Spotlight
Web Seminar

Active and Passive Investing: Why Are ETF Fees So Low?

Morningstar Advisor
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Total Cost Analysis of ETFs

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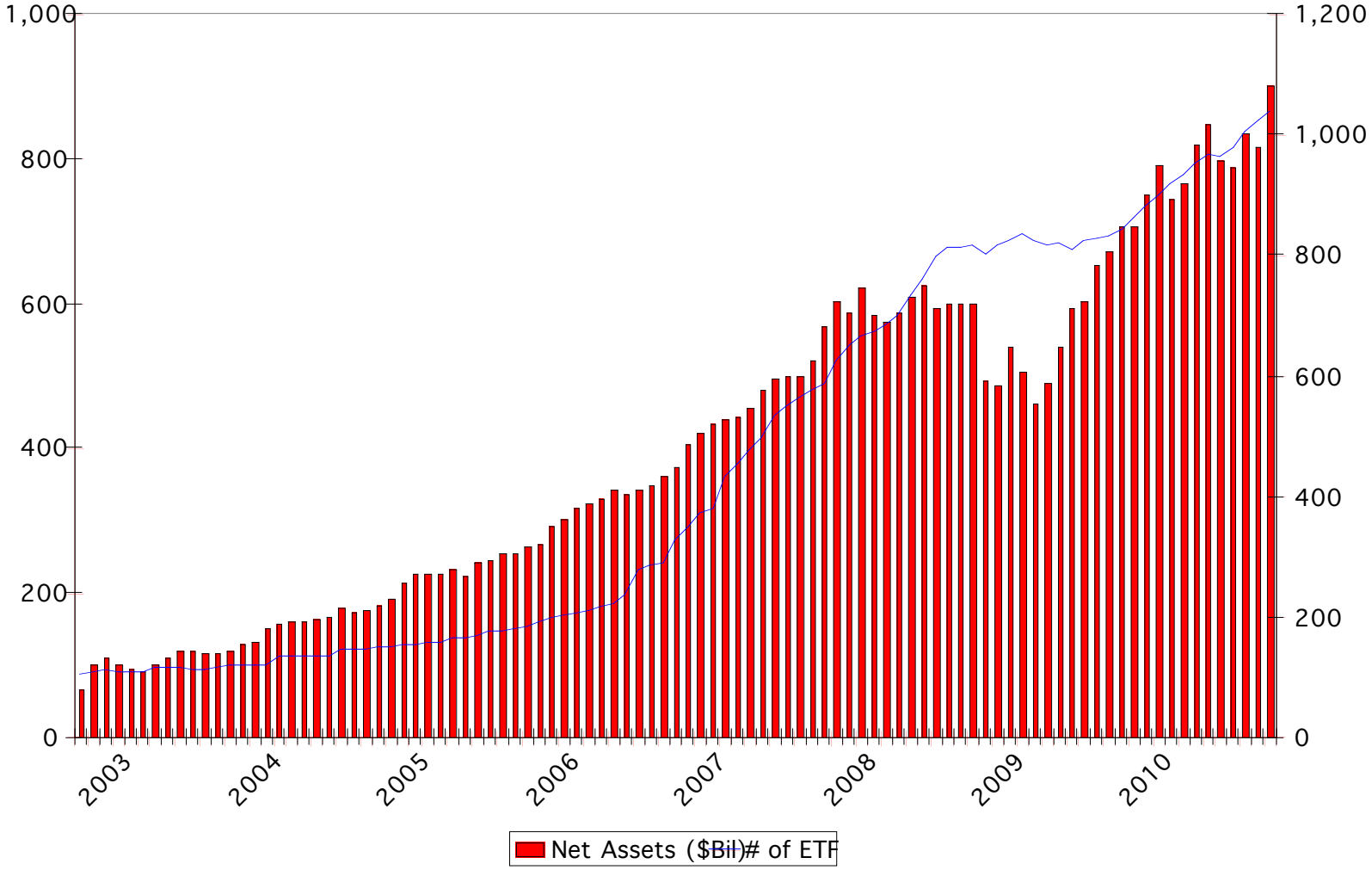
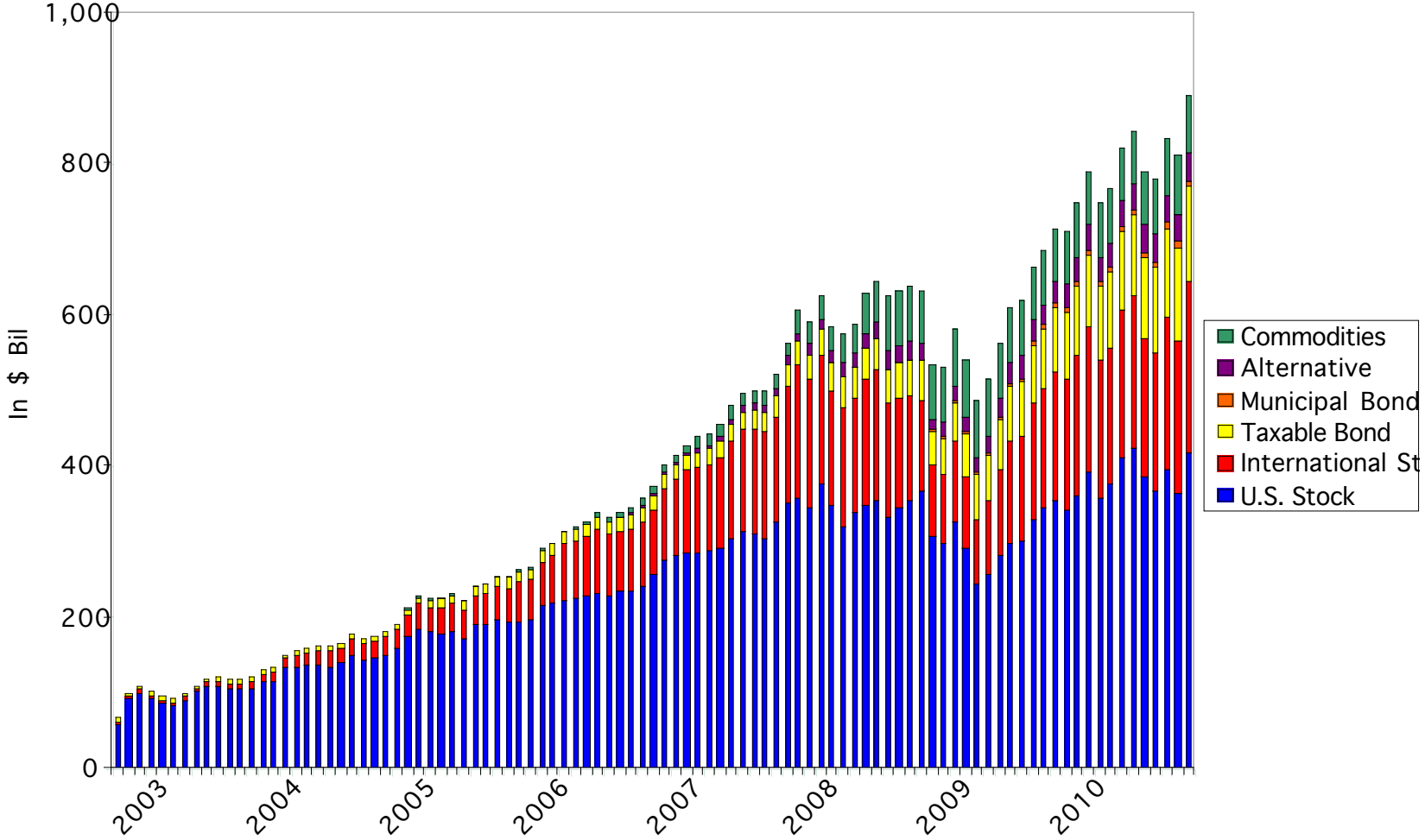
What We Definitely Know: ETFs Are Growing in Popularity



- Source: Morningstar.

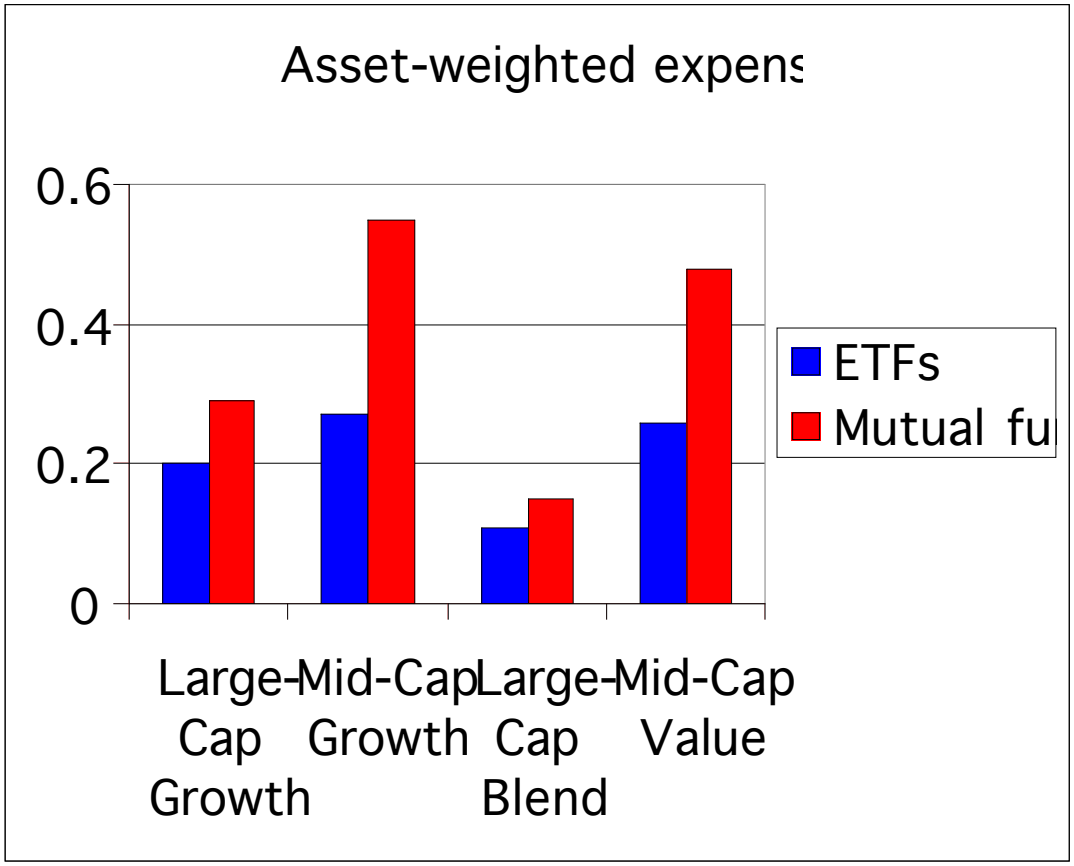
We Know: They Are Opening Up New Asset Classes for Investors



- Source: Morningstar.

We Know: They Are Inexpensive

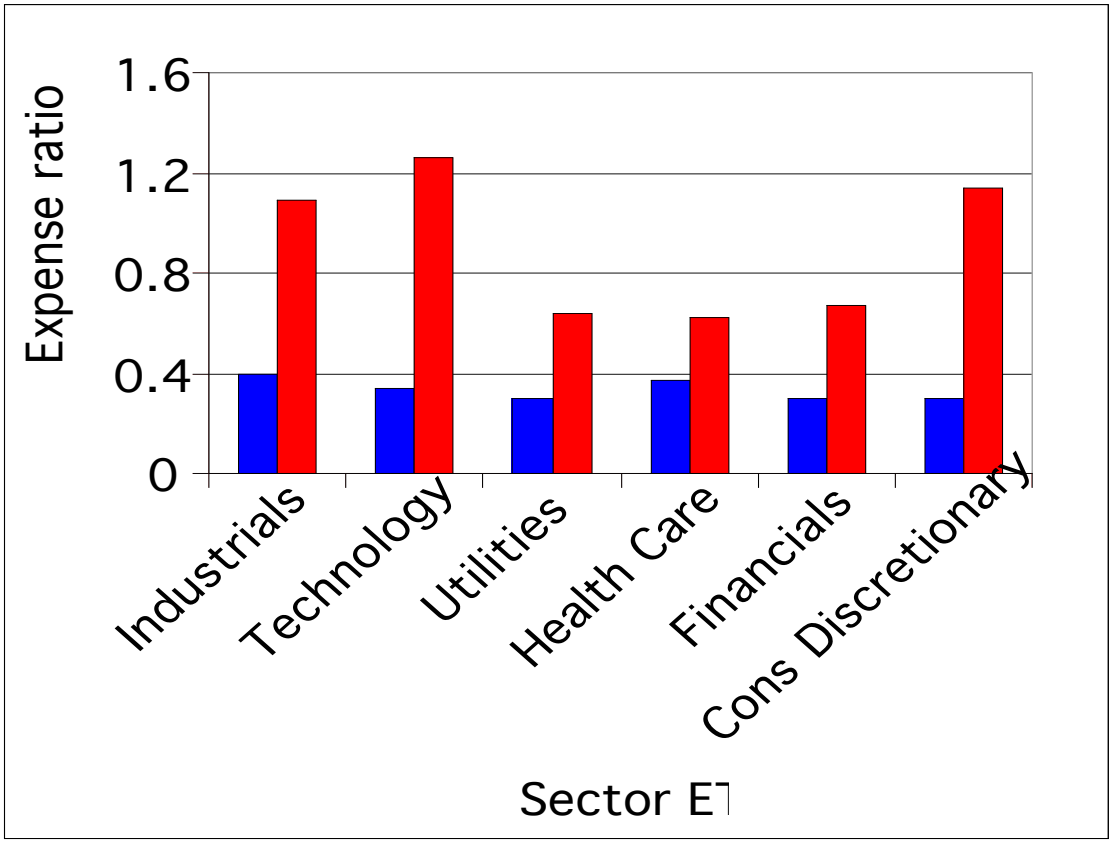
- Expense ratios for ETF index funds are **significantly** cheaper than equivalent mutual fund expense ratios



- Source: Morningstar.

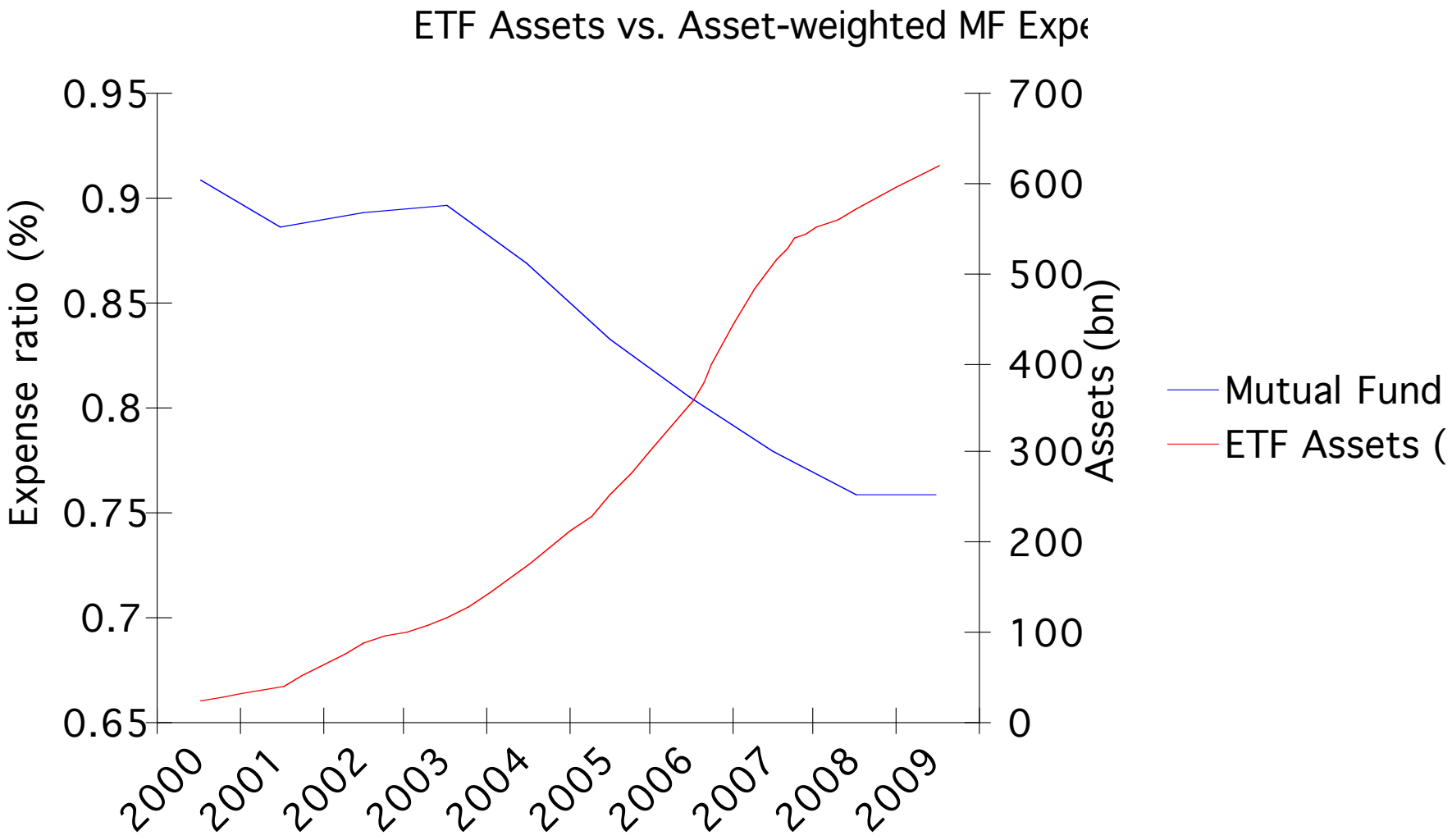
We Know: They Are Inexpensive

- Especially in sector funds…



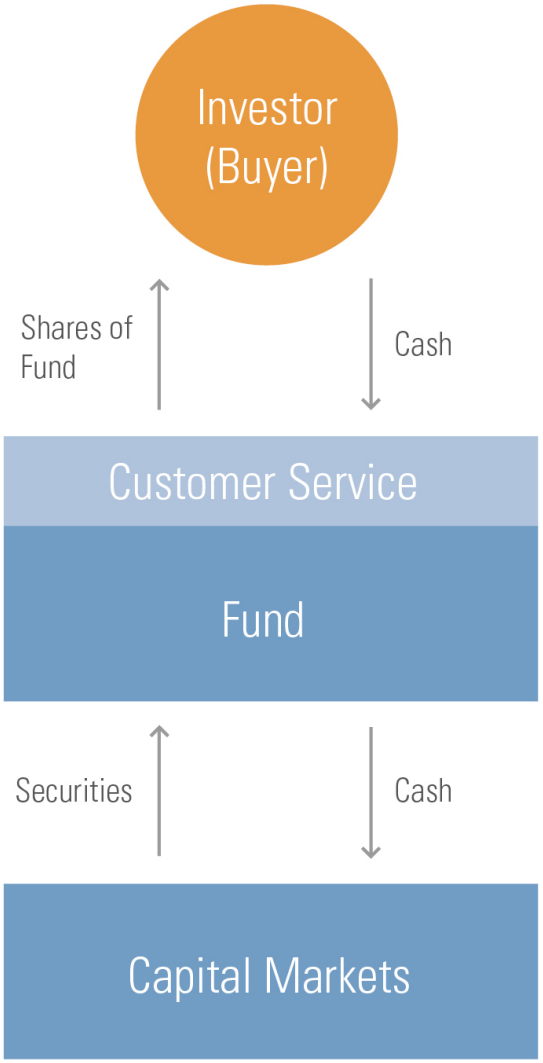
- Source: Morningstar.

We Know: ETFs Are Affecting Mutual Fund Pricing

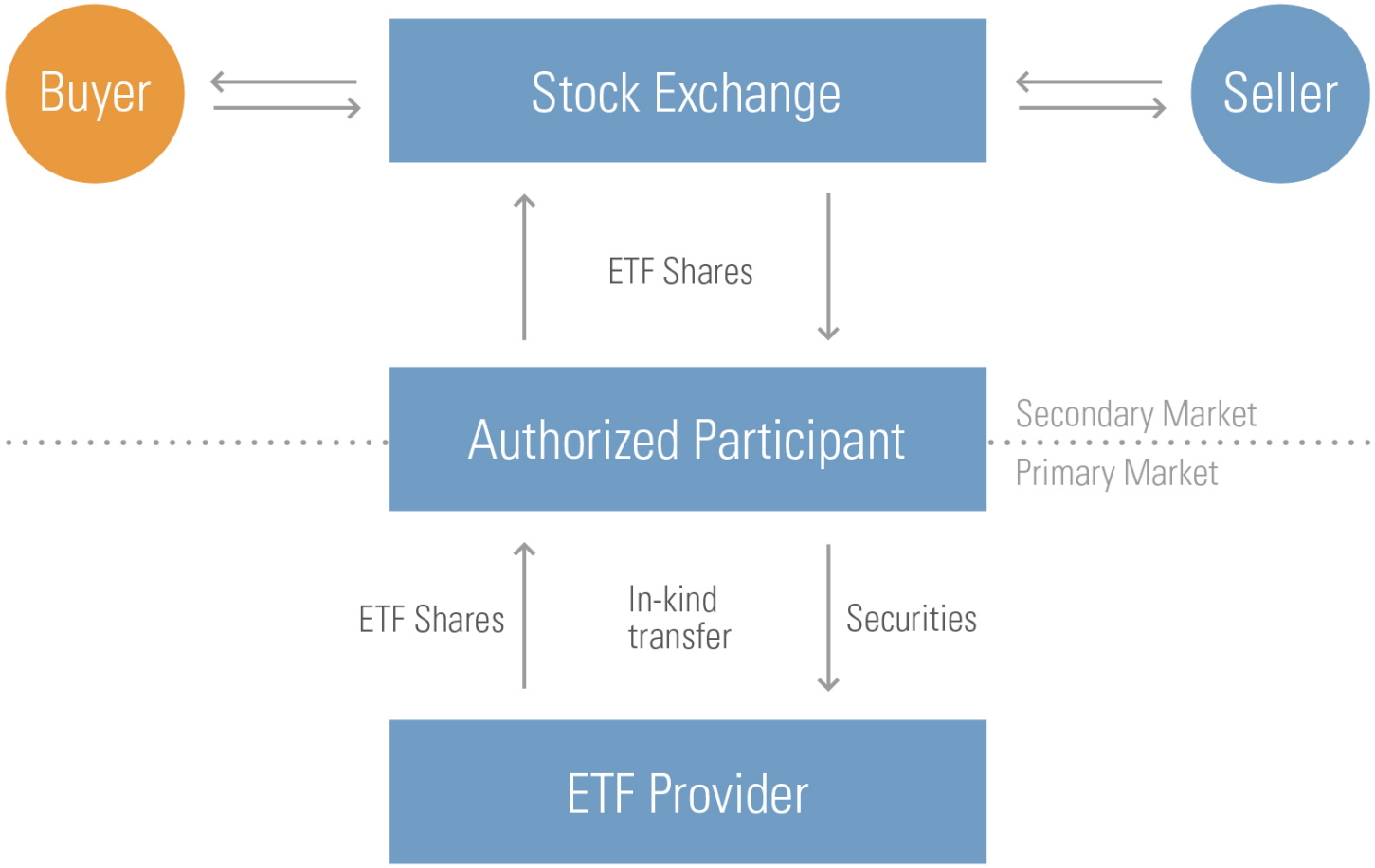


- Source: Morningstar.

How a Mutual Fund Works



ETF Creation / Redemption



Are Fees a Fare Comparison?

- Mutual Funds are full-service providing entities
- ETF Expense ratios lower due to outsourcing capital market activities
- How can we say ETFs are less expensive without measuring the impact of bypassed services?
- In what asset classes are those services over- or underpriced?

Most Tracking Error Calculations Are Useless

Sources of Tracking Difference: Long-Term Trend

- The long-term trend captures persistent factors that boost or detract from portfolio performance over time
  - Management and service fees
  - Rebalancing trade costs
  - Share lending and repo revenue
  - Swap agreements and other derivative contract costs

- Point-to-point measurements tend to be very poor estimates

- This is the ONLY type of tracking difference that predicts future performance for the portfolio relative to its benchmark

Sources of Tracking Difference: Technical/Timing Issues

- Also referred to as mean-reverting noise

- Stems from purely technical issues in index and portfolio pricing
  - Stale securities prices used in the index calculation
  - Different timing for price cutoff and currency conversion
  - Fair value pricing used in fund NAV

- Can easily cause a deviation of 100+ basis points between an index and a portfolio without any real difference in value

- This is often the largest source of "tracking error" in fixed-income, precious metals, and foreign equity funds

Sources of Tracking Difference: True Random Deviations

- Random price movements that persist in the NAV; true deviations in fundamental value
  - Portfolio optimization and index sampling
  - Delays in investing or hedging cash flows
- These deviations have an average of zero effect on long-term trend versus the index, but can throw off trend estimation for a sub-period
- This is an estimate of true tracking error
  - Not predictive of future fund performance
  - Predicts the size of ERRORS in our future performance estimate

Sources of Tracking Difference: An Example

- Hypothetical ETF: Japanese equities hedged into U.S. dollars
- Estimated Holding Cost
  - Management, custodial, administrator, etc. fees: 50 bps
  - Annual swap costs for JPY/USD hedge: 20 bps
  - Trading costs during rebalance: 10 bps
- Tracking Error
  - Big flows one day get invested immediately in Nikkei 225 futures
  - Delay in adding the currency swap for new 10% of assets
  - JPY appreciates 0.5% versus USD: 5 bps gain relative to benchmark
- Technical/timing issues
  - Index prices for Nikkei 225 set using end-of-day prices in Tokyo
  - NAV prices set using adjustments for ADR and futures pricing in New York, as well as NY close prices for JPY/USD

What's Wrong with Most Tracking Error Calculations?

- Point-to-point return difference
  - Long-term trend captured in the return difference
  - No way to estimate volatility of portfolio tracking
  - For most time periods used in this estimation ($<$ 3 years), daily technical deviations likely to be similar size to trend difference

- Standard deviation of return differences
  - Confounds illusory technical pricing differences with true deviations in fundamental value
  - For many categories of ETF, 70-90% of this "tracking error" calculation could purely be due to mean-reverting noise
  - Does not provide a good prediction for expected deviations over longer time periods

Morningstar's New Data Points

- Estimated Holding Cost
  - Isolates the long-term trend, avoiding point-to-point problem
  - Predictive of future performance difference between fund NAV and index
  - Presented as an annualized return difference

- Tracking Error
  - Isolates true, persisting deviations in portfolio value
  - Predictive of how widely future performance might differ from (index return + estimated holding cost)
  - Presented as an annualized standard deviation of expected performance relative to the index

How Liquid Is Your ETF?

Two Extremes of Liquidity Measurement

- Precise analysis of liquidity in underlying securities
  - Requires extensive computation and intraday order book data
  - Misses hidden liquidity in the ETF itself
  - Mostly relevant to very large orders reliant on market makers

- Rough heuristics based on widely available data
  - Assets in the ETF
  - ETF trading volume
  - Price volatility
  - Premium/Discount volatility

A Better Estimate for Moderate Trade Sizes

- Of all the rough heuristics used, two provide the best information
  - Daily dollar trading volume
  - Volatility of the premium/discount

- Market Impact Cost combines these into a single statistical model for how far a given dollar trade will move ETF prices
  - Standardized to an estimate for how much a $100k trade will move the price from bid-ask midpoint or "fair value"
  - Accounts for both visible order book liquidity and hidden liquidity in the ETF itself

Market Impact Cost: Some Caveats

- Intended for moderate trade sizes that do not require market makers
  - Trades of $1-5 million or more will price dependent on current liquidity in available hedging vehicles (futures, underlyings, etc.)
  - Market makers will provide more accurate prices on demand
- Assumes reasonable execution, including use of limit orders
  - Measures more liquidity than just what's available on the order books
- Very infrequently traded ETFs will have extremely high Market Impact Cost estimates
  - If there's not enough trading volume to analyze, we scale up observed market price volatility to match $100k trade size

Total Cost Analysis

What We Have Found Thus Far

- The U.S. ETF market is even more liquid than we thought
  - Market impact costs form a tiny fraction of total costs for larger ETFs, even at trade sizes up to $1 million

- Total cost of ETFs varies much more than expense ratios
  - Precious-metal ETFs seem to have the fewest frictions outside of disclosed prospectus expenses
  - U.S. equity ETFs often have 0-30 basis points of hidden costs beyond the expense ratio
  - Foreign equity and bond ETFs see much larger range of hidden costs

Data Point Calculation Examples

- SPDR S&P 500 (SPY)
  - NER: -0.09%
  - EHC: -0.23%
  - MIC: 0.0002
  - TE: 0.02%
- iShares S&P 500 (IVV)
  - NER: -0.09%
  - EHC: -0.16%
  - MIC: 0.0013
  - TE: 0.06%
- PwrShrs RAFI 1000 (PRF)
  - NER: -0.39%
  - EHC: -0.40%
  - MIC: 0.0143
  - TE: 0.12%
- Rydex EqWt S&P 500 (RSP)
  - NER: -0.40%
  - EHC: -0.56%
  - MIC: 0.0029
  - TE: 0.04%

Estimating an All-In Cost for ETF Investing

- Relies solely on Est. Holding Cost, Market Impact, & Tracking Error

- Simple Inputs
  - Expected length of holding
  - Expected size of trade in dollars
  - Commission costs

- Simple Outputs
  - Total cost from purchase to sale
  - Expressible as dollar amount or as an annualized percent loss
  - 95% error bounds for the estimate are calculable

Total Cost Analysis Examples

- Trade size: $1 million
- Duration of holding: 3 years
- Commission: $10 flat fee

Total Cost Estimate

	Dollar Amount	Annual %	TER	95% Bound	95% Bound
SPDR S&P 500	$ (6,996.50)	-0.23%	0.0%	$ (6,996.50)	$ (6,996.49)
iShares S&P 500	$ (5,118.27)	-0.17%	0.0%	$ (5,118.28)	$ (5,118.26)
PowerShares RAFI US 1000	$ (16,520.92)	-0.55%	0.3%	$ (16,520.94)	$ (16,520.90)
Rydex S&P 500 Equal Weight	$ (17,801.54)	-0.59%	0.4%	$ (17,801.55)	$ (17,801.54)
SPDR S&P Dividend	$ (10,156.28)	-0.34%	0.3%	$ (10,156.30)	$ (10,156.26)
Vanguard Emerging Markets	$ 1,123.01	0.04%	0.2%	$ 1,121.59	$ 1,124.43
iShares MSCI Emerging Markets	$ (34,457.63)	-1.15%	0.6%	$ (34,458.18)	$ (34,457.08)
SPDR Gold Shares	$ (13,689.54)	-0.46%	0.4%	$ (13,689.97)	$ (13,689.10)
iShares COMEX Gold	$ (13,081.40)	-0.44%	0.2%	$ (13,083.08)	$ (13,079.72)

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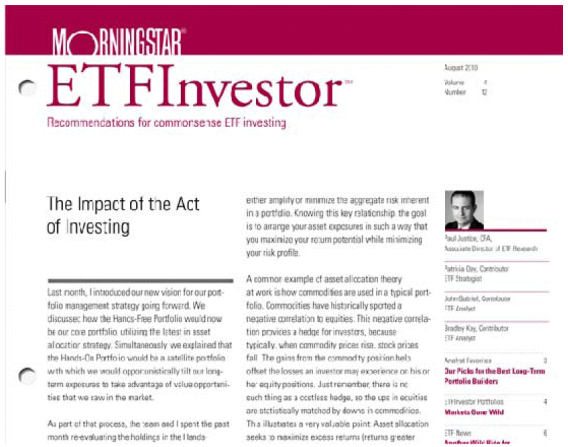
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Q&A