
Exchange-Traded Funds

Comparing ETFs with Index Funds and Mutual Funds

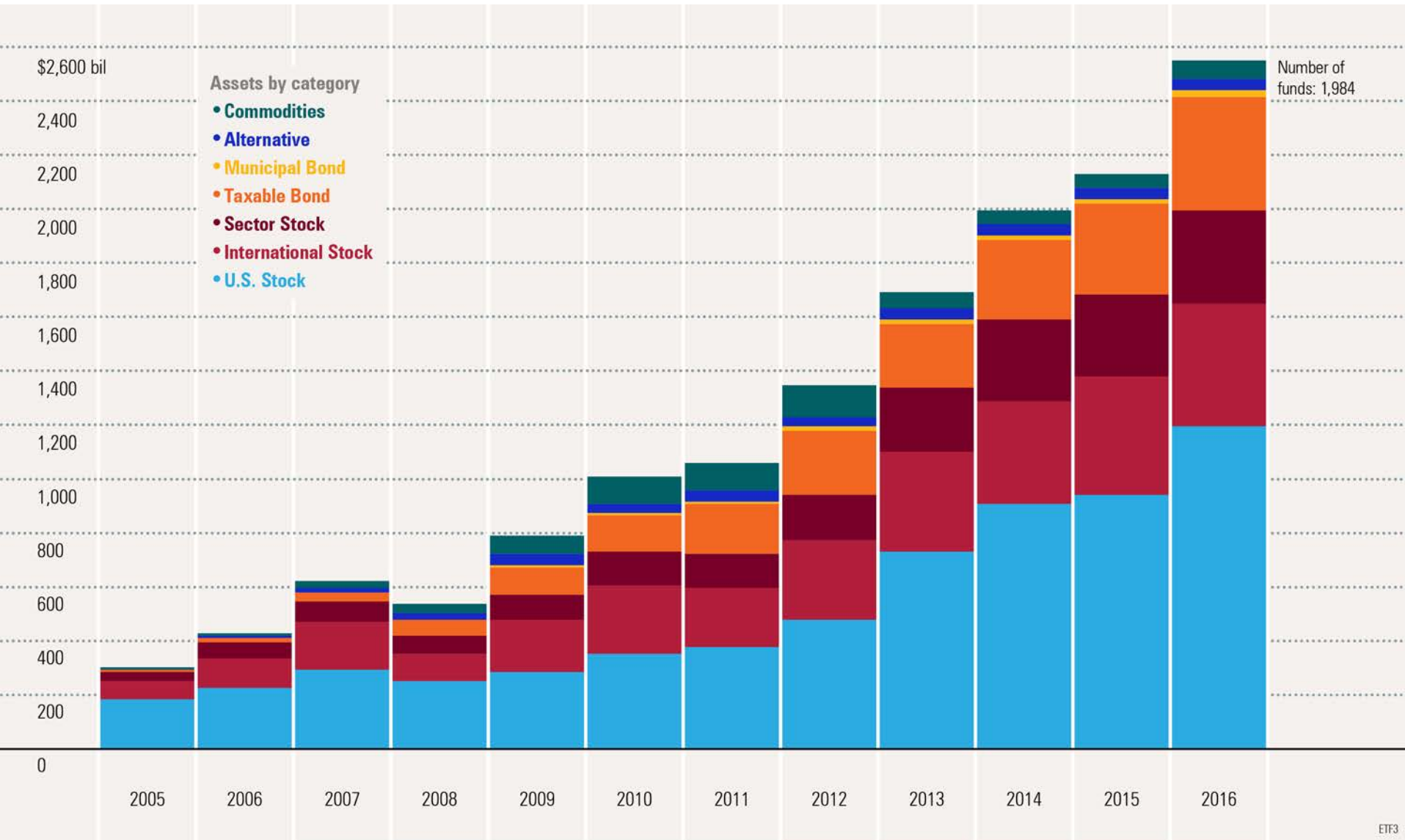
	ETFs	Index Mutual Funds	Mutual Funds (actively managed)
Ownership	<ul style="list-style-type: none"> ▶ Purchased on the exchange 	<ul style="list-style-type: none"> ▶ Purchased directly from the fund 	<ul style="list-style-type: none"> ▶ Purchased directly from the fund
Management Style	<ul style="list-style-type: none"> ▶ Typically passively managed; some are actively managed 	<ul style="list-style-type: none"> ▶ Passively managed 	<ul style="list-style-type: none"> ▶ Actively managed
Pricing	<ul style="list-style-type: none"> ▶ Traded throughout the trading day ▶ Limit orders, short selling, margin buying and options trading available 	<ul style="list-style-type: none"> ▶ NAV once per day after market close ▶ May require a minimum initial investment 	<ul style="list-style-type: none"> ▶ NAV once per day after market close ▶ May require a minimum initial investment
Cost	<ul style="list-style-type: none"> ▶ Ongoing management fees ▶ Brokerage and trading costs 	<ul style="list-style-type: none"> ▶ Ongoing management fees ▶ Possible sales charges and redemption fees 	<ul style="list-style-type: none"> ▶ Ongoing management fees ▶ Possible sales charges and redemption fees
Transparency	<ul style="list-style-type: none"> ▶ Underlying holdings disclosed daily 	<ul style="list-style-type: none"> ▶ Holdings generally disclosed monthly or quarterly 	<ul style="list-style-type: none"> ▶ Holdings generally disclosed monthly or quarterly
Taxes	<ul style="list-style-type: none"> ▶ Fund shareholders generally not affected by tax liabilities related to the redemptions of other shareholders 	<ul style="list-style-type: none"> ▶ Fund shareholders face tax consequences related to the redemptions of other shareholders 	<ul style="list-style-type: none"> ▶ Fund shareholders face tax consequences related to the redemptions of other shareholders

Comparing ETFs and Stocks

	ETFs	Stocks
Ownership	<ul style="list-style-type: none">▶ Ownership of ETF shares; no ownership of the underlying securities	<ul style="list-style-type: none">▶ Partial ownership of an individual company
Trading	<ul style="list-style-type: none">▶ Traded throughout the trading day▶ Limit orders, short selling, margin buying and options trading available	<ul style="list-style-type: none">▶ Traded throughout the trading day▶ Limit orders, short selling, margin buying and options trading available
Liquidity	<ul style="list-style-type: none">▶ Number of shares available flexible	<ul style="list-style-type: none">▶ Limited number of shares available
Diversification	<ul style="list-style-type: none">▶ Diversification within broad markets or sectors	<ul style="list-style-type: none">▶ No diversification

ETFs Are a Fast-Growing Investment Vehicle

Assets by category 2005–2016

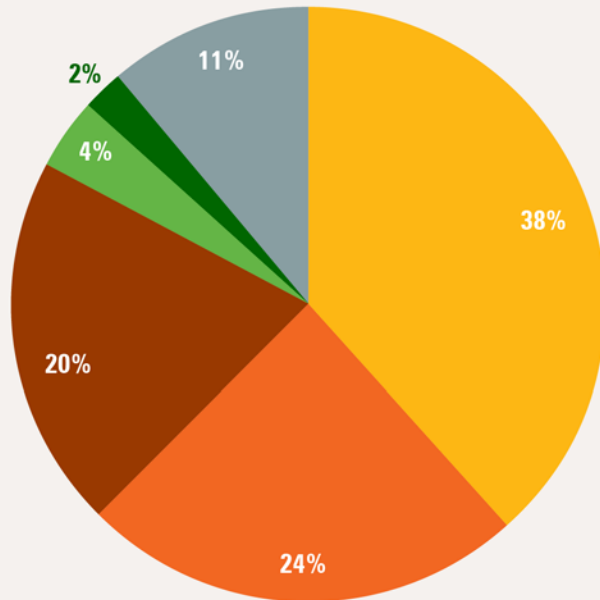


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The Top-Heavy ETF Market

U.S. ETF Market Coverage, Provider Level

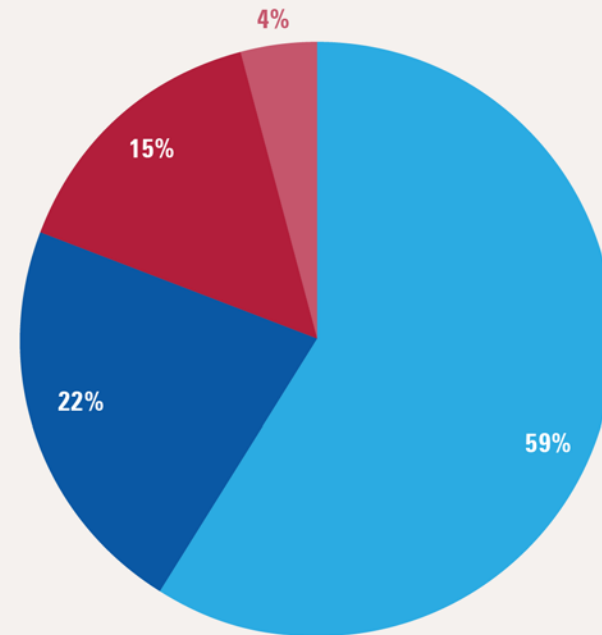
Based on 12/31/2016 net assets



- iShares
- Vanguard
- SPDR State Street Global Advisors
- PowerShares
- Schwab ETFs
- Others

U.S. ETF Market Coverage, Fund Level

Based on 12/31/2016 net assets



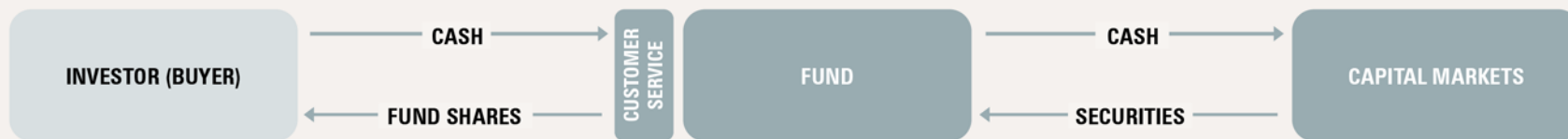
- Top 50 ETFs
- Next 100 ETFs
- Next 350 ETFs
- Remaining 1035 ETFs

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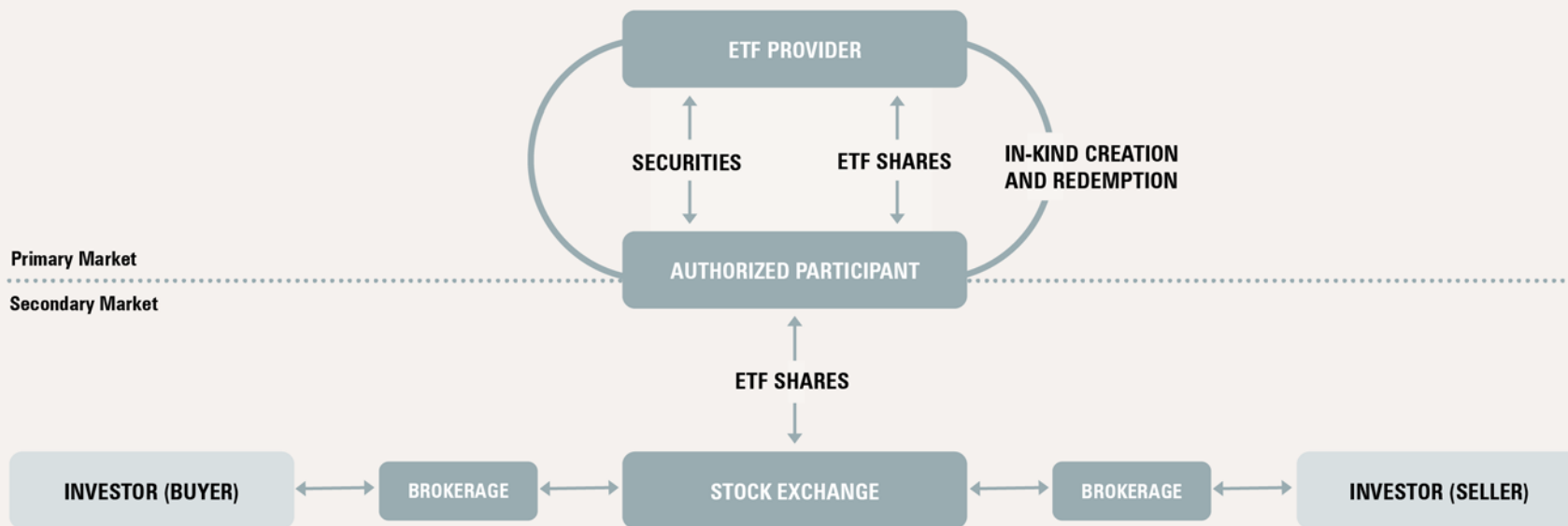
The Creation/Redemption Mechanism

Mutual Funds vs. ETFs

Mutual Funds



ETFs



Why Do ETFs Trade at a Premium or Discount?

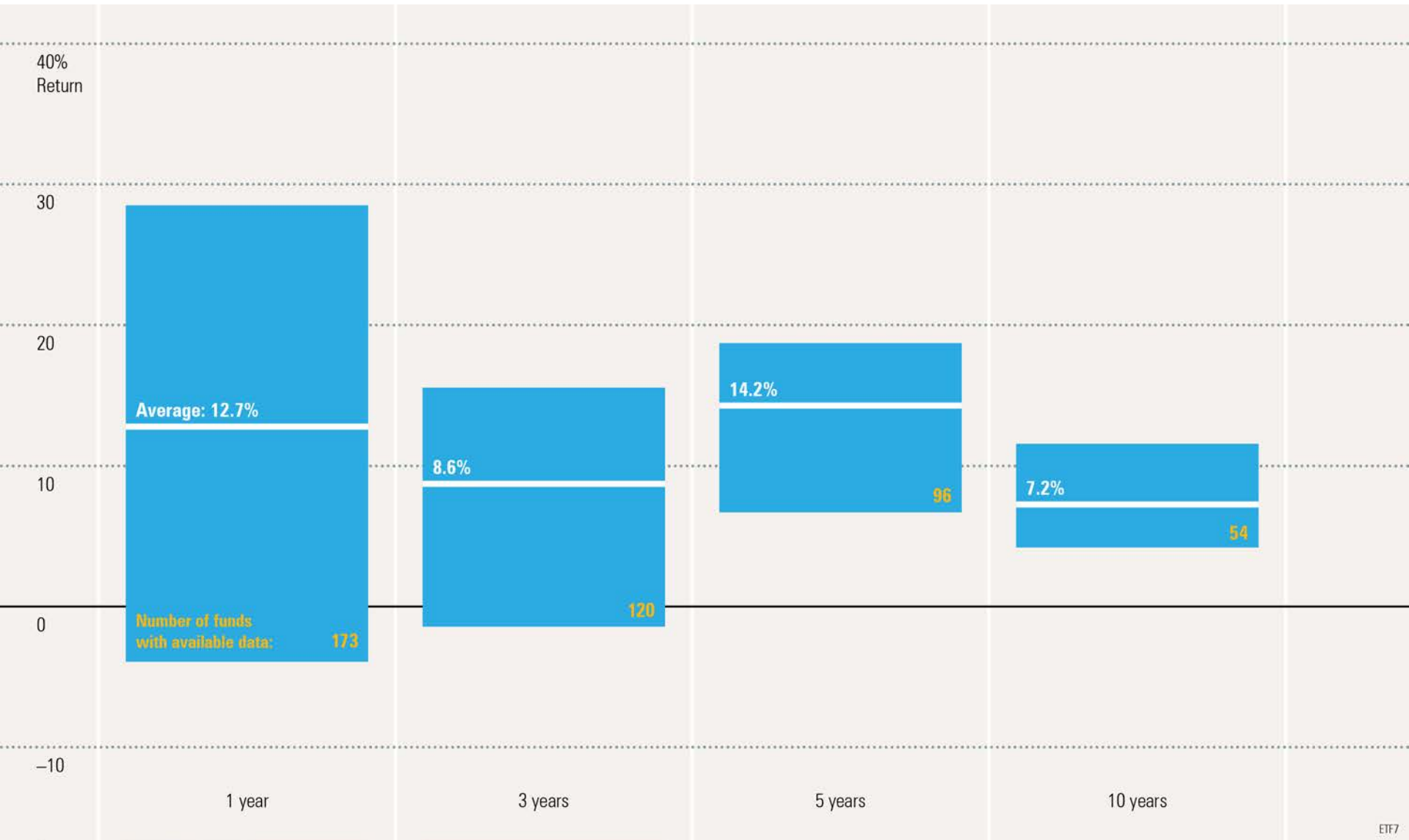
Variation in monthly premiums/discounts for two ETFs



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Performance of Large-Cap ETFs over Various Time Periods

Ranges of return as of December 2016

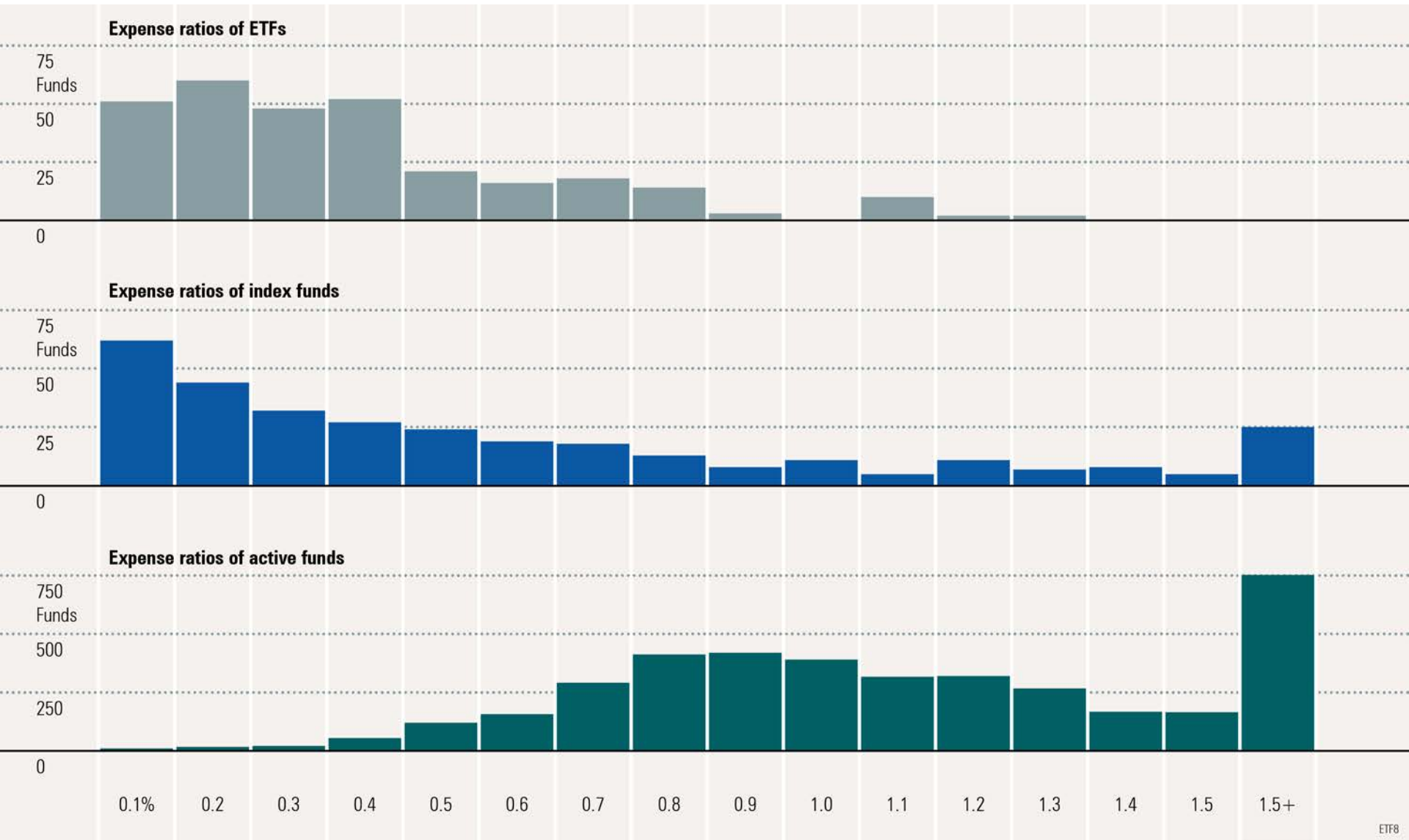


Past performance is no guarantee of future results. This is for illustrative purposes only and not indicative of any investment. Returns are total returns, net of management, administrative, 12b-1 fees, and other costs taken out of assets. Returns for periods longer than 1 year are annualized.
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Expense Ratios of Large-Caps: ETFs, Index Funds, and Active Funds

As of December 2016



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The Total Cost of an ETF

A hypothetical buying scenario

4 main costs to owning an ETF

- ▶ Expense ratio
- ▶ Trading commissions
- ▶ Premiums or discounts
- ▶ Bid/ask spreads

Hypothetical ETF data		
NAV	\$100	
Market price (bid)	\$100.10	
Market price (ask)	\$100.20	
Bid/ask spread	\$0.10	
Premium	0.2%	
<hr/>		
Investment	\$10,000	
Number of shares bought at market price (\$100.20)	99	
Duration of holding	1 year	
Hypothetical annual return	5%	
<hr/>		
		Cost
Expense ratio	0.09%	\$9.45
Commission	\$10	\$10
Premium	\$0.20	\$19.80
Bid/ask spread	\$0.05	\$4.95
<hr/>		
Approximate total cost (in addition to the \$10,000)		\$44.20

Pros and Cons of ETFs

Pros	Cons
<ul style="list-style-type: none">▶ Tool for implementing asset allocation strategies	<ul style="list-style-type: none">▶ Brokerage costs may vary
<ul style="list-style-type: none">▶ Passive diversification	<ul style="list-style-type: none">▶ Liquidity varies across funds
<ul style="list-style-type: none">▶ Transparency of price	<ul style="list-style-type: none">▶ Relatively new with limited track record
<ul style="list-style-type: none">▶ Tax efficiency	<ul style="list-style-type: none">▶ Limited selection in certain categories
<ul style="list-style-type: none">▶ Potential cost advantages	
<ul style="list-style-type: none">▶ Protection against cash drag	

How ETFs Can Be Used in Your Portfolio

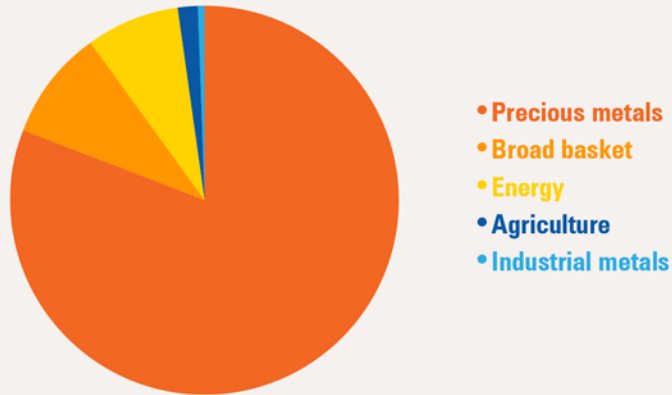
- ▶ Build diversified portfolios
- ▶ Complement existing diversified portfolios
- ▶ Hedge risk
- ▶ Cash equitization

Advanced: Commodity ETFs

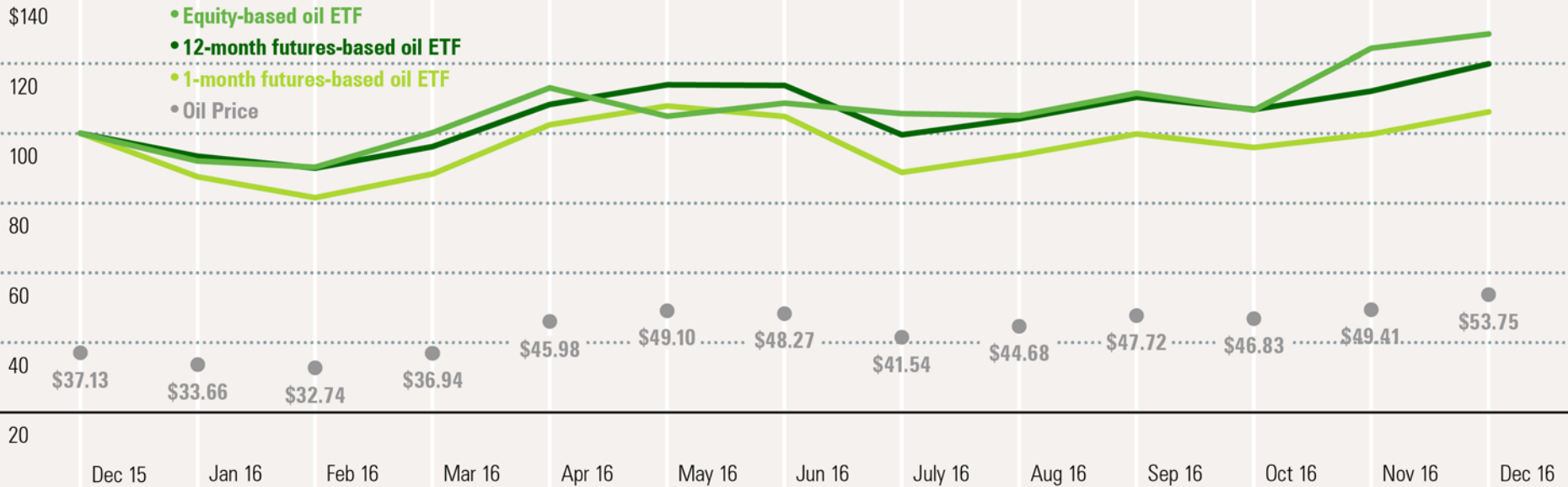
Category statistics, net assets, and hypothetical performance

Category statistics	
Average expense ratio	0.49%
Number of funds	40

Net assets by underlying commodity



Comparing oil ETF performance to oil price



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Advanced: Leveraged and Inverse ETFs

Hypothetical one day strategies

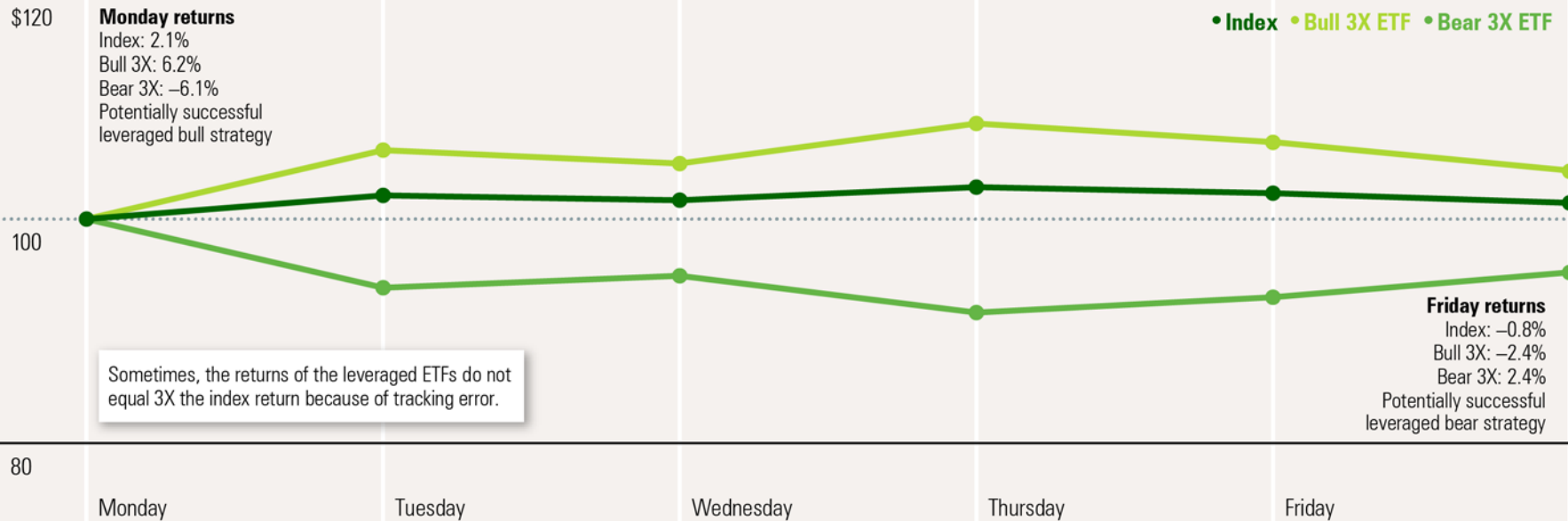
Category statistics

Asset-weighted expense ratio	1.01%
Number of funds	187

Disclosure

Levered investments are designed to meet multiples of the return performance of the index they track and seek to meet their fund objectives on a **daily basis** (or other time period stated within the Fund objective). The leverage/gearing ratio is the amount of excess return that a levered investment is designed to achieve in comparison to its index performance (i.e. 200%, 300%, -200%, or -300% or 2X, 3X, -2X, -3X). Compounding has the ability to affect the performance of the fund to be either greater or less than the index performance multiplied by the multiple stated within the funds objective over a stated time period. The use of leverage should be considered to be speculative and could result in the total loss of an investor's investment. **Leveraged and inverse ETFs are not appropriate for a long-term or buy and hold investment strategy. They are designed for short-term or intraday trading for investors seeking daily leveraged investment results and who intend to actively monitor and manage their investments as frequently as daily.**

Five-day performance of two leveraged/inverse ETFs relative to the underlying index



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