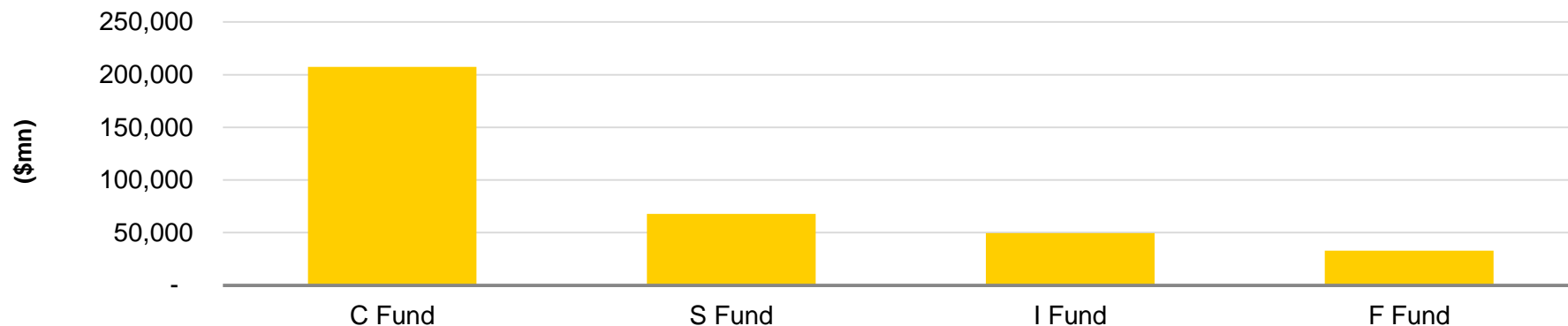
1. Includes commodity and currency mandates

Source: BlackRock. As of 30 September 2019. All figures are represented in USD.

# **C, S, I, and F Funds Summary**

# Thrift Savings Plan – assets under management

Participants' AUM (\$) as of September 30, 2019



Funds	Benchmark	AUM (\$) as of September 30, 2019
C Fund	S&P 500® Index	207,368,025,808
S Fund	Dow Jones U.S. Completion Total Stock Market Index	67,820,756,024
I Fund	MSCI EAFE Index	49,506,840,211
F Fund	Bloomberg Barclays U.S. Aggregate Bond Index	32,976,670,232
<b>Total</b>		<b>357,672,292,277</b>

# Equity Index (C, S, and I Funds)

# BlackRock equity indexing platform

## ETF and Index Investments Business

**Alan Mason**

*Global Co-Head of Investments,  
Products, and Markets*

**Samara Cohen**

*Global Co-Head of Investments,  
Products, and Markets*

### Americas Portfolio Management

**Alan Mason**

Head of Americas Portfolio Management

### Global Research

**Ananth Madhavan**

Global Head of ETF and Index Investment Research

### Global Strategy

**Jessica Irschick**

Global Head of Index Product Strategy

### Global Head of Lending and Liquidity

Philip Vasan

### Risk & Quantitative Analysis (RQA) Group

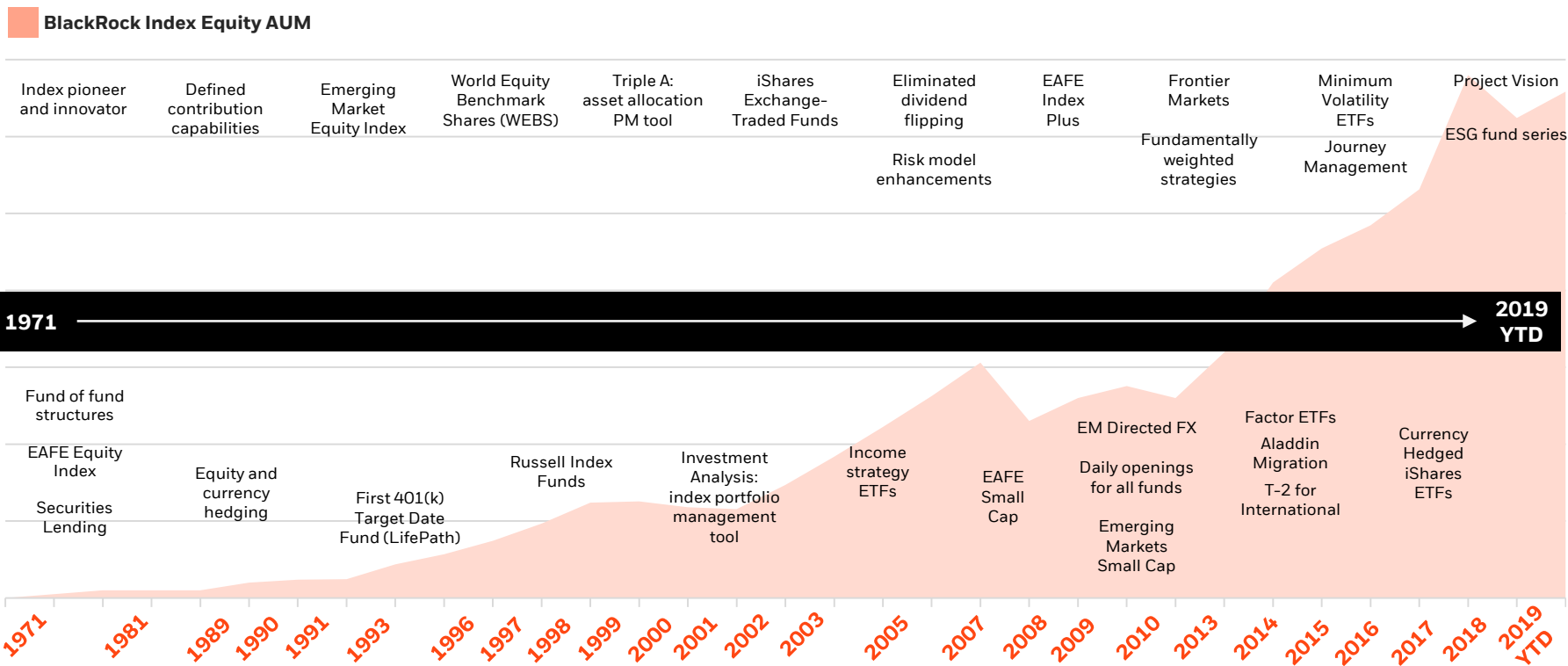
As of September 30<sup>th</sup>, 2019

# 48 years of experience driving index forward

## We constantly reinvest in and reinvent our business so our clients have access to high quality index solutions

- ▶ Drive the industry forward through our ability to create specialized, innovative investments afforded by our scale and depth of expertise
- ▶ Forge new ground for clients – first manager to offer opportunities in equity index developed and emerging markets
- ▶ Evolve capabilities to continuously deliver on emerging trends – smart beta, global benchmarking, liquidity/completion strategies
- ▶ Serve as an index advocate on behalf of clients and as a key partner to index providers seeking our practitioner knowledge

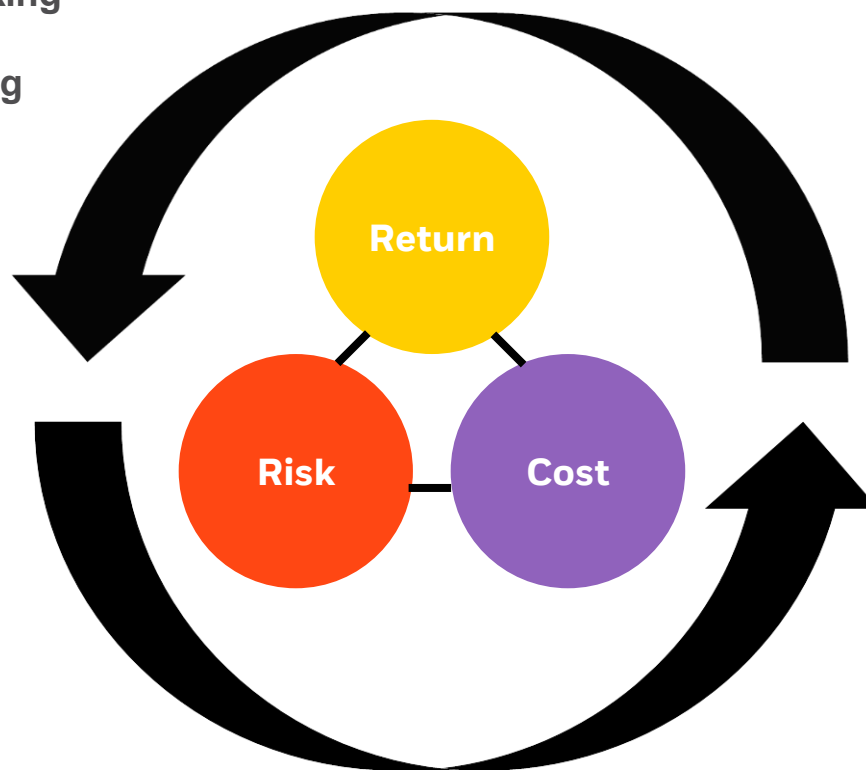
## 48 years of Index Equity – Continual evolution of products, technology and capabilities





# An approach that seeks to deliver efficient investment outcomes

BlackRock's disciplined, pragmatic and adaptable approach to index tracking is focused on optimally managing and balancing return, risk and cost.



## Total Performance Management

### Risk Management

- ▶ Risk managed process that seeks to consistently deliver optimal tracking outcomes
- ▶ Market leading risk analytics and investment tools provided by our Aladdin® platform

### Consistent Returns

- ▶ Seeks to deliver consistent returns in line with the benchmark
- ▶ Deep knowledge of financial markets and indices
- ▶ Track record of enhanced returns from securities lending

### Cost Efficiency

- ▶ Preserve value for clients through our intelligent approach to index events
- ▶ Extensive global trading platform helps ensure cost are low and we have optimal access to liquidity

# Index investment management cycle – dedicated expertise and resources

## Performance & Oversight

- Review cumulative effect of investment decisions to help identify factors contributing to/subtracting from portfolio performance
- Risk & Quantitative Analysis Team (RQA) monitors dozens of risk factors globally on a continuous basis

## Benchmark Knowledge

- Detailed knowledge of index methodologies
- Experience with predicting and projecting index changes
- Focused on optimal treatment of corporate actions
- Continual research into index events



## Efficient Trading

- Building smart trading strategies designed to access optimal liquidity
- Industry's largest internal market place for potential netting of client flows
- Focused trading research and systems

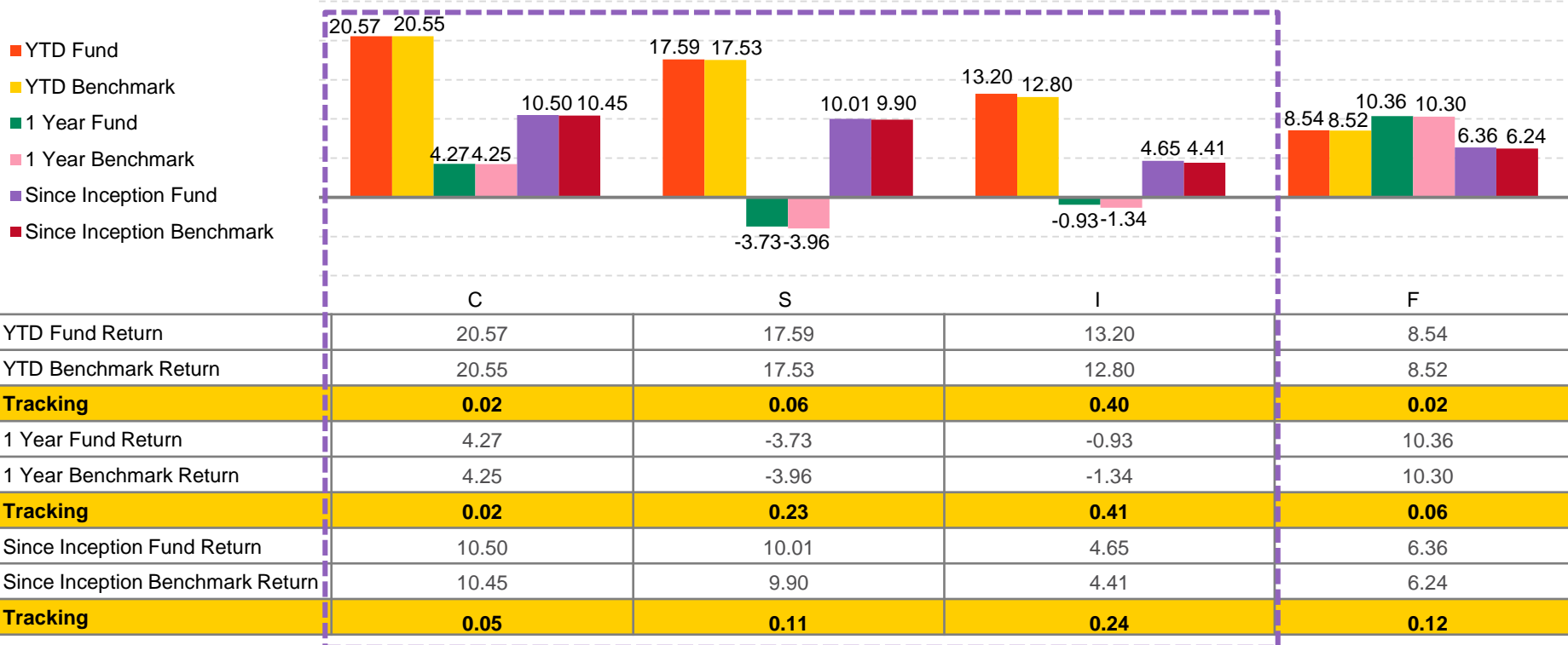
## Portfolio Construction

- Significant investment in technology
- Market leading portfolio and risk tools provided by our Aladdin® platform
- Integrated cost and liquidity analysis
- Sophisticated optimization tools

# Thrift Savings Plan – performance

Performance relative to benchmarks – as of September 30, 2019

Gross of fee returns\* (%)



Fund returns are unaudited, annualized, assume reinvestment of dividends, and are gross of all fees and expenses. Deduction of fees will reduce return.

A DC Fund's performance may differ from that of its benchmark for various reasons, including, but not limited to, investment strategy and/or, in the case of an index fund, equitization of cash (e.g., by investing in futures or other instruments that serve as a proxy for index exposure). A DC Fund's performance may differ from the performance of its benchmark more dramatically than a fund offered only to defined benefit plan investors due to several factors that are specific to funds sold to DC plan investors, including but not limited to Fair Value Pricing. In the event that current market valuations are not readily available or such valuations do not reflect current market values, the affected investments will be valued using fair values determined in good faith. The frequency with which the fund's investments are valued using fair values is primarily a function of the types of securities and other assets in which the fund invests pursuant to its investment objective, strategies and limitations. Fair values may differ from closing prices, which are the prices on which index performance is based. Consequently, valuing the fund's investments using fair values ("fair values") may result in a difference between the fund's performance (based on the value of the fund's investments) and the performance of the underlying index (based on closing prices).

Since Inception dates: C Fund – 4/30/1988; S Fund – 5/2/2001; I Fund – 5/2/2001; F Fund – 4/30/1988

Benchmarks: C Fund (S&P 500 Index), S Fund (Dow Jones U.S. Completion Total Stock Market Index), I Fund (MSCI EAFE Index), F Fund (Bloomberg Barclays U.S. Aggregate Bond Index)

Past performance is no guarantee of future results

As of September 30, 2019; Source: BlackRock

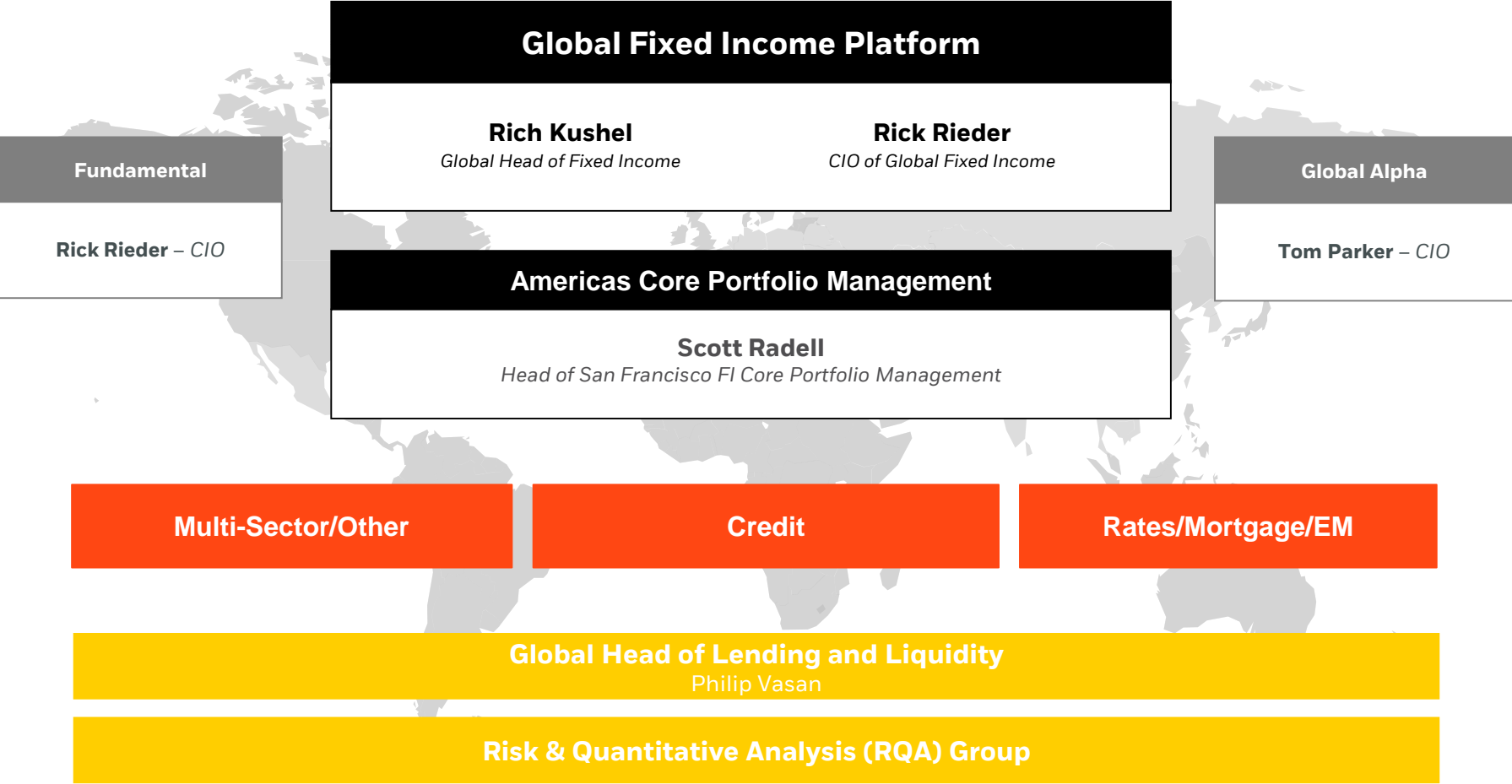
## Thrift Savings Plan – 1 Year performance attribution

	C Fund	S Fund	I Fund	F Fund
1 Year Fund Return	4.27	-3.73	-0.93	10.36
1 Year Benchmark Return	4.25	-3.96	-1.34	10.30
<b>Tracking</b>	<b>0.02</b>	<b>0.23</b>	<b>0.41</b>	<b>0.06</b>
Attribution Summary	Securities Lending	Securities Lending Security Sampling	Tax Advantage Securities Lending	Securities Lending Security Sampling

As of September 30, 2019

# Fixed Income Index (F Fund)

# BlackRock fixed income platform



As of September 30<sup>th</sup>, 2019

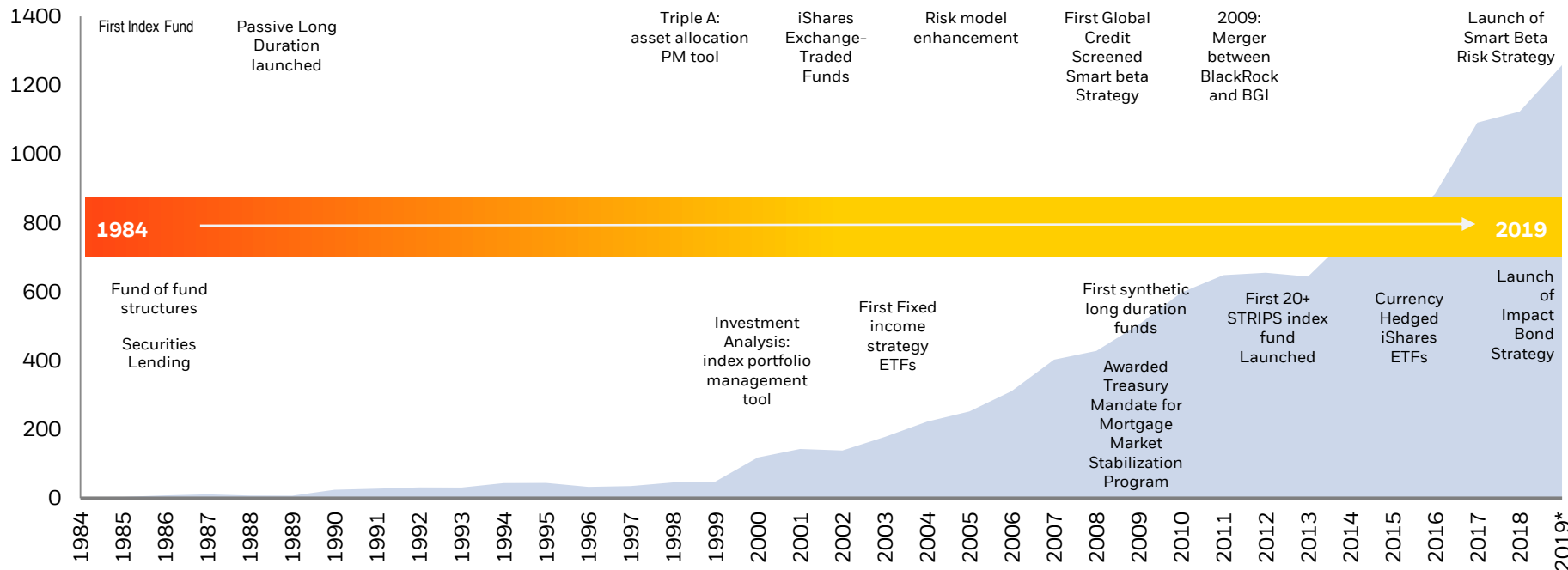
# Over 30 years of index innovation

**First fixed income index fund**

**Largest fixed income index and ETF manager globally\*\***

**Innovative provider of synthetic, smart beta/factor based and ESG solutions**

## BlackRock Index & Systematic Global Fixed Income assets under management (\$ billions)



Source: BlackRock, as of 30 June, 2019

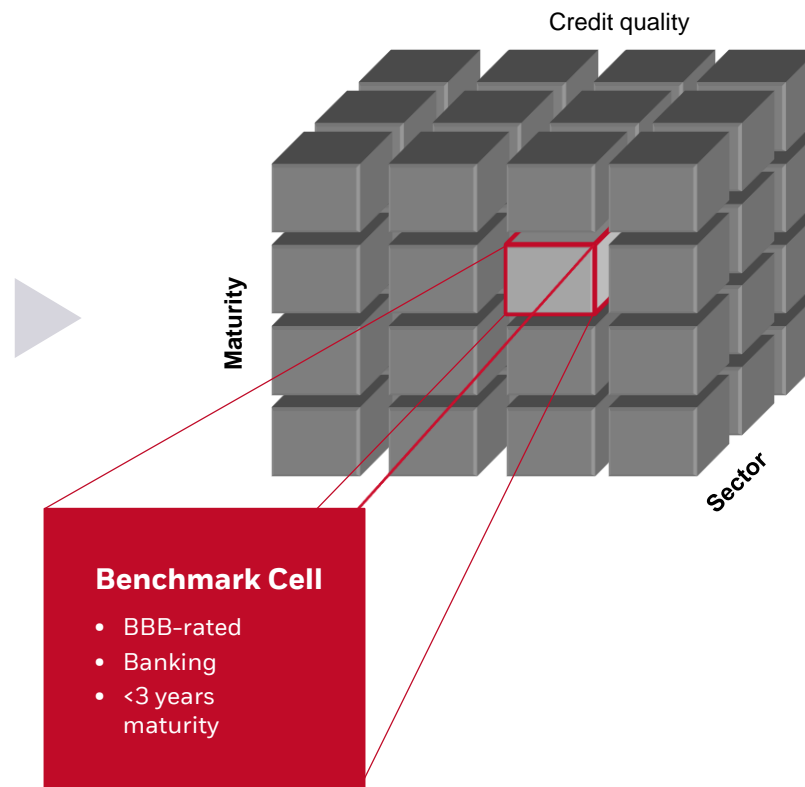
\*\* Source: Pension & Investments as of 30 June 2018

Note: Some Innovations developed by predecessor firms

# Portfolio construction

**Stratified sampling: Dividing the various indexes into subsets (cells) based upon relative parameters**

Government Bonds	Mortgage-Backed Securities	Credit & Asset-Backed Securities
Sector/Issue type	Issuer (GNMA, FNMA, FHLMC)	Sector/issue type
Maturity	Mortgage type (30 year, 15 year, balloon)	Maturity/average life
Call Features	Coupon	Credit rating
	Age (year of issuance)	Call/payment structure
	Specified Pools "Story"	



**Portfolios are constructed by sampling bonds from each index cell**

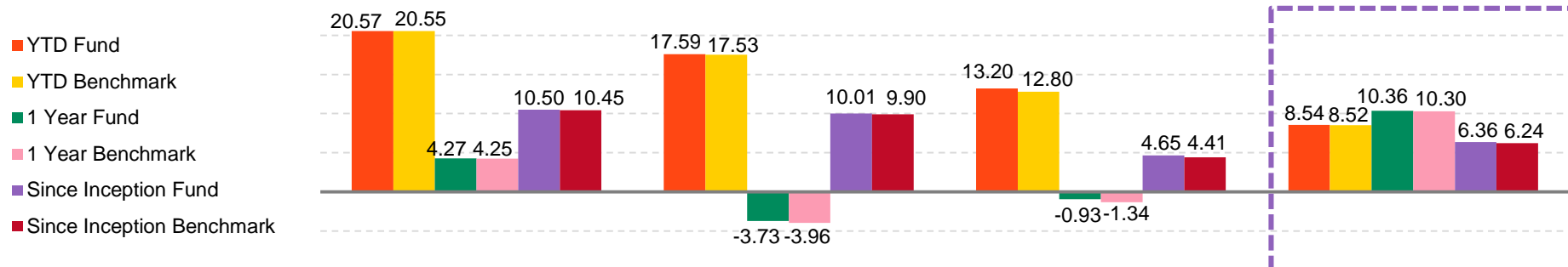
For illustrative purpose only



# Thrift Savings Plan – performance

Performance relative to benchmarks – as of September 30, 2019

Gross of fee returns\* (%)



	C	S	I	F
YTD Fund Return	20.57	17.59	13.20	8.54
YTD Benchmark Return	20.55	17.53	12.80	8.52
<b>Tracking</b>	<b>0.02</b>	<b>0.06</b>	<b>0.40</b>	<b>0.02</b>
1 Year Fund Return	4.27	-3.73	-0.93	10.36
1 Year Benchmark Return	4.25	-3.96	-1.34	10.30
<b>Tracking</b>	<b>0.02</b>	<b>0.23</b>	<b>0.41</b>	<b>0.06</b>
Since Inception Fund Return	10.50	10.01	4.65	6.36
Since Inception Benchmark Return	10.45	9.90	4.41	6.24
<b>Tracking</b>	<b>0.05</b>	<b>0.11</b>	<b>0.24</b>	<b>0.12</b>

Fund returns are unaudited, annualized, assume reinvestment of dividends, and are gross of all fees and expenses. Deduction of fees will reduce return.

A DC Fund's performance may differ from that of its benchmark for various reasons, including, but not limited to, investment strategy and/or, in the case of an index fund, equitization of cash (e.g., by investing in futures or other instruments that serve as a proxy for index exposure). A DC Fund's performance may differ from the performance of its benchmark more dramatically than a fund offered only to defined benefit plan investors due to several factors that are specific to funds sold to DC plan investors, including but not limited to Fair Value Pricing. In the event that current market valuations are not readily available or such valuations do not reflect current market values, the affected investments will be valued using fair values determined in good faith. The frequency with which the fund's investments are valued using fair values is primarily a function of the types of securities and other assets in which the fund invests pursuant to its investment objective, strategies and limitations. Fair values may differ from closing prices, which are the prices on which index performance is based. Consequently, valuing the fund's investments using fair values ("fair values") may result in a difference between the fund's performance (based on the value of the fund's investments) and the performance of the underlying index (based on closing prices).

Since Inception dates: C Fund – 4/30/1988; S Fund – 5/2/2001; I Fund – 5/2/2001; F Fund – 4/30/1988

Benchmarks: C Fund (S&P 500 Index), S Fund (Dow Jones U.S. Completion Total Stock Market Index), I Fund (MSCI EAFE Index), F Fund (Bloomberg Barclays U.S. Aggregate Bond Index)

Past performance is no guarantee of future results

As of September 30, 2019; Source: BlackRock

## Thrift Savings Plan – 1 Year performance attribution

	C Fund	S Fund	I Fund	F Fund
1 Year Fund Return	4.27	-3.73	-0.93	10.36
1 Year Benchmark Return	4.25	-3.96	-1.34	10.30
<b>Tracking</b>	<b>0.02</b>	<b>0.23</b>	<b>0.41</b>	<b>0.06</b>
Attribution Summary	Securities Lending	Securities Lending Security Sampling	Tax Advantage Securities Lending	Securities Lending Security Sampling

As of September 30, 2019

# **Securities Lending Review**

## Benefits of securities lending

- Securities lending is a well-established practice whereby an asset owner makes short-term loans of stocks or bonds to banks or broker dealers who often on-lend those securities to other end users
- Loans are over-collateralized with cash or other securities; collateralization levels are mark-to-market daily
- Investors, particularly long-term (e.g. pension and retirement plan) investors, can potentially benefit from the securities lending income in the form of better fund performance<sup>1</sup>
- Securities lending benefits the markets by providing increased price transparency, enhanced market liquidity and efficiency

1: Lending income is an additional source of return to the fund. This is reflected in the fund's NAV and attributes to performance.

# BlackRock securities lending & cash collateral management platform

## Lending and Liquidity Platform

**Philip Vasan**

Global Head of Lending and Liquidity

## Cash Management

**Thomas Callahan**

Head of Global Cash Management

## Securities Lending

**Roland Villacorta**

Global Head of Securities Lending

## Global Head of Portfolio Management

Rich Mejjak

## Global Head of Product Strategy

Jason Strofs

## Global Head of Trading

James Templeman

## Global COO

Sara Lo

## Head of U.S. Trading

Patricia Hostin

## Head of Intl Trading

Yoshihiko Aoyama

## Risk & Quantitative Analysis (RQA) Group

As of September 30<sup>th</sup>, 2019

# A Focus on Technology and Analytics

## Technology is core to who BlackRock is as a firm:

- For over 30 years, BlackRock has been at the forefront of technological innovation, using technology to provide efficiencies and insights that provide better outcomes for clients.
- The firm continues to drive innovation, recently accelerating investment in the data science and artificial intelligence space.
- Securities lending is a data rich, OTC market where significant opportunity to enhance efficiency in the trading process exists.
- A focus on innovative technology, trading tools and data allow traders to focus solely on activities where human touch adds unique value.

### Standard Low-Fee Loans

#### Low-touch trading

Automated trading of standard-fee loans liberates traders to focus on bespoke loans and perfecting trading models.



### Mid-Range Medium-Fee Loans

#### Pricing Signals

BlackRock's proprietary pricing signals and technological capabilities facilitate trading non-standard loans with little, if any, manual touch.



### High-Demand High-Fee Loans

#### High-touch trading

Our high-touch traders leverage proprietary technology, analytics and coordination with other investment teams with the aim to outperform the market in high-value trades.



## Seeking to provide superior client outcomes:

- For clients, this may result in better performance outcomes, including more optimal trading of individual securities and the opportunity to generate higher risk-adjusted securities lending returns.

# Market Update: Trends in equity and fixed income

## Fixed Income trends:

- After an ongoing period of policy normalization that saw the Federal Reserve increase the federal funds rate eight times since December 2016, the Fed has shifted back to an easing path, with two rate cuts in 2019. The change in rate expectations has led the yield curve to flatten dramatically, inverting in some cases, which has impacted return opportunities in the lending market as cash reinvestment opportunities have been less attractive.
- Borrowing demand for U.S. Treasury securities has marginally declined in 2019. There continue to be few U.S. Treasury specials, while the need for high quality liquid asset collateral continues to drive borrower demand.
- Demand to borrow High Grade U.S. dollar-denominated credit securities remains a key source of return, largely related to broker-dealer market making activities. Supranational issuers and Financials are primary sectors in demand.

## Equity trends:

- Borrowing demand for U.S. equities has softened relative to 2018, driven largely by some equity de-risking activity coupled with reduced hedge fund leverage. Securities lending income has been concentrated in a small number of securities, with just ten securities accounting for 20% of lending revenues. The Health Care, Consumer Discretionary and Information Technology sectors have been the most in demand.
- Corporate action activity has been a significant source of borrower demand in global equity markets in 2019, with notable lending opportunities in the United States, Great Britain and France.
- Overall U.S. Initial Public Offering (IPO) activity has been less active than previous years, however, several notable IPOs have been in high demand to short this year, with demand increasing considerably in the third quarter.

Source: Bloomberg and BlackRock data, as of 9/30/2019

This material represents an assessment of the market environment at a specific time and is subject to change. This is not intended to be a forecast of future events or a guarantee of future results. This information should not be relied upon by the reader as research or investment advice regarding the funds, strategy or any security in particular.

# Fund performance update

## C Fund

- Securities lending return for large-cap equities continues to be relatively low due to ample supply of securities in the lending market, increased interest from borrowers to post non-cash collateral, and a less attractive cash reinvestment environment driven by a shift in Fed policy.
- Eli Lilly and Company, Coty Inc, Visa Inc, Microchip Technology Inc and Sempra Energy were the five largest income earners over the period (Jan 1, 2019 – Sept 30, 2019).

## S Fund

- Relative to large-cap equities, small and mid-cap U.S. equity securities have been in greater demand from borrowers, with the majority of lending income coming from the S Fund. Overall utilization has remained steady compared with 2018, although spreads have compressed.
- Over the period, the Health Care, Consumer Discretionary and Information Technology sectors have been the most in demand, accounting for over 50% of the S Fund's income. Within the Health Care sector, the Biotechnology, Pharmaceutical, and Health Care Equipment industries have been especially attractive, accounting for approximately 25% of the S Fund's income.
- Beyond Meat Inc, New Age Beverages Corp., Accelerate Diagnostics Inc, GTT Communications Inc, and Overstock.com Inc were the five largest earners.

## I Fund

- Corporate action driven loans are typically the primary source of income. The five largest corporate action earners were Societe Generale S.A., Total S.A., Sanofi S.A., BNP Paribas S.A. and AXA.
- France was the largest income generating market over the period, accounting for approximately two-thirds of the I Fund's lending income.

## F Fund

- While U.S. Treasury securities remain the primary driver of return, demand to borrow credit securities has grown, driven by broker-dealer market making and shorting activities.
- The primary source of lending return for fixed income securities continues to be attributed to cash collateral reinvestment, and the shift in Fed Policy has led to decreased income over the period when compared to 2018.

Source: BlackRock data, as of 9/30/2019

The above commentary is representative of individual securities and markets of which demand exists to borrow securities from FRTIB's portfolios. There are no detractors to securities lending revenue, instead just securities with little to no demand to borrow from market participants.

References to any security and/or particular issuer shall not constitute a recommendation to buy or sell.



# Appendix

# Important notes

## FOR USE IN FRTIB 13 NOVEMBER 2019 MEETING ONLY

Any investments named within this material may not necessarily be held in any accounts managed by BlackRock. Reliance upon information in this material is at the sole discretion of the reader. Past performance is no guarantee of future results. This material is for distribution only to those types of recipients as provided below and should not be relied upon by any other persons. This material is provided for informational purposes only and does not constitute a solicitation in any jurisdiction in which such solicitation is unlawful or to any person to whom it is unlawful. Moreover, it neither constitutes an offer to enter into an investment agreement with the recipient of this document nor an invitation to respond to it by making an offer to enter into an investment agreement.

If this information is provided to an entity or agency that has, or is subject to, open records, open meetings, “freedom of information”, “sunshine” laws, rules, regulations or policies or similar or related laws, rules, regulations or policies that require, do or may permit disclosure of any portion of this information to any other person or entity to which it was provided by BlackRock (collectively, “Disclosure Laws”), BlackRock hereby asserts any and all available exemption, exception, procedures, rights to prior consultation or other protection from disclosure which may be available to it under applicable Disclosure Laws.

### Securities Lending Returns

BlackRock retains a portion of securities lending returns in exchange for managing the program. This fee reflects risk management, as well as the technology and personnel costs of maintaining the lending platform. In addition, BlackRock receives a fee for the management of cash collateral. Actual lending yields and fees for strategies represented may vary. Please note, other administrative costs, including but not limited to, accounting, custody and audit fees, may vary. Investors may receive 50% of securities lending returns and BlackRock retains 50%, except in cases where a client may negotiate a different compensation arrangement. BlackRock may negotiate different securities lending compensation arrangements with our clients depending on a variety of factors, including, but not limited to, the nature and size of the investment and the overall relationship with, and services delivered to, a particular client. Asset spread income is defined as the interest income earned in cash reinvestment funds on collateral balances less the Federal Funds Open Rate. Liability spread income is defined as the difference between the Federal Funds Open Rate and the rebate rate negotiated with the borrower.

### Forward Looking Information

This material may contain “forward-looking” information that is not purely historical in nature. Such information may include, among other things, projections, forecasts, estimates of yields or returns, and proposed or expected portfolio composition. Moreover, where certain historical performance information of other investment vehicles or composite accounts managed by BlackRock, Inc. and/or its subsidiaries (together, “BlackRock”) has been included in this material and such performance information is presented by way of example only. No representation is made that the performance presented will be achieved, or that every assumption made in achieving, calculating or presenting either the forward-looking information or the historical performance information herein has been considered or stated in preparing this material. Any changes to assumptions that may have been made in preparing this material could have a material impact on the investment returns that are presented herein by way of example.

### Forecast

This material is not intended to be relied upon as a forecast, research or investment advice, and is not a recommendation, offer or solicitation to buy or sell any securities or to adopt any investment strategy. The opinions expressed may change as subsequent conditions vary. The information and opinions contained in this material are derived from proprietary and nonproprietary sources deemed by BlackRock to be reliable, are not necessarily all inclusive and are not guaranteed as to accuracy. There is no guarantee that any forecasts made will come to pass.

### No Recommendation

These materials are neither an offer to sell nor a solicitation of any offer to buy shares in any fund. You may not rely upon these materials in evaluating the merits of investing in any fund that employs any of the strategies referred to herein. Any reference herein to any security and/or a particular issuer shall not constitute a recommendation to buy or sell, offer to buy, offer to sell, or a solicitation of an offer to buy or sell any such securities issued by such issuer.

# Important notes (cont.)

## Money Market Fund

Although a money market fund seeks to preserve the value of one's investment at \$1.00 per share, it is possible to lose money by investing in a money market fund. Investment in a money market fund is not similar to making a bank deposit. This investment is not insured or guaranteed by the Federal Deposit Insurance Corporation or by any bank or governmental agency.

### Risk

Securities lending involves exposure to certain risks, including cash collateral investment risk (i.e., risk that cash collateral investments, whether in Cash Collateral Funds or otherwise, may not achieve their investment objective, including suffering realized or unrealized loss due to investment performance), "gap" risk (i.e., risk that the return on cash collateral investments is insufficient to pay the rebate fees the Lending Fund or Lending Account has committed to pay to borrowers), liquidity risk (i.e., risk that the cash collateral is invested, directly or through the Cash Collateral Funds, in securities and other instruments that are less liquid than the Lending Fund or Lending Account, which could limit the liquidity available to the Lending Fund or Lending Account for ordinary course transactions), operational risk (i.e., risk of losses resulting from problems in the settlement and accounting process), foreign exchange risk (i.e., risk of a shortfall at default when a cash collateral investment is denominated in a currency other than the currency of the assets being loaned due to movements in foreign exchange rates), and credit, legal, counterparty and market risks. At any particular point in time, investments in the Cash Collateral Funds could comprise a material portion of a Lending Fund's assets.

Investing involves risk, including possible loss of principal. Asset allocation and diversification strategies do not assure a profit and may not protect against loss or effects of market or other economic conditions on asset classes. Diversification among investment options and asset classes may help to reduce overall volatility.

BlackRock makes no representations or warranties as to the accuracy or completeness of the information contained herein, and further nothing contained herein shall be relied upon as a promise by, or representation by, BlackRock whether as to past or future performance results. Past performance is not indicative or predictive of future performance.

These materials are being provided for informational purposes only and are not intended to constitute tax, legal or accounting advice. You should consult your own advisers on such matters. Additional information is available on request. Information contained herein is believed to be reliable but BlackRock does not warrant its accuracy or completeness. Information contained herein represents BlackRock's own opinions. There can be no assurance that the investment objectives of any strategy referred to herein will be achieved. An investment in any strategy referred to herein involves a high degree of risk, including the risk that the entire amount invested may be lost.

Any strategy referred to herein does not give rise to a deposit or other obligation of BlackRock, Inc. or its subsidiaries and affiliates, and is not guaranteed by BlackRock, Inc. or its subsidiaries and affiliates, and is not insured by the United States Federal Deposit Insurance Corporation or any other governmental agency, and may involve investment risks, including possible loss of principal invested.

For ease of reference, "BlackRock" may be used to refer to BlackRock, Inc. and its affiliates, including BlackRock Institutional Trust Company, N.A. BlackRock Institutional Trust Company, N.A. ("BTC"), a national banking association operating as a limited purpose trust company, manages the collective investment products and services discussed in this publication and provides fiduciary and custody services to various institutional investors. A collective investment fund is privately offered: prospectuses are not required. Strategies maintained by BTC are not insured by the Federal Deposit Insurance Corporation or any other agency of the US government, are not an obligation or deposit of, or guaranteed by, BTC or its affiliates.

Strategies include bank collective investment funds maintained and managed by BlackRock Institutional Trust Company, N.A. which are available only to certain qualified employee benefit plans and governmental plans and not offered or available to the general public. Accordingly, prospectuses are not required and prices are not available in local publications. To obtain pricing information, please contact your local service representative. Strategies maintained by BlackRock are not insured by the Federal Deposit Insurance Corporation and are not guaranteed by BlackRock or its affiliates. There are structural and regulatory differences between collective funds and mutual funds that may affect their respective fees and performance.

©2019 BlackRock, Inc. All Rights reserved. **BLACKROCK** is a registered trademark of BlackRock, Inc. or its subsidiaries in the United States and elsewhere. All other trademarks are those of their respective owners.