

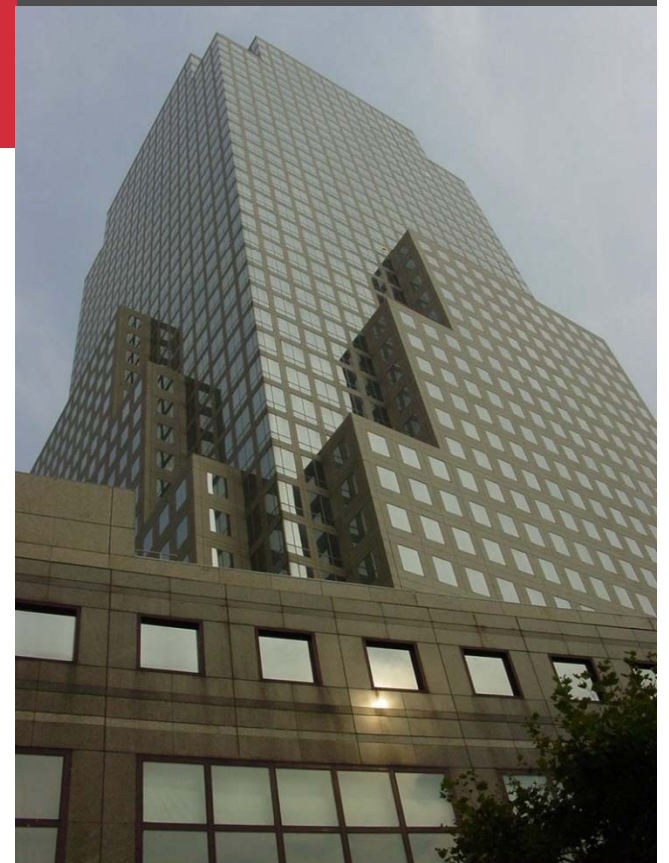
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ETF Trading

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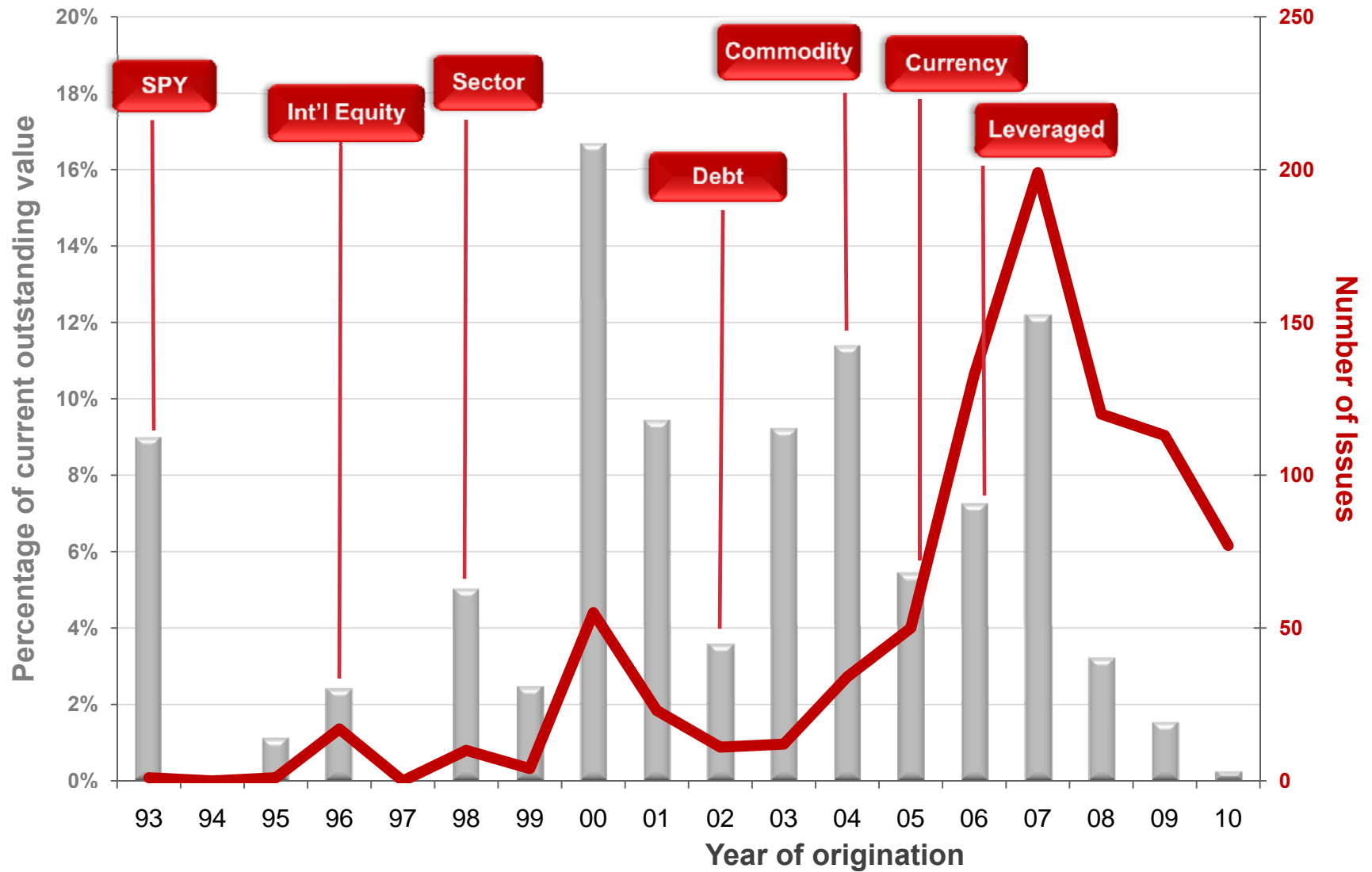
The US ETF universe holds about 800 billion dollars in assets

Category	Names	Market Cap (B\$)
Broad-based US index	177	269
International equity	189	175
Fixed income (incl. Preferreds)	104	129
Equity sectors	271	101
Commodity	33	78
Dividend focus	15	11
Currency	23	6
Other	48	3
Total	860	772

Primary Listing	Names	Market Cap (B\$)
ARCA	797	747
Nasdaq	63	25
Total	860	772

Excludes ETNs and closed-end funds

The current ETF market represents two decades of innovation



ETFs are more suited to active trading than traditional mutual funds

	ETF	Mutual Fund
Markets	Listed and traded on exchanges	Liquidity generally only once a day (at the close)
Price discovery	Continuously quoted	No intraday quote dissemination, transactions at NAV
Transparency	Holdings published daily. Use of specified reference index generally leaves little or no discretion to fund manager	Holdings generally published quarterly or semi-annually. Fund manager may have considerable discretion
Short sales	Can be sold short	No short selling
Tax treatment	Similar to stocks. Creation/redemption by fund is not considered tax event	Redemptions by other holders result in distributed tax consequences

ETFs don't just trade – they trade in prodigious quantities

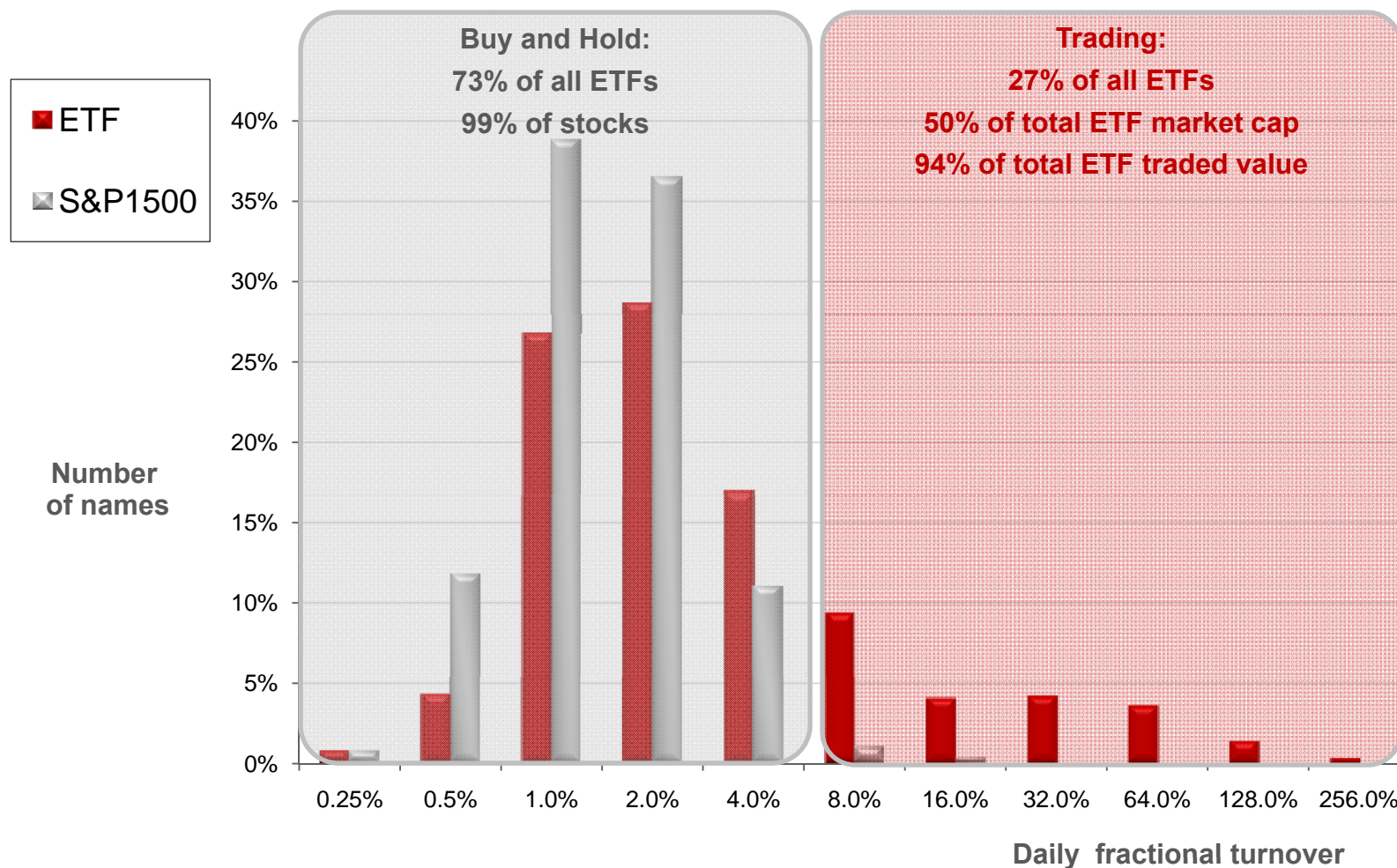
- Daily traded value of US equity market: about 300 billion dollars
- ETF part of that: about 100 billion dollars, i.e. **one third**
- Just the top 10 ETFs by value traded account for more than 65 billion dollars a day

Rank	Ticker	Description	Value (B\$)	Type
1	SPY	SPDR S&P 500	37.0	Broad
2	IWM	iShares Russell 2000	6.5	Broad
3	QQQ	Powershares Nasdaq 100	5.8	Broad
4	EEM	iShares MSCI Emerging Mkts	4.3	Int'l Equity
5	GLD	SPDR Gold Trust	2.3	Commodity
6	SDS	ProShares Ultrashort S&P 500	2.2	Leveraged
7	XLF	Financial Select Sector SPDR	2.1	Sector
8	EWZ	iShares MSCI Brazil	2.0	Int'l Equity
9	DIA	SPDR Dow Jones Industrials	2.0	Broad
10	EFA	iShares MSCI EAFE	1.8	Int'l Equity
Top 10			65.7	860

The turnover of some ETFs is very different from that of stocks

Example	Type	Market Cap (B\$)	Volume (M\$)	Turnover
IBM (IBM)	Large cap stock	159	1,096	0.7%
Men's Wearhouse (MW)	Smallcap stock	1.0	21	2.2%
Citigroup (C)	"Heavily" traded stock	112	3,440	3.1%
PowerShares WilderHill Clean Energy (PBW)	Medium sector ETF	0.5	4	0.8%
Vanguard Total Stock Market (VTI)	Broad index ETF	13.4	135	1.0%
Market Vectors Gold Miners (GDX)	Large sector ETF	7.2	644	9%
United States Oil Fund (USO)	Commodity ETF	2.3	630	27%
S&P500 SPDR (SPY)	Broad index ETF	69	36,965	51%
Direxion Daily Financial Bear 3x (FAZ)	Leveraged sector ETF	0.9	1251	144%

Compare the turnover distributions of ETFs and stocks



A tale of two sub-universes

- The ETF universe is more or less split in two sectors as measured by turnover:
 1. Mainly buy-and-hold, with turnover similar to stocks
 2. Mainly active trading, with high turnover

- High turnover events in common stocks tend to occur among small names in special situations
- By contrast, high turnover in ETFs is found among the biggest issues
- Such ETFs have become trading vehicles as much as, or more than, investment instruments

- This is driven by a number of factors...

Driver #1: Liquidity

- ETF spreads are often considerably tighter than those of their constituent baskets

Ticker	Description	ETF spread	Basket spread	Improvement factor
IWM	iShares Russell 2000	1.5	15.1	9.8
MDY	SPDR S&P Midcap 400	1.1	5.6	5.1
VNQ	Vanguard REIT ETF	2.3	5.8	2.5
DIA	SPDR Dow Jones Industrials	1.0	2.3	2.3

Spreads in basis points

- Tight spreads and deep liquidity make many ETFs good hedging vehicles
 - S&P 500 SPDR (SPY) is competitive with E-mini futures for many hedges due to its smaller tick size (by a factor of 2.5)

Driver #2: Equity market access to non-equity assets

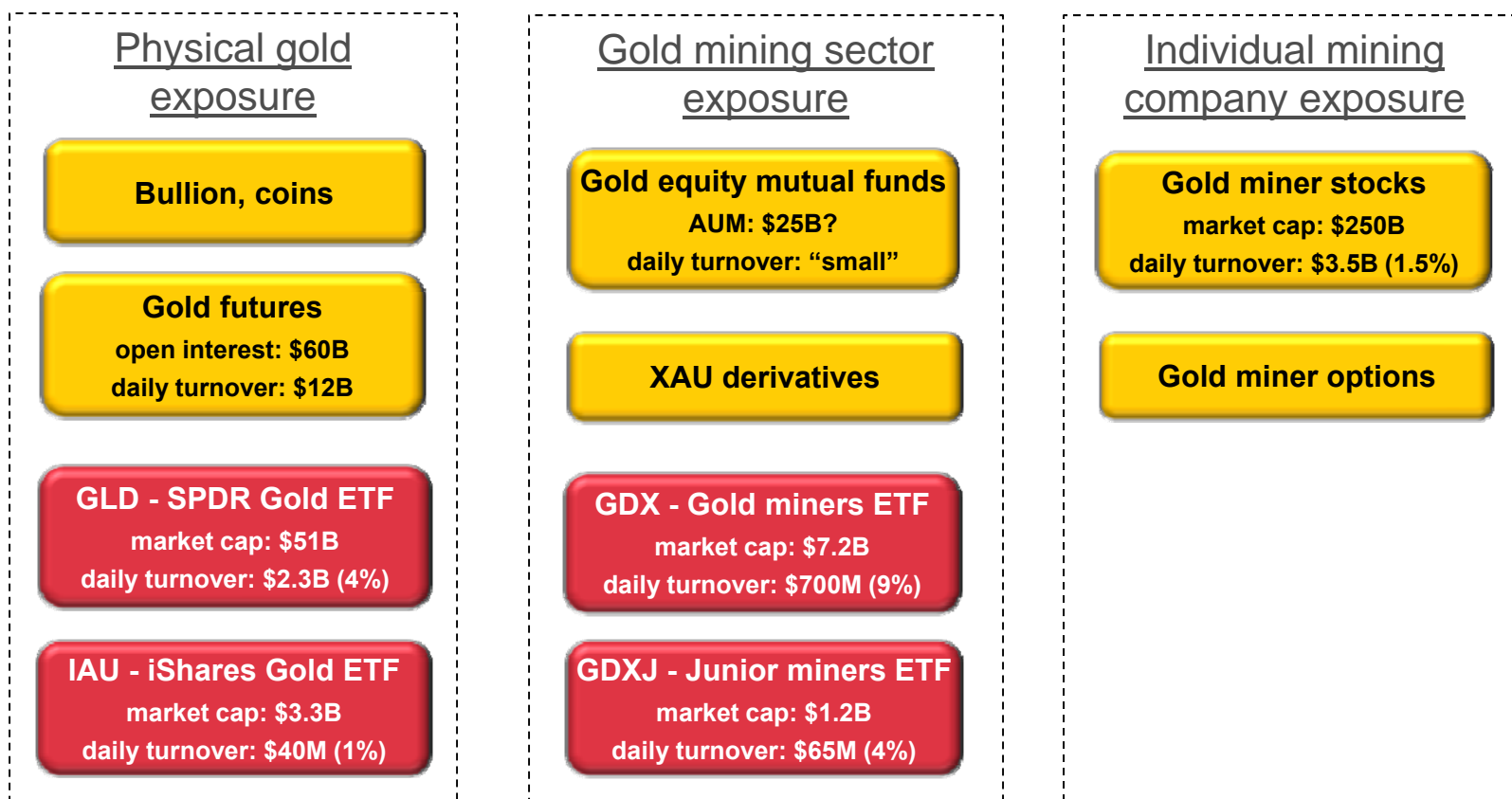
- By providing tradable proxies for most major asset classes, ETFs are turning the US equity market into a kind of universal trading platform
 - International equities: global index baskets, foreign country baskets
 - Commodities: oil , gas, metals
 - Fixed income portfolios
 - Currencies

- Features of equity trading carry over to other asset classes
 - E.g. shorting bonds from the comfort of your equity account

Ticker	Description	Shares Out	Short Interest	Daily Volume
TLT	iShares Barclays 20+Yr Treasury Fund	28.5M	17.2M	9.0M

Driver #3: Focus on factors

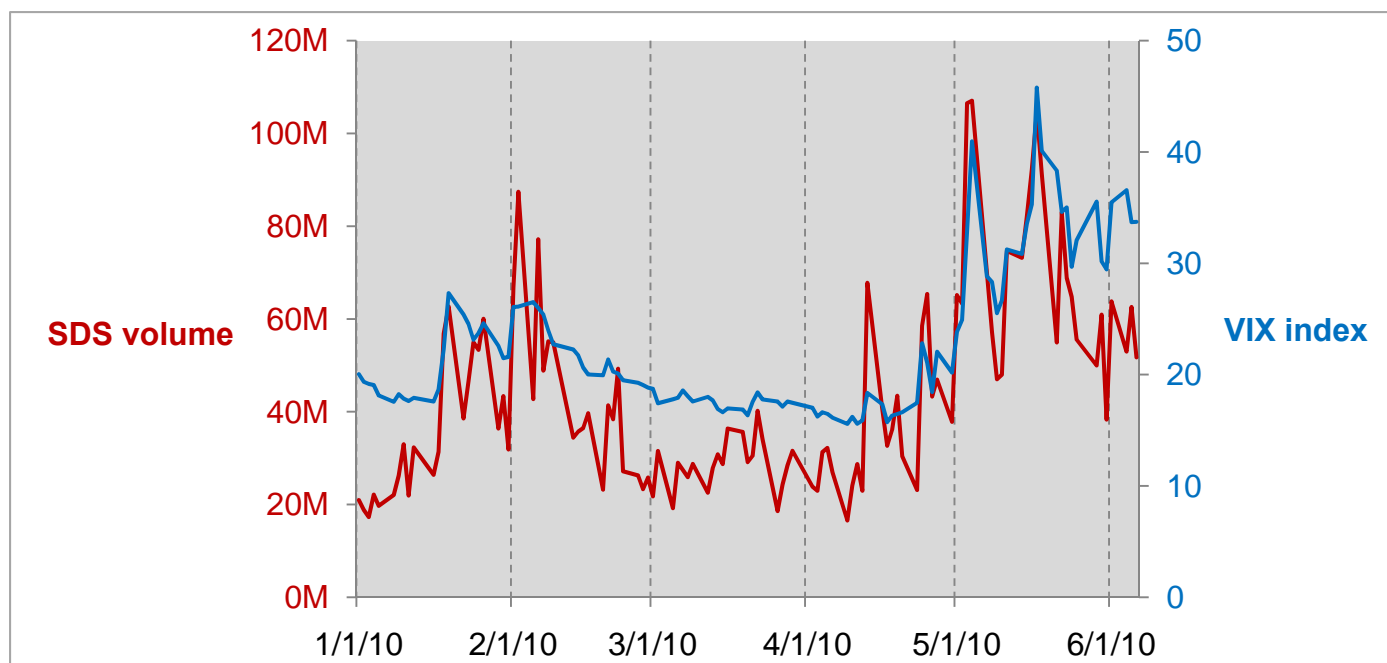
- ETFs provide equity traders easy access to specific exposures that used to be not easily tradable, or not tradable directly
- Example: gold complex



Driver #4: New channels for speculation

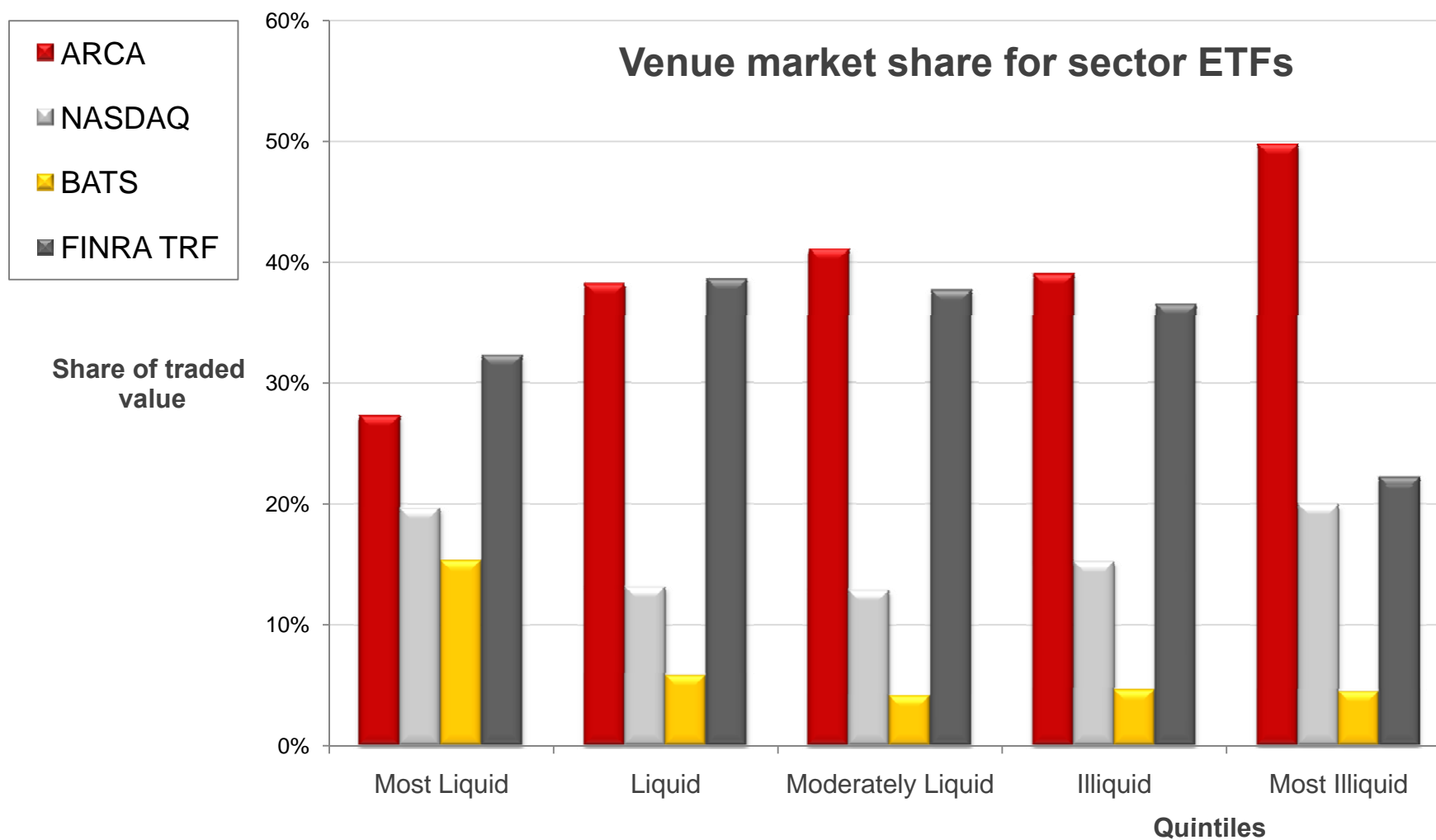
- Among the most popular new ETF classes are *leveraged* ETFs
 - -3, -2, -1, 2, or 3 times daily return of index
 - About 140 securities representing 4% of ETF assets, but 15% of ETF volume
 - Mainly trading vehicles (compounded return profile makes buy-and-hold tricky)

- Trading interest in leveraged ETFs closely tracks changes in market volatility



SDS: ProShares
UltraShort S&P500
(twice inverse daily
return)

Where Do ETFs Trade?



Not all apparent liquidity is readily accessible in the open market

- “Investment” ETFs (all but the first quintile) are highly subject to internalization
 - In the middle quintiles, more than a third of trades shows up as FINRA TRF prints
 - Likely mechanism: “investment ETFs” flow, predominantly retail, is crossed under payment-for-order-flow arrangements, printed on TRFs
 - Share of TRFs is lower for highly illiquid issues (where internalization may be uneconomical)
- The less liquid the issue, the more important the primary market
 - The market share of ARCA (and Nasdaq) increases toward lower liquidity
- Of course new ETF shares can be manufactured from constituents
 - Create/redeem process through Authorized Participant, e.g. Nomura

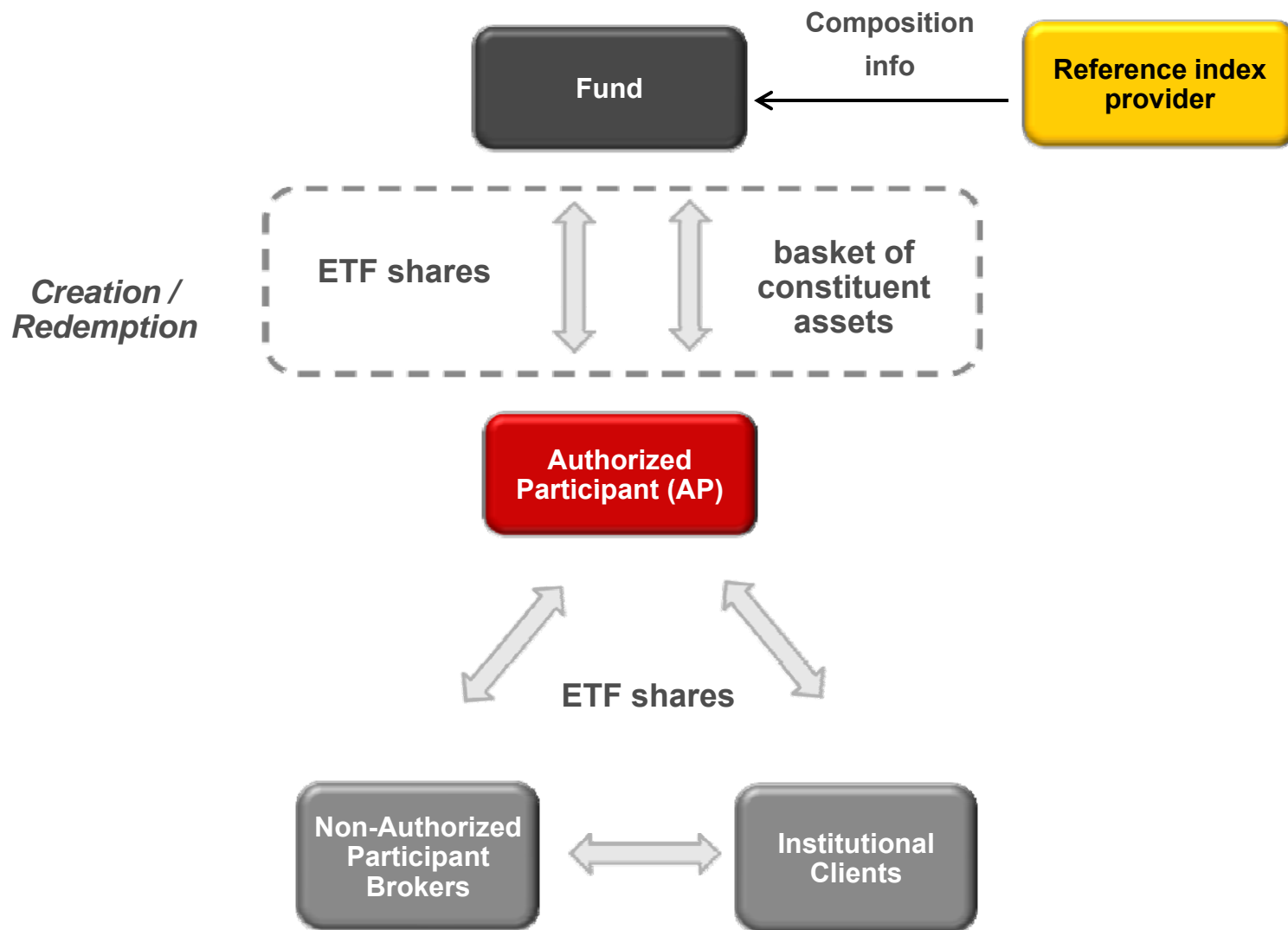
In conclusion

- ETFs are often a subject of contention
 - What can/should be wrapped in them? (Active management? Quant funds?)
 - How will they affect the mutual fund industry?
 - Do they present novel risks?
 - (etc.)

- But whatever one may think of ETFs as investment vehicles, from a trading perspective, they have enriched the market tremendously
 - Factor trading
 - Liquidity enhancement
 - Equity proxies for non-equity markets
 - Arbitrage and market making opportunities

Appendix

ETF Structure



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