

The Mutual Fund Industry Worldwide: Explicit and Closet Indexing, Fees and Performance

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Value of Active Fund Management

- **Evidence against:**
 - Sharpe (1966), Jensen (1968), Gruber (1996), French (2008), Fama and French (2010),...
 - Average after-fee performance of actively managed US equity mutual funds: **below index funds**
- **Some “active” mutual funds add value**
 - Grinblatt and Titman (1989, 1993), Kacperzyck, Sialm and Zheng (2008), Cremers and Petajisto (2009),...

Mutual Funds – Looking Beyond the US

- Few papers on mutual fund industry worldwide
 - Khorana, Servaes and Tufano (2005, 2009) study industry size and fees
 - Ferreira, Keswani, Miguel and Ramos (2010, 2011) study performance and flows
- Rapid growth in passive investments
 - Index mutual funds
 - **ETFs**

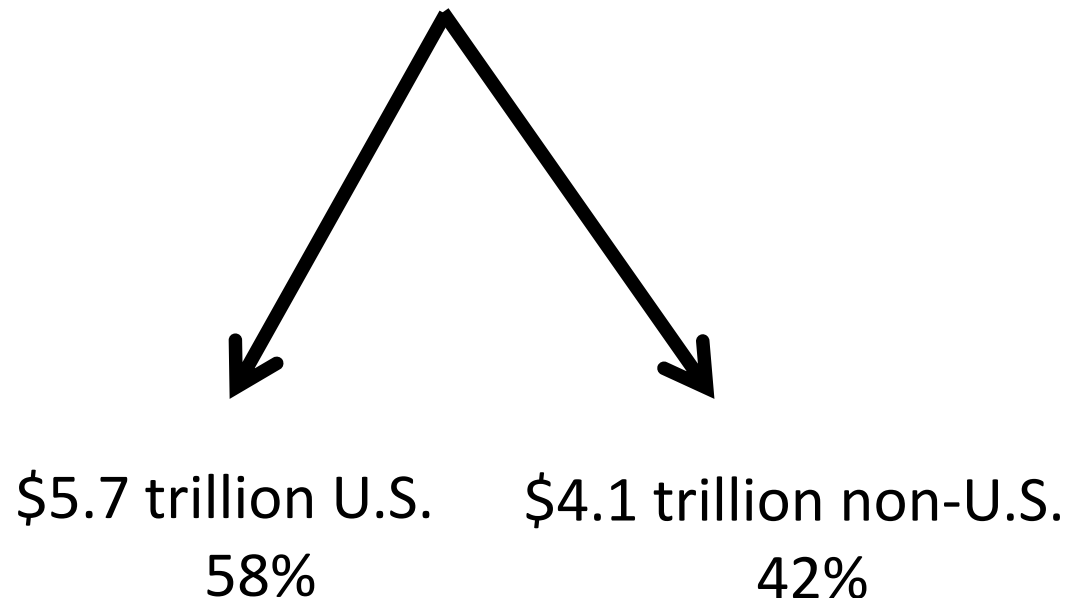
Research Questions

- **What is the extent of (and explanation for) passive funds?**
 - Document % of assets in passive funds
 - **TEST 1: Explanations:**
 - Regulation
 - Competition
 - Market development
- **What's the impact of indexing on active funds?**
 - Low-cost indexing: **competitive pressure** on active funds
 - Test association of **market share & prices of passive funds** on industry levels of competition and efficiency
 - **TEST 2: Product differentiation** by active funds (degree of “activeness”)
 - **TEST 3: Price** paid for active management (fees)
 - **TEST 4: Performance** by active funds (risk-adjusted after-fee performance)

Mutual Funds: large investor group

Equity Mutual Funds Worldwide (2010)

\$9.8 trillion in AUM = **20%** of market cap



(consistent with data from Investment Company Institute)

Hypotheses Relevance

- **Active – Passive debate**
 - Active funds underperform on average
 - But: need to distinguish between
 - **closet index funds: underperform due to higher fees**
 - versus*
 - **truly active funds: outperformance in U.S. (1990-2009)**
 - Here: out-of-sample, 30 countries, 2002-2010
 - How much are you charging/paying for active management?
 - How much is under manager's control?
- **Passive funds (especially ETFs) growing in recent years**
 - Explanations and consequences for active management
 - Competitive pressure?
 - Better performance or 'race to the bottom'?

Preview of results

- Outside the US:
 - **little explicit indexing but lots of closet indexing**
- In markets with more low-cost index funds, active funds
 - deviate more from benchmarks (higher Active Share)
 - charge lower fees
 - and deliver higher returns
 - **“truly active” funds outperform** their benchmarks
 - **closet indexers underperform**

Data

- **Lipper Hindsight database**
 - Characteristics and returns of open-end equity mutual funds (UCITS in Europe)
 - Fund's primary share class
 - 24,492 funds, \$9.8 trillion in AUM as of Dec-2010
 - Includes both active and dead funds
- **Factset/Lionshares database**
 - Mutual funds' portfolio holdings
 - Coverage for 81% of TNA in Lipper

Sample

- **11,776** funds, **\$7.9 trillion** TNA (with holdings)
- **32 countries** of domicile:
 - 15 in Europe (AT, BE, DK, FI, FR, DE, IT, NL, NO, PL, PT, ES, SE, CH, GB) + 3 Off-shore (IE, LI, LU)
 - 2 in North America (CA, US)
 - 9 in Asia-Pacific (AU, CN, HK, IN, JP, MY, SG, TW, TH)
 - 3 in Other Regions (BR, IL, ZA)
- **Global, regional, country** and sector funds
- **2002-2010**

Explicit Indexing = Index funds + ETFs

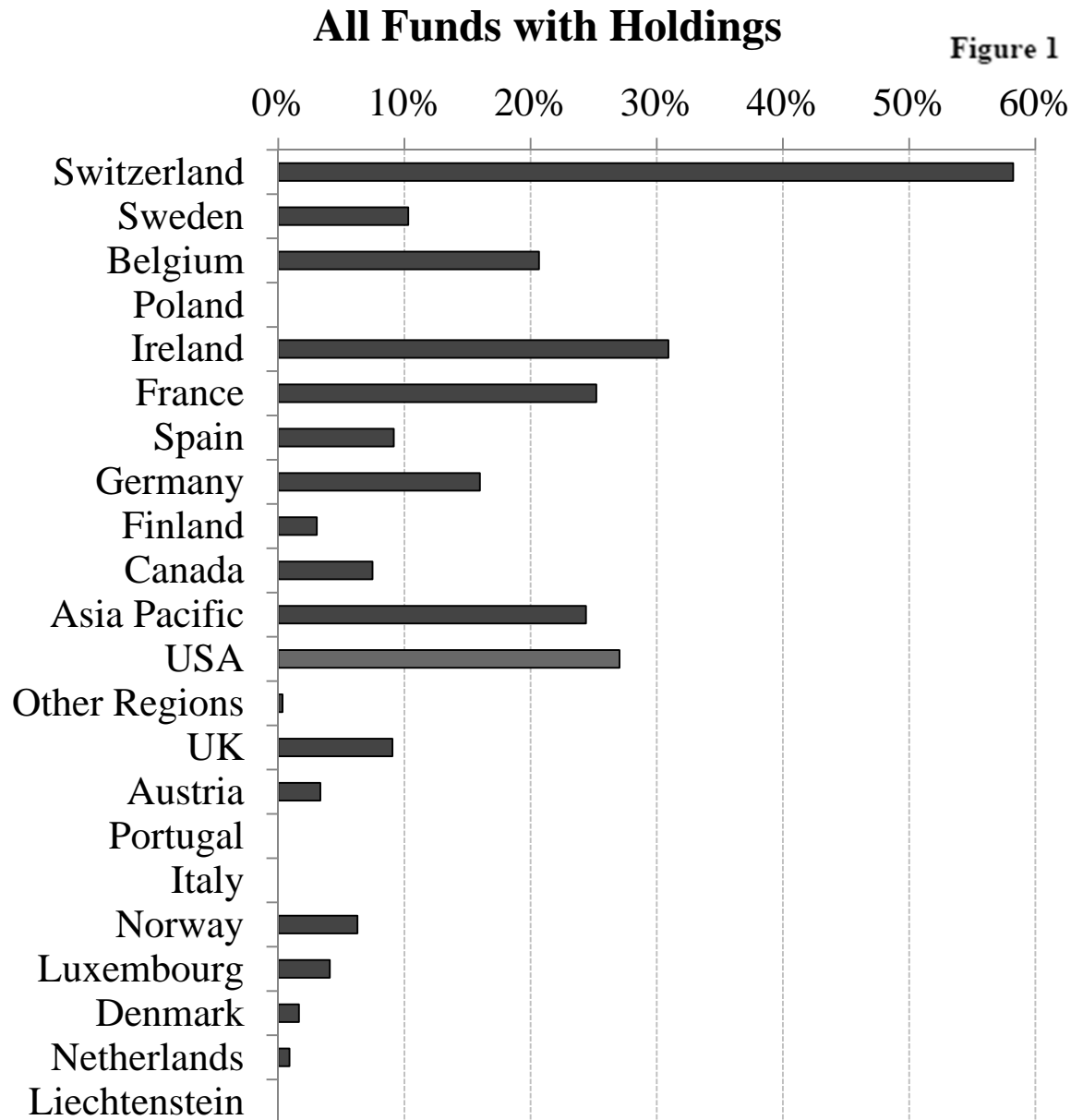
- [T.I]: Percentage of TNA explicitly indexed **22%**

– Outside the U.S. **13%**

87% actively managed?

– In the U.S. **27%**

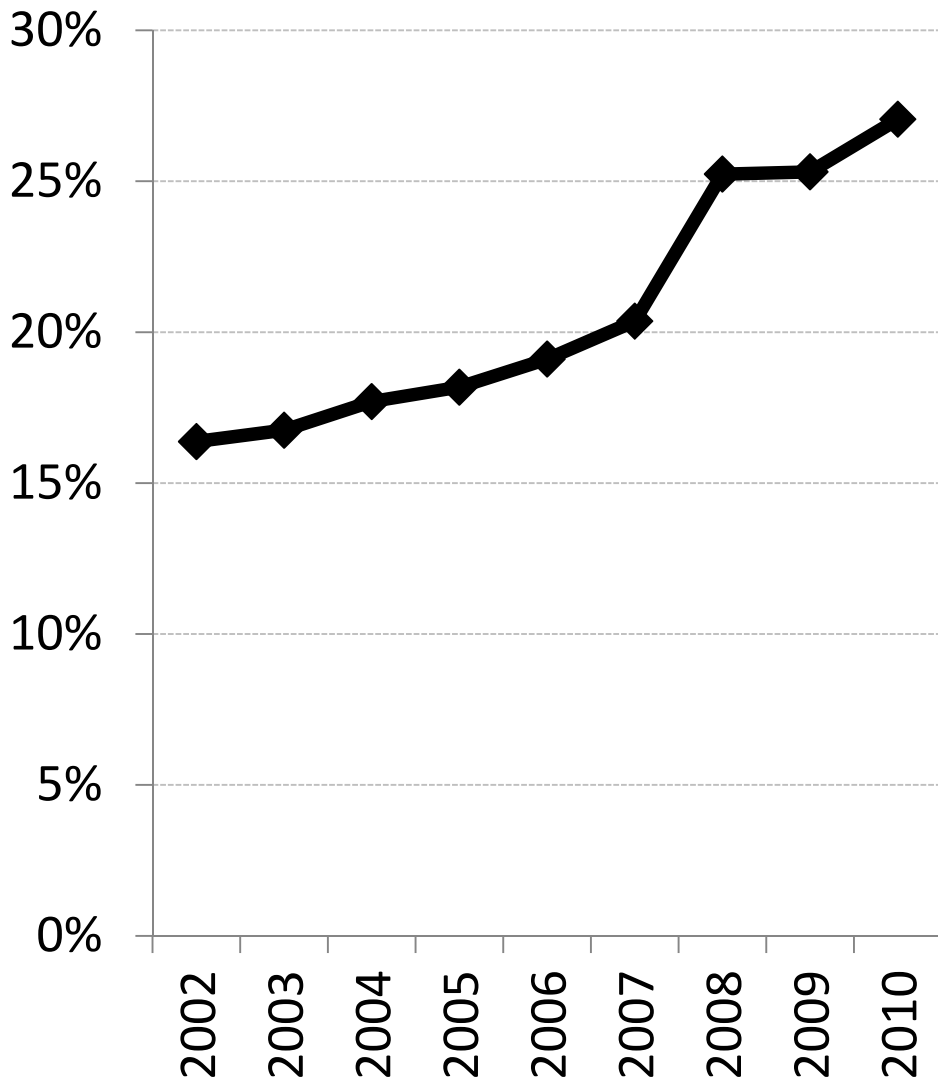
73% actively managed?



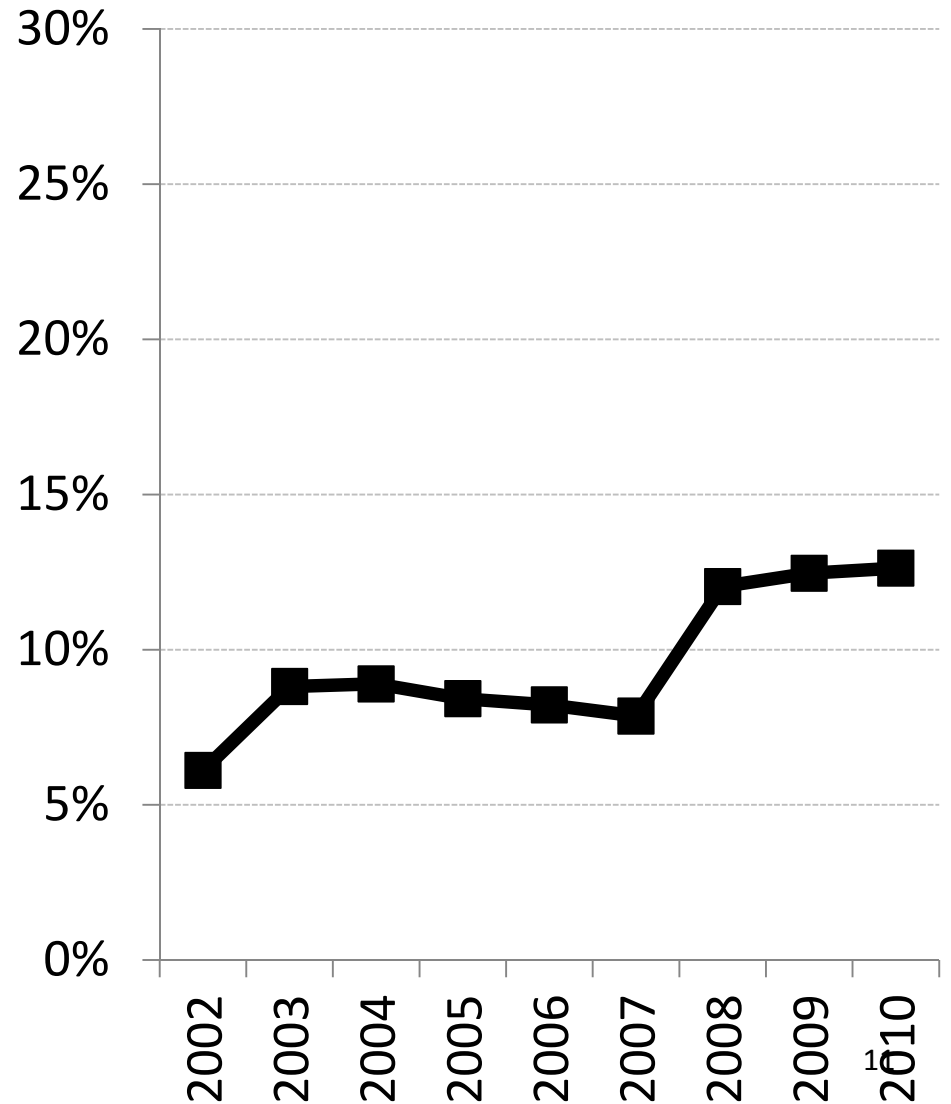
Explicit Indexing = Index funds + ETFs

Figure 2

U.S. funds



Non-US Funds



Closet Indexers vs. Truly Active Funds

- How different is the portfolio from the index:

$$Portfolio = [Index] + [Portfolio - Index]$$

Passive 

Active 

- Difference in terms of returns: **tracking error** (volatility)
- Difference in terms of holdings: **Active Share**
 - Cremers and Petajisto (2009)

$$Active\ Share = \frac{1}{2} \sum_{i=1}^N |w_{fund,i} - w_{benchmark,i}|$$

- Fraction of portfolio that is different from benchmark
- Between 0% and 100%

Figure 2

U.S., 2002-2010

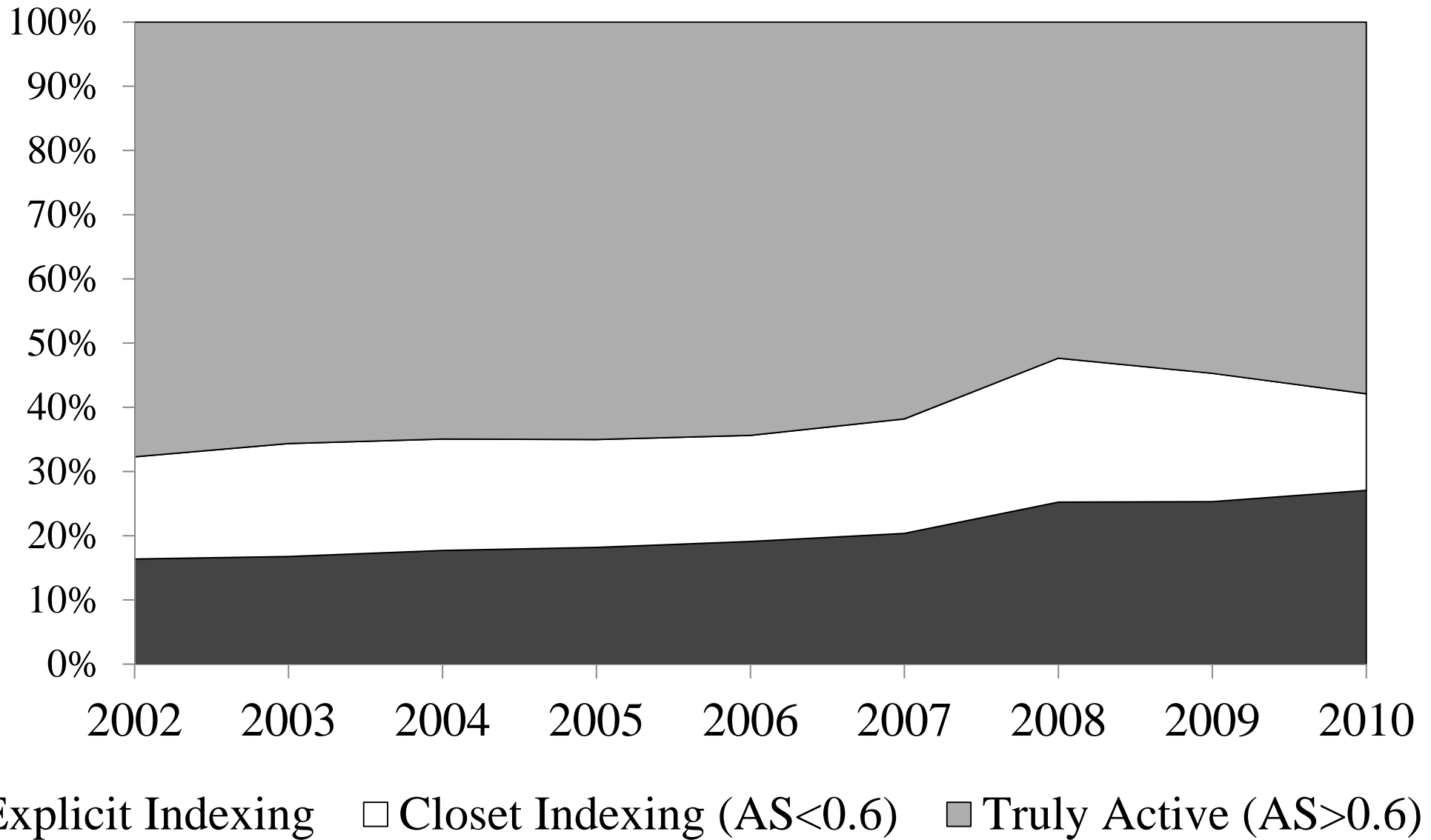
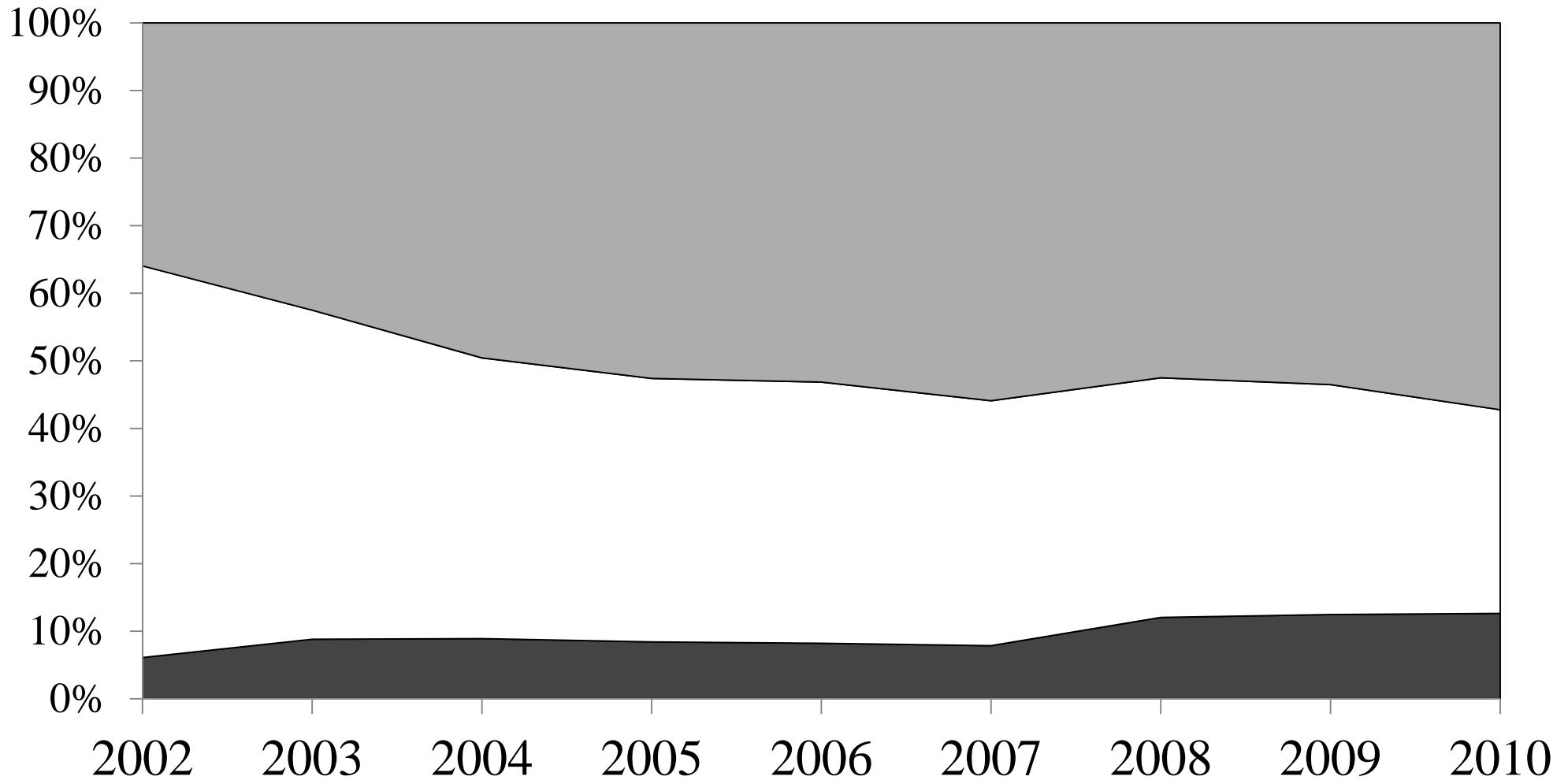


Figure 2

Non-U.S., 2002-2010



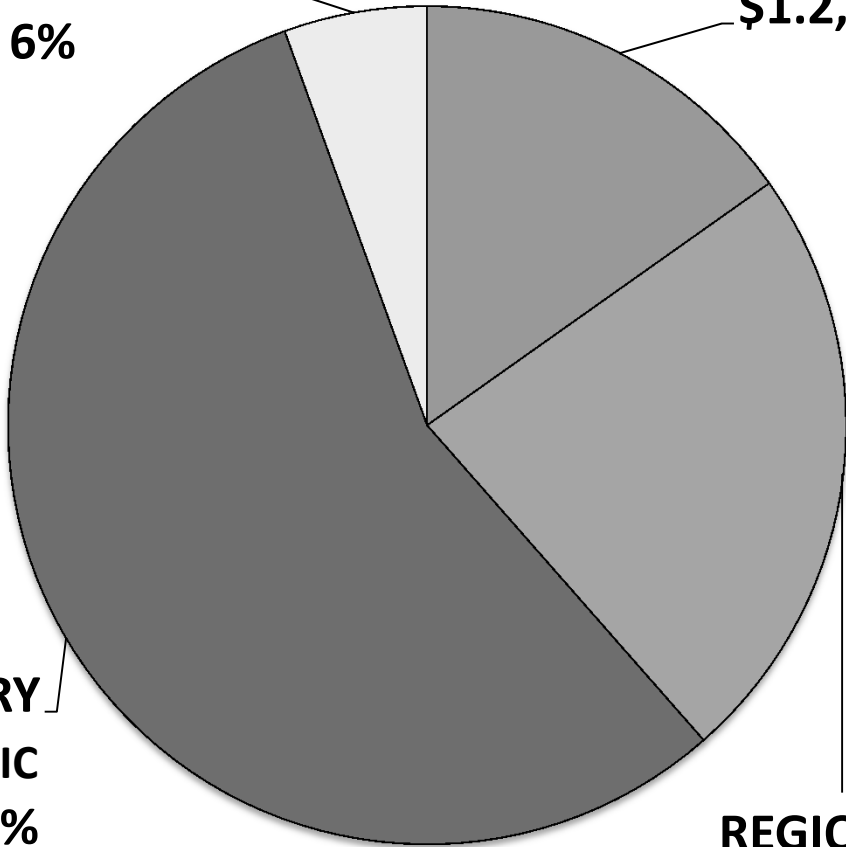
■ Explicit Indexing □ Closet Indexing (AS < 0.6) ■ Truly Active (AS > 0.6)

88 Different Benchmarks – World, Regional and Country-focused (\$ trillion as of Dec-2010)

Table II

**COUNTRY
FOREIGN**
\$0.4, 6%

WORLD,
\$1.2, 15%



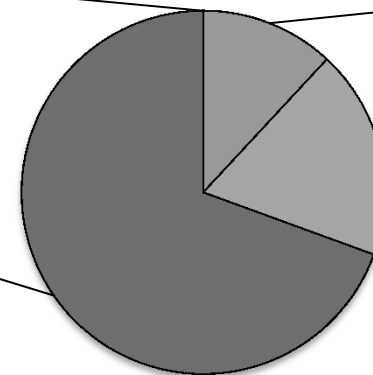
**COUNTRY
DOMESTIC**
\$4.4, 56%

REGIONAL
\$1.8, 23%

USA Funds

**COUNTRY
FOREIGN,**
\$0.0, 0%

WORLD,
\$0.6, 12%



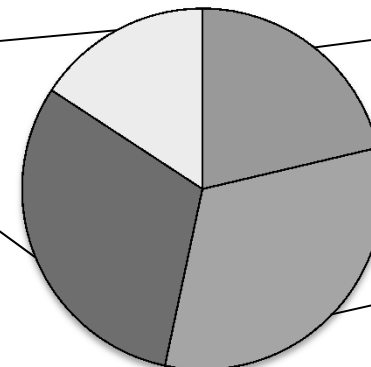
**COUNTRY
DOMESTIC**
\$3.6, 69%

REGIONAL
\$1.0, 19%

NON-USA Funds

**COUNTRY
FOREIGN**
\$0.4, 16%

WORLD,
\$0.6, 21%



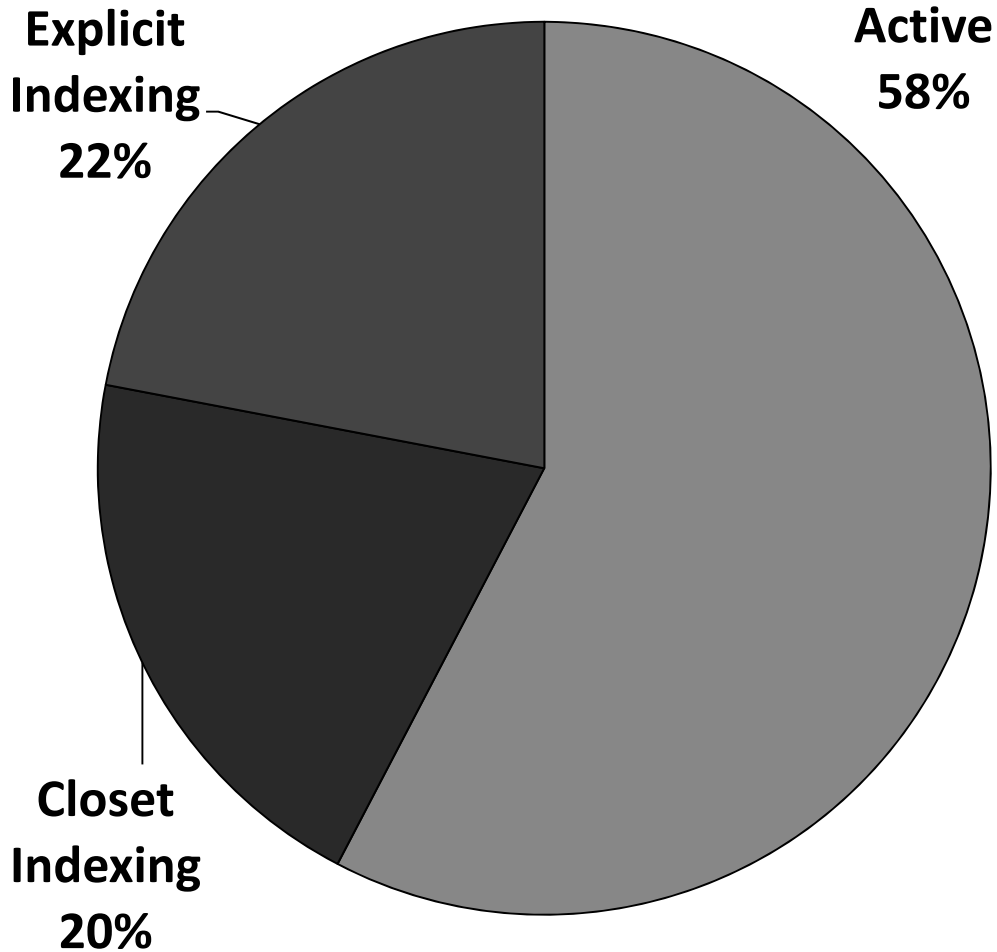
**COUNTRY
DOMESTIC**
\$0.9, 31%

REGIONAL
\$0.9, 32%

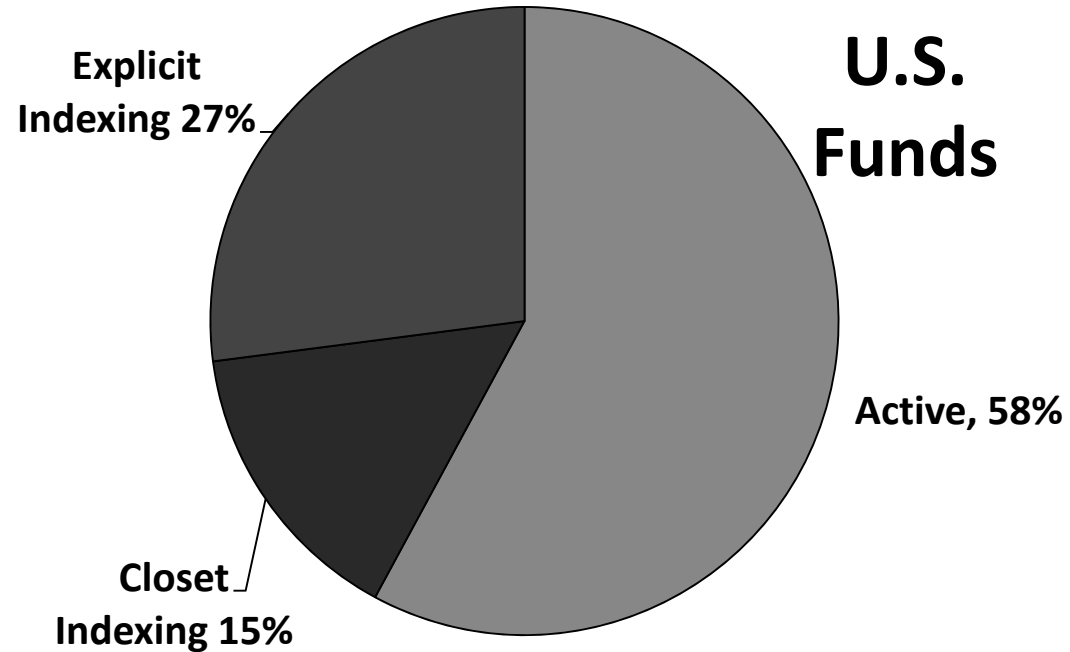
Active vs. Passive Funds, 2010

Table I

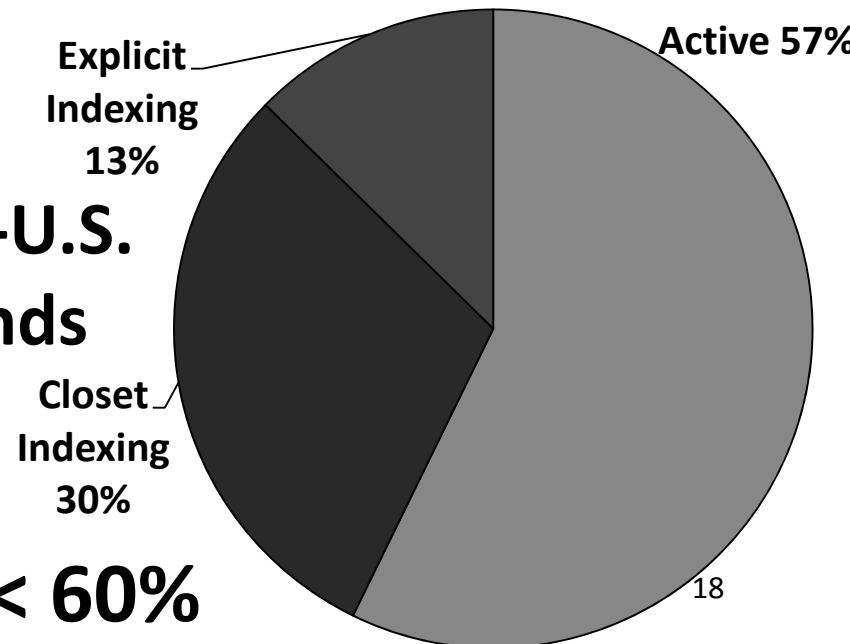
All Funds



U.S. Funds



Non-U.S. Funds



Closet indexing: if Active Share < 60%

Figure 1

■ Explicit Indexing ■ Implicit Indexing (AS<0.6) ■ Truly Active (AS>0.6)

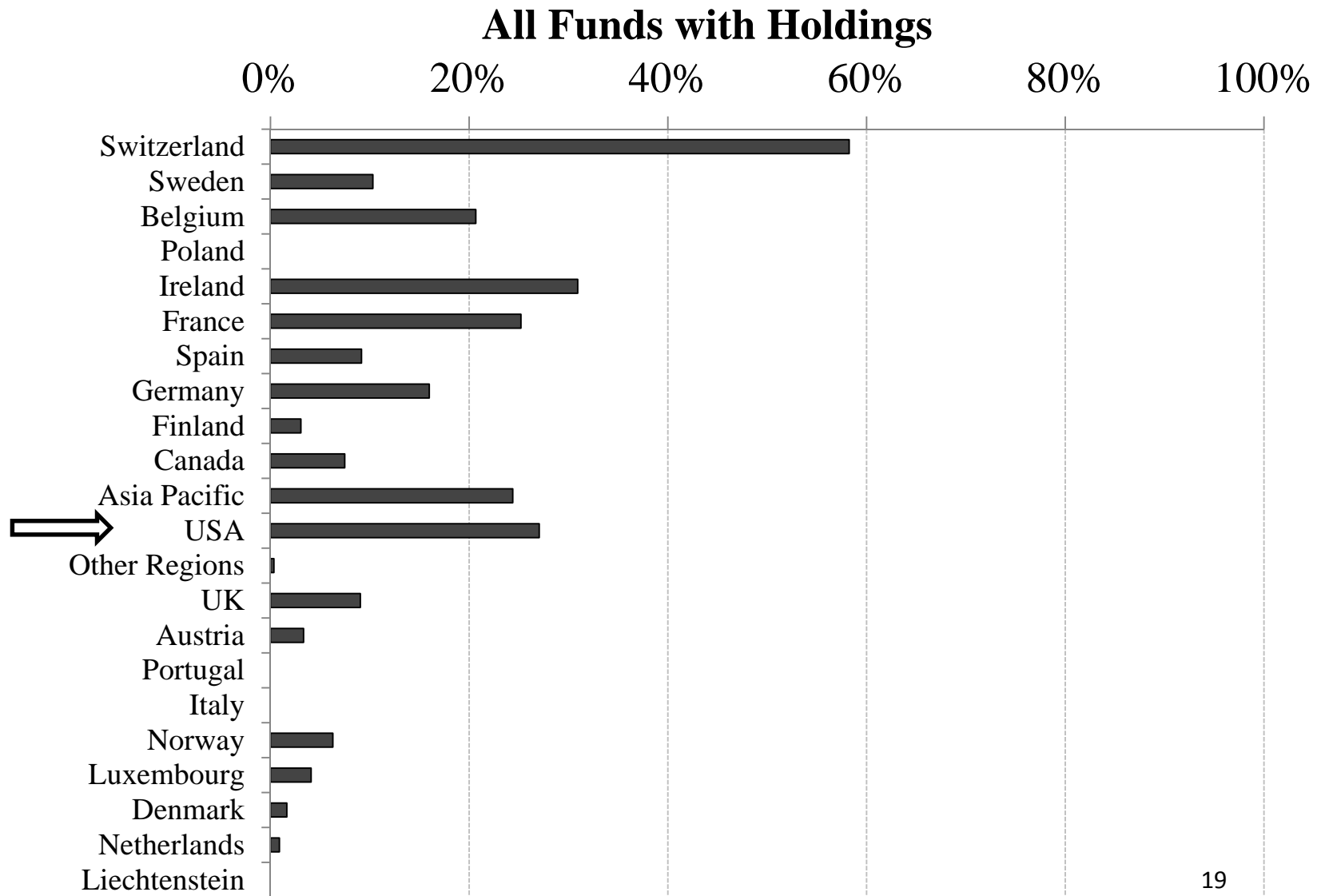
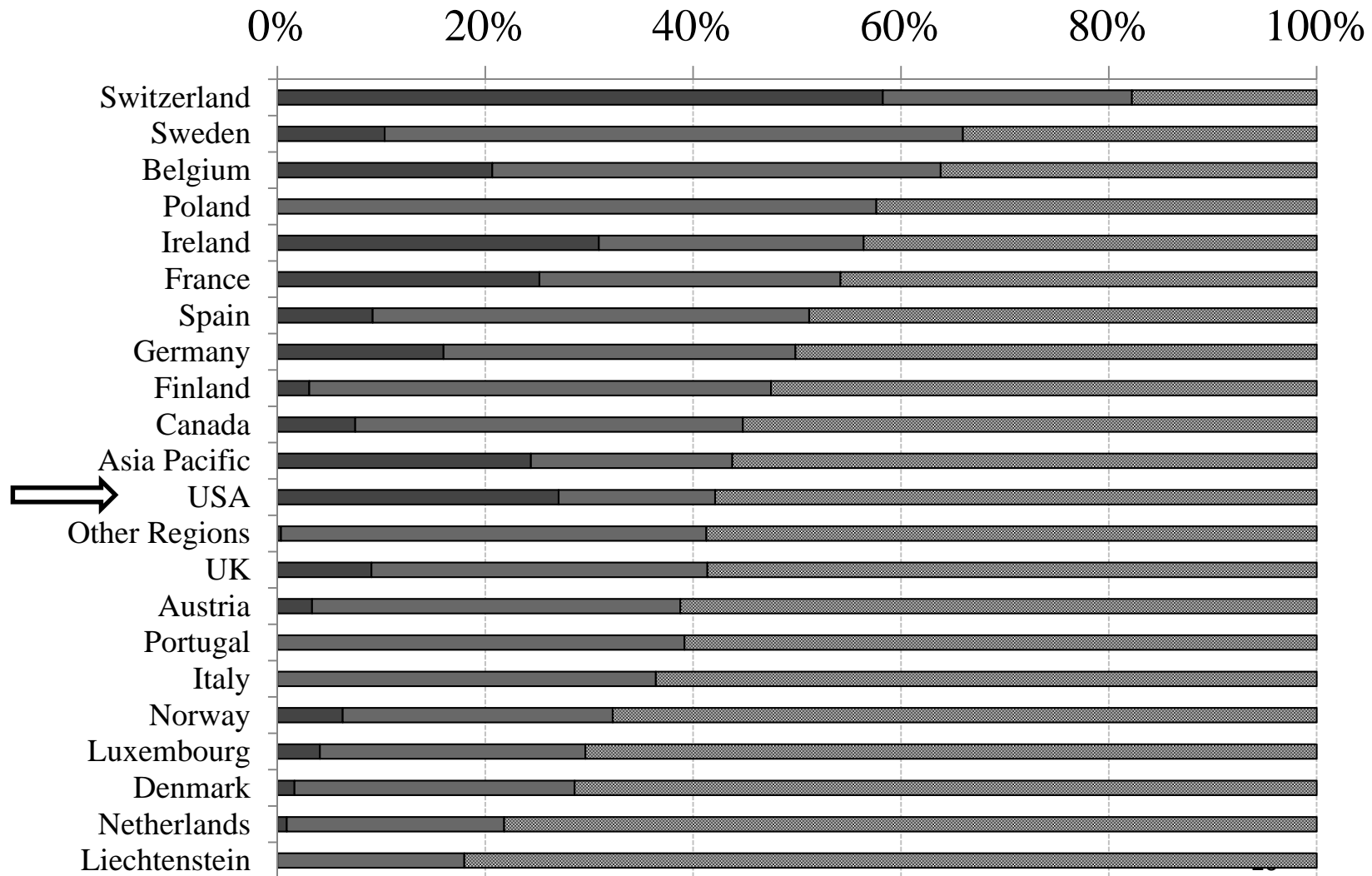


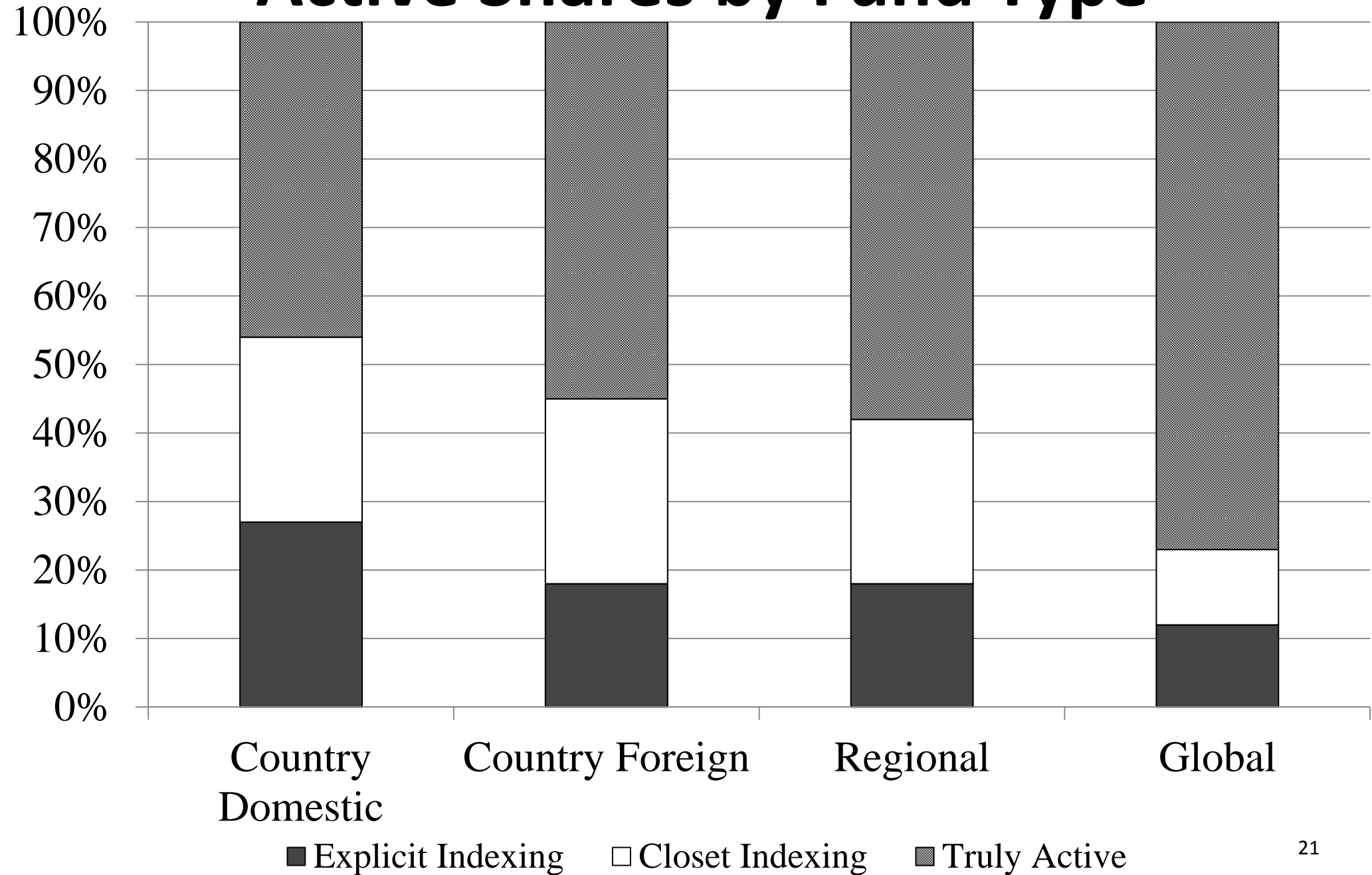
Figure 1

■ Explicit Indexing ■ Implicit Indexing (AS<0.6) ■ Truly Active (AS>0.6)

All Funds with Holdings



Active Shares by Fund Type



TEST 1: What explains indexing in a market?

- Indexing (by country-year, or country-type-year)
 - **Explicit Indexing:**
 - Market Share (% TNA in passive funds)
 - Cost (TSC of passive funds)
 - **Closet Indexing:**
 - Market Share (% TNA in active funds with AS < 60%)
- Explanatory factors:
 - **Regulation** (KST'09): Approval, Judicial
 - **Fund industry:** Size, Concentration, GDP/capita
 - **Liquidity:** # of stocks, Volatility, Amihud Illiquidity

TEST 1: What explains indexing in a market?

Both by country of domicile & by country of sale

- **More & cheaper explicit indexing & less closet indexing** in countries with
 - more stringent standards (Approval, Judicial)
 - **Approval** from 1 to 2: **6% increase** in market share explicit indexing
 - **Judicial** σ increase: **3% increase** in market share explicit indexing
 - larger fund industry
 - larger size, more explicit indexing and lower costs
 - more competition (Herfindahl), more explicit indexing
 - **smaller fund markets: more closet indexing**
 - more liquid and developed stock markets
 - more stocks & more liquidity: more explicit indexing and lower costs

Example: funds benchmarked to the *S&P 500* versus *Madrid SE index*

- **Domestic funds benchmarked to Madrid SE index**
 - About 75 domestic active funds in sample
 - Average Active Share of 37%, medium of 32%
 - Average (per year): Turnover 79%, Volatility 24%, Market cap (US\$) 630 million, about 150 stocks
- **Domestic funds benchmarked to S&P 500 index**
 - Over 200 domestic active funds in sample
 - Average Active Share of 70%, medium of 70%
 - Average (per year): Turnover 207%, Volatility 30%, Market cap (US\$) 14.6 billion, over 9,000 stocks

TEST 2: Does competitive pressure from indexing make active funds more different?

- Hypothesis: more & cheaper explicit indexing related to higher Active Shares
- Product Differentiation = Fund-level Active Share
 - Explicit Indexing
 - Market share (% TNA in passive funds in country)
 - Cost (TSC of passive funds in country)
 - Tracking Error, TNA, TSC, age, type, flows, ...
 - year dummies
- Results:
 - passive fund TSC σ -decrease (53 bp): Active Share 2% higher

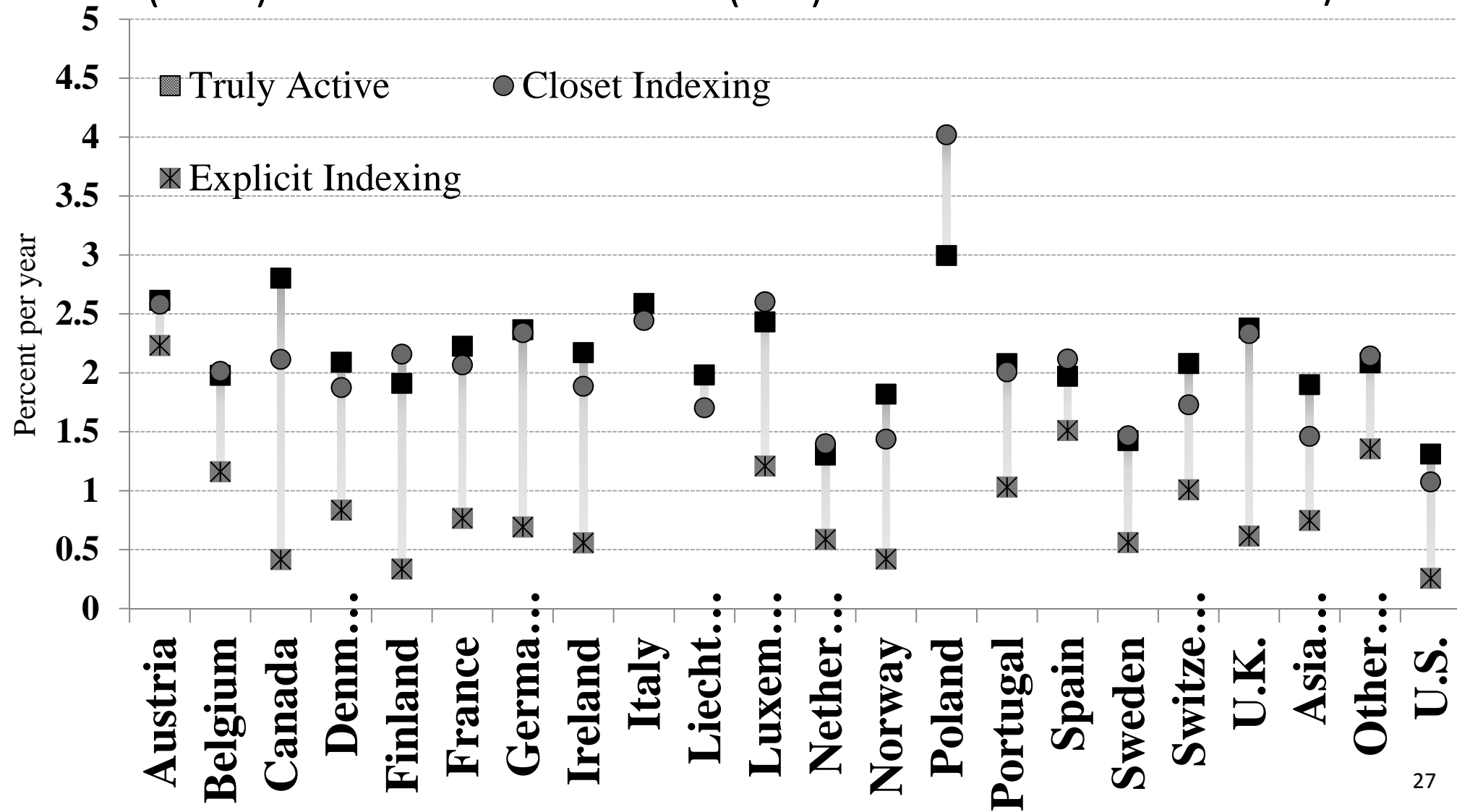
TEST 3: Does competitive pressure from indexing affect active fund fees?

- Hypothesis: More & cheaper **explicit (closet) indexing** related to **lower (higher) fees** for active funds
- Price (of active funds) = Fund-level TSC
 - **Explicit Indexing**
 - Market share (% TNA in passive funds in country)
 - Cost (TSC of passive funds in country)
 - **Closet Indexing**
 - Market share (% TNA in active funds with AS < 60% in country)
 - Tracking Error, TNA, TSC, age, domestic dummy, flows, ...
 - year dummies

TEST 3: Does competitive pressure from indexing affect active fund fees?

*: if TER missing, used Management Fee

- KST (2009): Total shareholder cost (TSC) = TER* + Front-end Load/5



TEST 3: Does competitive pressure from indexing affect active fund fees?

- Yes:
 - Active funds charge **less** when **index funds are low-cost**
 - TSC of index funds lower by **50 bp**: active fund TSC lower by **24 bp**
 - Active funds charge **more** when **closet indexing** is more prevalent
 - closet indexing higher by **15%-points**: active fund TSC higher by **10 bp**
- Endogeneity
 - Instrument for explicit & closet indexing using country-level liquidity conditions
 - # of stocks, volatility [& Amihud liquidity]

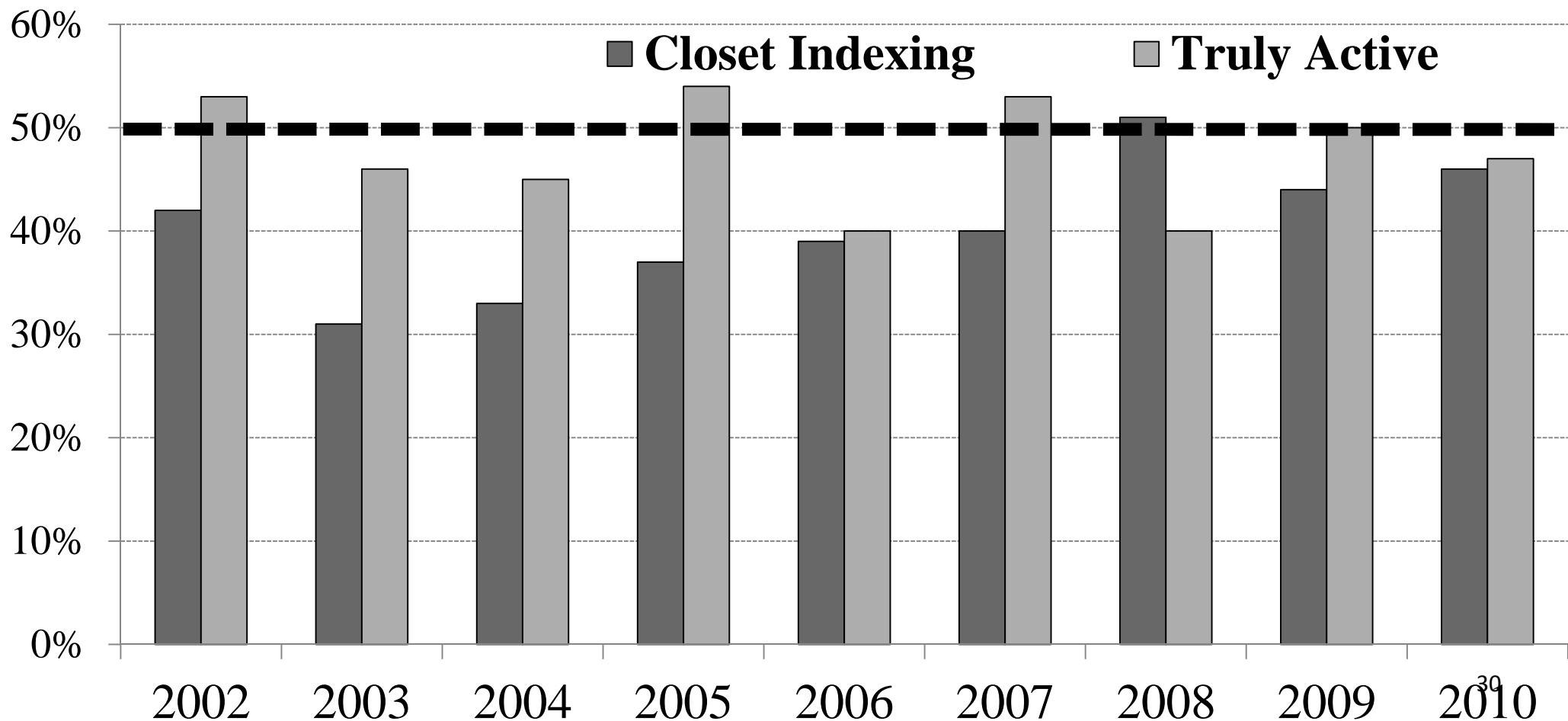
TEST 4: What are the returns to active management?

- Hypotheses:
 - most “active” funds deliver **higher performance**
 - competitive pressure from passive funds matters
- Risk-adjusted performance measures:
 - **Benchmark-adjusted Returns** [= fund - benchmark return]
 - **4-factor Benchmark-adjusted Alpha**
 - **Regional factors** (Asia, Europe and North America) for regional funds or **World factors** in the case of global funds
 - 4-factor Excess-return Alpha
 - 4-factor Benchmark-adjusted Information Ratio

TEST 4: What are the returns to active management?

batting averages = % of fund-year obs. with positive benchmark-adjusted returns (i.e., when a fund's net return exceeds the return on its benchmark)

Figure 4
Average Performance of Active Funds by Year



TEST 4: What are the returns to active management?

- Fund-level Performance (of active funds) at t+1 on lagged variables:
 - **Active Share**
 - Tracking Error
 - TR² R-square by Amihud and Goyenko (2010)
 - Return-based measure of deviation from benchmark index
 - Lower R-square = more active
 - TSC, TNA, Age, Flows, ...
 - Country factors: Approval, Judicial, Industry Size, ...
 - Year dummies

Truly active funds outperform

- σ increase in Active Share (+22%, mean .7) associated with
 - +1% per year in benchmark-adjusted return
 - +0.7% per year in 4-factor alpha
 - +0.12 increase in Information Ratio
 - average of -0.05, median of -0.10
- Tracking error negatively related to performance
- TR^2 always insignificant (by itself or with other vars.)
- Robustness: e.g.
 - Sub-samples: only Domestic Funds or only No-US Funds
 - Alternative Active Share measures:
 - Pure-ETF Active Share (passive weights of iShares/SPDR ETFs)
 - Minimum Active Share (AS relative to all 88 benchmarks and select minimum)
 - Weighted Least Squares (by fund's TNA)

TEST 4: Returns to active management & indexing

- Fund performance benefit from competitive pressure?
 - **Explicit Indexing**
 - Market share (% TNA in passive funds in country)
 - Cost (TSC of passive funds in country)
 - **Closet Indexing**
 - Market share (% TNA in active funds with AS < 60% in country)
 - **By themselves and interacted with Active Share**
- Some (marginal) evidence of benefit
 - Using **TSC of passive funds**
 - Performance higher if passive TSC is lower
 - Its interaction with Active Share is negative
 - Significant only at 10%

Conclusions

- Outside the US:
 - **little explicit indexing but lots of closet indexing**
- Explicit & closet indexing related to regulation / fund industry development / stock market development
- In markets with more low-cost index funds, active funds
 - deviate more from benchmark (higher Active Share)
 - charge lower fees
 - and deliver higher returns
 - **“truly active” funds outperform** their benchmarks
 - **closet indexers underperform**