Panel Discussion:

ETF's:

Using ETF's to manage portfolio transitions and risks?

Moderator:

Robert B. Butler, Butler Advisory Services LLC

Panelist:

Emily Foote, BlackRock

Robert S. Melton, State Street Global Advisors

What is an ETF?

Two great investment ideas brought together

Like a stock

- Trading flexibility intraday on the exchange
- Long or short
- Options frequently available

Like an index fund

- Constructed to track benchmark indexes
- Low expense ratios
- Low turnover

What sets ETFs apart?

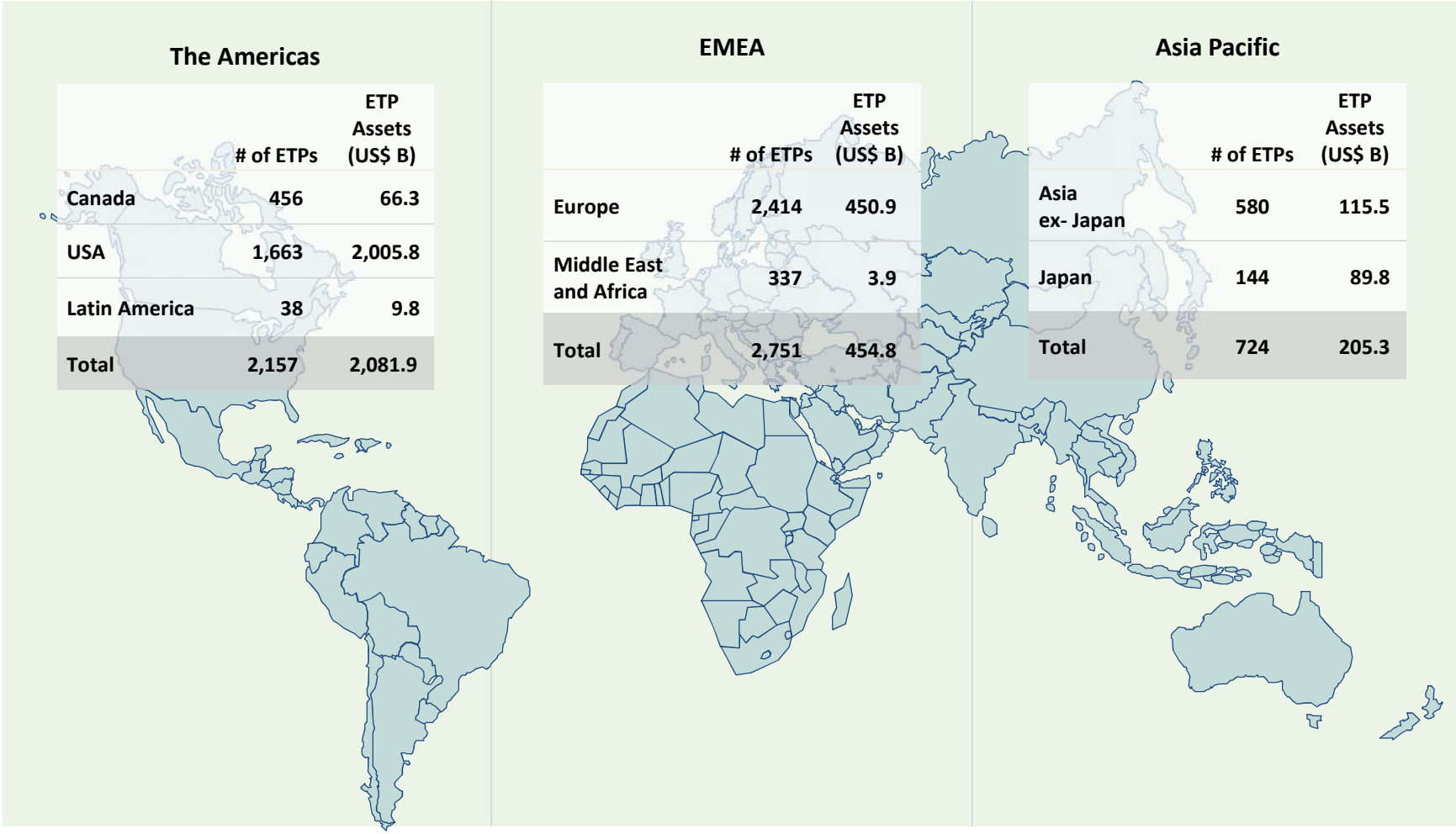
- The creation / redemption process enables the unique benefits of ETFs such as liquid access and tax efficiency

Familiar ground…best of both worlds

With short sales, an investor faces the potential for unlimited losses as the security's price rises. There can be no assurance that an active trading market for shares of an ETF will develop or be maintained. Transactions in shares of the iShares Funds will result in brokerage commissions and will generate tax consequences. iShares Funds are obliged to distribute portfolio gains to shareholders. Diversification may not protect against market risk or loss of principal.

The Global ETP Market Represents more than $2.5 Trillion in Assets

Global: 5,632 ETPs and $2.7 trillion in assets



The Americas

	# of ETPs	ETP Assets (US$ B)
Canada	456	66.3
USA	1,663	2,005.8
Latin America	38	9.8
Total	2,157	2,081.9

EMEA

	# of ETPs	ETP Assets (US$ B)
Europe	2,414	450.9
Middle East and Africa	337	3.9
Total	2,751	454.8

Asia Pacific

	# of ETPs	ETP Assets (US$ B)
Asia ex- Japan	580	115.5
Japan	144	89.8
Total	724	205.3

Source: Markit, SSGA, as of December 31, 2014

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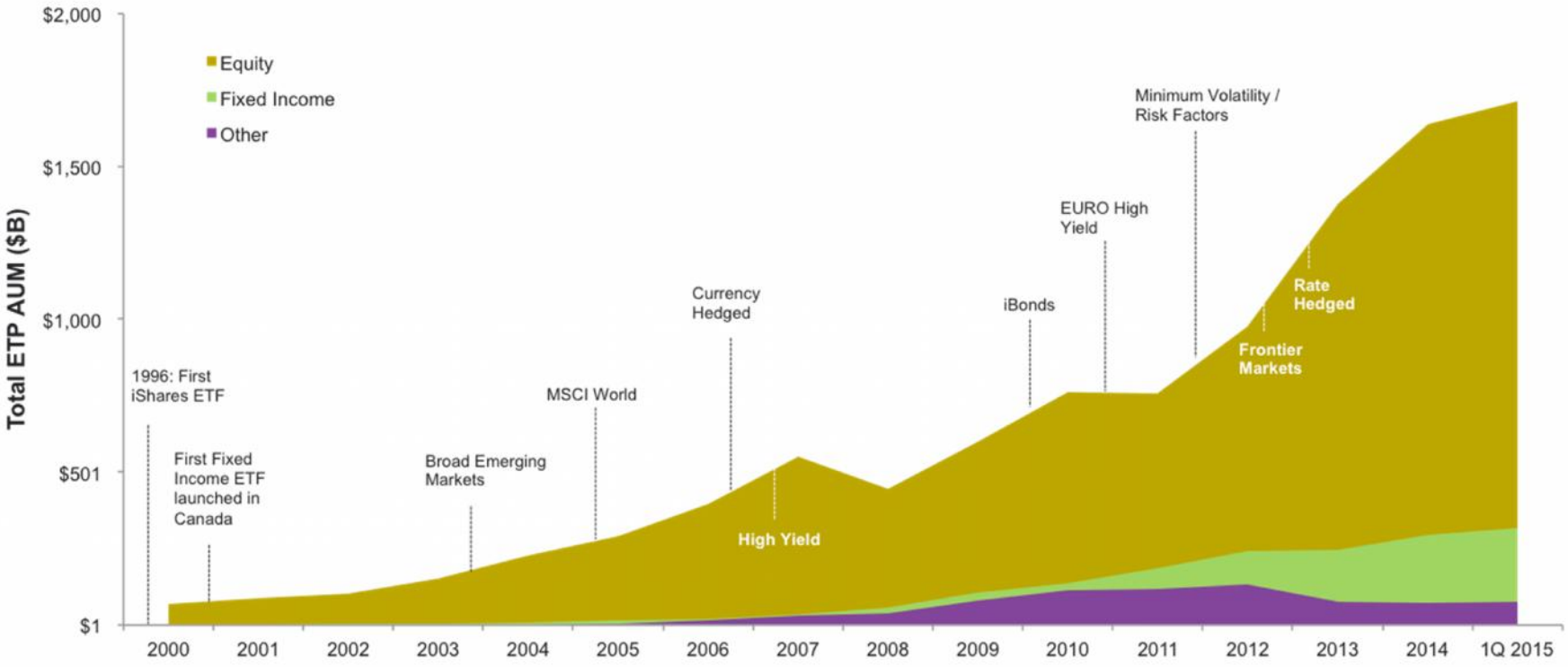
U.S. ETP asset growth and Milestones

- U.S. ETP asset growth has been driven by increasing institutional adoption and broaden usage
- AUM has risen from $70.6 billion in 2000 to $2 trillion in 2014. US ETPs had ~$124 billion of inflows in 2014
- 10-year CAGR of 22% for equity ETPs[1]
- ETFs represented ~25% of U.S. daily equity trading volume in 2014[2]



# of ETPs	95	118	130	134	169	221	380	672	841	925	1,099	1,369	1,445	1,536	1,662	1,690

Source: BlackRock, Bloomberg, ICI, as of 3/31/15.

1. 10-year CAGR as of December 31, 2014. ETP flows and assets are sourced using shares outstanding and net asset values from Bloomberg. Inflows for years prior to 2010 are sourced from Strategic Insights Simfund. Asset classifications are assigned by the BlackRock based on product definitions from provider websites and product prospectuses. Other static product information is obtained from provider websites, product prospectuses, provider press.
2. Source: NYSE Arcavision.

How Institutions Use ETFs

Application	Objective	Potential ETF Solution
Cash Equitization	**Remain fully invested while maintaining liquidity**	**ETFs are an attractive alternative solution to futures due to their transparency, lack of documentation and roll slippage**
Tactical Adjustments	**Over or underweight certain market segments based on short term outlook**	**ETFs represent virtually every asset class and offer efficient vehicles for implementing a tactical idea**
Transitions	**Maintain market exposure while searching for a new manager**	**Invest the proceeds of a manager liquidation in an ETF which tracks the appropriate benchmark until new manager has been selected**
Rebalancing	Increase the speed and efficiency of rebalancing across the asset allocation	ETFs can make rebalancing more efficient due to their intraday liquidity than moving assets from illiquid managers
Asset Class Exposure	Establish exposure to a difficult to reach market segment	There are a variety of ETFs which provide potential exposure to difficult to reach asset classes
Liquidity Management	Increase liquidity in overall asset allocation without changing allocation	Use ETFs for a given percentage of each asset class to provide a liquidity buffer across the asset allocation
Portfolio Completion	Fill any asset allocation holes without engaging a new investment manager	Use an ETF to gain potential exposure to an asset class that is underrepresented in the asset allocation
Fixed Income Duration and Credit Adjustments	Tweak duration and credit exposure to meet specified targets	Fixed Income ETFs help provide an efficient means to adjust duration and credit exposure
Taxable Institutional Plans	Implement desired asset allocation regardless of plan size	Implement an asset allocation efficiently using ETFs. Advantages include no minimum fees and simplified rebalancing.

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iShares® by BLACKROCK®

Institutional Uses of ETFs

11/17/2015

Case study: transition

CLIENT CHALLENGE & SOLUTION:

Efficiently exit illiquid bonds

The CIO of a pension plan wanted to transition $1B of high yield corporate bonds from an externally managed separate account to an internally managed portfolio

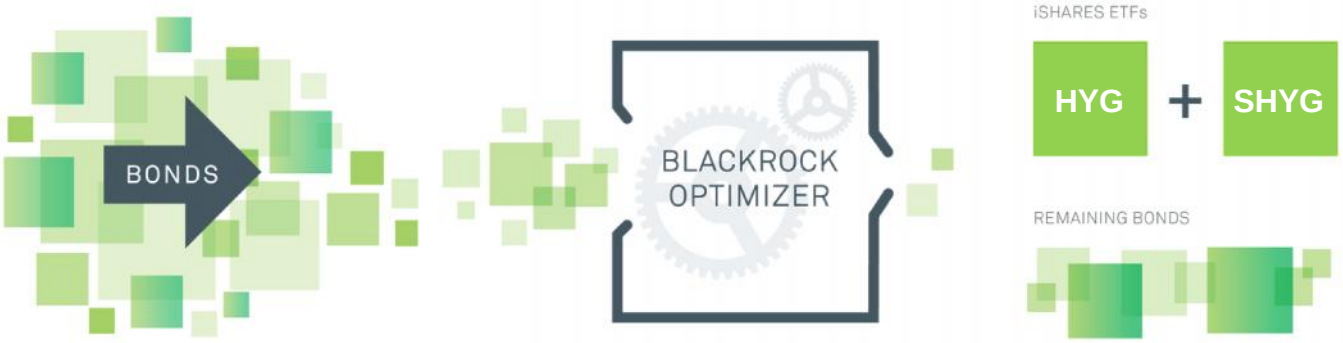
- The existing credit portfolio was highly fragmented with many odd-lot and thinly traded positions which could be costly and inefficient to exit
- Using BlackRock's proprietary risk and optimization technology, the CIO delivered a list of bonds in its portfolio that BlackRock screened. These positions were largely held by two iShares ETFs, allowing an in-kind transfer to iShares iBoxx $ High Yield Corporate Bond ETF (HYG) and iShares 0–5 Year High Yield Corporate Bond ETF (SHYG).

Why ETFs?

- Immediate market exposure
- Operational ease
- Efficient transition tool

Why iShares?

- Capital markets expertise and trading support
- Proprietary technology
- iShares coordinated with an authorized participant to transition from bonds to ETFs in a single-day trade



Past performance does not guarantee future results. There can be no assurance that an active trading market for shares of an ETF will develop or be maintained. Case studies are for illustrative purposes only; they are not meant as a guarantee of any future results or experience.

Case study: tactical adjustments

CLIENT CHALLENGE & SOLUTION

Quickly gain exposure to investment grade bonds

The CIO of a pension plan sought to increase exposure to investment grade bonds; however due to opaque structure of the OTC bond market, the CIO found it challenging to source individual issues in a timely and cost-efficient manner

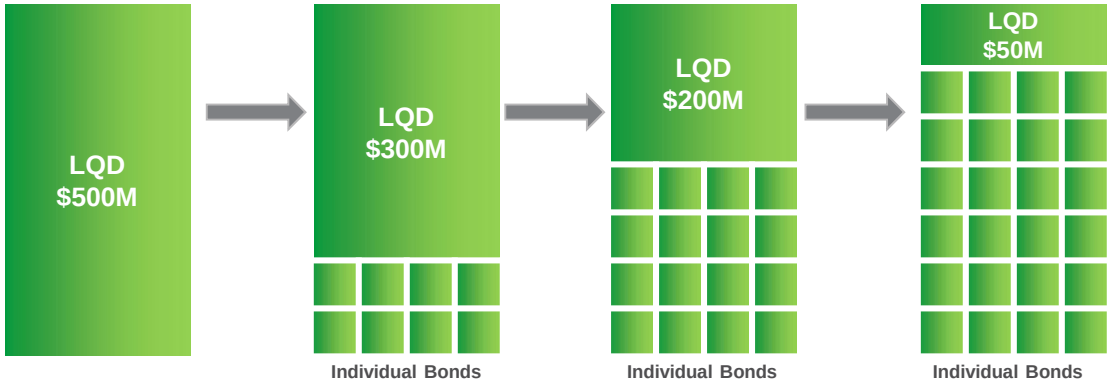
- The iShares iBoxx $ Investment Grade Corporate Bond ETF (LQD) provided the immediate and operationally efficient exposure to U.S. investment grade fixed income securities that the client needed
- The client implemented a $500MM solution and steadily trimmed LQD until the individual bond portfolio was fully funded. Due to the ETF's liquidity, the client decided to keep a permanent allocation of $50 million to LQD

Why ETFs?

- Immediate market exposure to the desired asset class while the client thoughtfully built their bond portfolio
- Efficient access relative to sourcing individual bonds
- Diversification

Why iShares?

- Liquidity of the ETF
- Quality of the benchmark
- Capital markets expertise and trading support



Management fees associated with iShares ETFs are not borne by investors in individual stocks or bonds. Diversification may not protect against market risk or capital loss. There can be no assurance that an active trading market for shares of an ETF will develop or be maintained. Case studies are for illustrative purposes only; they are not meant as a guarantee of any future results or experience.

Index investing in a changing beta landscape: Focus on equity index futures and ETFs

TAILWINDS FOR ETFs AND HEADWINDS FOR FUTURES IN THE DELTA ONE SPACE

- Generally, ETF fund sizes have increased, trading liquidity and spreads have improved
- The choice of ETFs available has grown
- Simultaneously, average roll costs for Futures have increased[1]
- The ability to re-invest risk free cash at the implied futures rate has fallen

WHY HAVE FUTURES BECOME MORE COSTLY?

- New regulatory frameworks are changing banks' business models
- Increased capital costs for banks and regulatory changes have lowered arbitrage activity

WHAT EVIDENCE DO WE HAVE OF THESE CHANGES?

- Many futures have traded persistently rich to fair value since Q4 2012[1]
- Trading data from Bloomberg demonstrates the cost advantage of many ETFs vs. Futures
- A number of brokers—including Goldman Sachs, Bank of America Merill Lynch, and BNP Paribas—have published research supporting the conclusions of our analysis

Source: iShares Research, Investments & Analytics
[1]Goldman Sachs
There can be no assurance that an active trading market for shares of an ETF will develop of be maintained.

The framework for comparison between ETFs and Futures

- There are several differences to consider between synthetic exposures such as futures, and physical ones like ETFs
- For investors who do not require leverage, a physical investment may be more cost efficient than a synthetic exposure
- Below we highlight some of the largest drivers of relative cost differences as the basis for our comparison

FUTURES CONTRACT

End User Positioning

- Natural longs exceed natural shorts, forcing banks to take a net short position

Regulatory Landscape Impact

- Restrictions on bank balance sheets have made their cost of hedging net positions more costly

Mispricing

Cash Management

- Base financing rates (LIBOR) implied in futures pricing can be difficult to achieve

Funding Differential

Relative Cost Analysis

ETF SECURITY

Trade Costs

Liquidity

- Increased adoption of ETFs has led to greater liquidity and tighter trading spreads

TER

Management Fees

- Competition has prompted many providers to lower fees, as in the iShares Core Series.

Offsets

- Other considerations such as lending of underlying securities and withholding tax reclaim may help offset other costs.

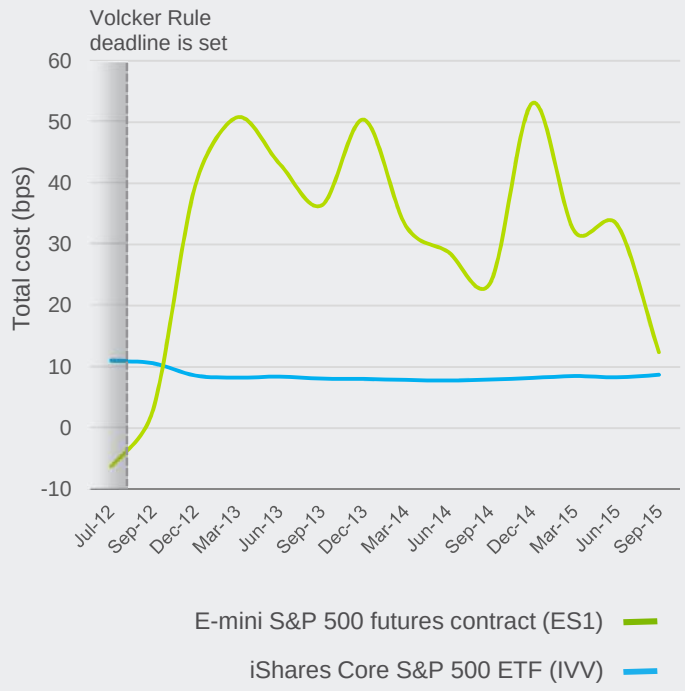
There can be no assurance that an active trading market for shares of an ETF will develop or be maintained. Distributions paid out of the Fund's net investment income, including income from securities lending, if any, are taxable to investors as ordinary income.
There is no guarantee that there will be borrower demand for shares of the iShares Funds, or that securities lending will generate any level of income. ETF share lending revenue is not an element of fund performance and share lending is not a service provided by iShares ETFs or BlackRock Fund Advisors ("BFA"), the funds' investment manager. Not a recommendation; no guarantee that any strategy will be effective. This illustration is not a complete analysis of every material fact respecting any strategy, and does not include commissions, tax implications or other transaction costs, which may significantly affect the economic consequences of a given strategy.

ETFs vs futures total cost of ownership perspective: S&P 500

Annualized S&P 500 Relative Cost Analysis[1]:

Estimated annual total costs (bps) incurred to achieve a $100mm fully funded long exposure to S&P 500 index

Total Cost – Rolling Annual Basis[2]



$100m Long Exposure		S&P 500	iShares Core S&P 500 ETF
All costs are round trip and in bps		ESA	IVV
Costs	**Cost/Revenue Item**	**Future**	**ETF**
Entry & Exit Trade	Commission	0.4	1.0
	Impact & Spread	1.2	2.2
	Total	**1.6**	**3.2**
Holding Period	Futures Roll Commissions	1.8	-
	Richness/(Cheapness)	20.8	-
	ETF Management Fee	-	7.0
	Basket Lending Revenue	-	(0.5)
	Foreign Dividend Tax Reclaim	-	-
	Total	**22.6**	**6.5**
Total Cost		**24.2**	**9.7**
Funding Assumptions		**Future**	**ETF**
	Reference Funding Rate	31.0	-
	ETF Breakeven Required Cash Return	**43.9**	**-**
Liquidity & Lending		**Future**	**ETF**
	ETF Lending Revenue (bps)	-	(0.5)
	20-day ADV ($)	$140,382,788,614	$1,348,993,615
	Basket 20-Day ADV ($)	-	$128,885,142,240

1 As of 9/30/15. Assumes non-margined cash returns 3M LIBOR, which can be difficult to achieve. A lower return than 3M Libor can result in a higher total cost to the investor. This data does not include the revenue from lending the underlying securities of the ETF. "ETF lending revenue" is not an element of fund performance or a service provided by iShares ETFs or BlackRock Fund Advisors ("BFA"), the funds' investment advisor. "Underlying lending revenue" (revenue from the lending of securities held iShares ETFs) is considered an element of fund performance. The underlying lending revenue yield is based on the securities lending revenue for each fund's most recent financial statements. Distributions paid out of the Fund's net investment income, including income from securities lending, if any, are taxable to investors as ordinary income. The performance quoted represents past performance and does not guarantee future results Please see Appendix for standardized performance. This information must be preceded or accompanied by a **current prospectus.** Investors should read it carefully before investing.

2 Sources: As of 9/30/15, BlackRock's iShares Research Group, Goldman Sachs Securities Division Equity Strats Group, BofA Merrill Lynch Global Research, Bloomberg, iShares.com.

Important iShares Disclosures

Appendix: Standardized performance as of 9/30/15

Ticker	Fund Name	Fund Inception Date	Gross Expense Ratio	30 Day SEC Yield (With/ Without Waiver)	Contractual Fee Waiver Expiration (If Applicable)	1-Year Returns		5-Year Returns		10-Year Returns		Since Inception	
						NAV	Mkt Price	NAV	Mkt Price	NAV	Mkt Price	NAV	Mkt Price
IVV	iShares Core S&P 500 ETF (IVV)	5/15/2000	0.07%	2.16%	--	-0.66%	-0.73%	13.26%	13.25%	6.74%	6.73%	3.75%	3.74%

The performance quoted represents past performance of specific funds and does not guarantee future results for such funds. Investment return and principal value of an investment will fluctuate so that an investor's shares, when sold or redeemed, may be worth more or less than the original cost. Current performance may be lower or higher than the performance quoted. Performance data current to the most recent month end may be obtained by visiting www.iShares.com or www.blackrock.com. Shares of iShares Funds are bought and sold at market price (not NAV) and are not individually redeemed from the Fund. Brokerage commissions will reduce returns. Market returns are based upon the midpoint of the bid/ask spread at 4:00 p.m. eastern time (when NAV is normally determined for most iShares Funds), and do not represent the returns you would receive if you traded shares at other times.

Important information regarding iShares ETFs

Carefully consider the Funds' investment objectives, risk factors, and charges and expenses before investing. This and other information can be found in the Funds' prospectuses or, if available, the summary prospectuses which may be obtained by visiting www.iShares.com or www.blackrock.com. Read the prospectus carefully before investing.

Investing involves risk, including possible loss of principal.

Fixed income risks include interest-rate and credit risk. Typically, when interest rates rise, there is a corresponding decline in bond values. Credit risk refers to the possibility that the bond issuer will not be able to make principal and interest payments. Non-investment-grade debt securities (high-yield/junk bonds) may be subject to greater market fluctuations, risk of default or loss of income and principal than higher-rated securities. An investment in the Fund is not insured or guaranteed by the Federal Deposit Insurance Corporation or any other government agency and its return and yield will fluctuate with market conditions. Securities with floating or variable interest rates may decline in value if their coupon rates do not keep pace with comparable market interest rates. A fund's income may decline when interest rates fall if most of the debt instruments held by the fund have floating or variable rates. There is no guarantee that dividends will be paid.

When comparing stocks or bonds and iShares Funds, it should be remembered that management fees associated with fund investments, like iShares Funds, are not borne by investors in individual stocks or bonds. The annual management fees of iShares Funds may be substantially less than those of most mutual funds. Buying and selling shares of iShares Funds will result in brokerage commissions. Although market makers will generally take advantage of differences between the NAV and the trading price of iShares Fund shares through arbitrage opportunities, there is no guarantee that they will do so.

International investing involves risks, including risks related to foreign currency, limited liquidity, less government regulation and the possibility of substantial volatility due to adverse political, economic or other developments. These risks often are heightened for investments in emerging/developing markets, in concentrations of single countries or smaller capital markets. Narrowly focused investments, including REIT, mining, preferred stock, factor and floating rate note funds may be subject to higher volatility and risks specific to those sectors. The iShares Minimum Volatility ETFs may experience more than minimum volatility as there is no guarantee that the underlying index's strategy of seeking to lower volatility will be successful.

Investment in a fund of funds is subject to the risks and expenses of the underlying funds.

Important information regarding iShares ETFs

Actively managed funds do not seek to replicate the performance of a specified index and may have higher portfolio turnover than index funds.

A fund's use of derivatives may reduce a fund's returns and/or increase volatility and subject the fund to counterparty risk, which is the risk that the other party in the transaction will not fulfill its contractual obligation. A fund could suffer losses related to its derivative positions because of a possible lack of liquidity in the secondary market and as a result of unanticipated market movements, which losses are potentially unlimited. There can be no assurance that any fund's hedging transactions will be effective. The iShares Funds are distributed by BlackRock Investments, LLC (together with its affiliates, "BlackRock").

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