Institutional Investors: From Myth to Reality

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Policy Research Talk
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THE WORLD BANK

DEVELOPMENT RESEARCH

Background Work

- de la Torre, Ize, and Schmukler (2011). Financial Development in Latin America and the Caribbean: The Road Ahead, *World Bank*.
- Didier, Rigobon, and Schmukler (2013). Unexploited Gains from International Diversification: Patterns of Portfolio Holdings around the World. *Review of Economics and Statistics*.
- Raddatz and Schmukler (2013). Deconstructing Herding: Evidence from Pension Fund Investment Behavior. *Journal of Financial Services Research*.
- Raddatz and Schmukler (2012). On the International Transmission of Shocks: Micro-Evidence from Mutual Fund Portfolios. *Journal of International Economics*.
- Opazo, Raddatz, and Schmukler (2015). Institutional Investors and Long-term Investment: Evidence from Chile. *World Bank Economic Review.*
- Raddatz, Schmukler, and Williams (2015). International Asset Allocations and Capital Flows: The Benchmark Effect. World Bank Policy Research Working Paper No. 6866 and HKIMR Working Paper No.04/2015.
- GFDR (2015) on Long-term Finance.

Introduction: Some Myths

- Large institutional investors expected to play crucial role, thus they received significant push
- Manage long-term retirement (and voluntary) savings
- Invest in many companies, including SMEs, and countries
  - Diversify risk and foster access to finance
- Informed investors, able to make independent decisions
- Invest long term, including bonds and infrastructure projects
- Follow fundamentals
- Take advantage of arbitrage opportunities and provide liquidity
- Absorb shocks, particularly equity investors
- Help stabilize and develop the financial system

Introduction: Some Realities

- Big, but far away from model of capital markets as envisioned
- Invest differently than expected, even counter-intuitively
- Institutional investors invest in few companies and few countries
- Constraints not on lack of available funds: domestic/foreign savers
- Many assets available for investment not purchased by investors
- They hold large resources/investment in few large, liquid assets
- Institutional investors shy away from risk, including good ones
  - Forego higher risk-adjusted returns
- Incentives for asset managers seem to play an important role
- Delegated portfolios: trade-off between monitoring & risk taking

Organization of the Evidence

- Hard to have a unified framework to analyze the evidence
- Findings from many different sources and papers, using data from Chile, the U.S., and world financial centers
- Findings on different aspects of institutional investors' behavior, in particular their asset allocation
- Emphasis on regulated investors (mutual funds & pension funds), for which data could and can be collected
- Relative to banks and households, we can observe their portfolios, goals, benchmarks, and injections/redemptions
- Different findings point to similar factors, offer food for thought
  - What to expect of institutional investors
  - Public policy discussion going forward

Evidence on Institutional Investors

- Overview
  - Size of institutional investors
- Pension funds in Chile
  - Trading and herding
  - Long-term investors?
- International evidence
  - Diversification
  - Pro-cyclicality
  - Benchmark effect

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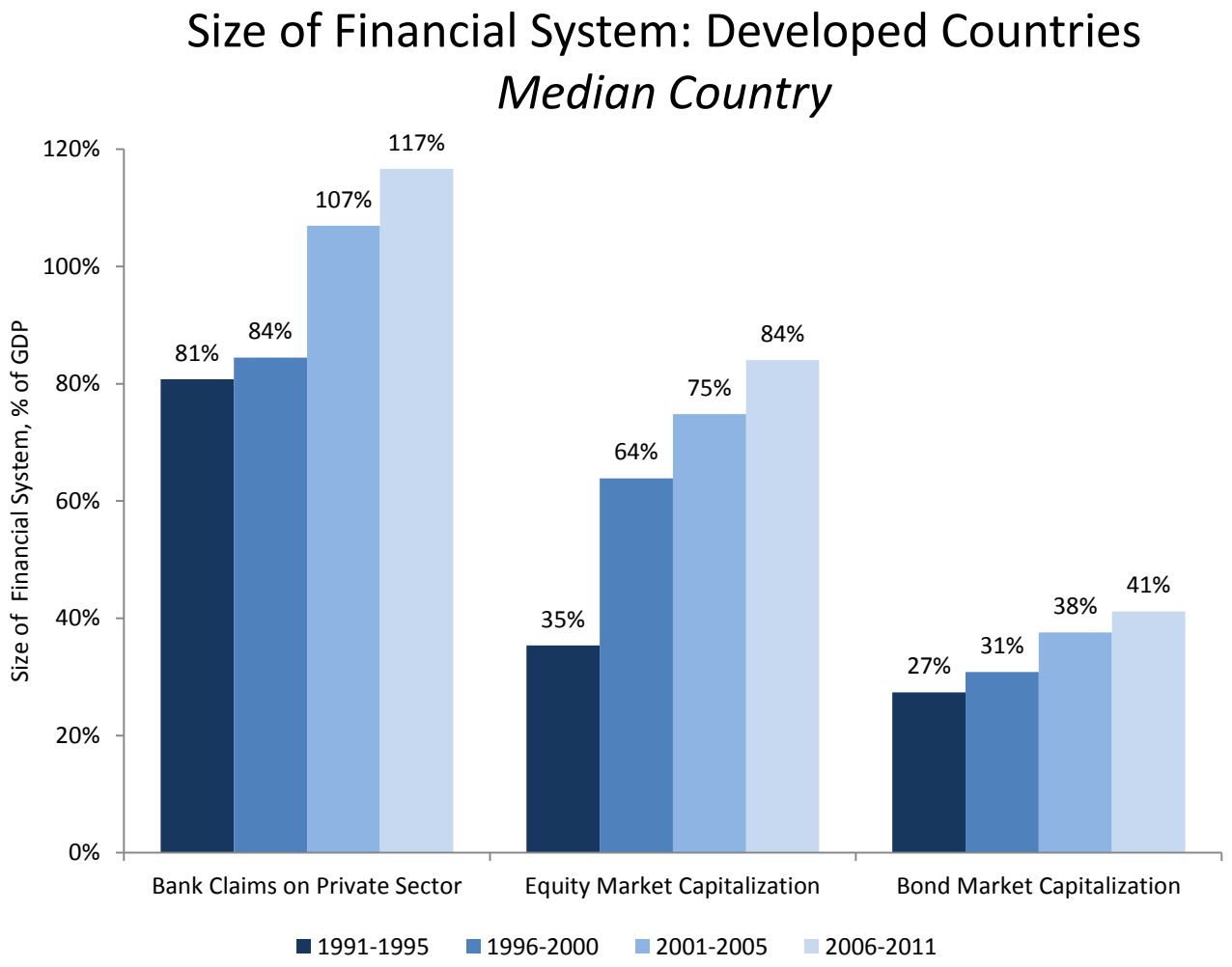
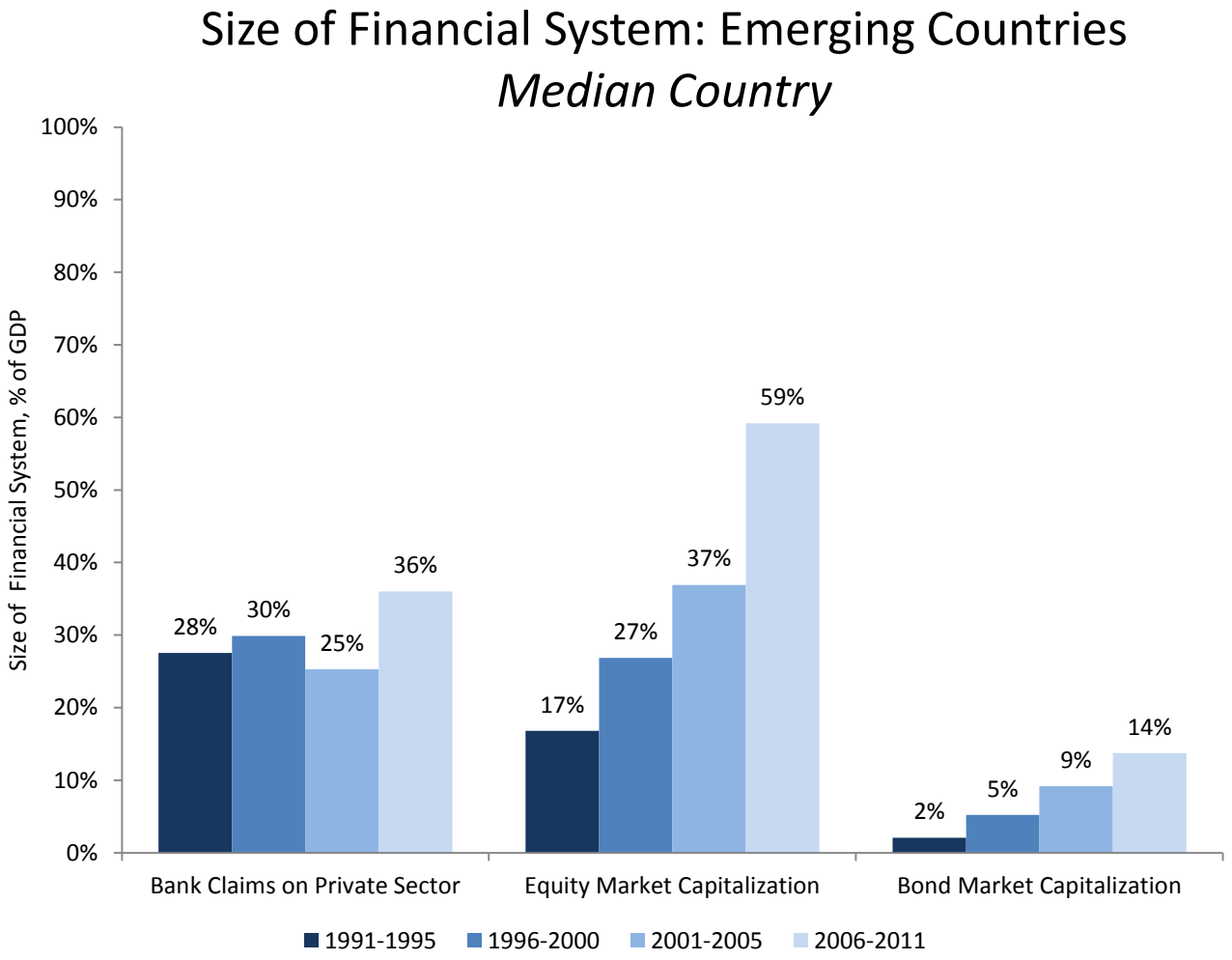
Financial Markets Size



Source: Didier, Levine, and Schmukler (2014).

Financial Markets Size



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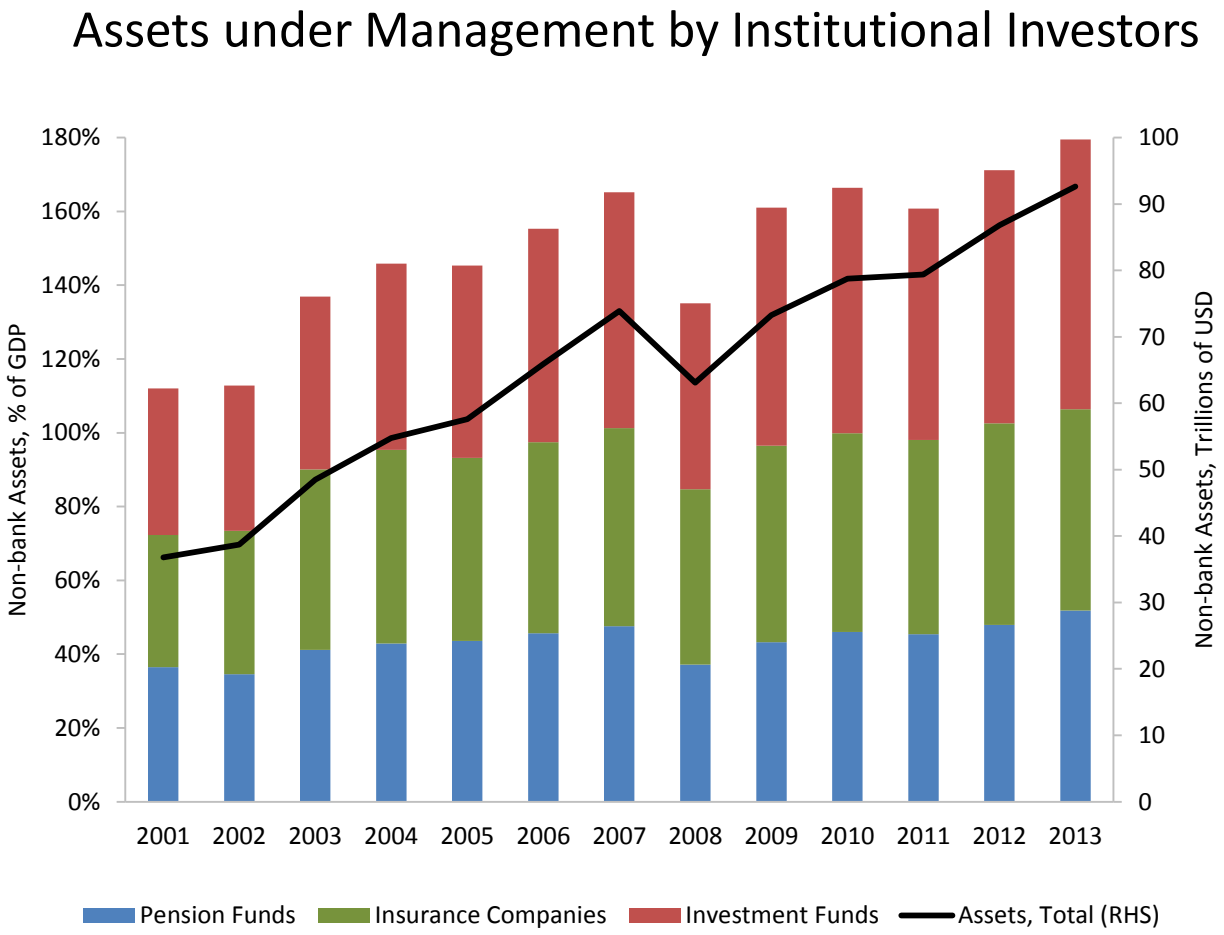
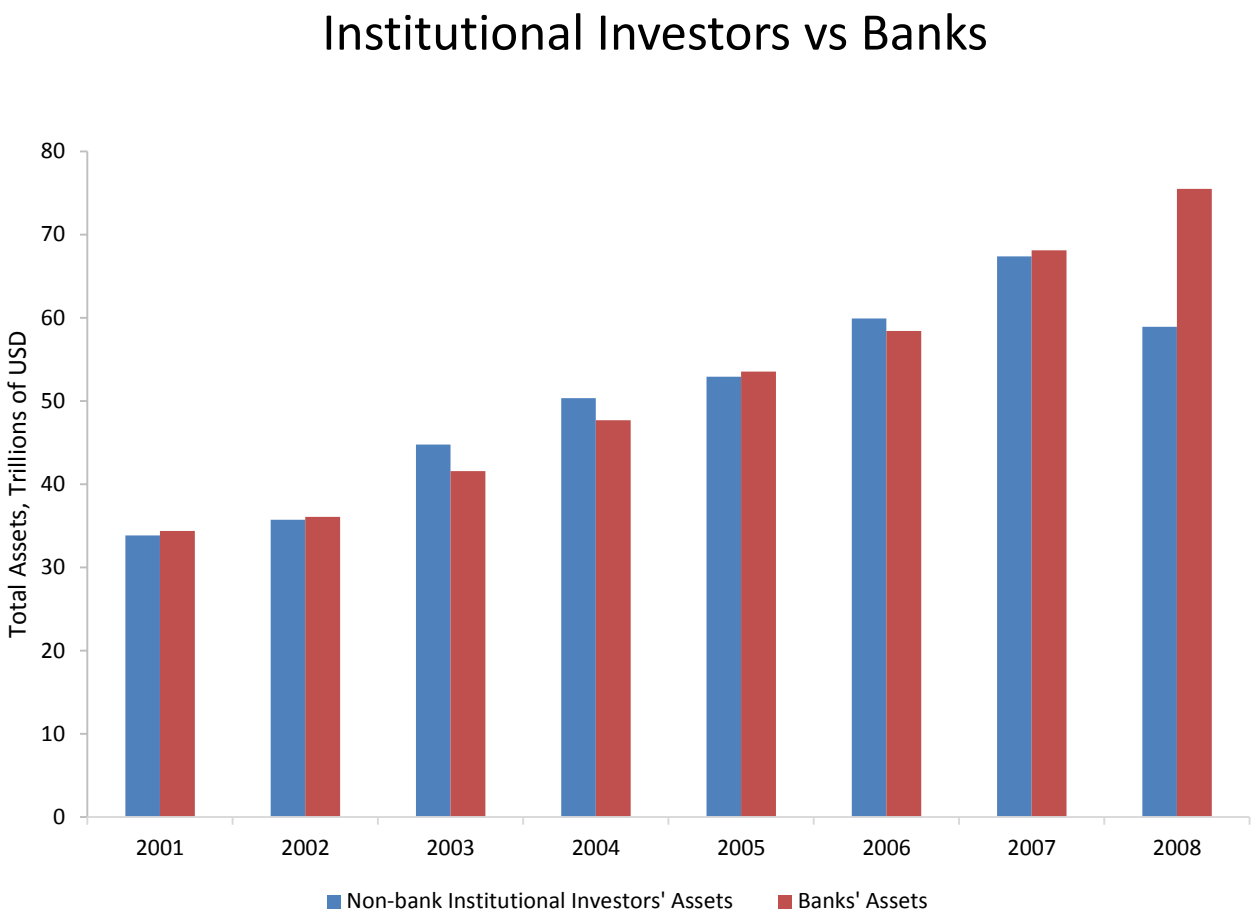
Growing Size of Institutional Investors



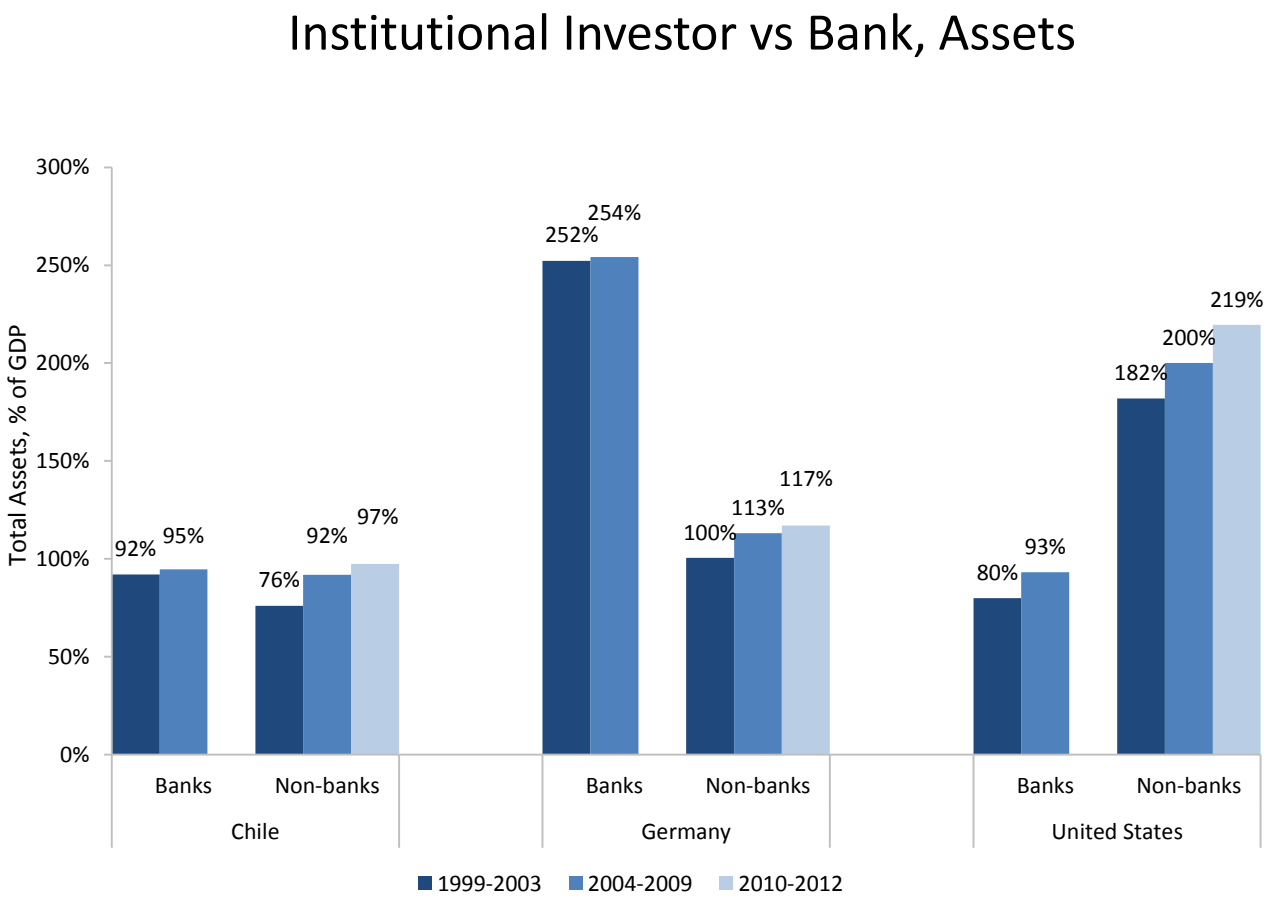
Source: OECD. Only OECD countries included.

Growing Size of Institutional Investors



Source: OECD. Only OECD countries included. Given data constraints, the figure does not include the following OECD countries: Czech Republic, Greece, Hungary, Portugal, Slovenia, Turkey, and United Kingdom.

Growing Size of Institutional Investors



Source: OECD.

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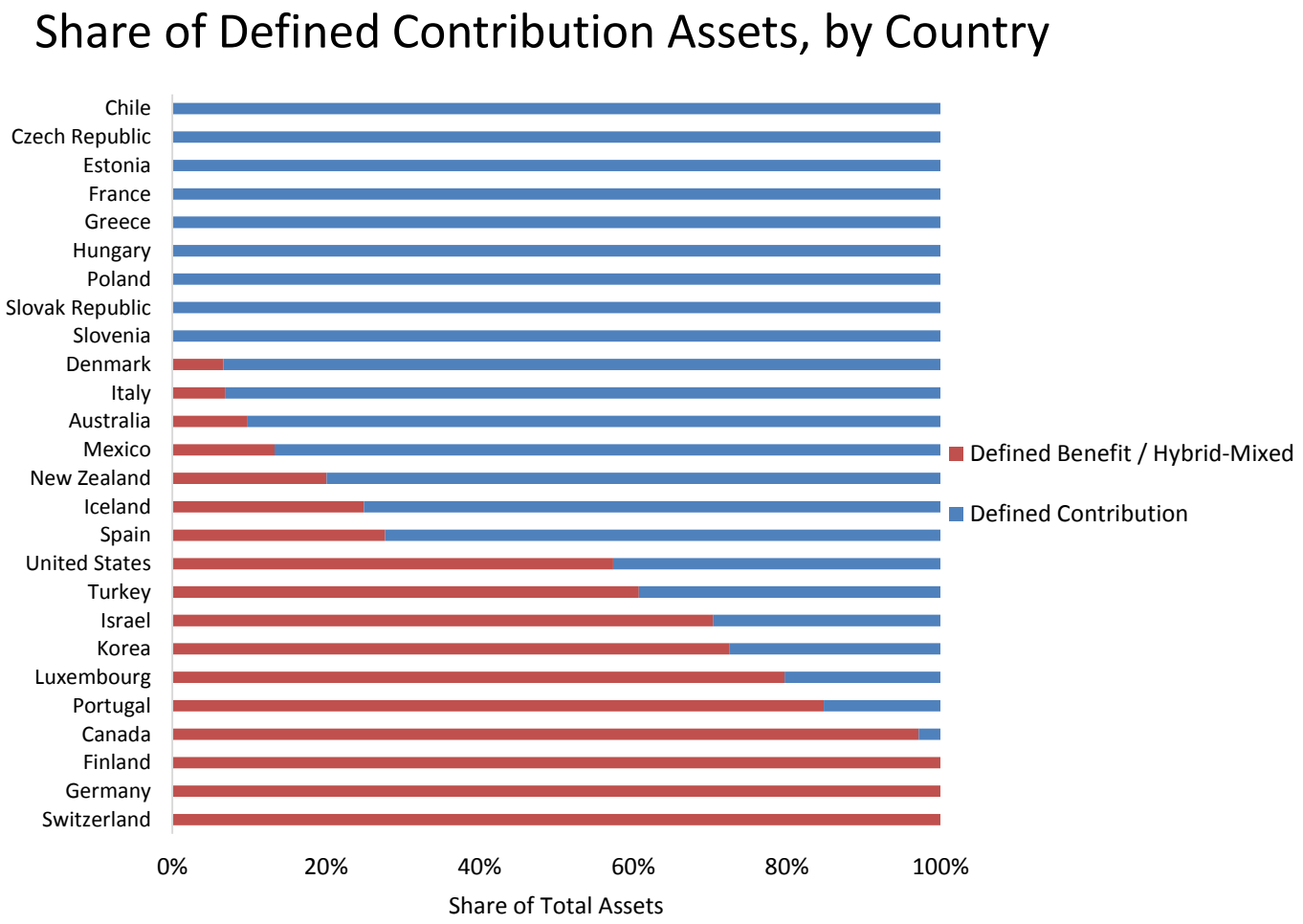
Is Chile Different?

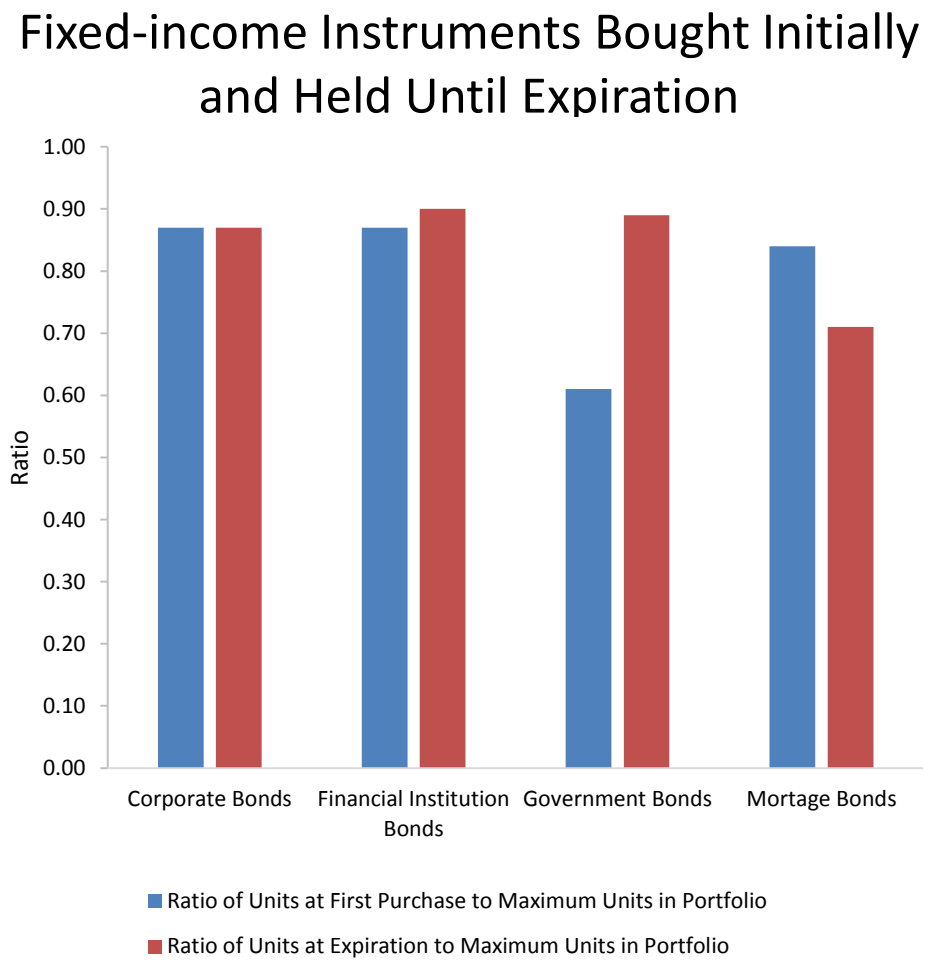
- Yes, but for the good reasons
  - Innovative in macro and institutional policy, plus development of institutional investors – benchmark case
  - Has long history, rich data, and good collaboration with the Bank
  - Can compare different institutional investors within same framework
- No, because many countries have followed it and patterns present several similarities
  - Chile has been a model for many countries in pension fund reform
  - Regulations have improved and cannot be much different in other countries
  - When managers need monitoring, incentives play similar role
  - Defined contribution systems are expanding, similar to Chile

Defined Contribution Pension Funds Important



Source: OECD. Selected OECD countries in 2013.

Pension Funds Trade Infrequently



Note: Data from 2002-2005. Source: Raddatz and Schmukler (2013).

When They Trade, They Do It Similarly: Herding

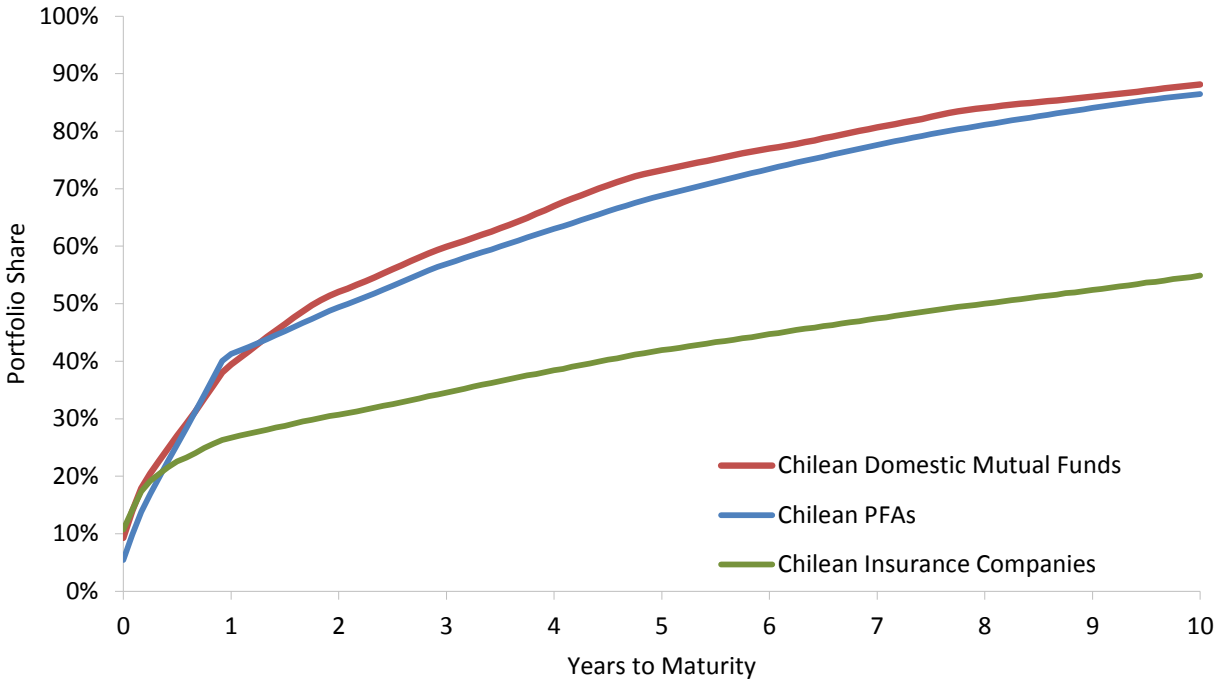
Herding within Fund Types Across PFAs, by Fund Type

	Herding Statistic				
	Fund A	Fund B	Fund C	Fund D	Fund E
	(1)	(2)	(3)	(4)	(5)
All Asset Classes	5.87 ***	3.54 ***	7.99 ***	5.65 ***	4.67 ***
	(0.92)	(0.65)	(0.49)	(0.66)	(0.84)
Domestic Assets					
Corporate Bonds	13.61 ***	11.47 ***	20.80 ***	10.51 ***	13.02 ***
	(1.93)	(0.85)	(0.08)	(0.88)	(1.06)
Financial-Institution Bonds	6.63 ***	10.78 ***	15.33 ***	9.49 ***	13.56 ***
	(2.61)	(1.29)	(1.21)	(1.25)	(1.70)
Government Bonds	1.21	4.91 ***	2.96 ***	4.94 ***	2.08 ***
	(1.72)	(0.84)	(0.44)	(0.67)	(0.80)
Mortgage Bonds	5.02 ***	2.89 ***	1.24 ***	2.52 ***	3.26 ***
	(0.85)	(0.17)	(0.08)	(0.14)	(0.32)
Equity	6.32 ***	0.69 *	10.43 ***	6.68 ***	-
	(0.43)	(0.45)	(0.60)	(0.64)	-

Note: Data from 2002-2005. The percentage of assets traded is calculated on a monthly basis. Source: Raddatz and Schmukler (2013).

Along with MFs, They Tend to Invest Short Term

Maturity Structure of Chilean Domestic Mutual Funds and PFAs vs. Insurance Companies



Note: This figure compares the maturity structure of Chilean insurance companies to that of Chilean domestic mutual funds and PFAs. Only medium- and long-term bond mutual funds are taken into account. Sample period: 2002-08. Source: Opazo, Raddatz, and Schmukler (2015).

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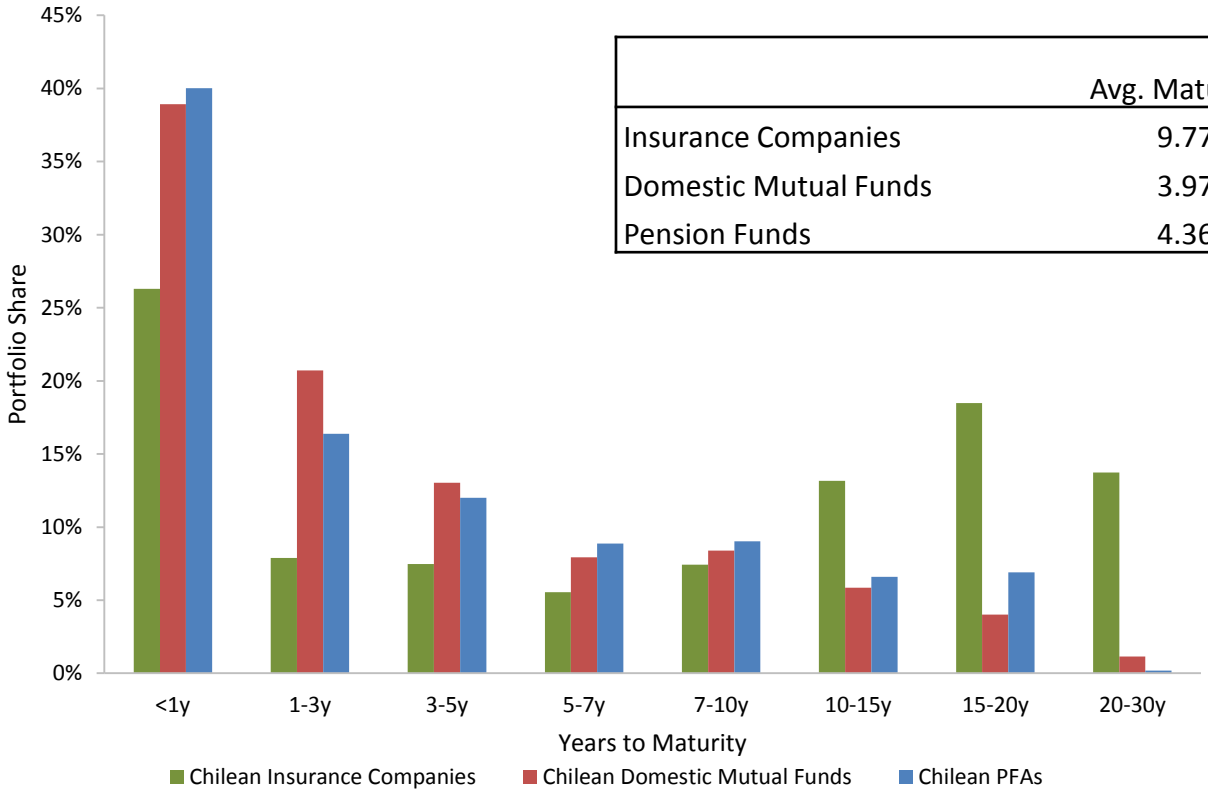
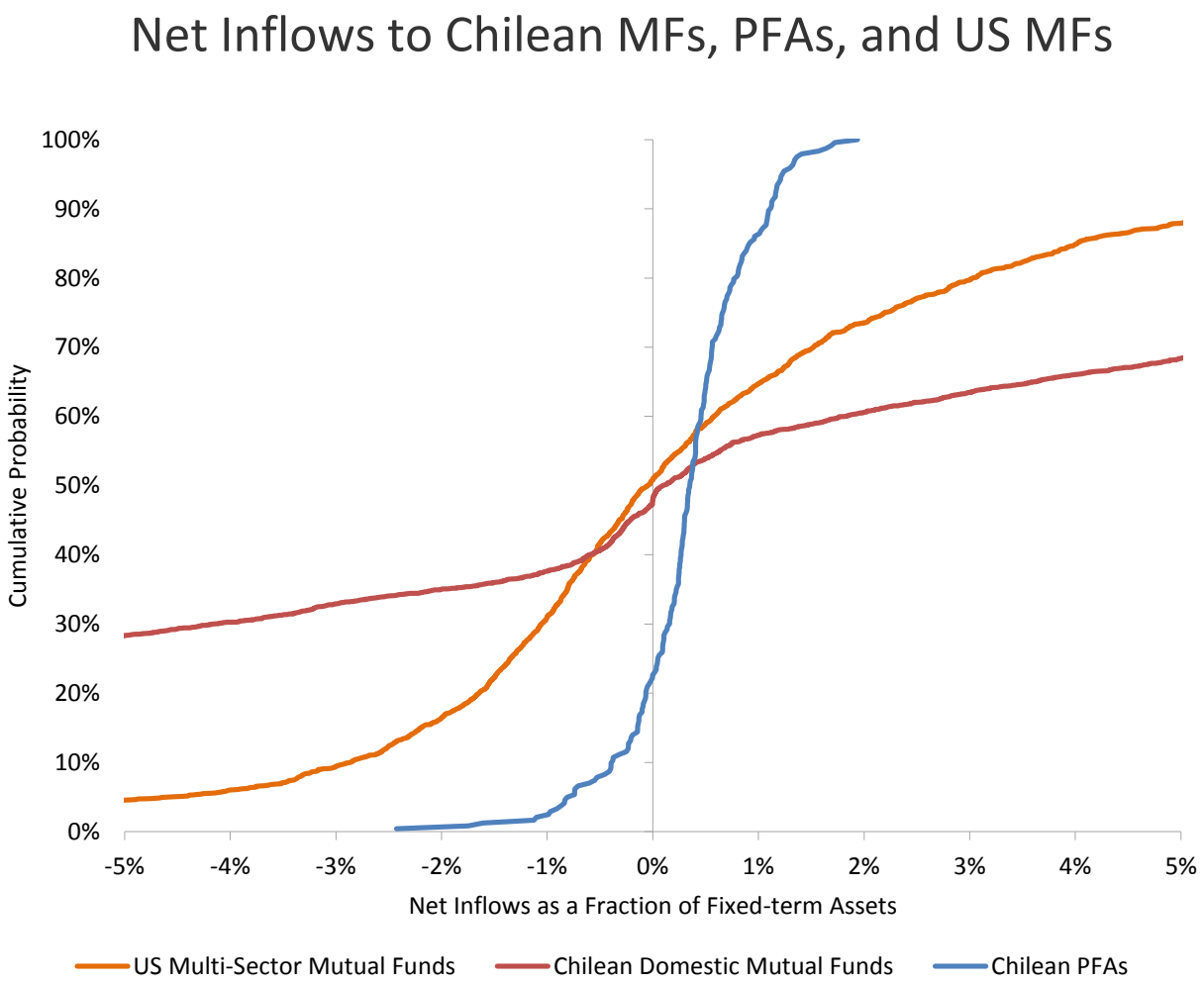


	Avg. Maturity
Insurance Companies	9.77
Domestic Mutual Funds	3.97
Pension Funds	4.36

Note: Only medium- and long-term bond mutual funds are taken into account. Sample period: 2002-08. Source: Opazo, Raddatz, and Schmukler (2015).

Pension Funds Not Exposed to Large Net Outflows



Note: Sample period: 2005-05. Source: Opazo, Raddatz, and Schmukler (2015).

Insurance Companies Bid More for Longer Bonds

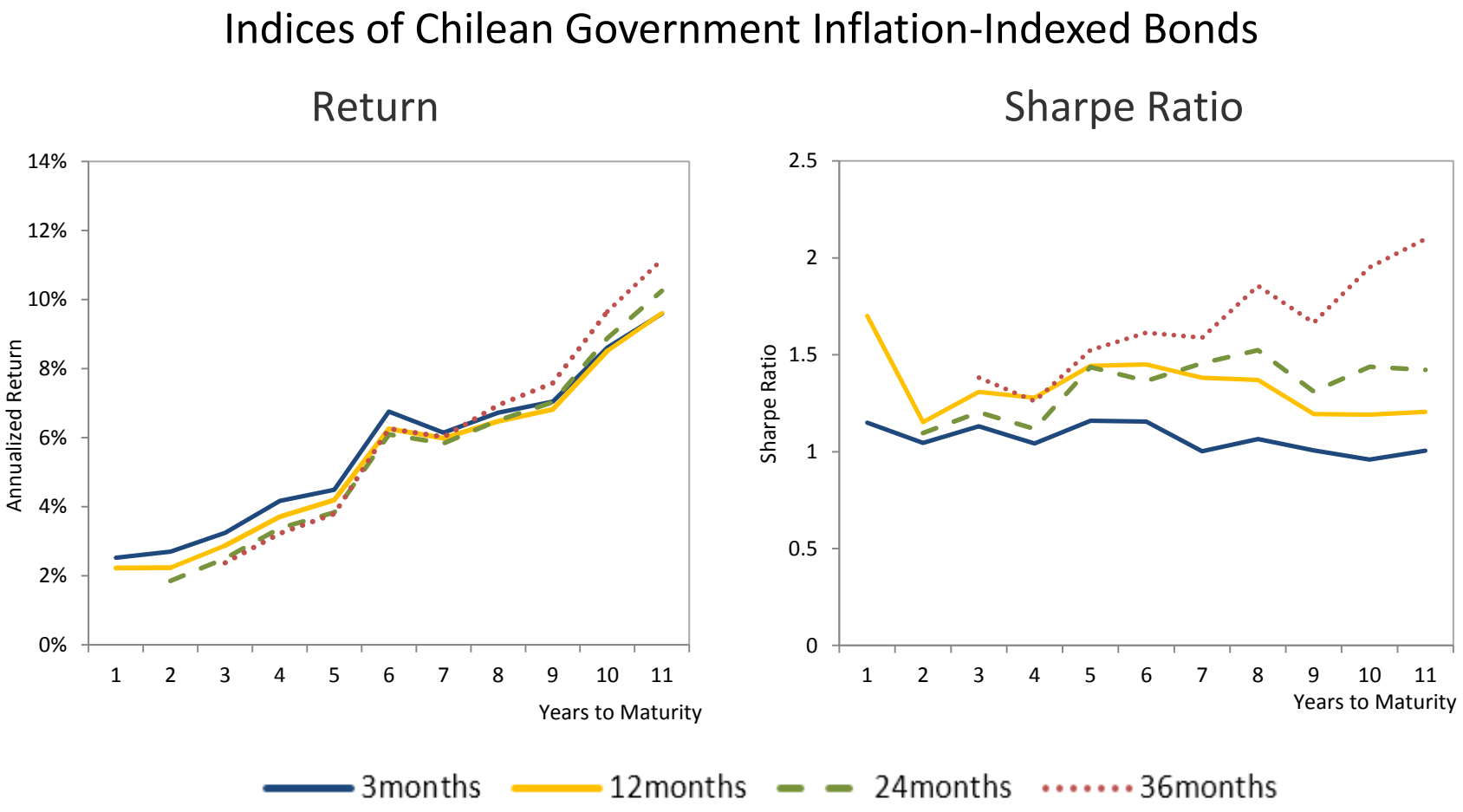
Bids by Pension Funds and Insurance Companies in Government Bond Auctions

Ratio between Insurance Companies and Pension Funds

	(i)		(ii)	
	Ratio between Shares Requested			
	Indexed Pesos		Indexed Pesos, Pesos, and US Dollars, Controlling by Currency	
Time to Maturity (Years)	Coef.	Std. Error	Coef.	Std. Error
1			0.105	(0.082)
2	0.168	(0.145)	0.053	(0.076)
5	0.218	(0.115)	0.184	(0.098)
10	0.119	(0.044)	0.167	(0.044)
20	0.609	(0.113)	0.609	(0.112)
30	3.473	(1.701)	3.473	(1.701)
No. of Observations	418		666	

Source: Opazo, Raddatz, and Schmukler (2015).

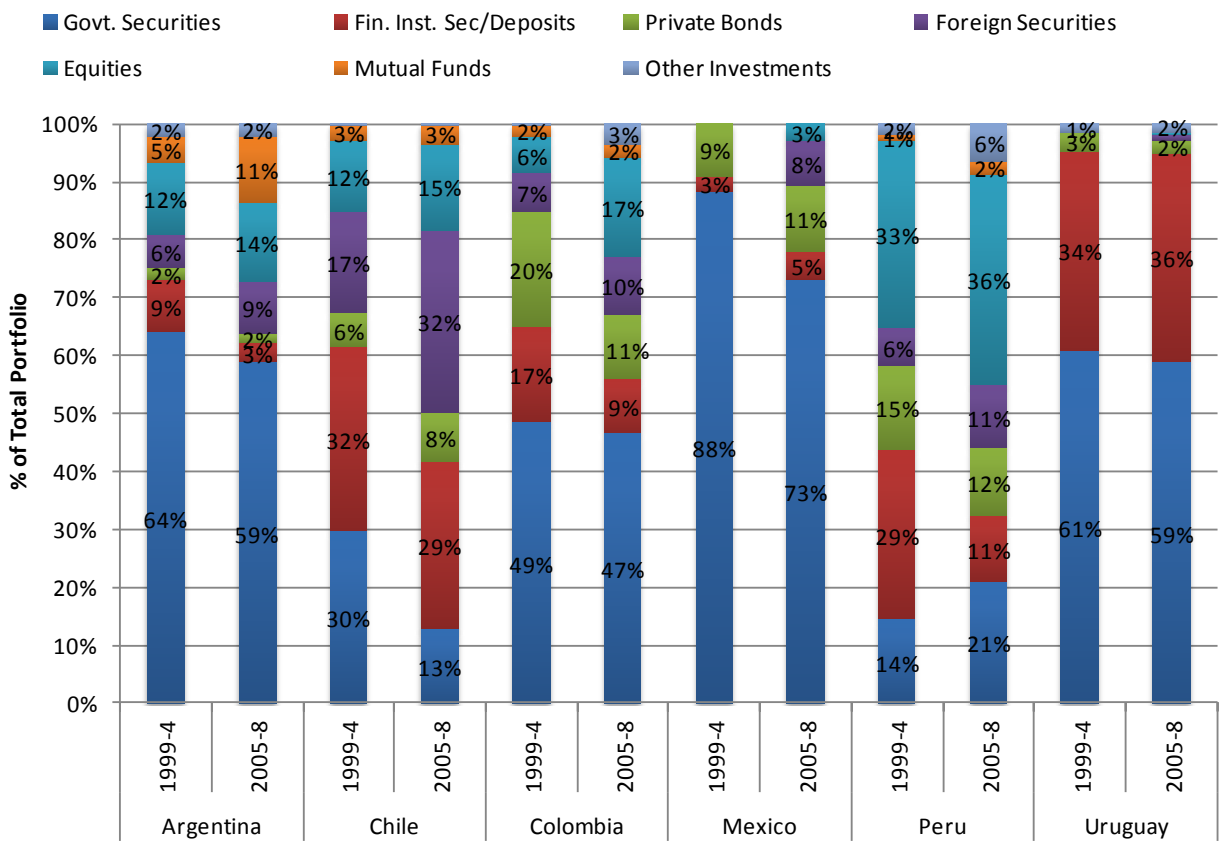
Even When Investing Long Term Pays Off



Note: Sample period: 2002-07. Source: Opazo, Raddatz, and Schmukler (2015).

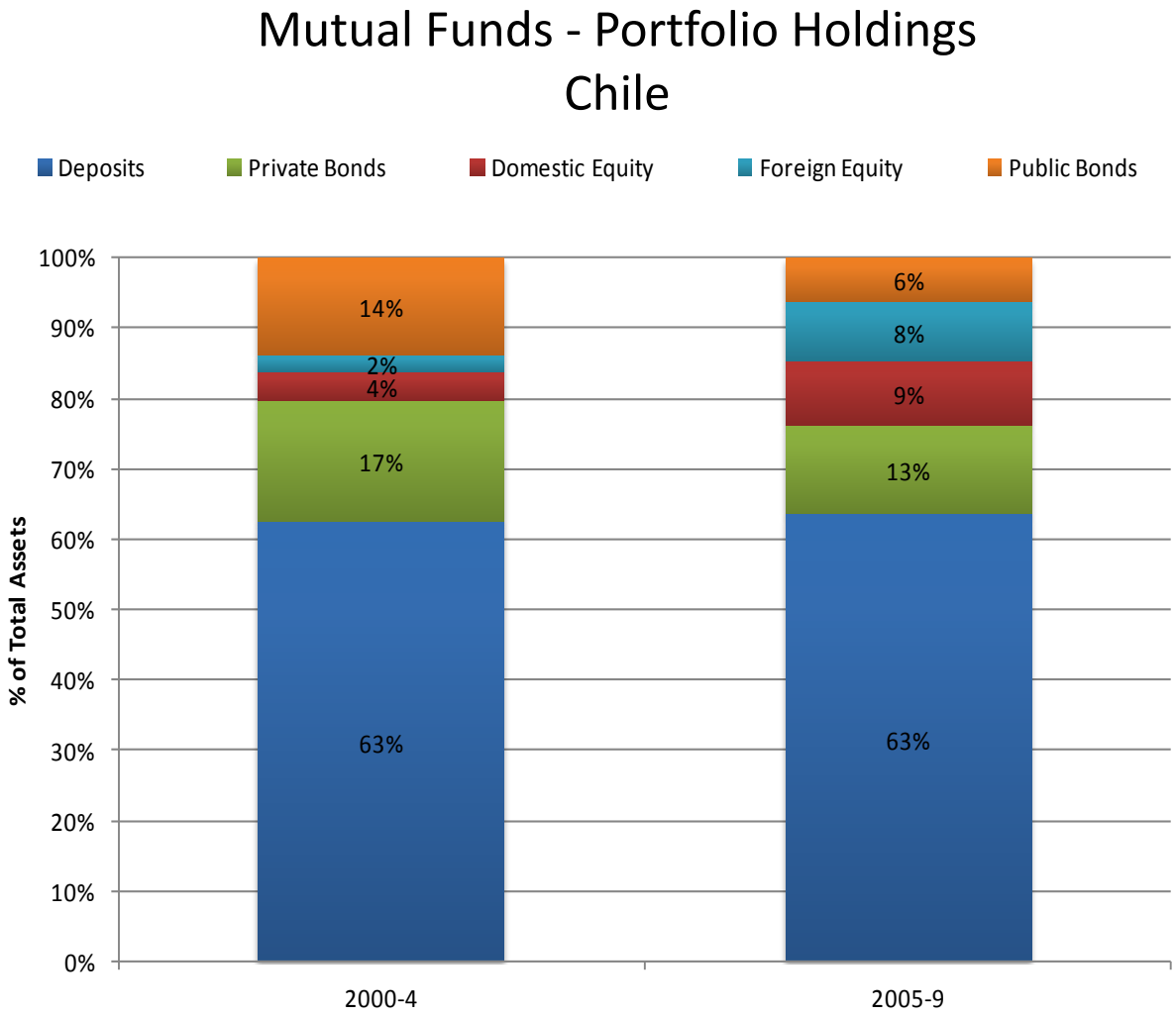
Portfolios Tilted toward Deposits and Public Bonds

Composition of Pension Fund Investments in Latin America



Source: OECD, ABRAPP, AIOSFP, FIAP, and local sources.

Mutual Funds Also in Deposits and Public Bonds



Source: IMF's IFS, FGV-Rio, Conasev, Superfinanciera, Andimia, and Banxico.

Evidence on Institutional Investors

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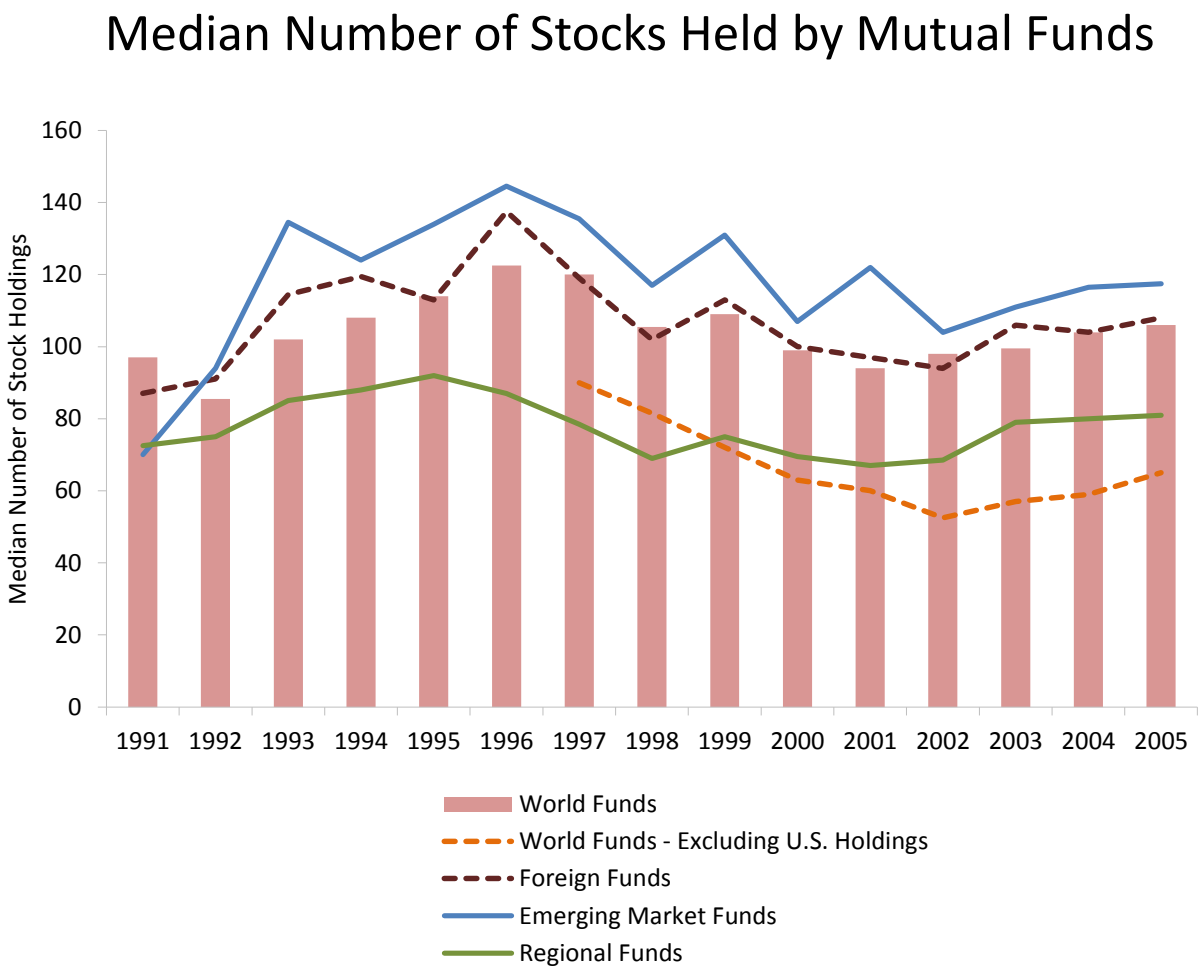
Similar Number of Holdings Across Fund Types



Source: Didier, Rigobon, and Schmukler (2013).

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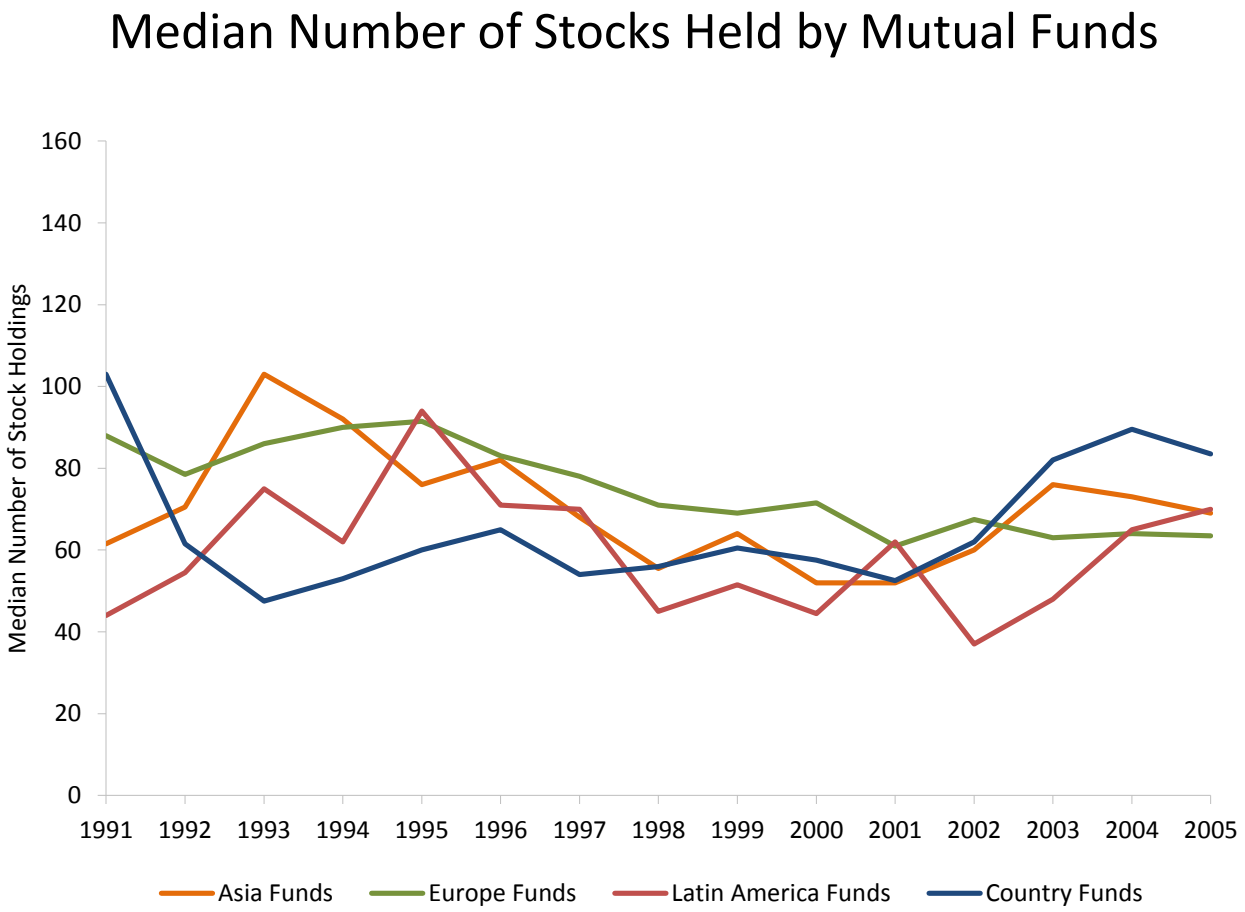


Source: Didier, Rigobon, and Schmukler (2013).

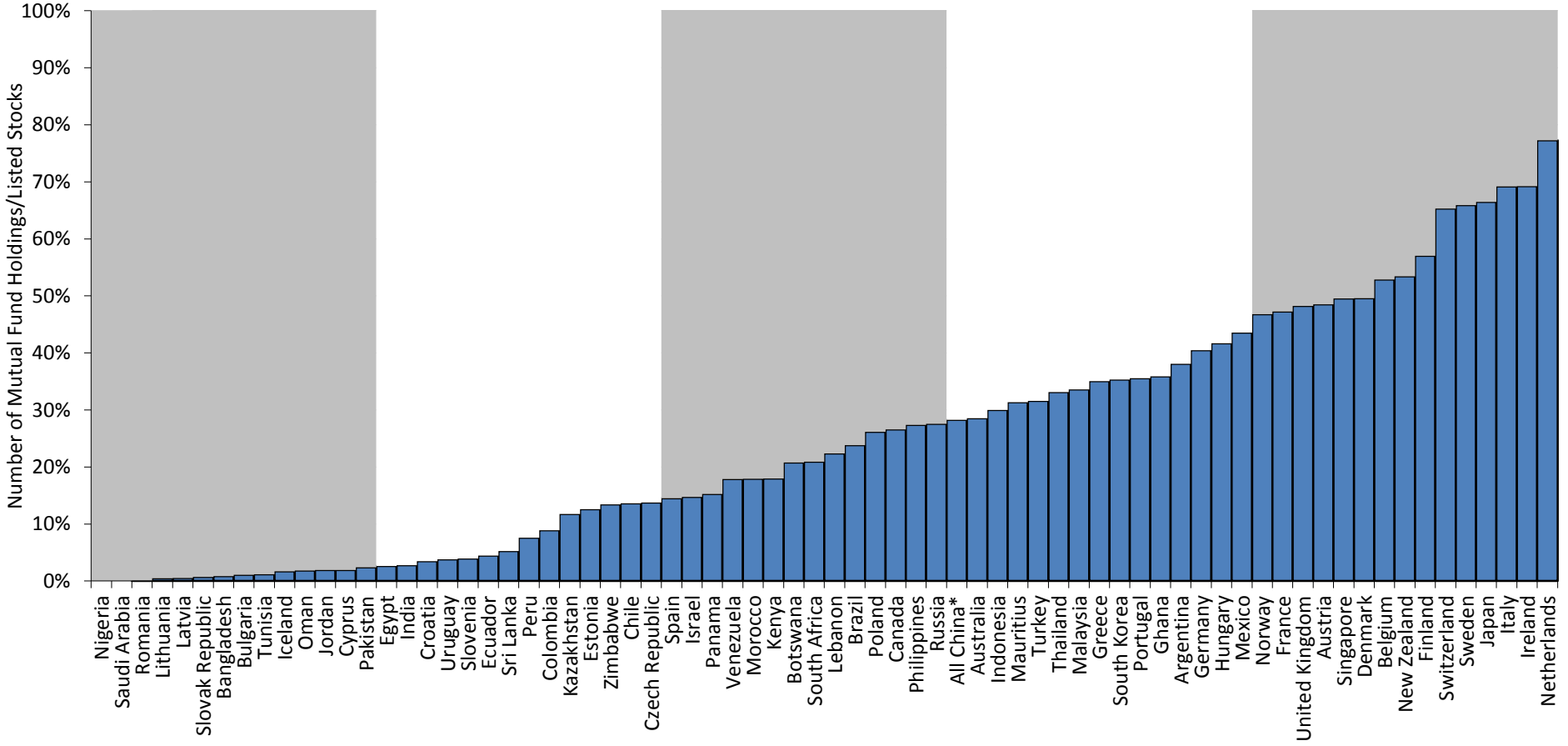
Changes Within Families

Fund Type	Number of Countries		
	Asia	Developed Europe	Latin America
Regional Funds			
Median Number of Countries	8	12	6
	Drop in the Number of Countries in Each Region by Fund Type (In Percent, Relative to Regional Funds)		
Emerging Market Funds	-10%	-	-17%
Foreign Funds	-30%	0%	-72%
World Funds	-36%	-14%	-75%

Source: Didier, Rigobon, and Schmukler (2013).

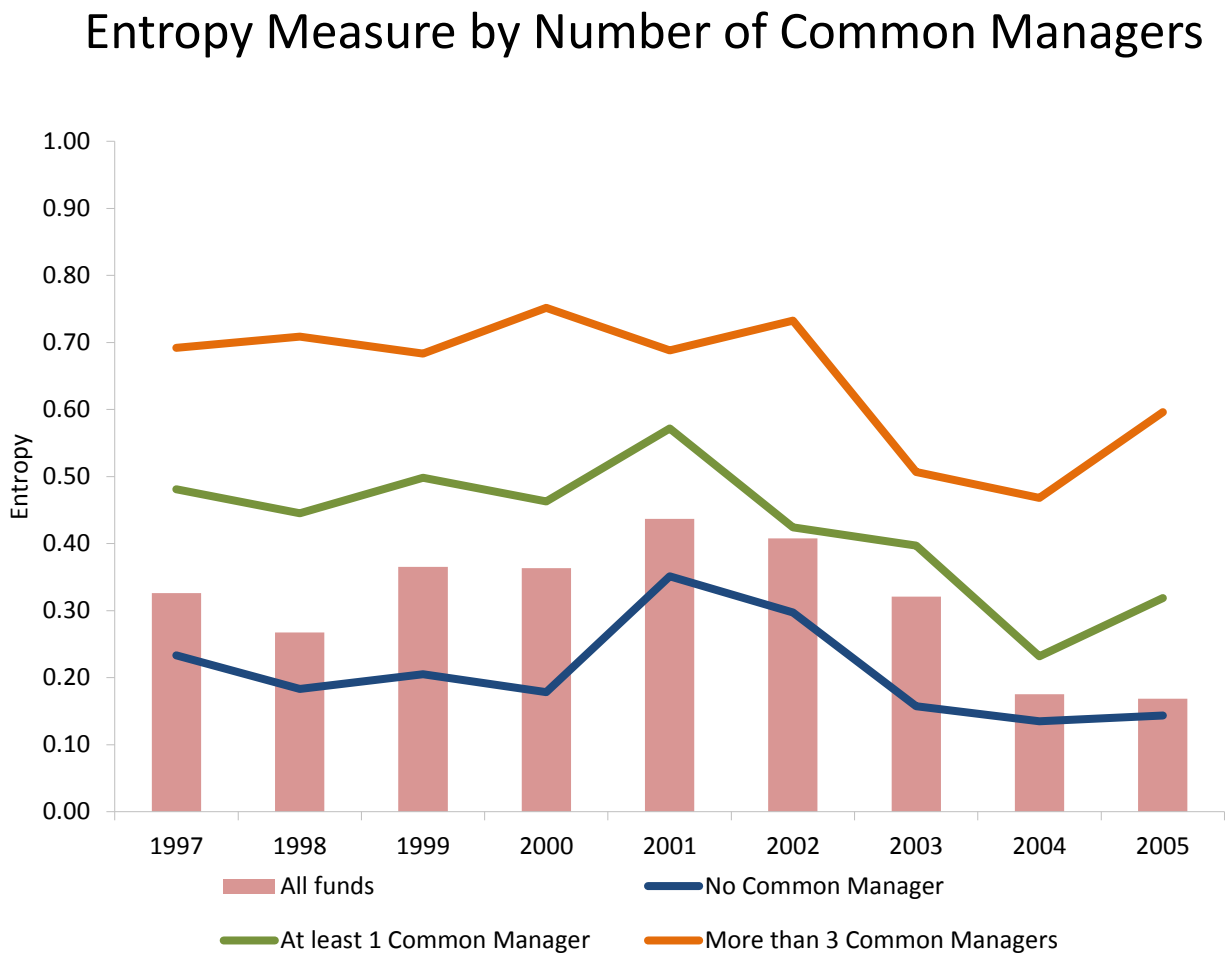
Mutual Funds Hold Relatively Few Stocks

Mutual Fund Holdings as a Proportion of the Total Number of Listed Stocks



Note: The sample period is 1997-2004. Source: Didier, Rigobon, and Schmukler (2013).

Having Managers in Common Increases Entropy



Source: Didier, Rigobon, and Schmukler (2013).

Family Effects Are Relevant

	Number of Stock Holdings				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Adjusted R-squared	0.01	0.42	0.42	0.44	0.44
Independent Variables					
Year Dummies	Yes	No	Yes	No	Yes
Fund Type Dummies	No	No	No	Yes	Yes
Family Dummies	No	Yes	Yes	Yes	Yes
No. of Observations	6,394	6,394	6,394	6,394	6,394

	% of Net Assets in Top Ten Holdings				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Adjusted R-squared	0.01	0.32	0.33	0.39	0.40
Independent Variables					
Year Dummies	Yes	No	Yes	No	Yes
Fund Type Dummies	No	No	No	Yes	Yes
Family Dummies	No	Yes	Yes	Yes	Yes
No. of Observations	6,379	6,379	6,379	6,379	6,379

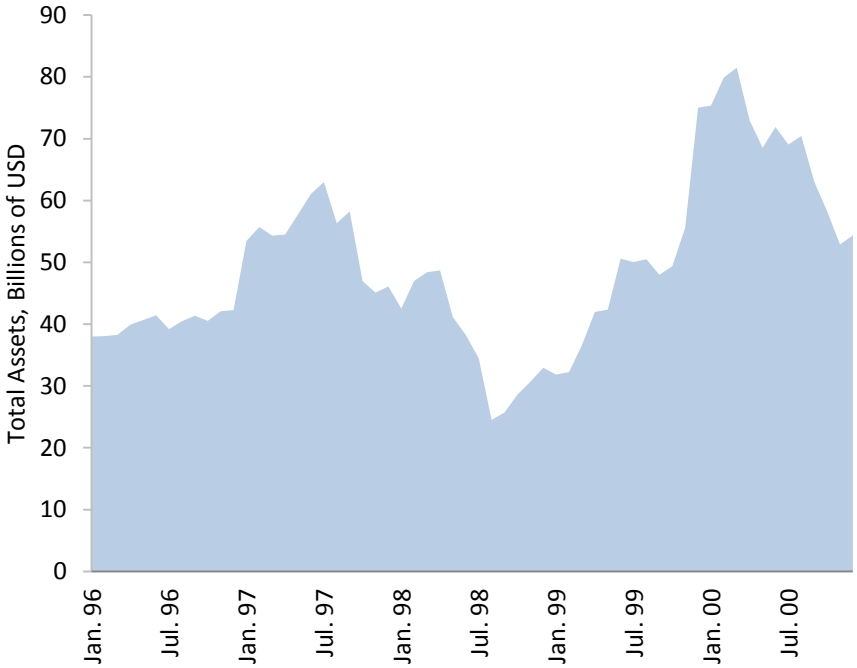
Source: Didier, Rigobon, and Schmukler (2013).

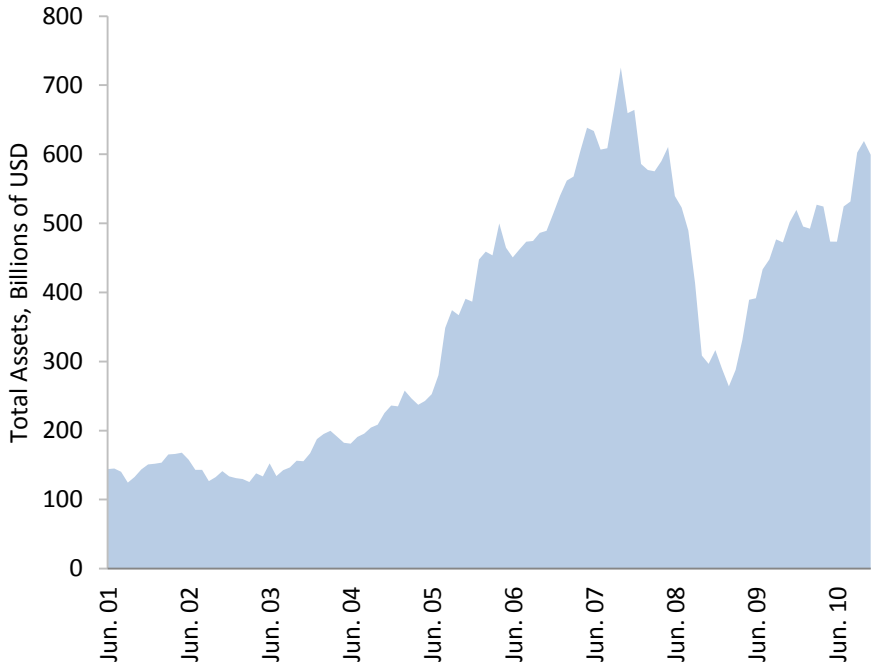
Holding Patterns Are Costly

	Minimizing the Variance					
	Average Returns (Per Year)		Average Difference in Accumulated Returns	Standard Deviation of Returns		
Type of Global Funds	**Global Funds**	**Simulated Global Funds**		**Global Funds**	**Simulated Global Funds**	**Number of Comparisons**
Daily Data						
World Funds	6.22%	11.01%	4.85%	0.87%	0.78%	63
Foreign Funds	6.03%	9.95%	4.03%	0.97%	0.89%	77
Pools of World or Foreign Funds	10.53%	15.23%	4.55%	0.86%	0.80%	25
Total	6.78%	11.14%	4.42%	0.92%	0.84%	165
Weekly Data						
World Funds	6.28%	11.33%	5.08%	2.05%	1.92%	63
Foreign Funds	6.04%	9.70%	3.74%	2.25%	2.13%	77
Pools of World or Foreign Funds	10.54%	15.16%	4.44%	1.99%	1.90%	25
Total	6.80%	11.13%	4.36%	2.14%	2.01%	165

Source: Didier, Rigobon, and Schmukler (2013).

Volatile Total Assets in Global Equity Funds

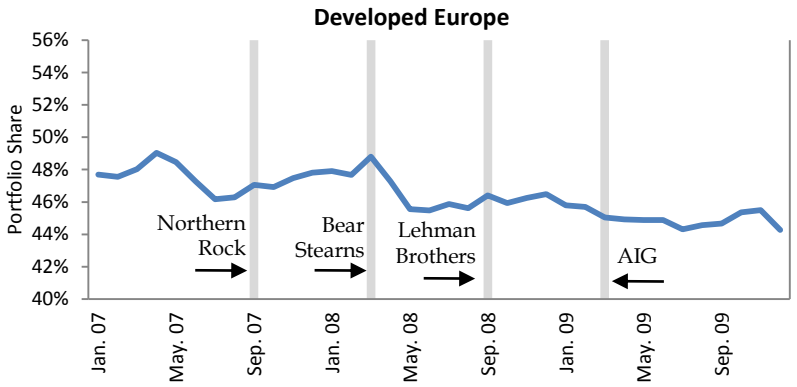


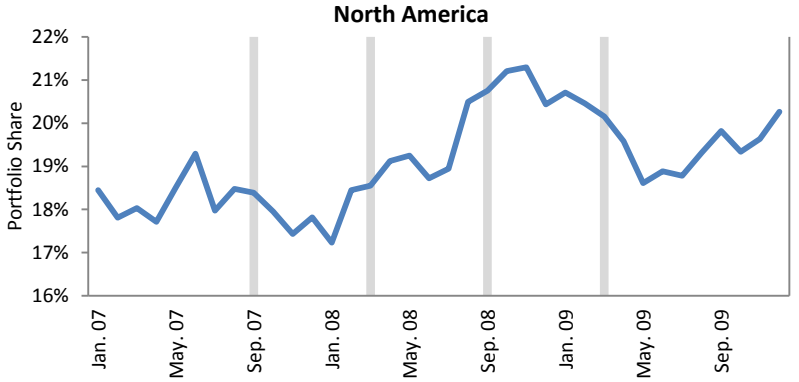


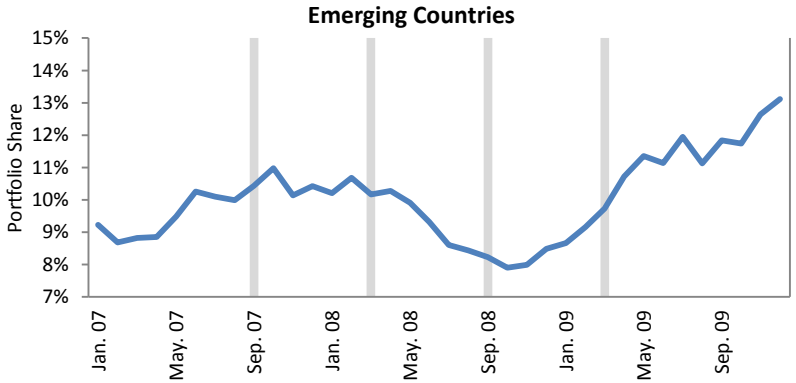
Source: Raddatz and Schmukler (2012).

Volatile Portfolios

Global Equity Funds





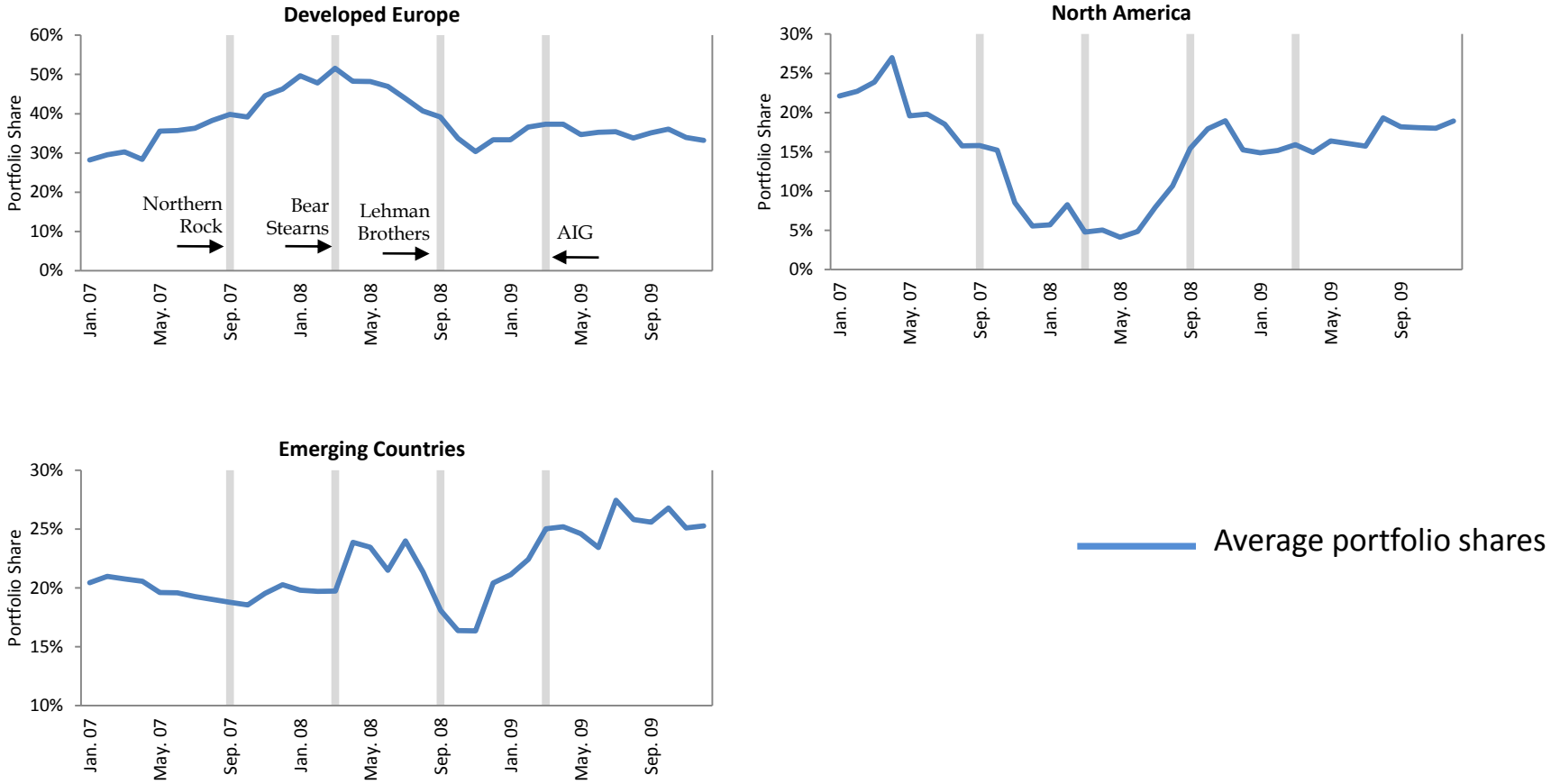


Average portfolio shares

Source: Raddatz and Schmukler (2012).

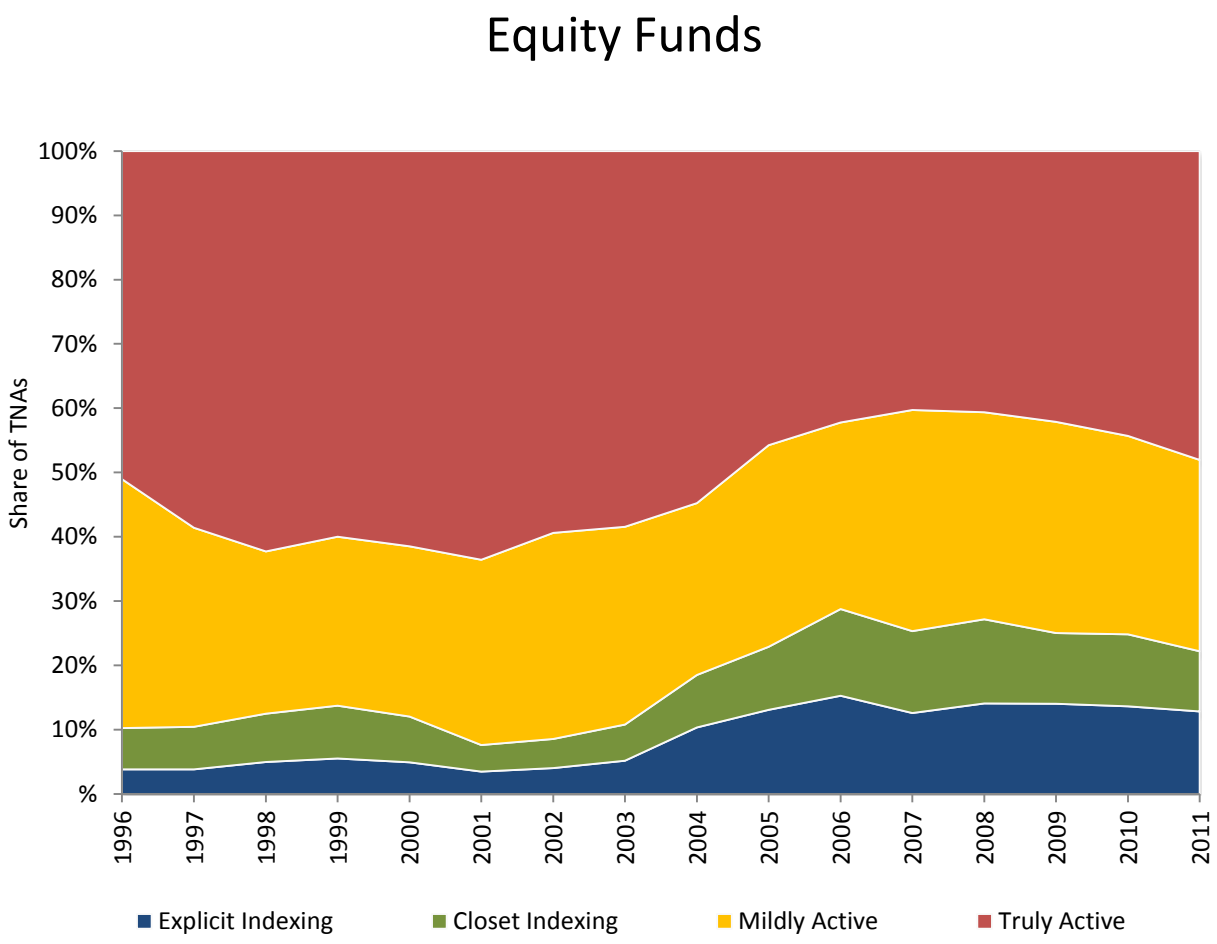
Volatile Portfolios

Global Bond Funds



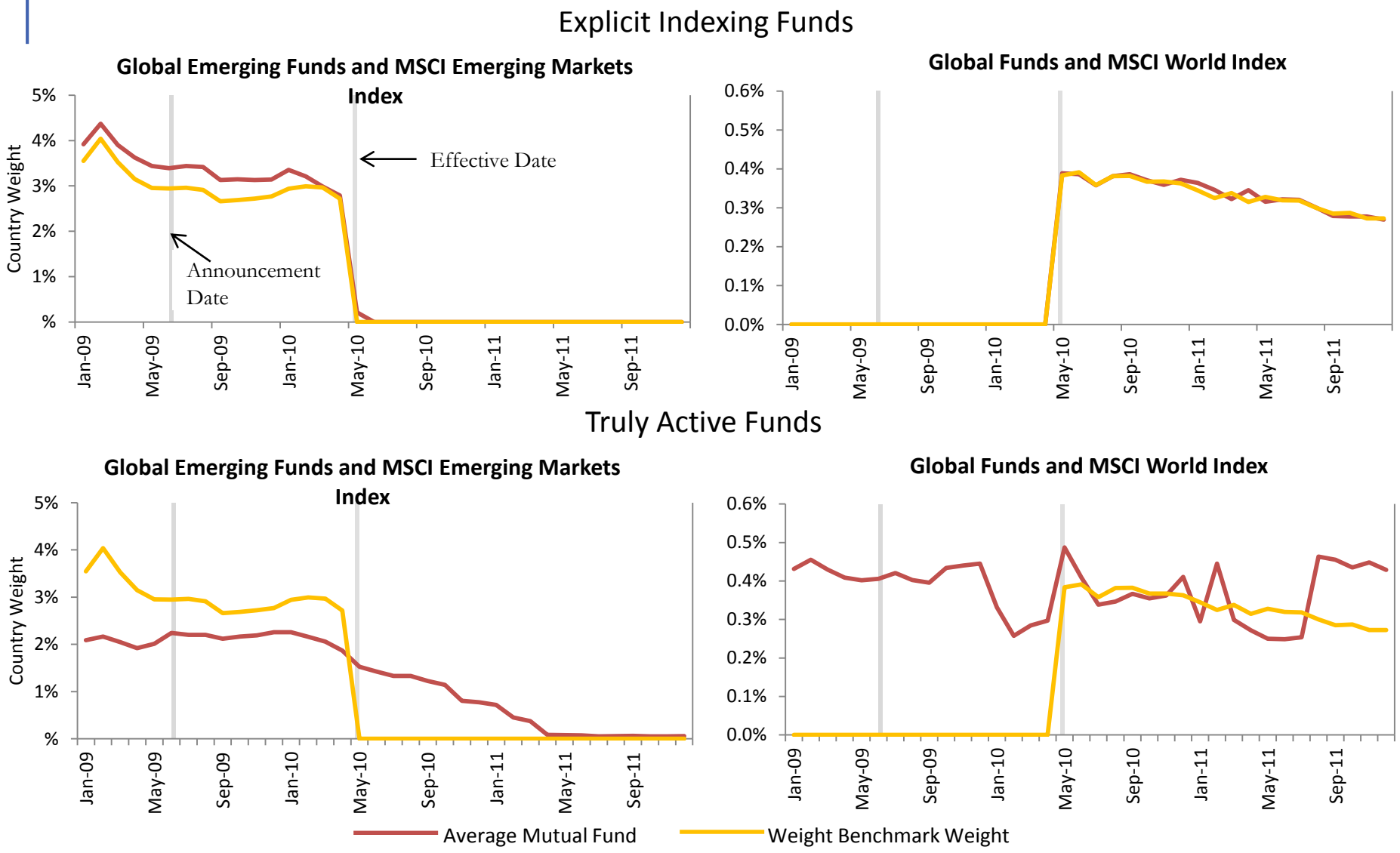
Source: Raddatz and Schmukler (2012).

Growing Number of Funds Follow Benchmarks



Source: Raddatz, Schmukler, and Williams (2015).

Motivation: Israel upgrade from EM to DM



Source: Raddatz, Schmukler, and Williams (2015).

Benchmarks Help with Identification

- Benchmarks important beyond country-time (fundamentals) and industry-time effects
- Changes in benchmark weights relate to relative returns

$$w_{ct}^{B} = \underbrace{w_{ct-1}^{B}(R_{ct}/R_{t}^{B})}_{Buy\ and\ Hold} + \underbrace{E_{ct}^{B}}_{"Exogenous"}$$

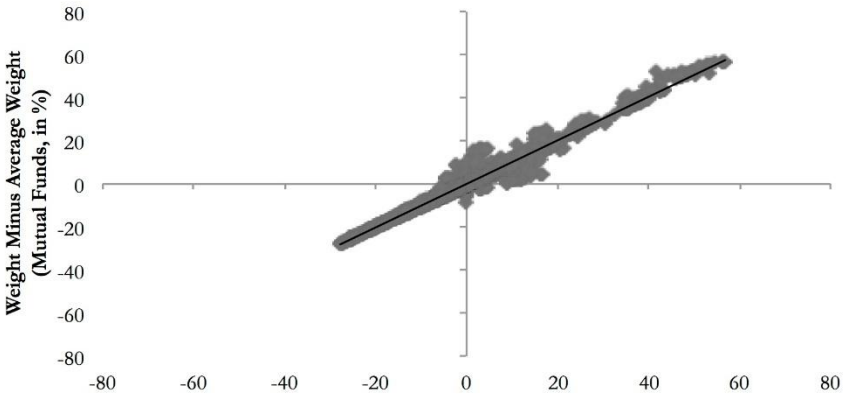
- Weights can move in opposite directions in different benchmarks (same country, same time)
- Exogenous shocks that shed light on identification

Source: Raddatz, Schmukler, and Williams (2015).

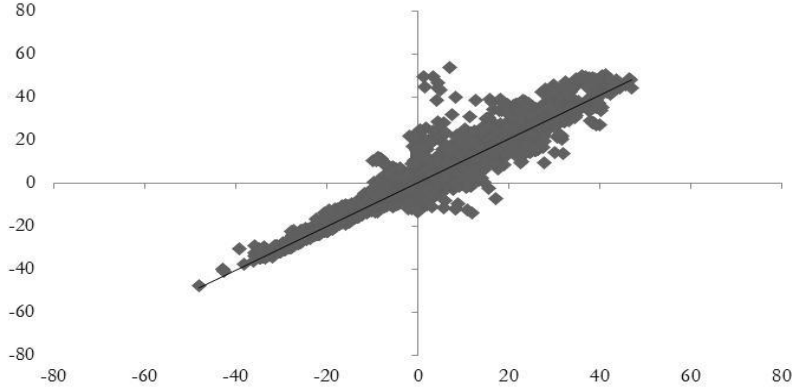
Mutual Fund Weights vs. Benchmark Weights

$$w_{ict} - \widehat{w}_{ct} \text{ vs. } w_{ict}^{B} - \widetilde{w}_{ct}^{B}$$

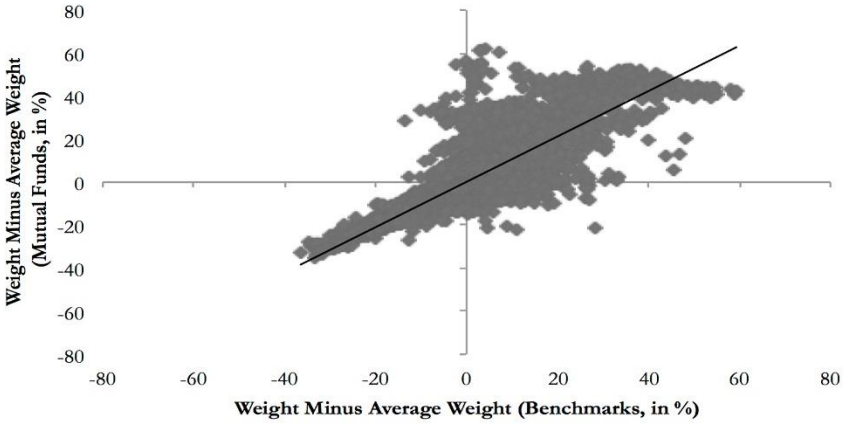
Explicit Indexing



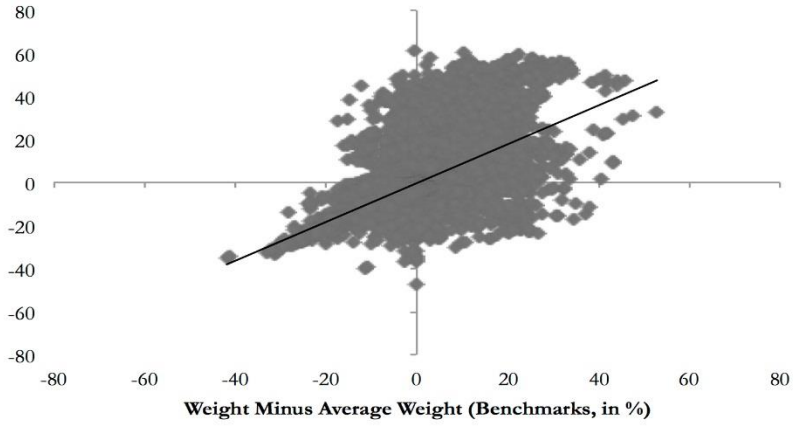
Closet Indexing



Mildly Active



Truly Active



Source: Raddatz, Schmukler, and Williams (2015).

Effects on Capital Flows

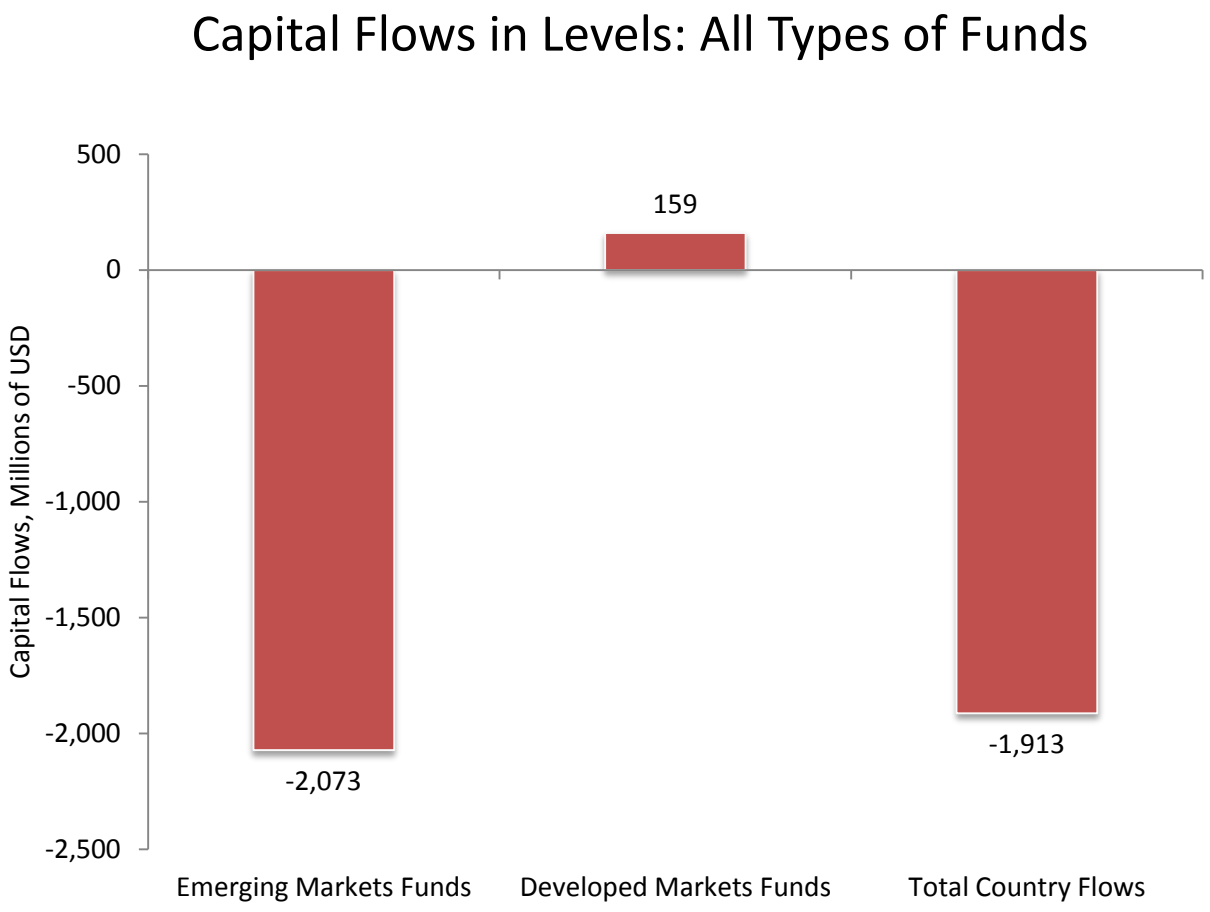
- Benchmark weights and capital flows linked through identity

$$F_{ict} = \underbrace{w_{ict}F_{it}}_{\text{Net Inflows}} + \underbrace{\tilde{A}_{it}\left(w_{ict} - w_{ict}^{BH}\right)}_{\text{Reallocation}}$$

- Direct benchmark effect
- Sensitivity effect
- Amplification effect
- Contagion effect

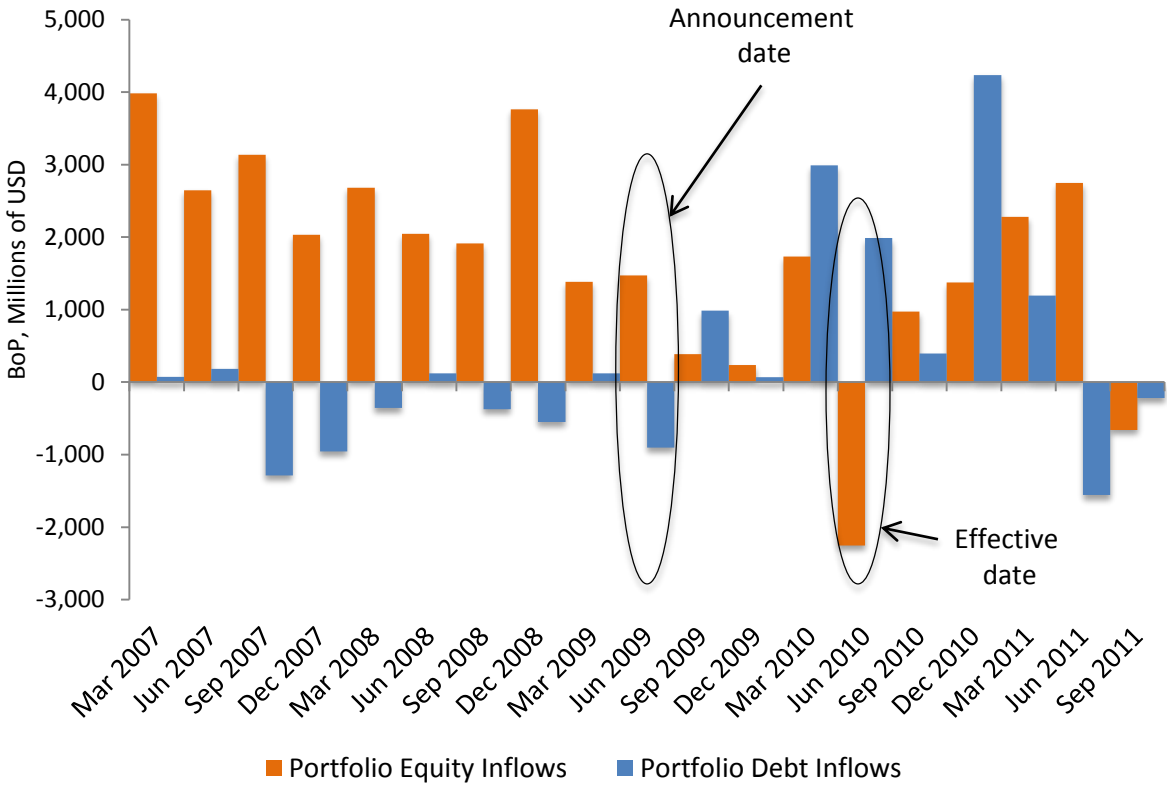
Source: Raddatz, Schmukler, and Williams (2015).

Direct Benchmark Effect: Israel's Upgrade (5/2010)



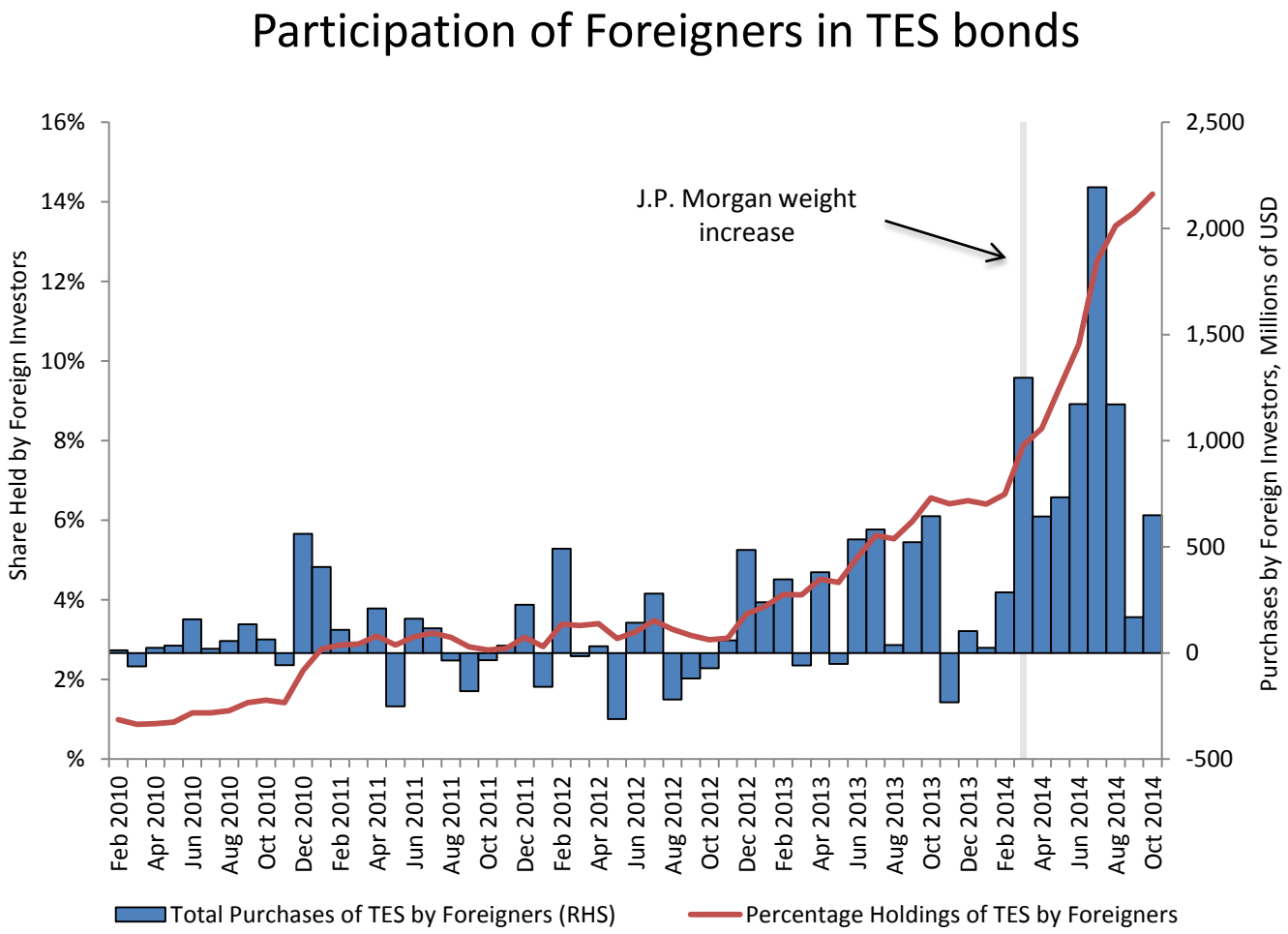
Source: Raddatz, Schmukler, and Williams (2015).

Direct Benchmark Effect in Israel's BoP



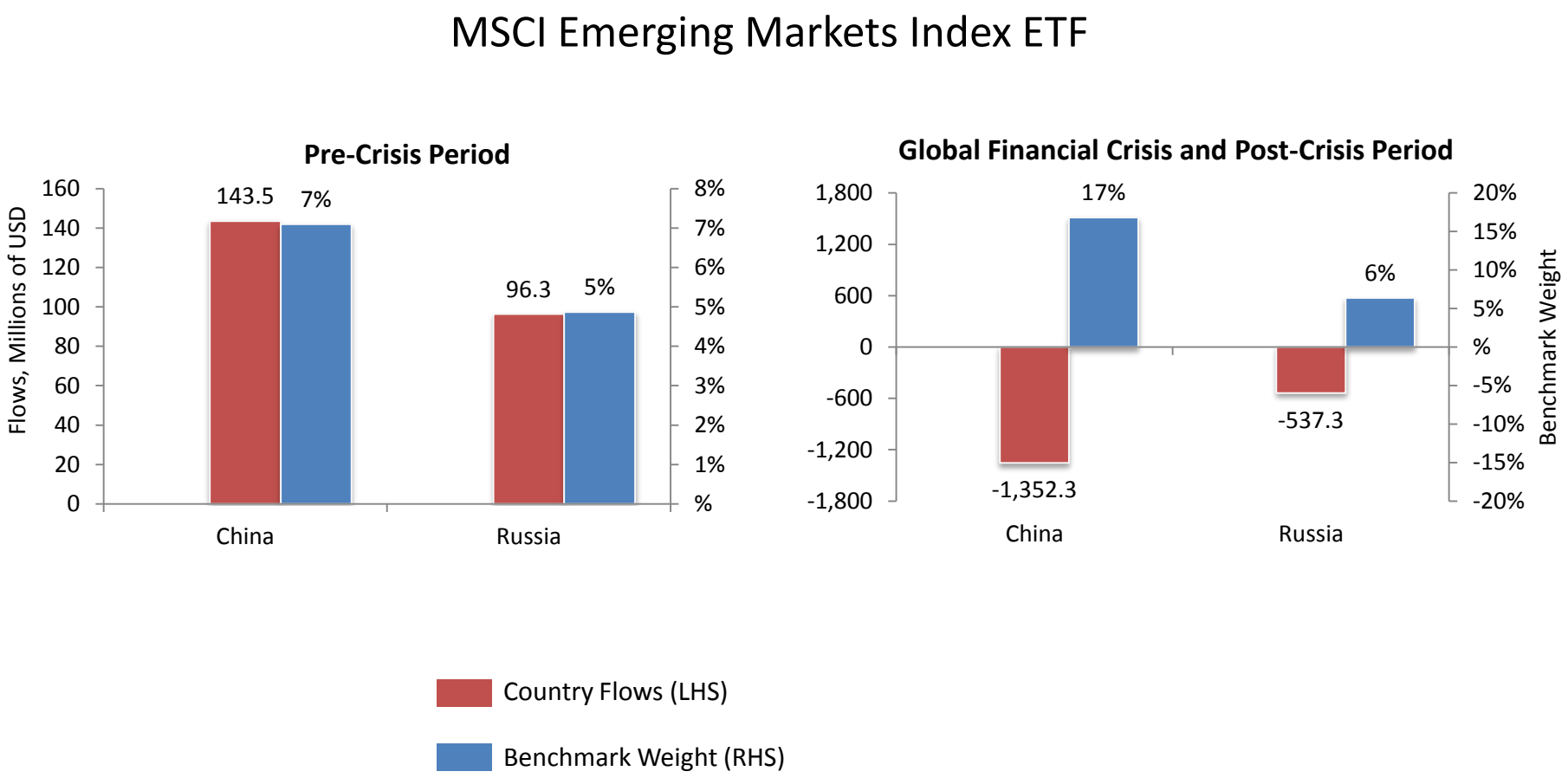
Source: Raddatz, Schmukler, and Williams (2015).

Direct Benchmark Effect in Colombian TES bonds



Source: Raddatz, Schmukler, and Williams (2015).

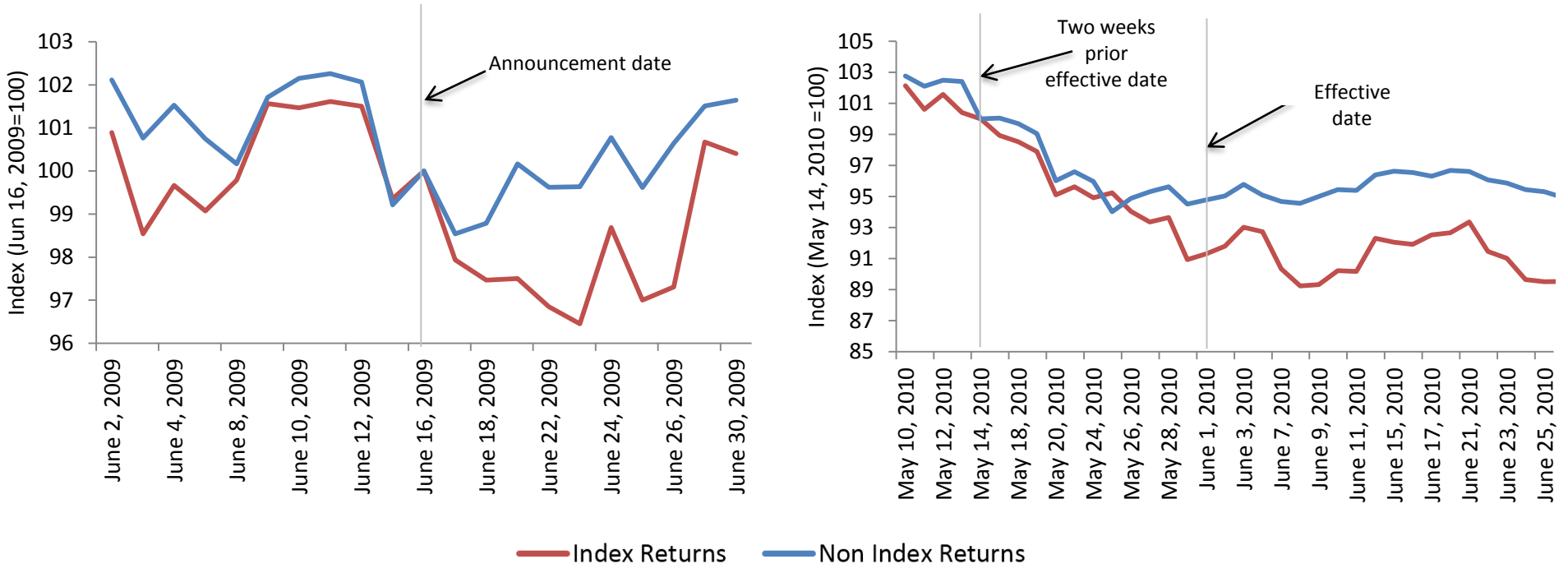
Amplification and Sensitivity Effect



Source: Raddatz, Schmukler, and Williams (2015). The pre-crisis period is May 2003 – May 2004. The crisis and post-crisis period are Sep. 2010 – Sep. 2011.

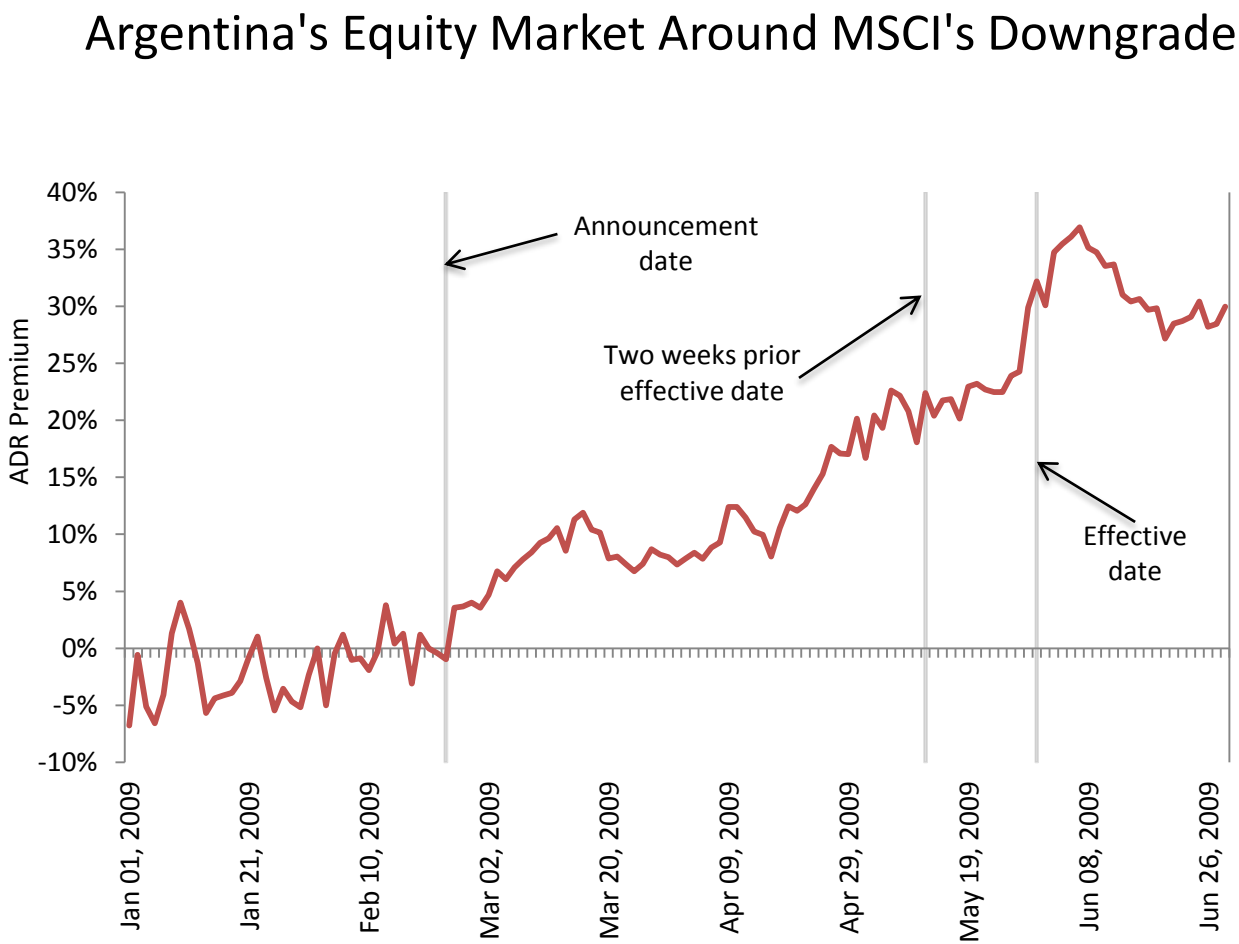
Price Effects: Israel's Upgrade and Stock Returns

Stock Market Prices of Israeli Firms Around Israel's Upgrade



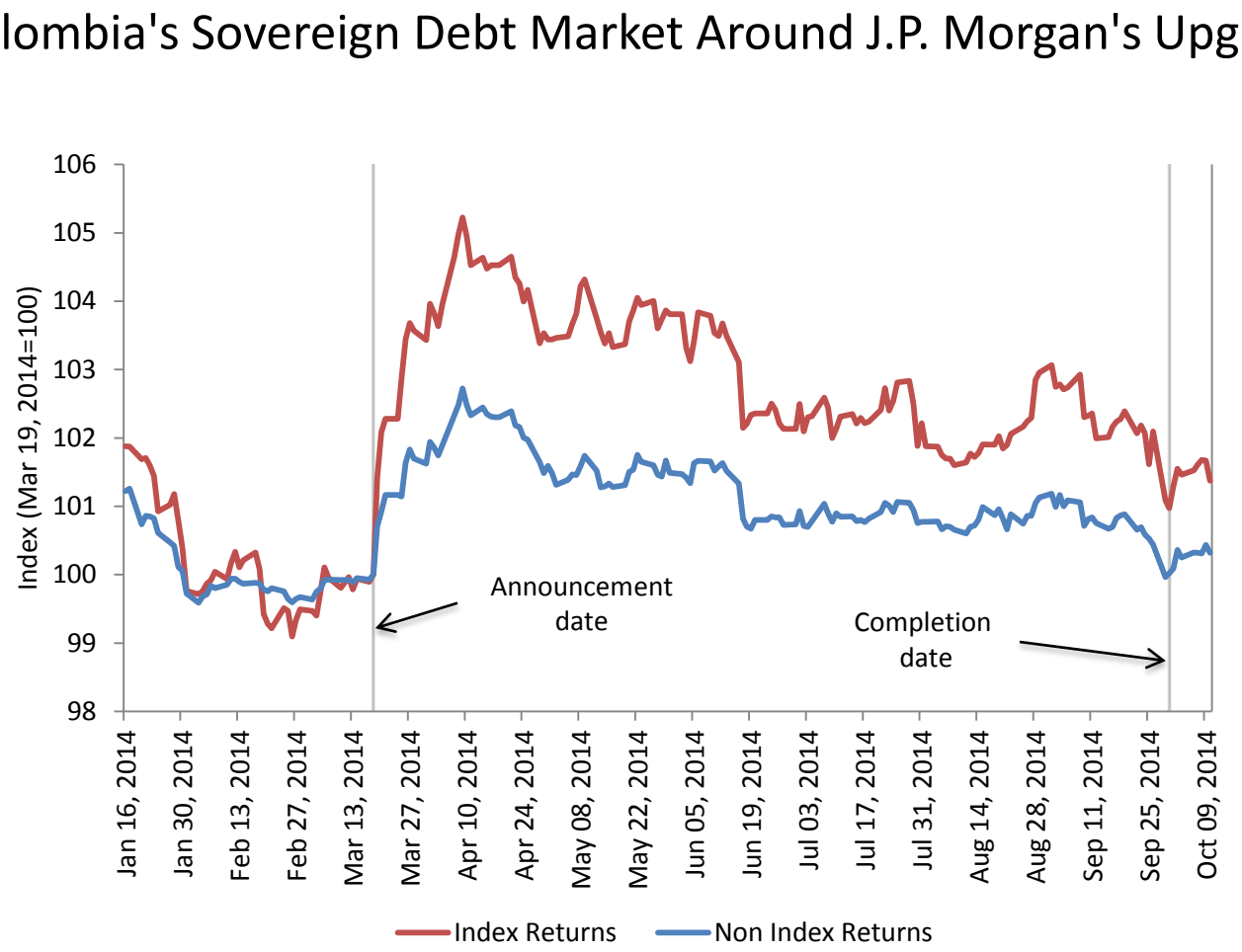
Note: Index returns is a market capitalization price index of firms covered by MSCI. Non Index returns is a market capitalization price index of firms not covered by MSCI. Source: Raddatz, Schmukler, and Williams (2015).

Price Effects: Direct Benchmark Effect – Argentina



Note: The figure illustrates the log difference between stock price of firms entering Argentina's MSCI index (ADRs) and the stock price of firms going out of the index. Source: Raddatz, Schmukler, and Williams (2015).

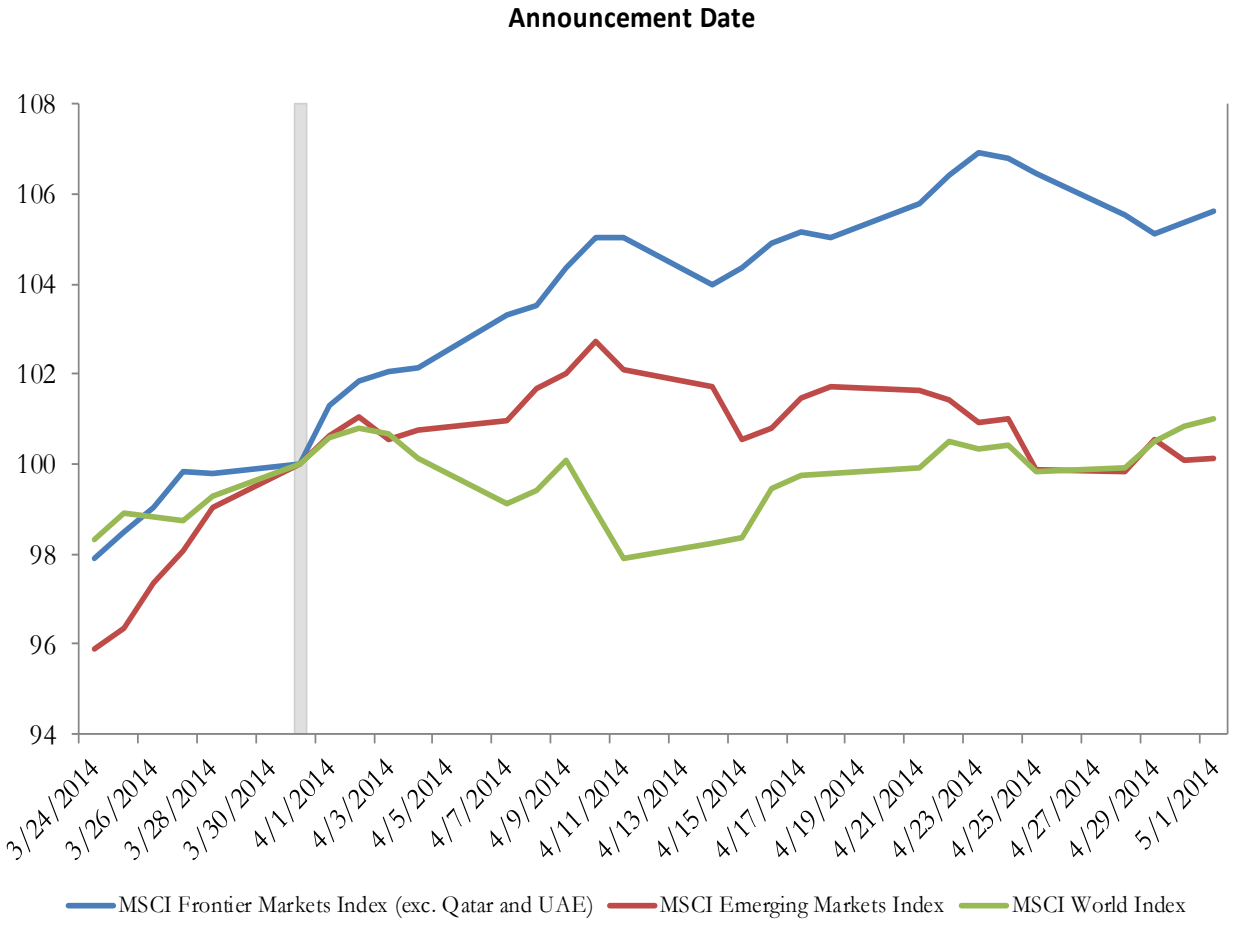
Price Effects: Direct Benchmark Effect – Colombia



Note: Index returns is a local currency debt index (in USD) containing all bonds entering the benchmark and non index returns is a local currency debt index (in USD) from bonds not affected by the benchmark change. Source: Raddatz, Schmukler, and Williams (2015).

Price Effects: Contagion in Frontier Markets

Impact on Frontier Countries Due to the MSCI Upgrade of Qatar and UAE



Source: Raddatz, Schmukler, and Williams (2015).

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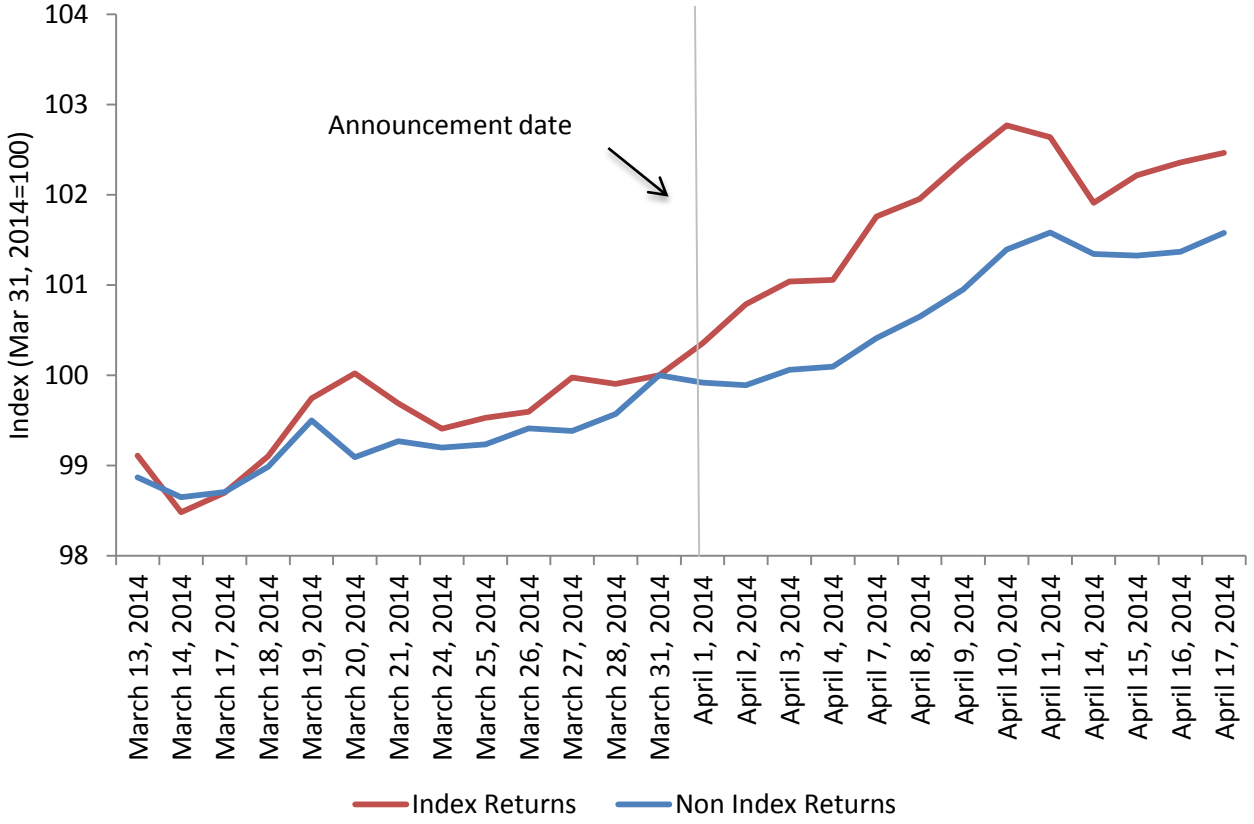
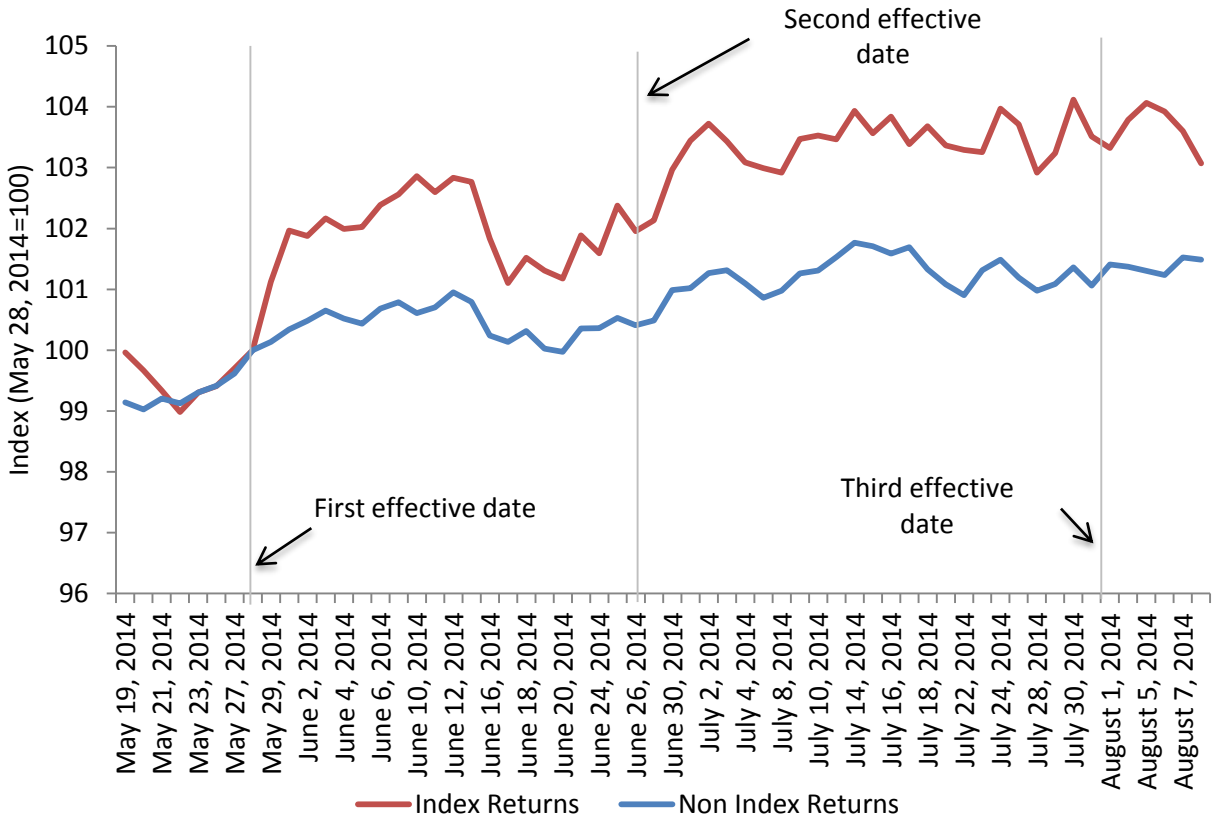


Source: Raddatz, Schmukler, and Williams (2015).

Price Effects: Contagion in Frontier Markets

Impact on Frontier Countries Due to the MSCI Upgrade of Qatar and UAE



Source: Raddatz, Schmukler, and Williams (2015).

Concluding Remarks: Bottom Line

- Constraints not on the supply side of funds
- Constraints not on the availability of investable assets
- Constraints likely not on specific regulatory issues
  - These get much attention at country level, but this is a cross-country issue
- Financial intermediation process more difficult than thought
  - Governments and large firms receive most of the financing
  - Incentives and organizational issues seem to play crucial role and restrict (good) risk taking options
  - Might not yield socially optimal outcome
  - Financial intermediaries brain of the economy …
  - … but work differently than expected

Some General Policy Challenges

- Generate healthy competition among financial intermediaries and market discipline, consistent with intended goals
- Reduce fees and foster benchmarking without boosting short-termism, herding, coordination effects, pro-cyclicality, volatility
- Foster long-term risk taking while being able to monitor managers
- Generate contrarian behavior and long-term arbitrage opportunities without backlash due to negative outcomes
- Take advantage of useful international diversification
- Think of alternative ways of managing retirement assets
- How will the change come about?

Pension and Mutual Funds: Incentives

- Regulators in tight spot
- Regulatory incentives to minimize risk relative to benchmark
  - Having similar portfolios minimizes that risk (herding type of behavior)
  - Difficult to come up with very different regulatory structure
- Why is the industry tilted toward low (idiosyncratic) risk with short maturity, as one example of low risk taking?
  - Some factors have pushed equilibrium to short term, kept it there
  - Equilibria can be quite persistent, displaying hysteresis
  - Can long-term benchmarks shift portfolios to the long term?

Pension and Mutual Funds: Incentives

- Investor side – Market discipline
  - Outflows (or the threat of) / redemptions
  - Based on short-term returns
  - Outflows potentially more important for MFs – systemic
- Pay structure (tracking error)
  - Tracking error investment model (tracking the mean)?
- Asset return volatility
  - Incentives to produce stable returns in the short run
  - Link to “liability structure”
  - Loss aversion by underlying investors?
- Cost of information acquisition?
  - Focus on low information intensity assets

Features Not Country Specific

- Patterns not exclusive of developing countries
- Unexpected patterns even in U.S. and develop countries
  - Invest in few stocks
  - Do not share information within companies
  - Are pro-cyclical even when investing in equities and even when shocks have already hit them
  - Are subject to significant redemptions from investors
  - Follow benchmarks and behave passively, which can add to pro-cyclicality through coordination effects
- Organizational factors seem key to understand behavior
- However and unfortunately, not clear alternative model

Directions for Future Work

- Benchmarks
  - What determines the intensive and extensive margins?
  - Effects on cost of capital to corporations and corporate financing
  - Effects on domestic institutional investors
- Active management
  - What determines deviations from the benchmarks?
  - Are there arbitrage/investment opportunities?
- Asset managers and financial stability (BIS, FSB, IMF)
  - How do funds manage their liquidity?
  - To what extent do asset managers generate pro-cyclicality in capital flows and investments?

Directions for Future Work

- Prospects for financial development
  - Experiences with long-term and illiquid financing
  - Infrastructure finance and SME finance by institutional investors?
- Different models of institutional investors?
  - Different results?
  - Domestic investors vs. foreign investors in long-term finance
  - Others institutional investors (SWF, PE, VC, HF)
- Government role
  - Role of public sector in managing/regulating retirement savings
  - Scope for new regulation and tradeoffs
  - Institutional investors and big data

Thank you!