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# Capital Market Development in LatAm and the Role of Institutional Investors

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World Bank



Capital Markets Day  
Lima, Peru  
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# Background Work

- De la Torre, Ize, and Schmukler (2012). Financial Development in Latin America: The Road Ahead. The World Bank.
  - Didier, Rigobon, and Schmukler (forthcoming). Unexploited Gains from International Diversification: Patterns of Portfolio Holdings around the World. *Review of Economics and Statistics*.
  - Opazzo, Raddatz, and Schmukler (2009). The Long and the Short of Emerging Market Debt. World Bank Research Policy Paper 5056.
  - Raddatz and Schmukler (forthcoming). Deconstructing Herding: Evidence from Pension Fund Investment Behavior. *Journal of Financial Services Research*.
  - Raddatz and Schmukler (forthcoming). On the International Transmission of Shocks: Micro-Evidence from Mutual Fund Portfolios. *Journal of International Economics*.
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# Introduction

- Two important questions:
    1. Where does LatAm (LAC) stand in K market development?
    2. To what degree can institutional investors help markets grow?
  - Difficult to answer
    - Lack of evidence
    - Where evidence exists, it is very patchy
    - Lack of benchmarks
    - Causality problems
    - Several concurrent factors, hard to quantify marginal impact
    - Can reach some conclusions, but also need speculation and more work
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# Introduction

- Financial systems indeed developed over the last two decades
- Became significantly more complex
- From a mostly bank-based model to a more complete and interconnected model
  - Non-bank markets (bonds, equities) increased in absolute and relative size
  - Non-bank institutional investors now play more central role
  - The number and sophistication of participants (including cross-border investors) increasing
  - Banks connected to capital markets and institutional investors

# Introduction


- Despite all new developments, many challenges remain
  - No convergence yet – advanced economies developed even more
  - Many of the improvements centered in certain areas, and countries
- Many shortcomings in several important EMs, including LAC
  - Bank credit stagnated in various countries
  - Firm financing from banks decreased in relative terms
  - Bond markets expanded, but with limitations
  - In both banks and bonds, public sector still captures significant share
  - Equity markets still small, illiquid, and concentrated in large firms
  - Institutional investors sophisticated and large in several countries, but with much more limited role than previously thought

# Introduction

- LAC's financial systems under-developed compared to others
  - Important gaps in banks and equity markets
  - Bank credit to the private sector stagnated
  - Consumer credit increased at the expense of firm financing
  - Bond markets expanded, but not as fast as rest of the world
  - Private bond markets increased in size, but remain small
    - In case of Chile, primary market increased much more than secondary one
  - Equity markets lag, and further behind other regions, notably Asia
    - One hopeful spot: Brazil
  - Institutional investors sophisticated and large, but most of the savings still channeled to government bonds and deposits

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# Introduction

- Far away from model of dispersed ownership and participation
  - Supply versus demand effects
    - Constraints not on lack of available funds: domestic & foreign savers
    - Many assets available for investment not purchased by institutional investors or foreigners, which hold large resources
    - Some large institutional investors seem to shy away from risk
    - Incentives to banks to move first into relatively easy markets (consumer, leasing, services), after big corporations left to capital markets
    - Incentives to asset managers not always socially optimal-hard to overcome
    - Overall functioning of financial systems does not contribute to expectations
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# Introduction

- Many firms not becoming public or not accessing markets
  - Capital markets service only few firms, with increasing concentration domestically and abroad
  - Substantial financing through retained earnings and banks
- Commonly mentioned issues (e.g., regulations, informality) not the main or only obstacles
- Several challenges ahead
  - Growing savings
  - Role and type of financial intermediaries
  - Need for more risk taking paired with stability
  - Spillovers to all firms
  - Need to catch up
  - Complexities and interconnectedness



# Rest of the Talk

- Brief overview of where LAC stands on financial development
  - Emphasis on capital markets
- Brief characterization of institutional investors' portfolios
- How much to expect from investors like pension funds?
  - The case of Chile
  - Distinctive investors? Herding behavior?
  - Long-term investors?
- Conclusions

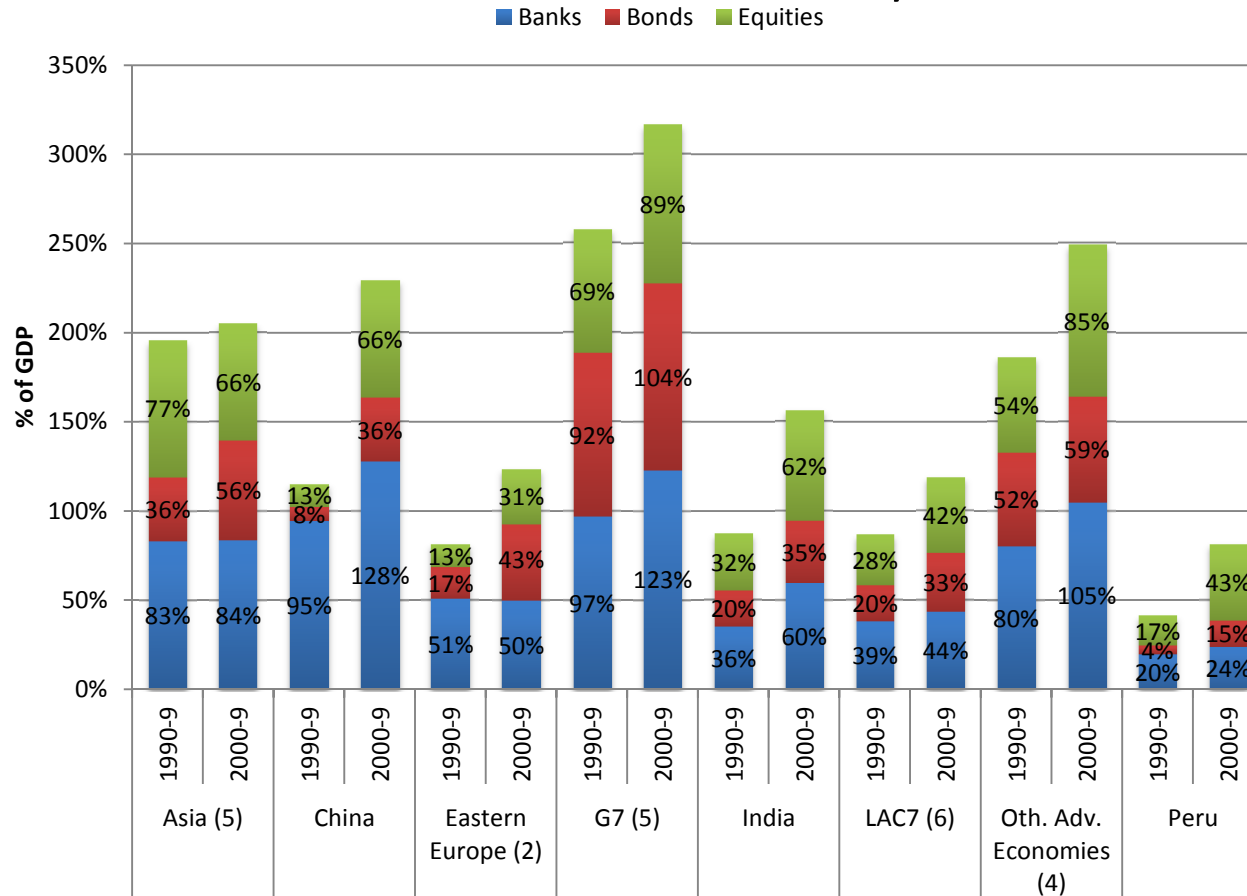


# Financial Development



# Size of Financial Systems has Increased

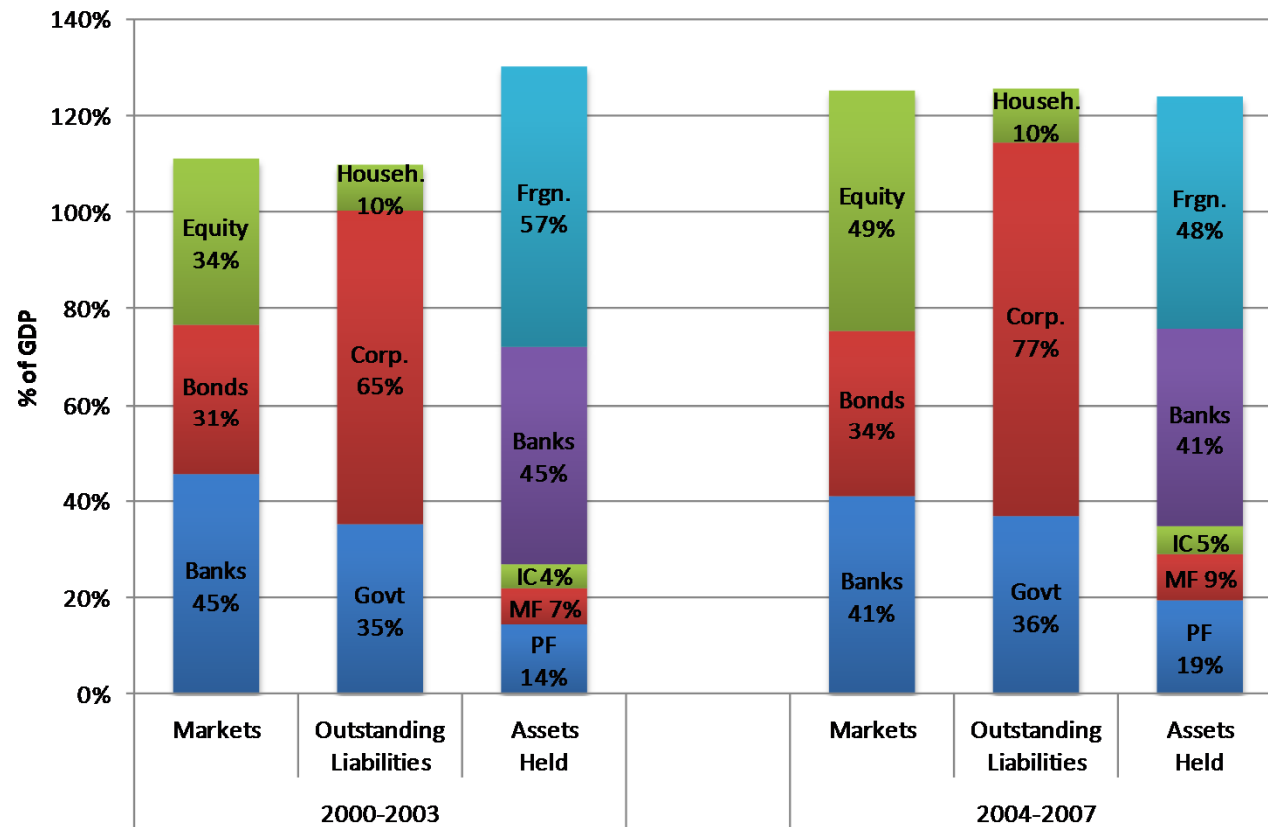
## Size of Domestic Financial System



Source: IFS, BIS, and WDI

# Structure of Domestic Financial Systems

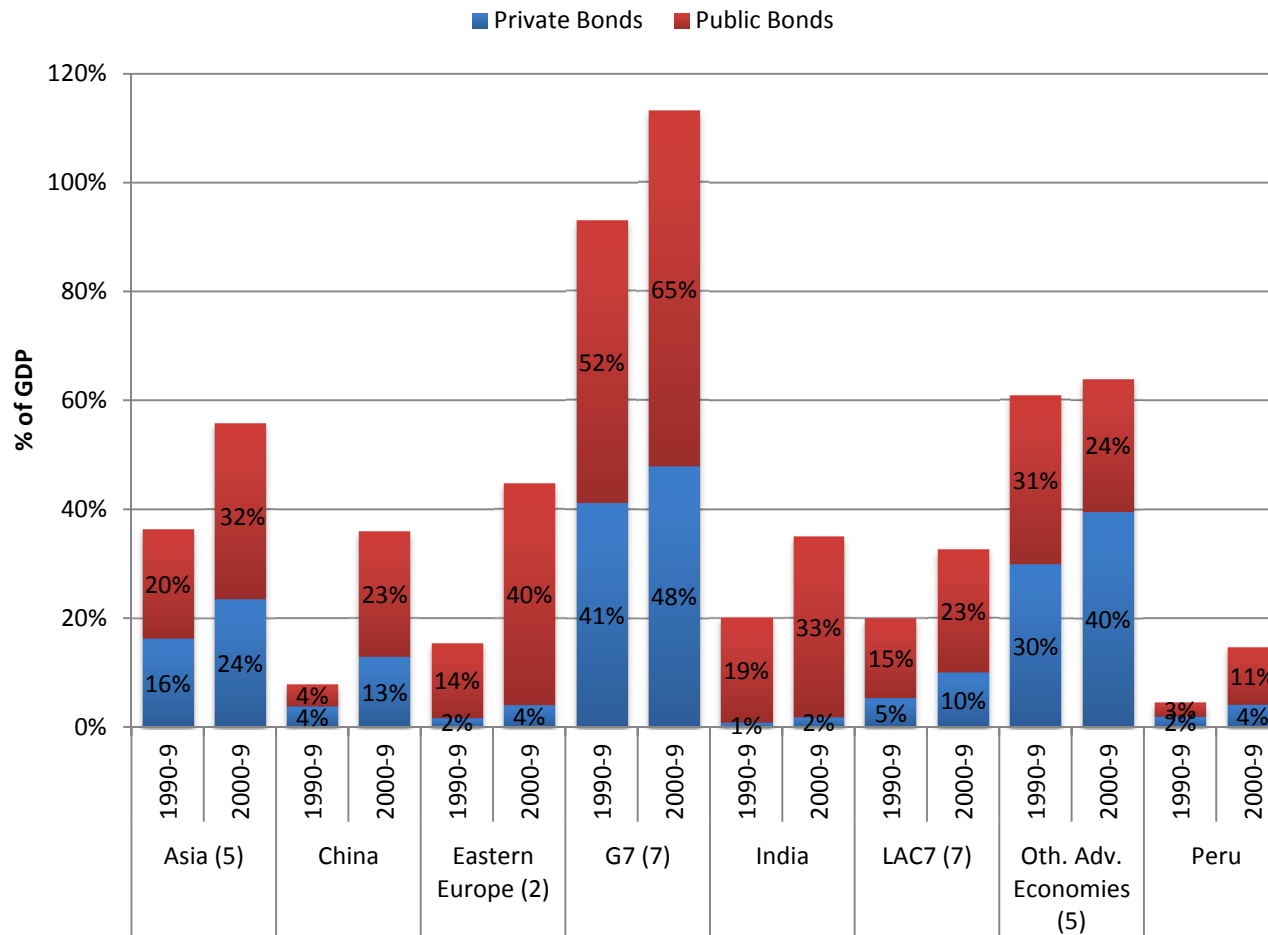
LAC7



Source: Lane and Milesi-Ferretti (2007), IFS, BIS, WDI, EMBD, ICI, ASSAL, AIOS, and local sources

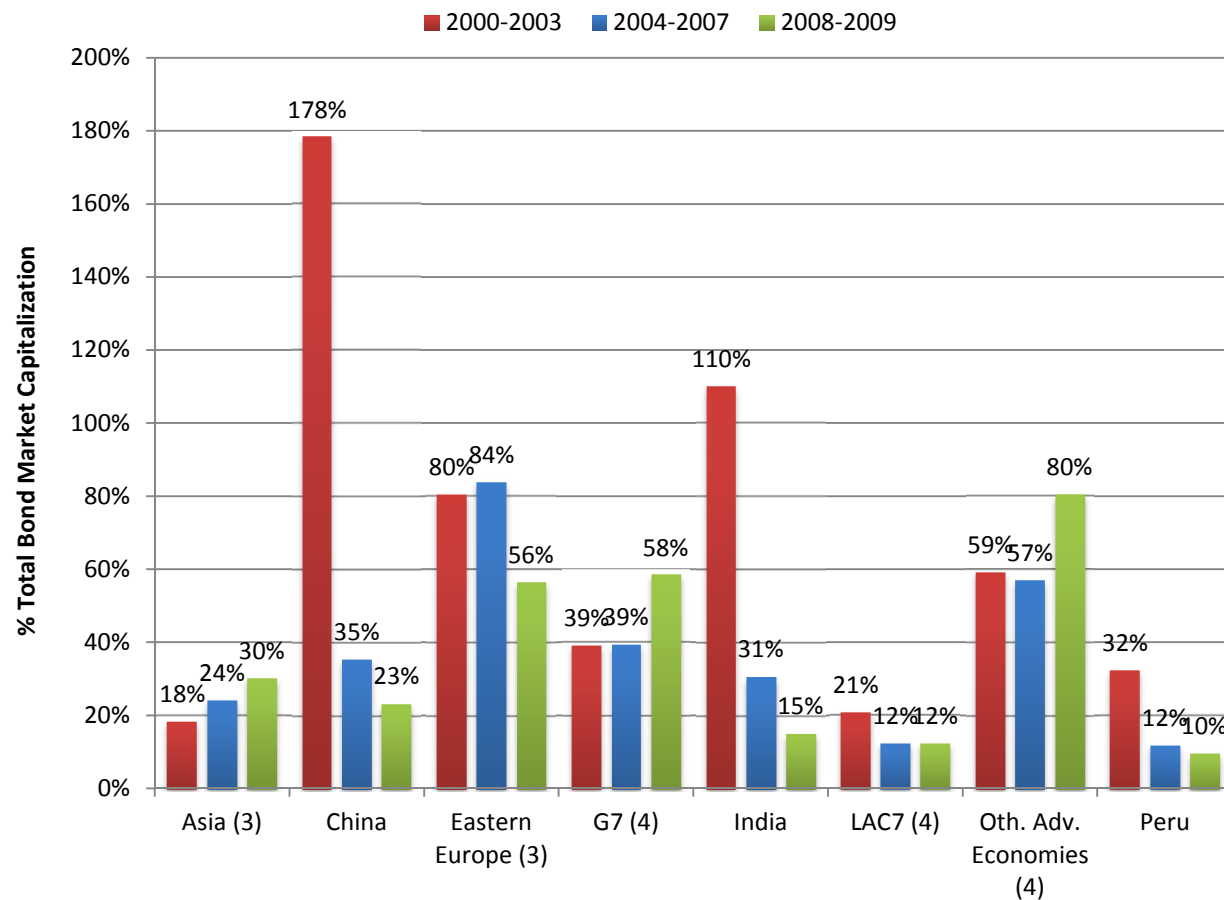
# Bond Markets Have Expanded, But Public Sector Still Large and Growing

## Composition of Bond Markets, % of GDP



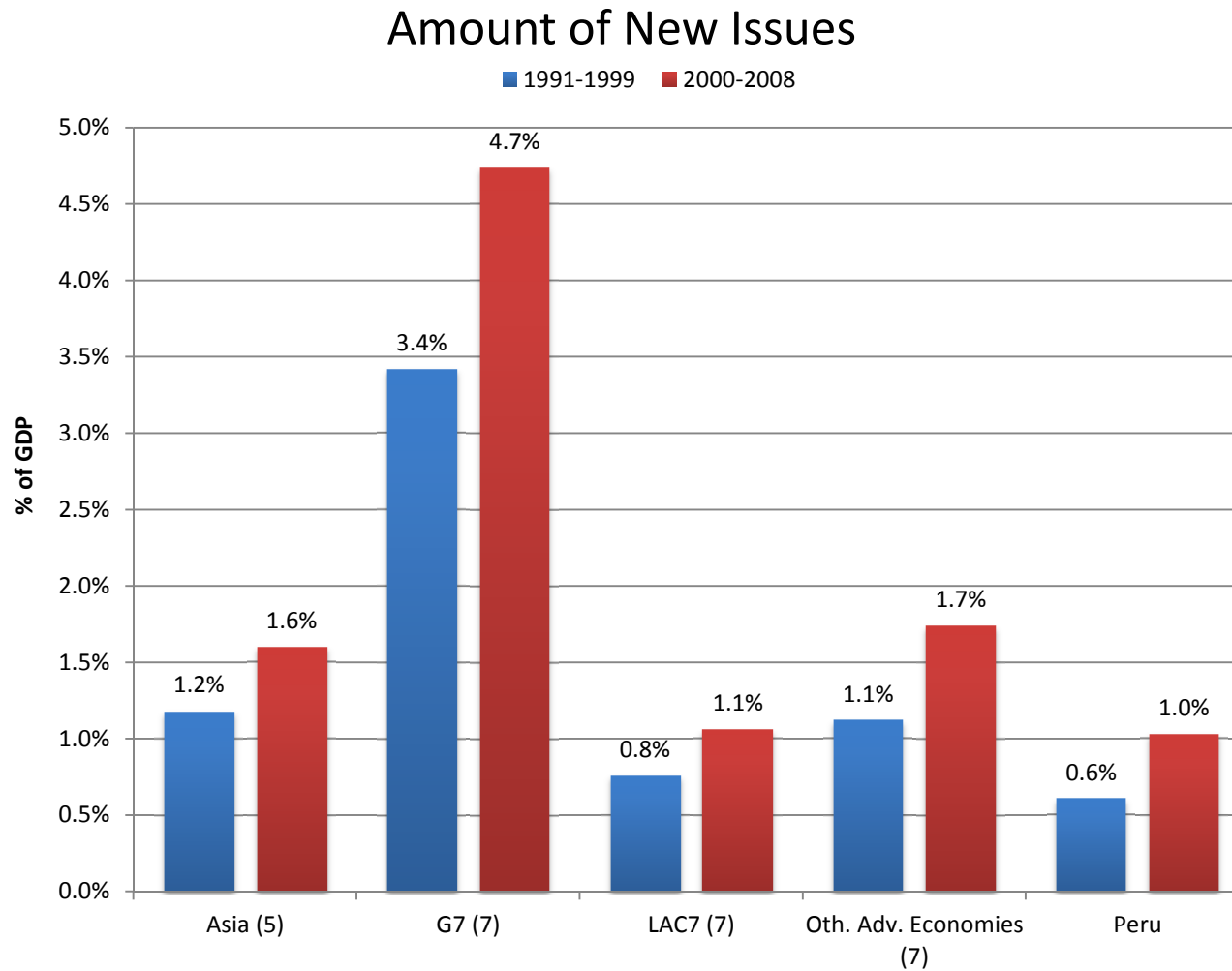
# Bond Market Turnover Not on the Rise

## Bond Value Trading as % of Total Bond Market Capitalization



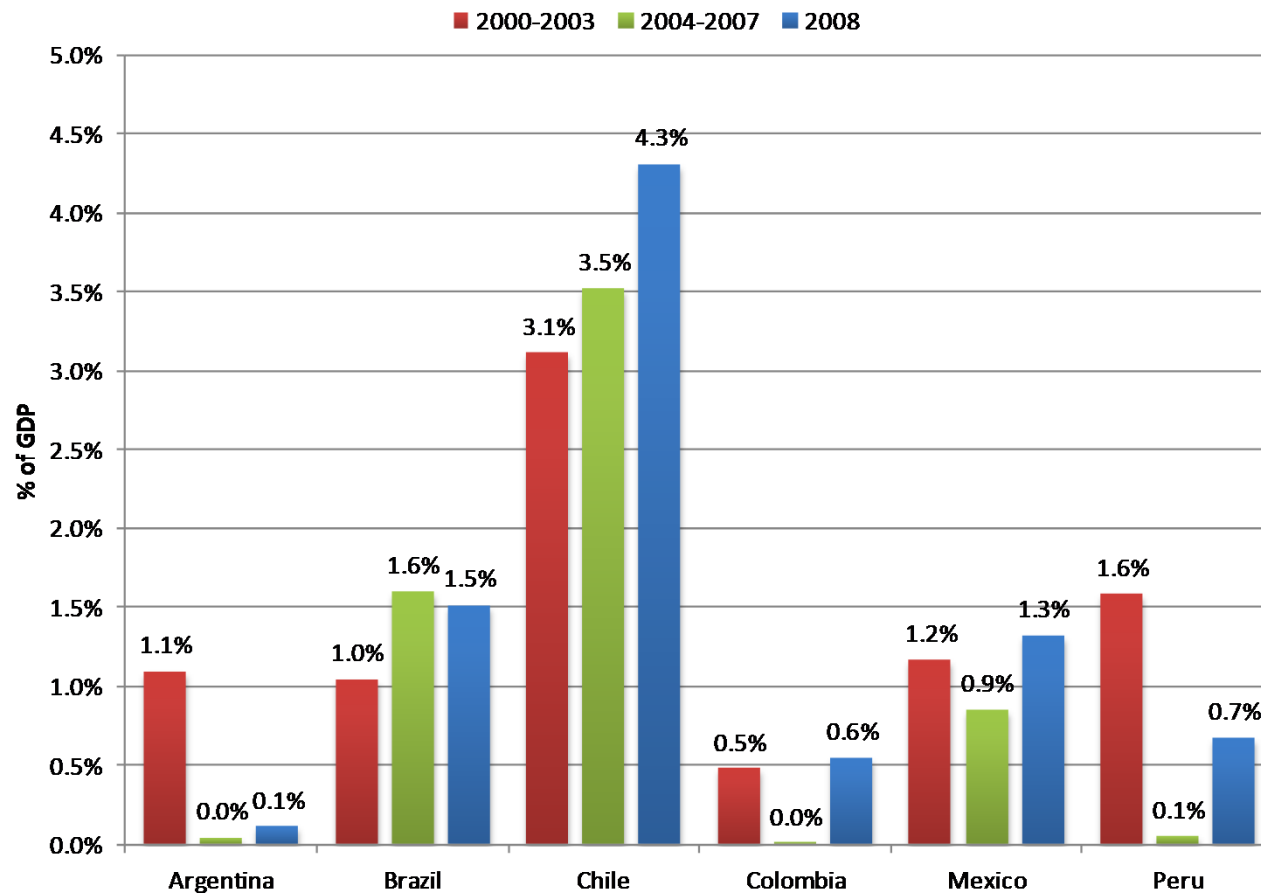
Note: Trading data includes domestic private, domestic public and foreign bonds traded in local stock exchanges. Source: World Federation of Exchanges (WFE)

# Private Bond Issuance Is Small



## ... Except in Chile

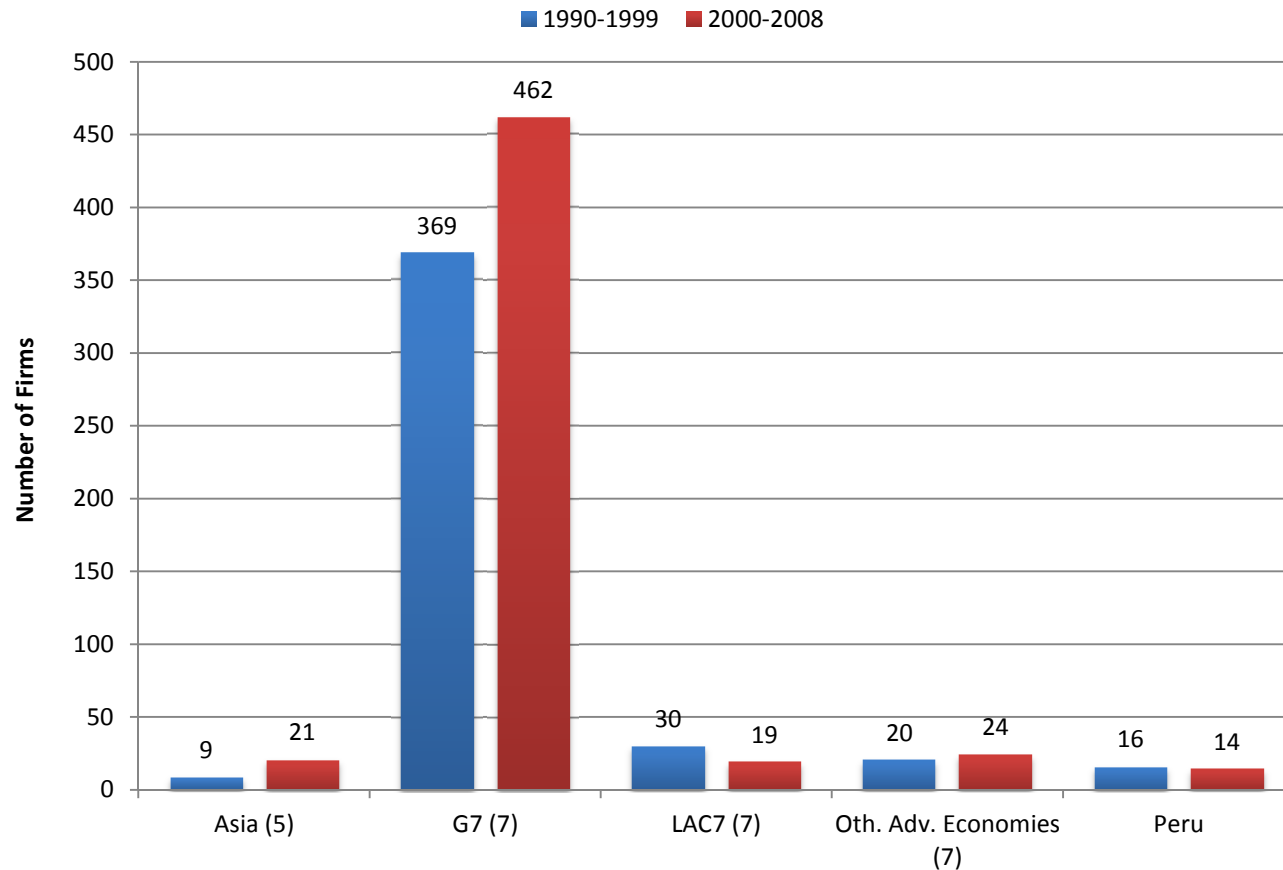
Total Amount of New Issues per Year as % of GDP





# Private Bonds: Few (and Fewer) Firms Use Markets

## Average Number of Firms Issuing Bonds

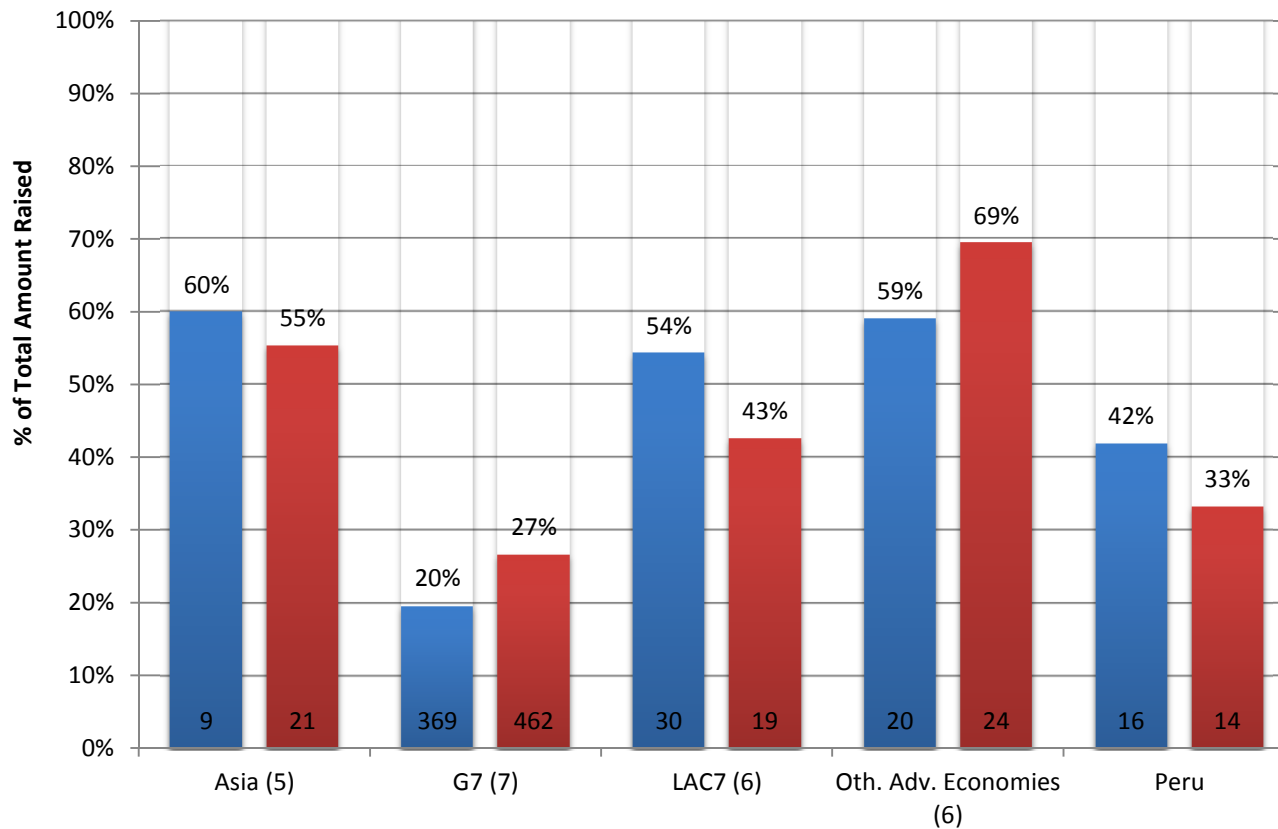


# Private Bonds: Few Issues Capture Significant Share

## Concentration in Private Bond Markets

Amount Raised by Top 5 Issues

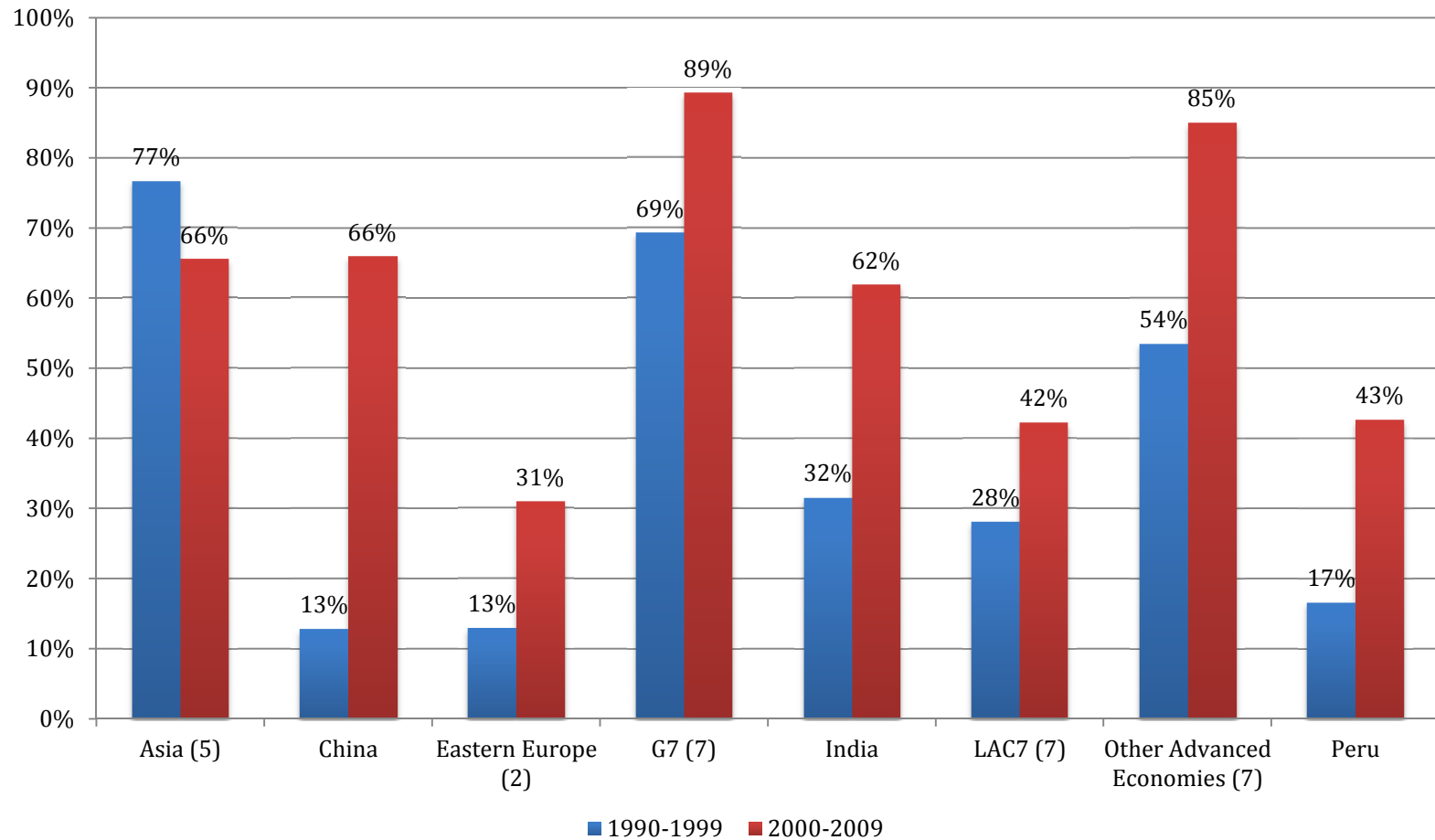
■ 1991-1999 ■ 2000-2008



*Note: Concentration is defined as the top-5 issues as a percentage of the total amount raised by firms in domestic bond markets. Numbers in the base of the bars represent the average number of yearly issues. Source: SDC*

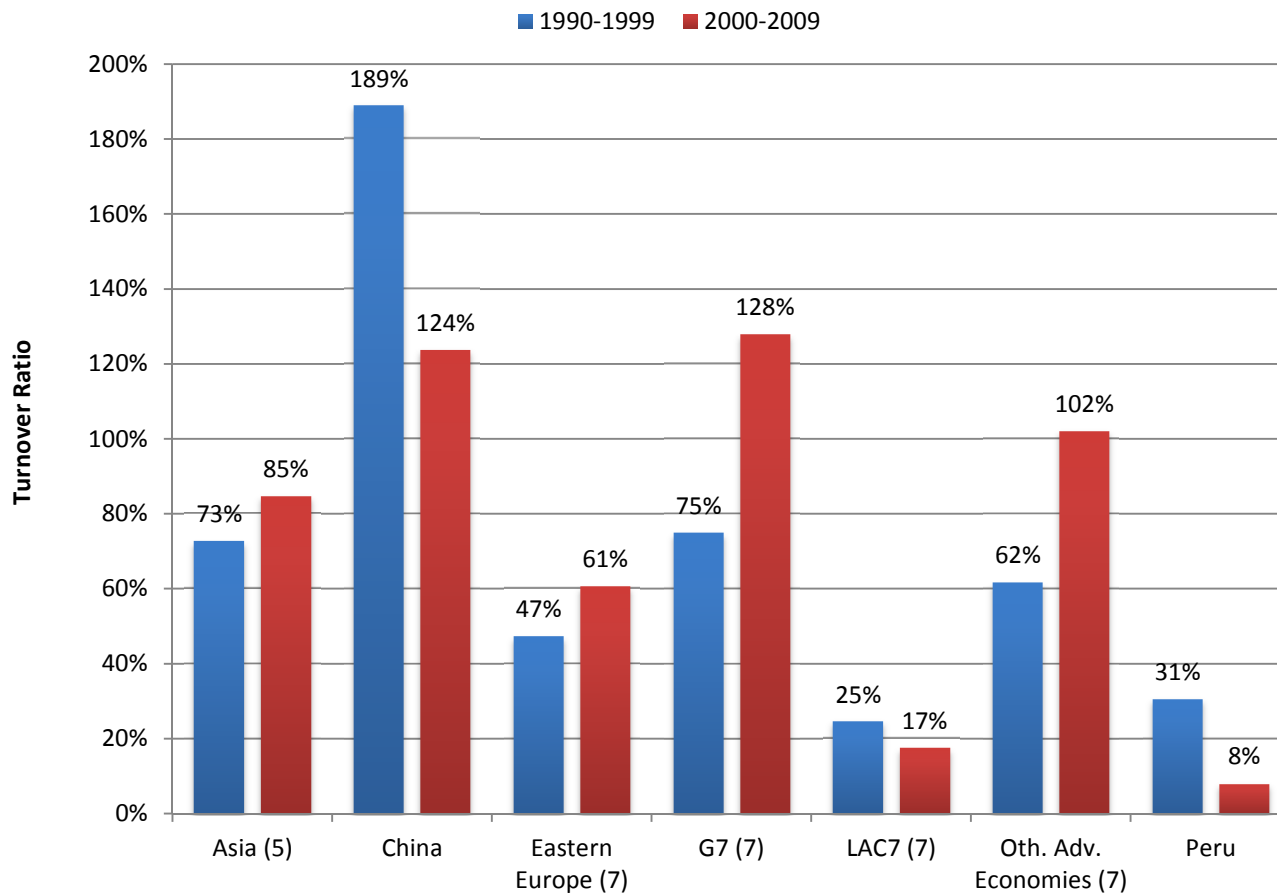
# Equity Market Capitalization

## Market Capitalization as % of GDP



# Equity Trading: A Different Picture than Mkt. Cap.

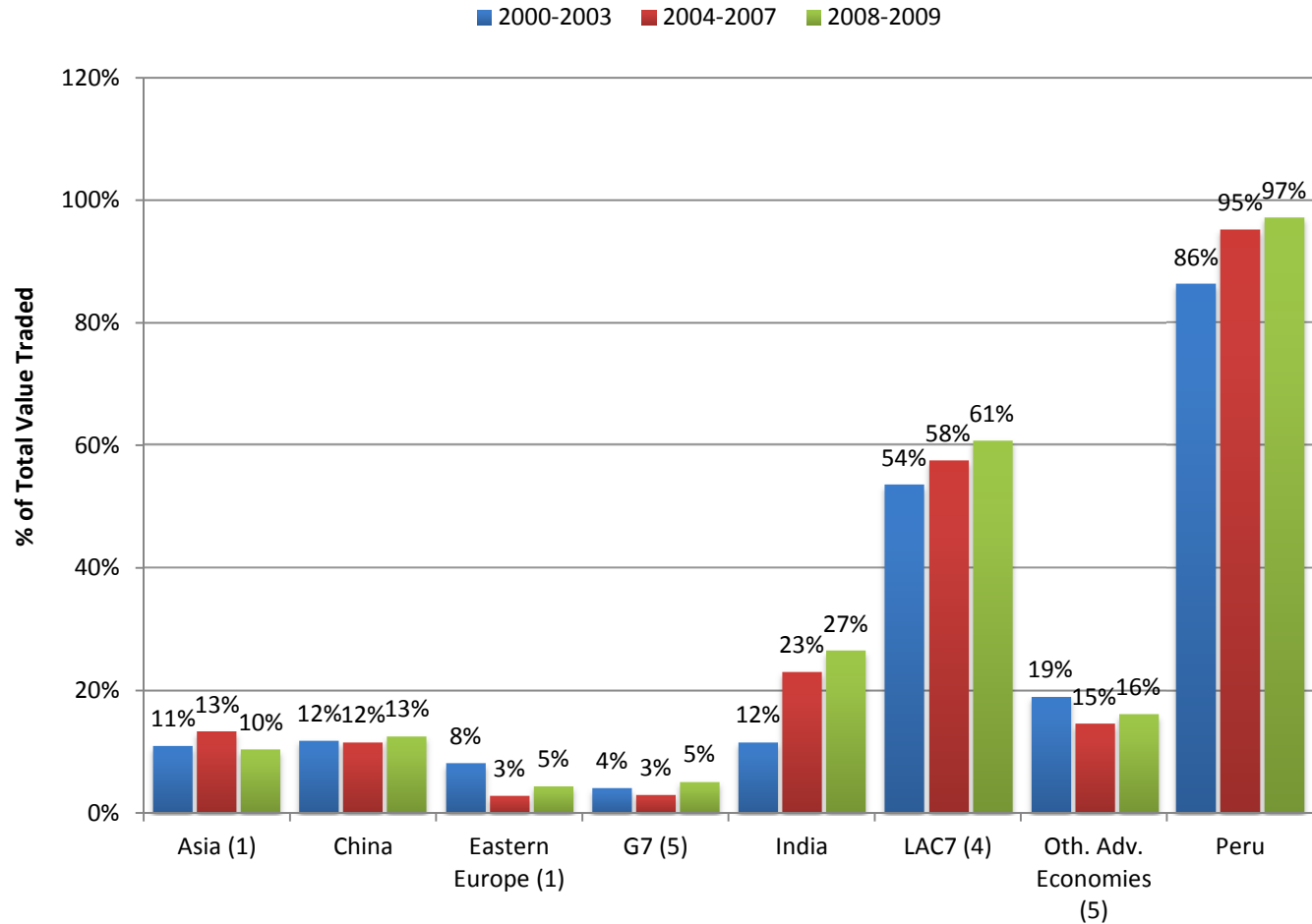
## Trading Activity – Turnover Ratio



Note: Turnover ratio is defined as the total value traded per year in domestic markets over total market capitalization. Source: SDC

# Partly Explained by Trading Abroad

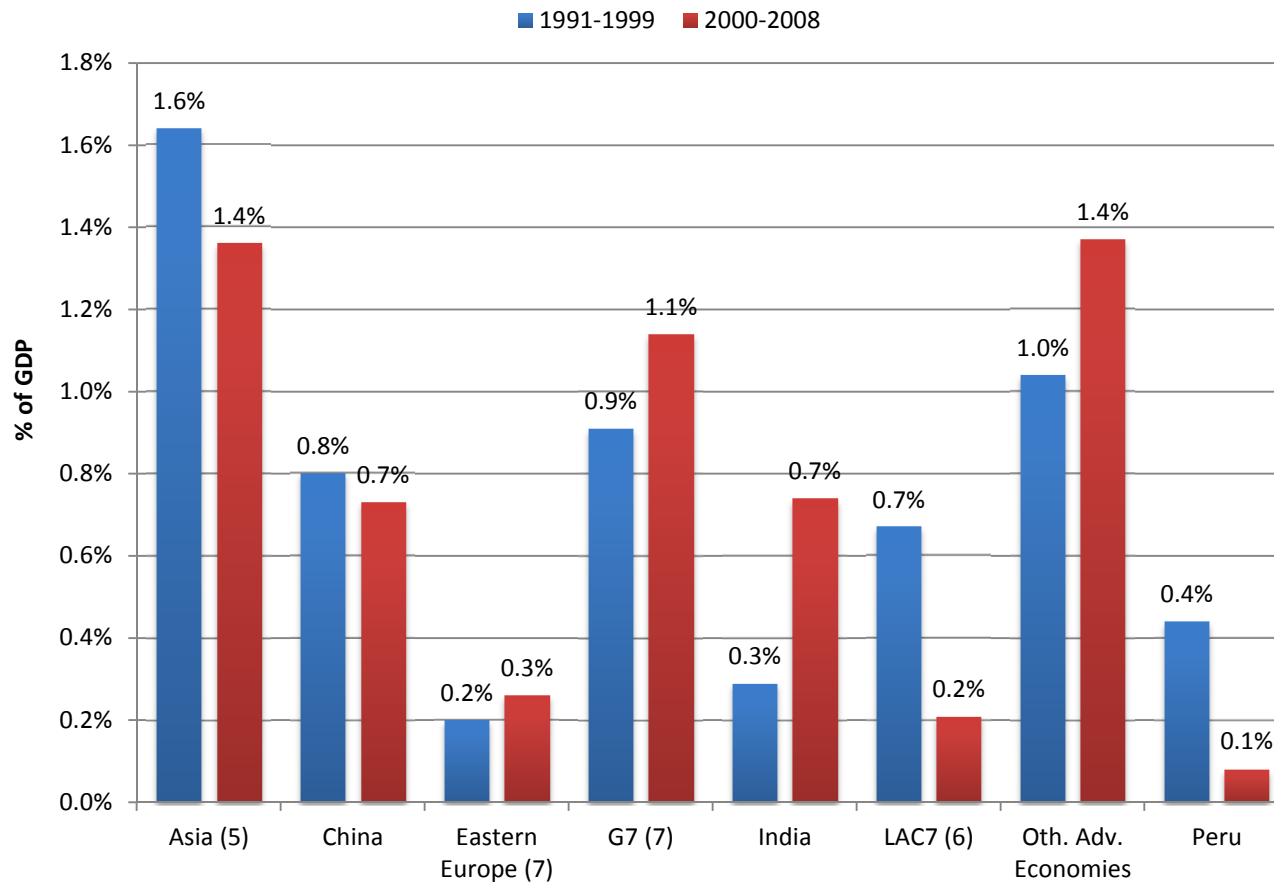
## Value Traded Abroad to Total Value Traded



Source: Bank of New York and Bloomberg

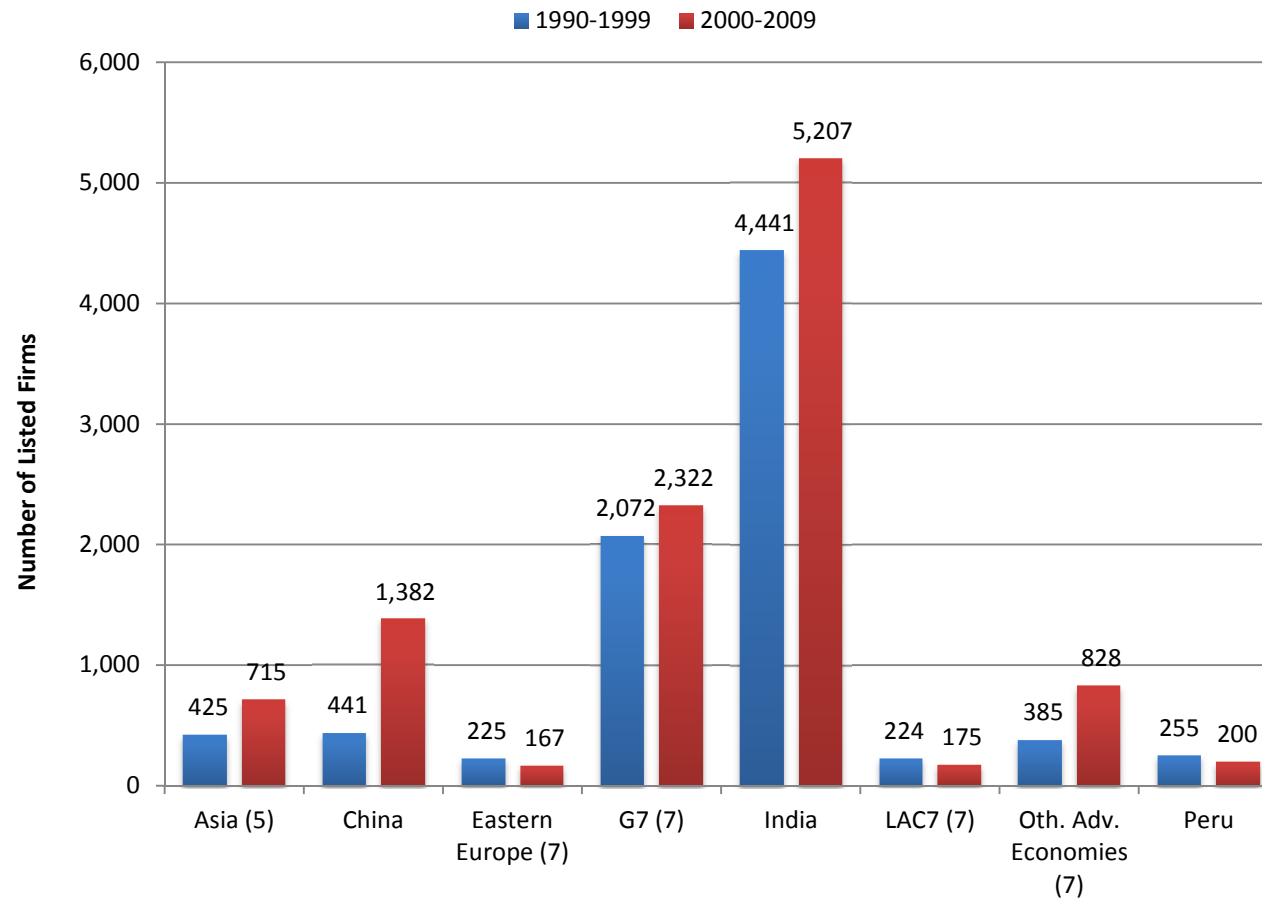
# Breadth of Equity Markets: Issuance Activity Small (and Declining) in LAC

## Equity Markets – Issuance Activity



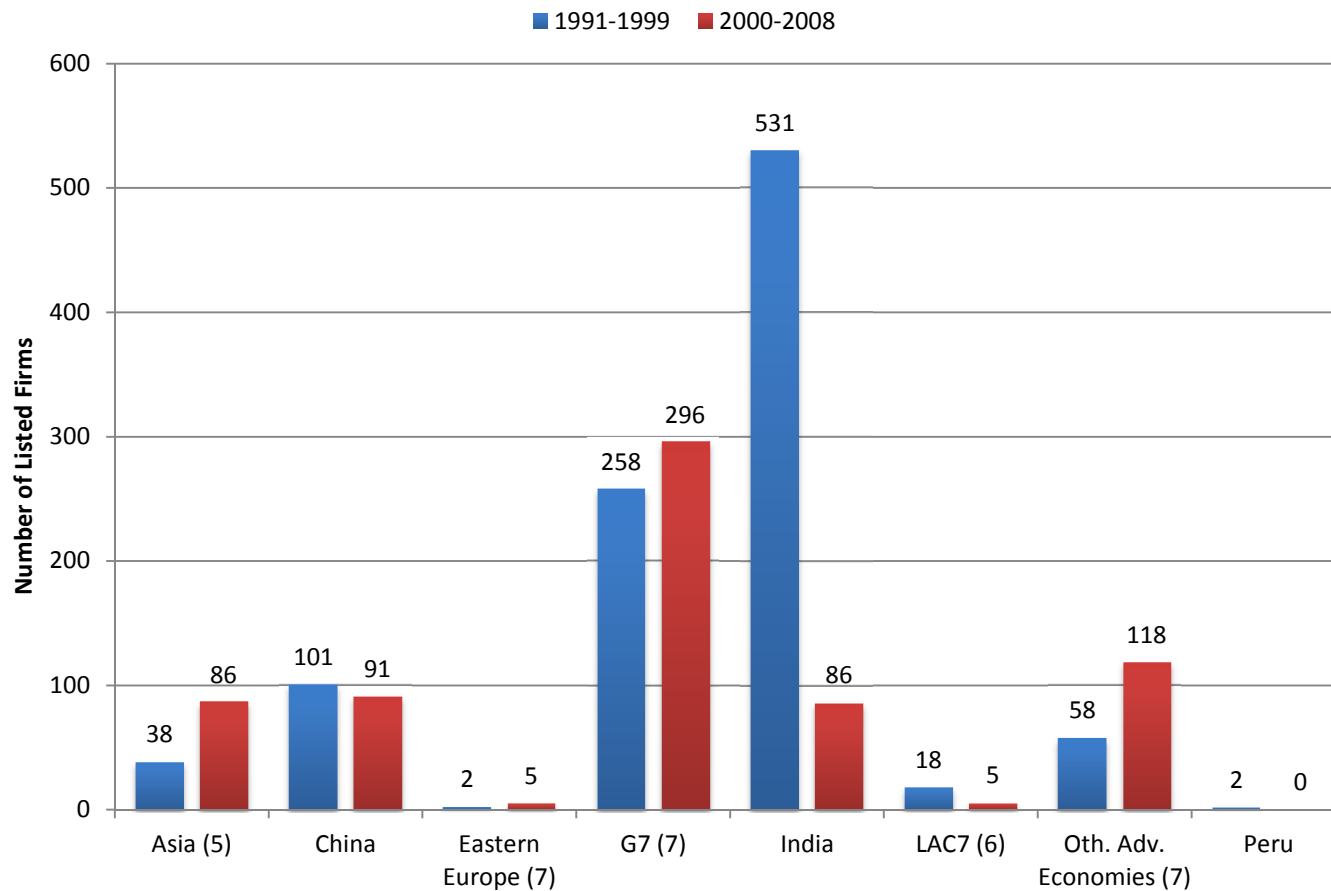
# Equity Markets: Few Firms List

## Number of Listed Firms



# Equity Markets: Even Fewer Firms Raise Capital

## Average Number of Firms Raising Capital



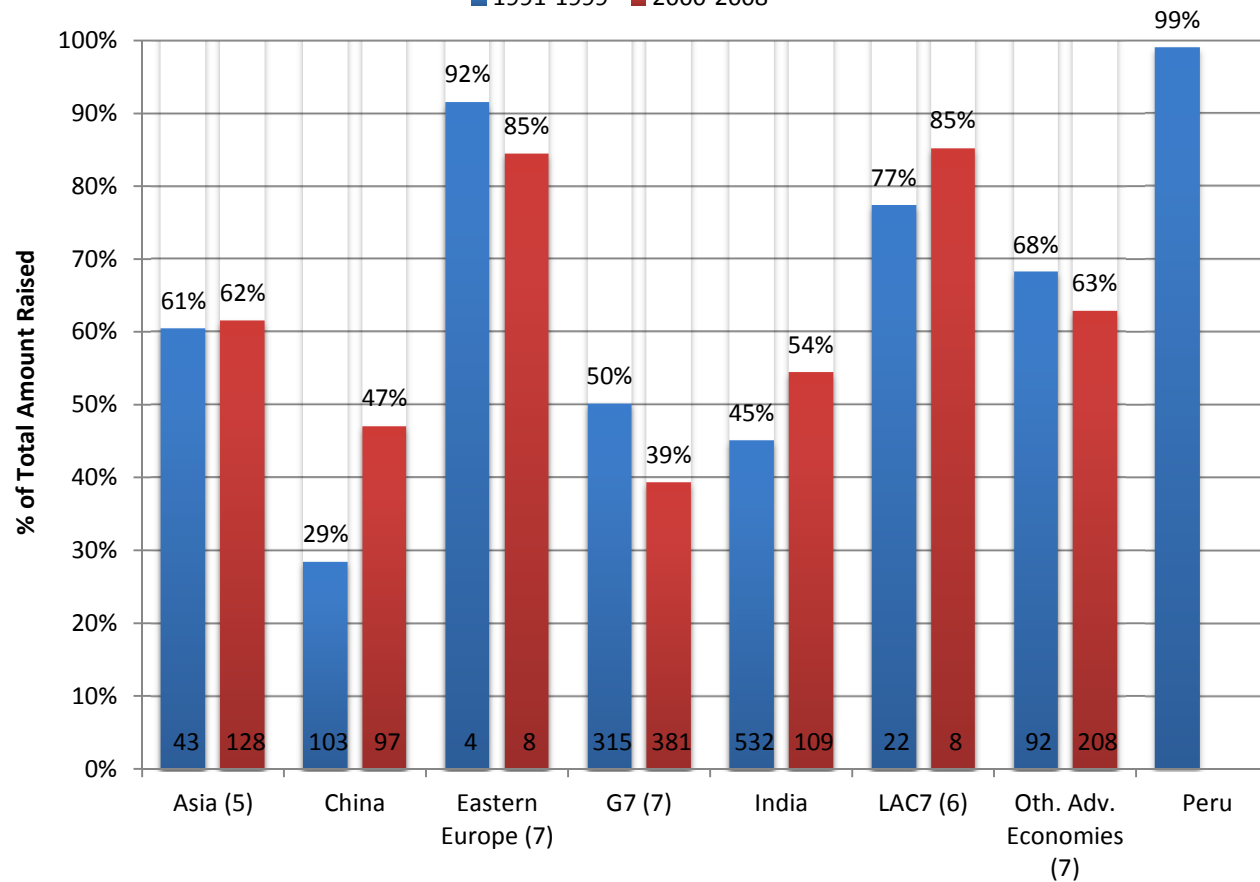


# Equity Markets: Also with Significant Concentration

## Concentration in Domestic Equity Markets

Share of Amount Raised by Top 5 Issues

■ 1991-1999 ■ 2000-2008



Note: Numbers in the base of the bars represent the average numbers of yearly issues. Source: SDC

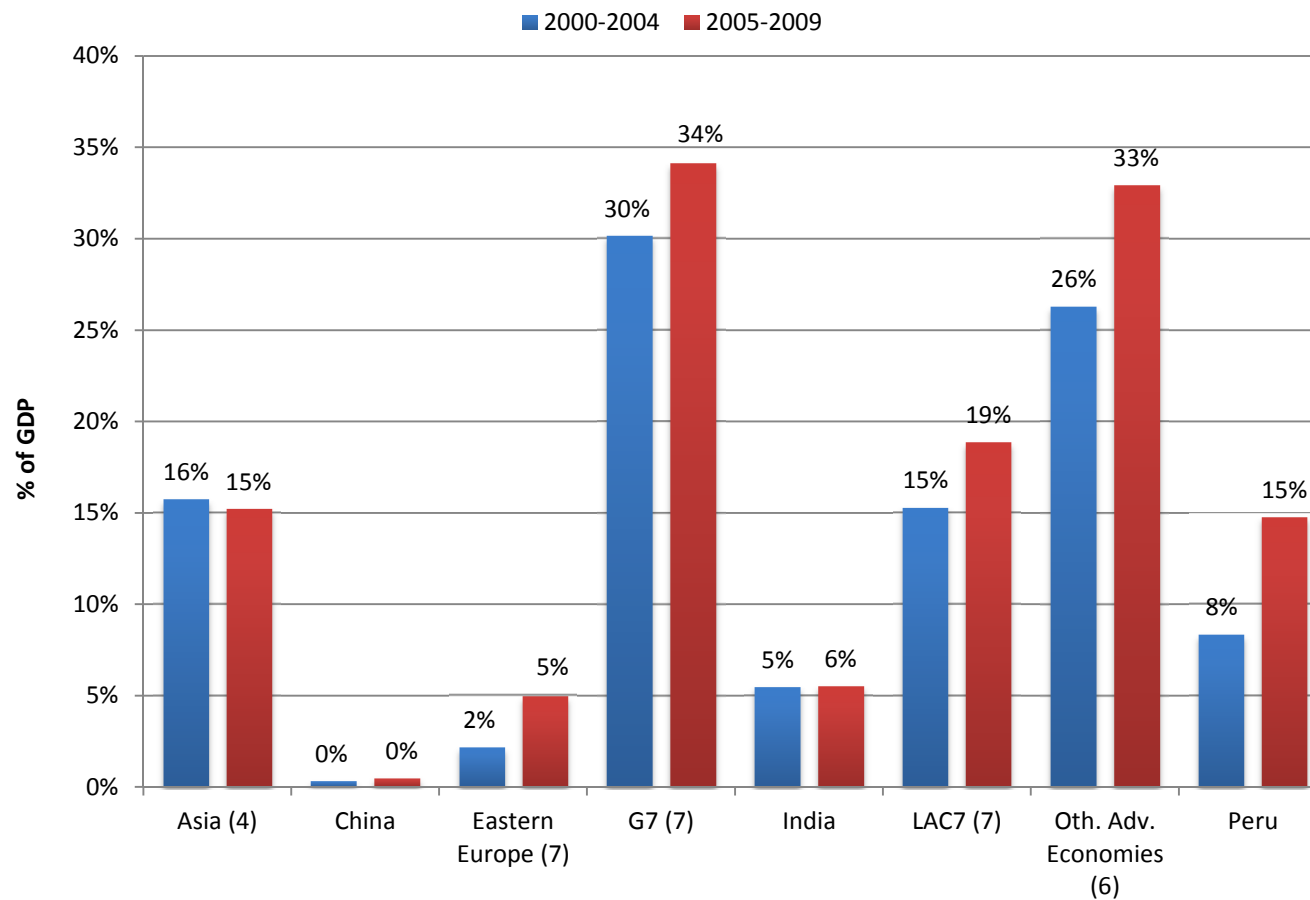


# Institutional Investors

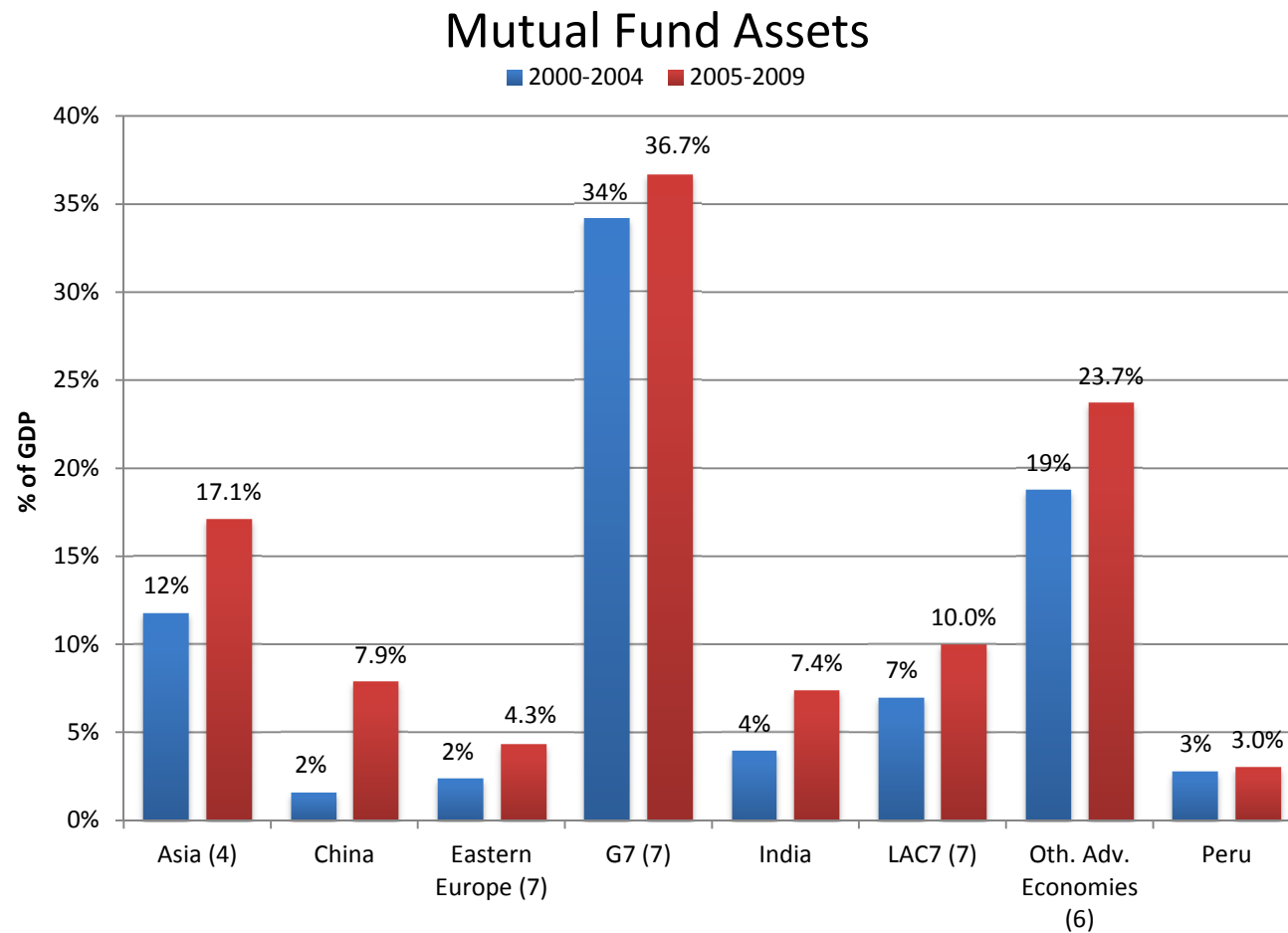


# Pension Funds Gaining Ground

## Pension Fund Assets

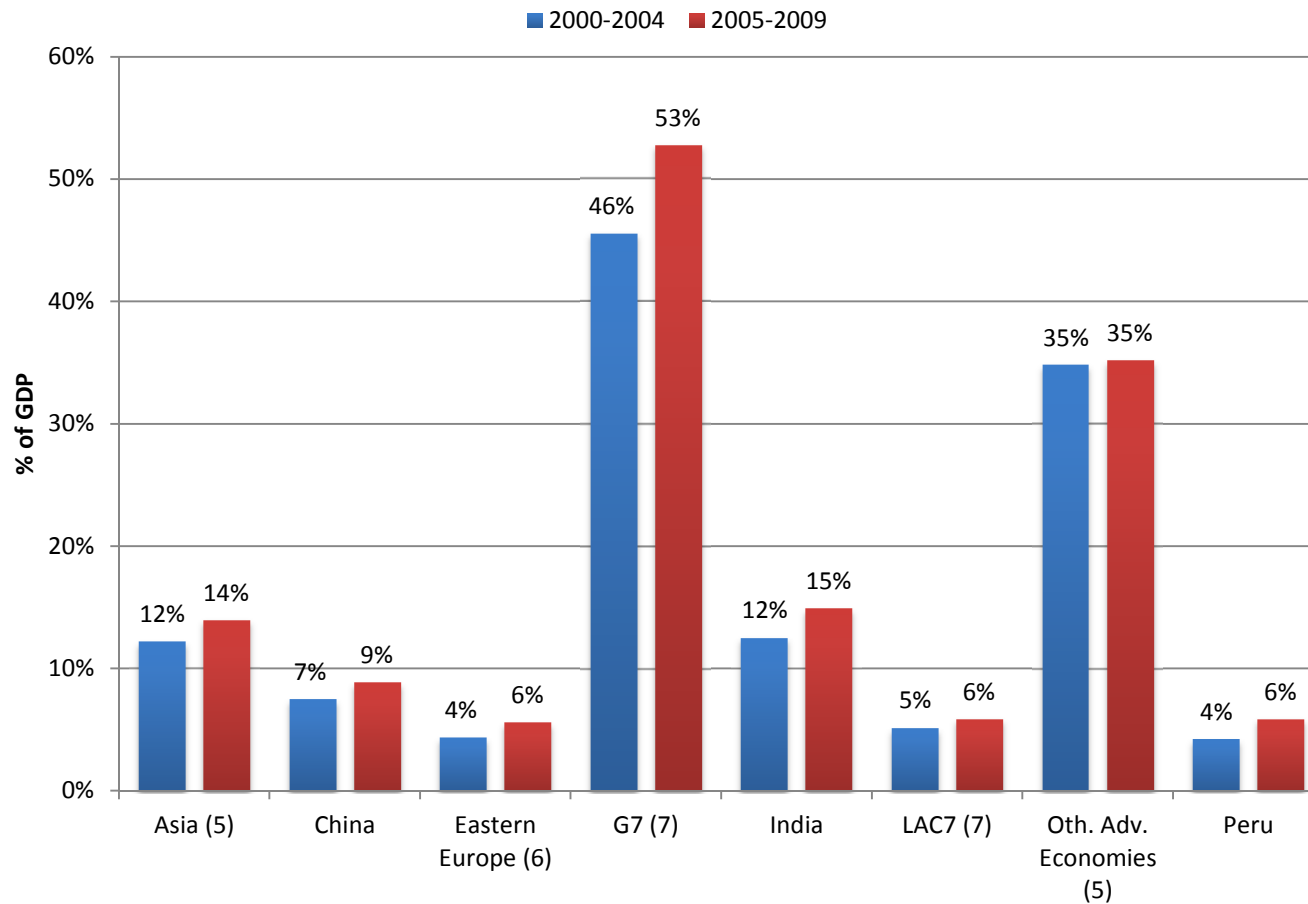


# Mutual Funds Growing Too



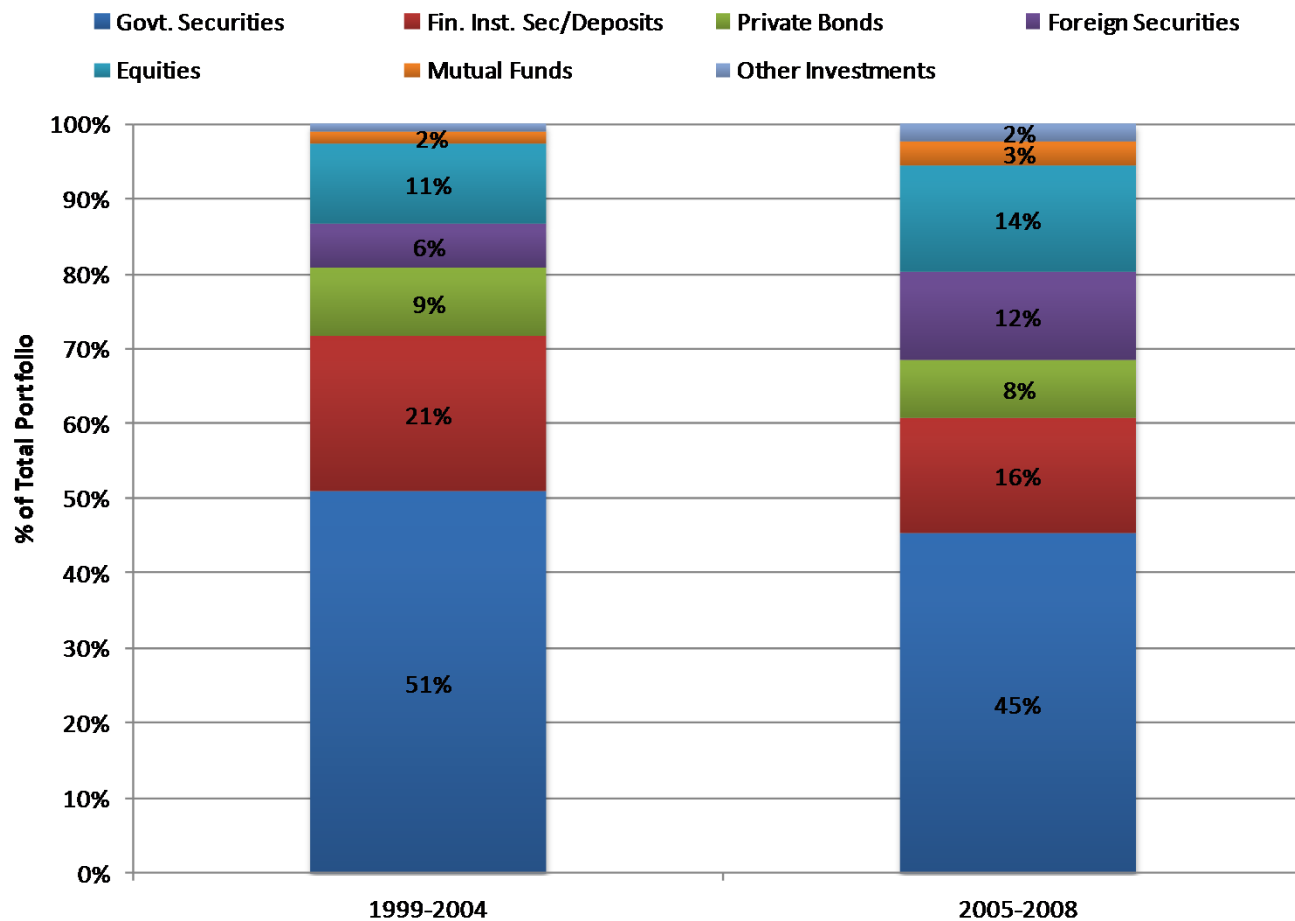
# As Well as Insurance Companies

## Insurance Company Assets



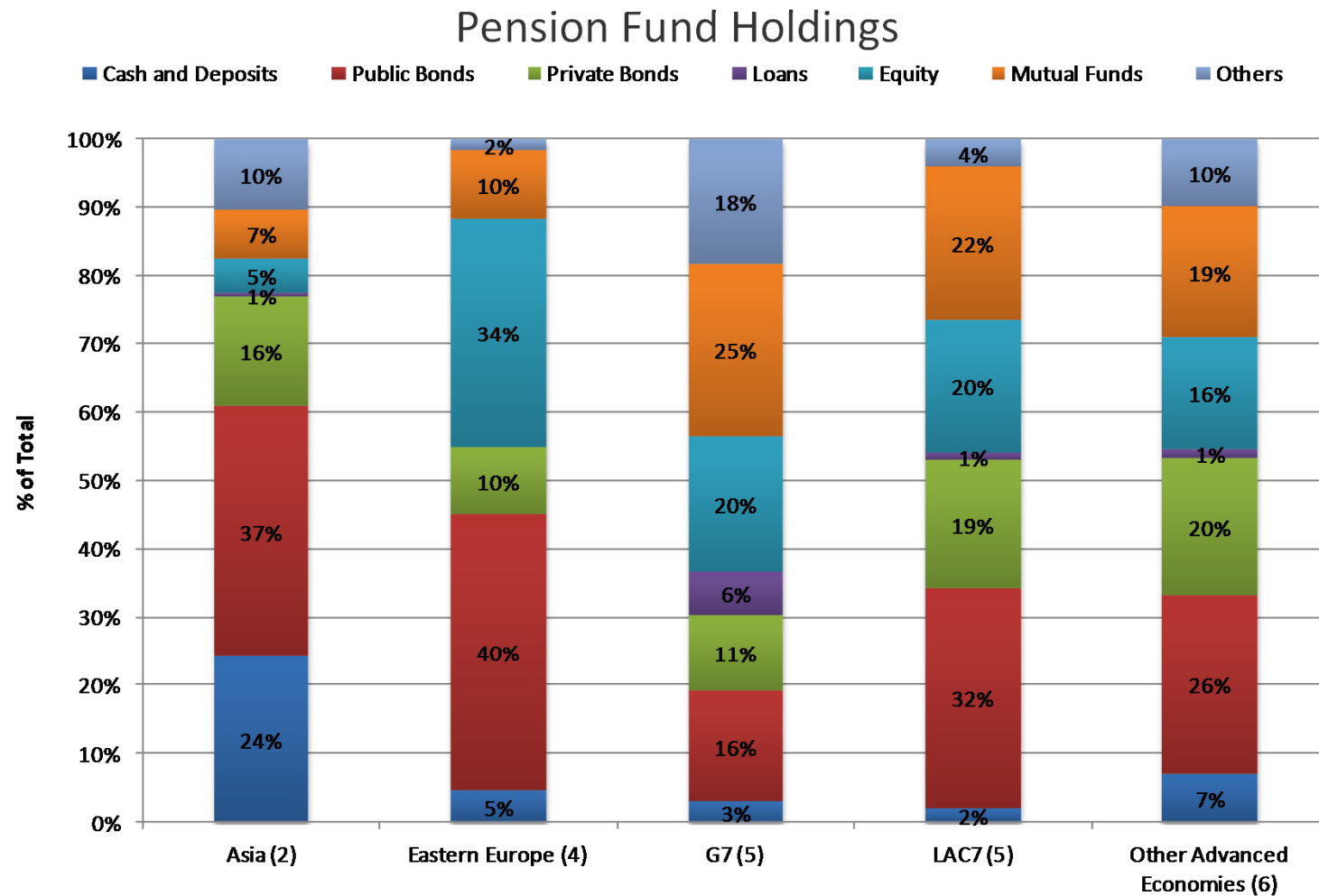
# Portfolios Concentrated in Deposits and Public Debt

## Composition of Pension Fund Investments in Latin America



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

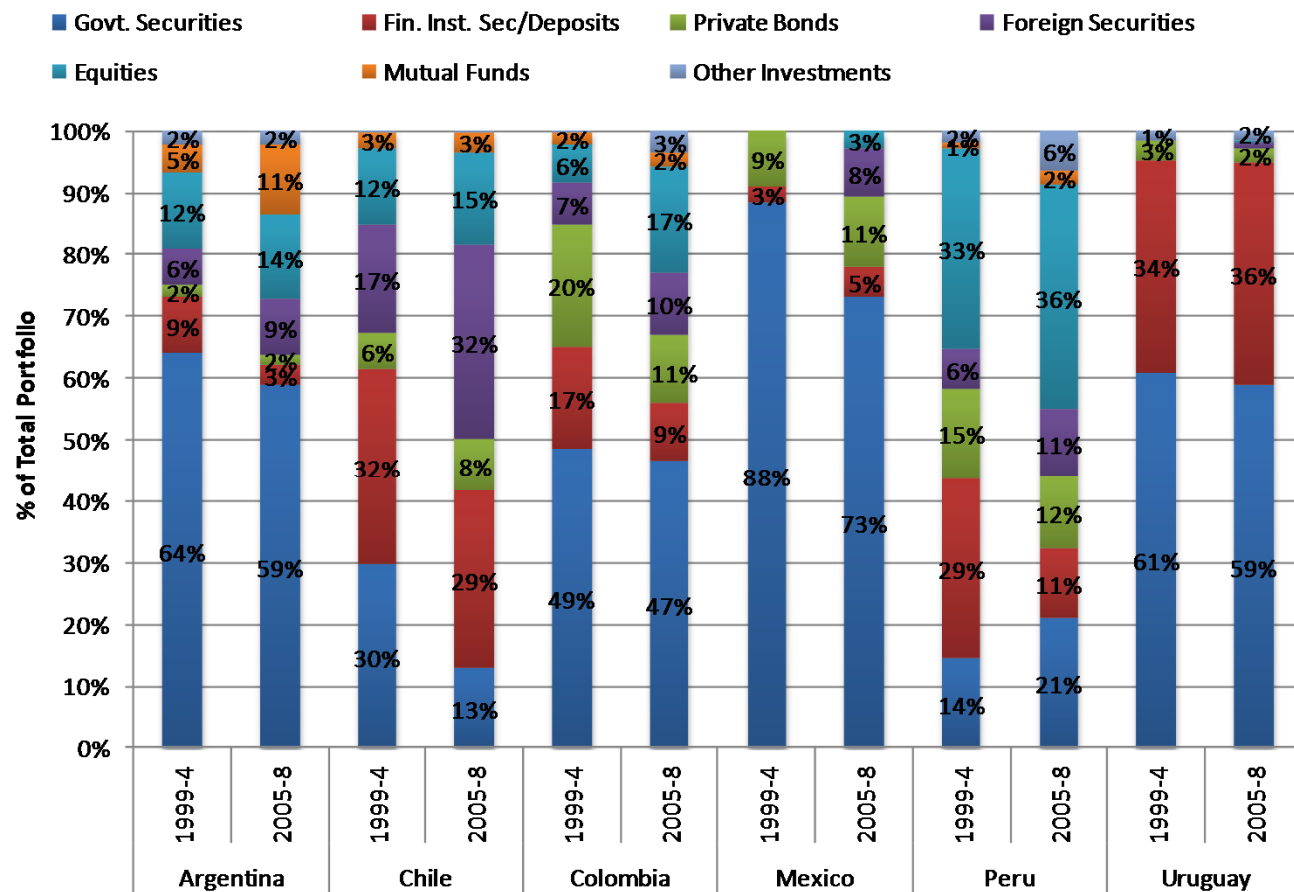
# ... However, Portfolios are Concentrated in Deposits and Public Bonds



Source: OECD – Latest available information. Data for most countries are from 2009.

# ... with Cross-Country Heterogeneity

## Composition of Pension Fund Investments in Latin America

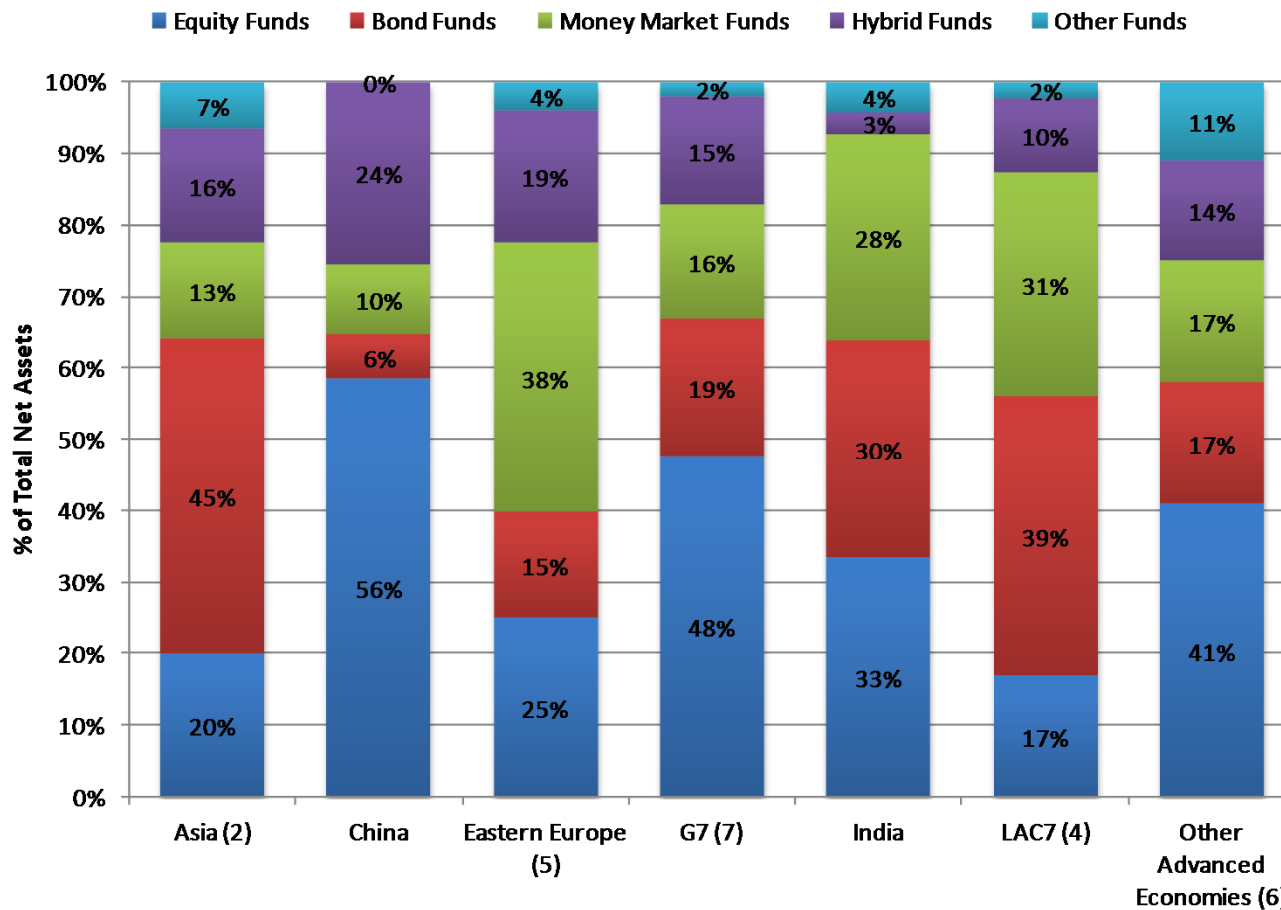


Source: OECD, ABRAPP, AIOSFP, FIAP, and local sources



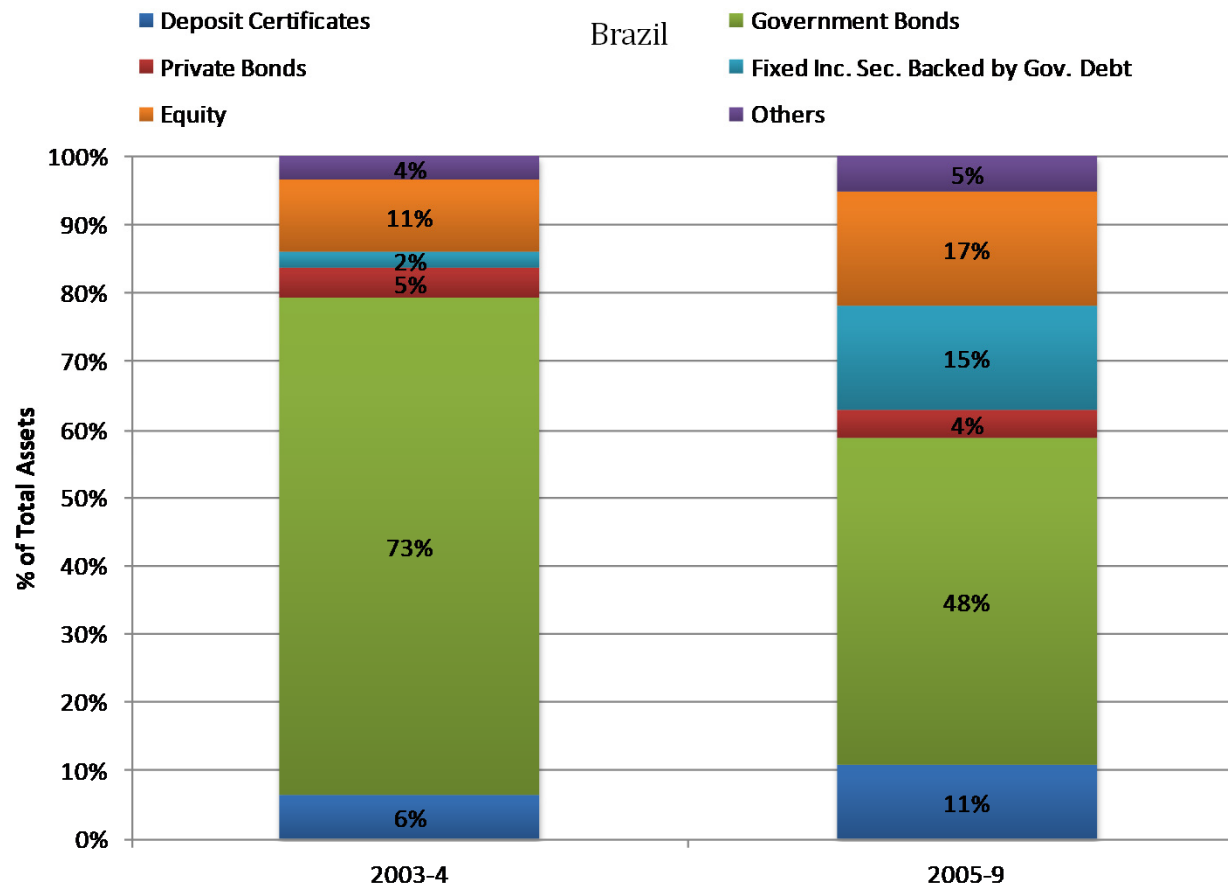
# Large Chunks of Mutual Funds Are Bond and Money Market Funds

2005-2009 Mutual Funds assets by Type of Fund



# Mutual Fund Assets Also Concentrated in Bonds and MM Instruments

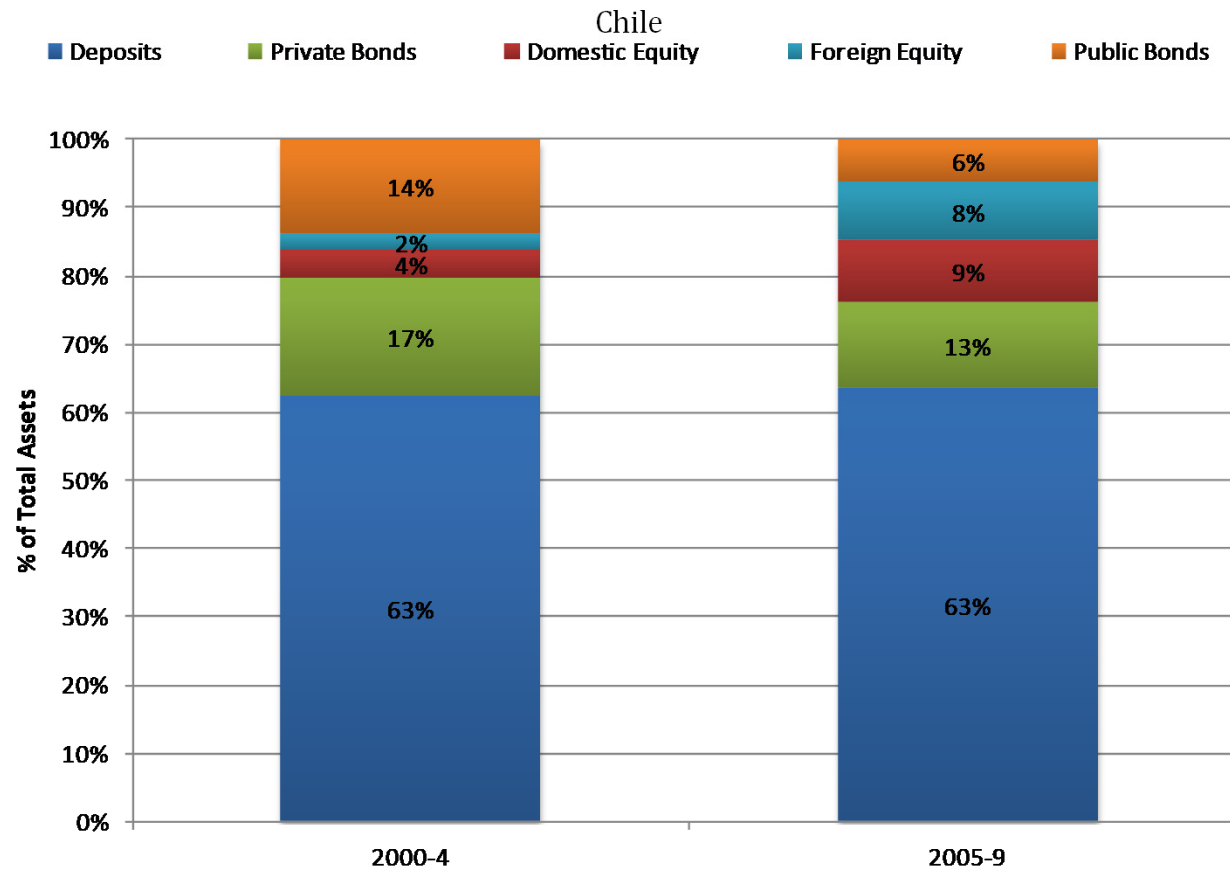
## Mutual Funds - Portfolio Holdings



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

# Mutual Fund Assets Also Concentrated in Bonds and MM Instruments

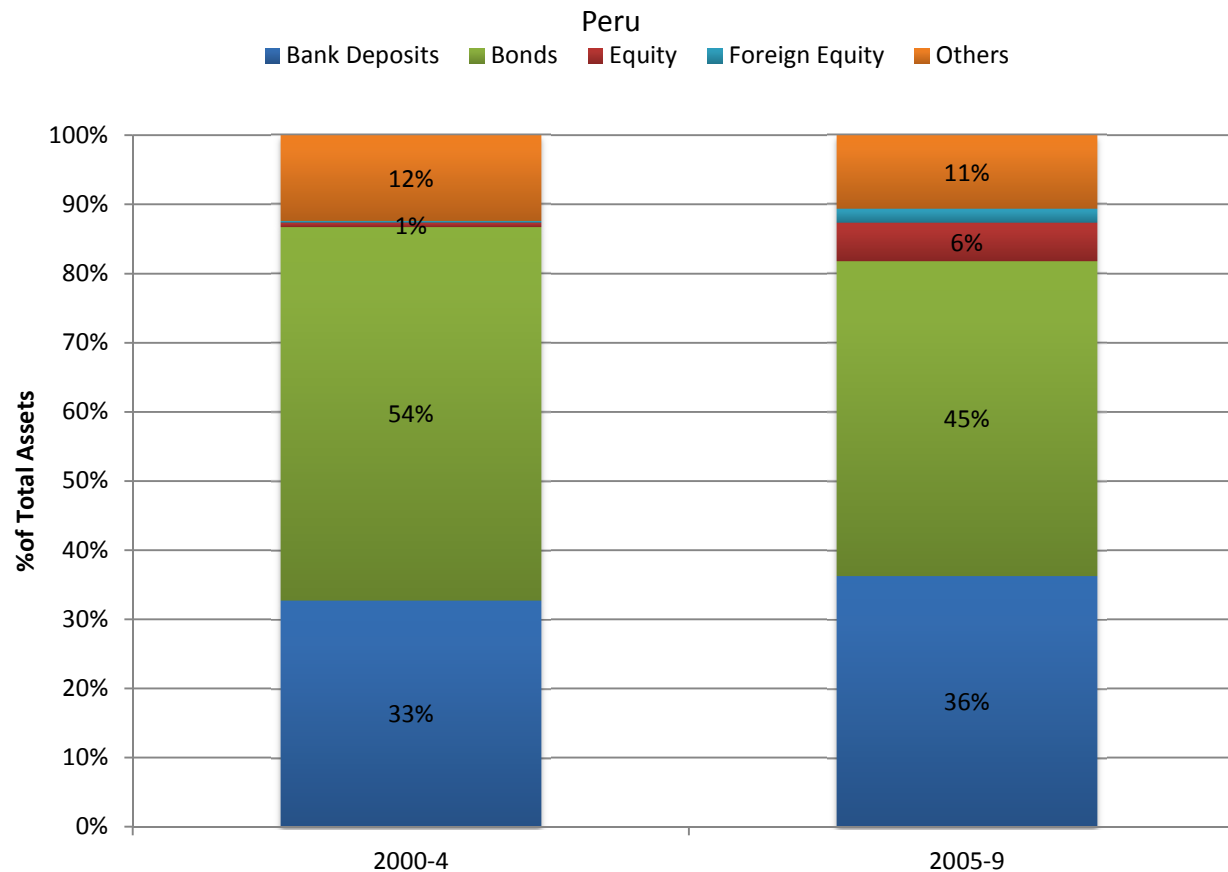
## Mutual Funds - Portfolio Holdings



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# Mutual Fund Assets Also Concentrated in Bonds and MM Instruments


## Mutual Funds - Portfolio Holdings



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

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# Main Players in the Financial System

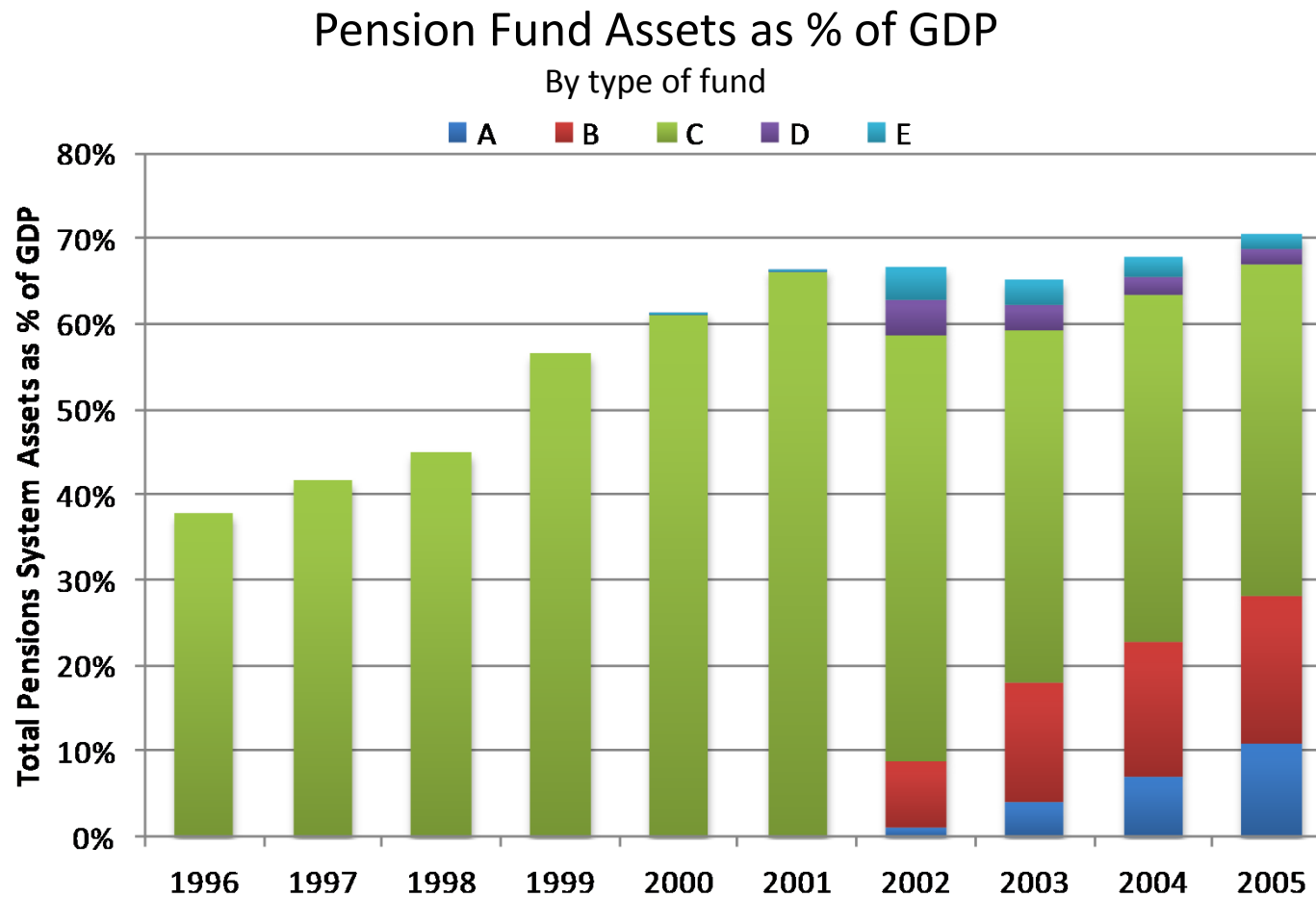
- Banks continue to play a significant but stable role
  - Institutional investors, such as pension funds and mutual funds, have become increasingly important in terms of size
  - They are also highly specialized investors on behalf of others
  - They provide a stable demand for financial assets
  - Potential role for deepening of local capital markets
  - Among the various types of institutional investors, pension funds are the largest institutional investors
  - However, institutional investors concentrate most of their asset holdings in fixed income, government bonds and deposits
  - Complementary research shows that they are not that important for secondary market development
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# Pension Funds: The Case of Chile

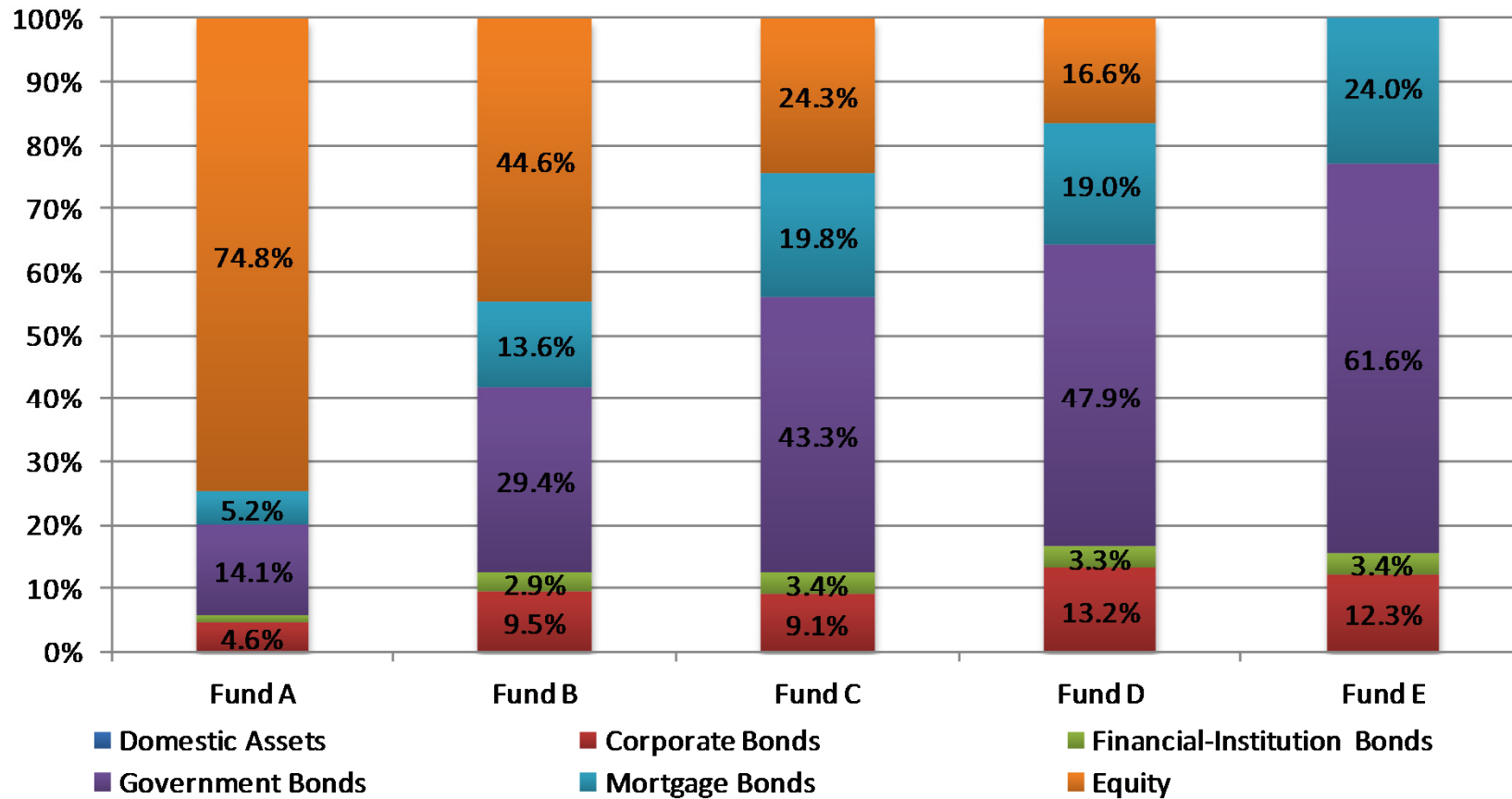


# Pension Funds in Chile Are Large and Growing...



Source: Raddatz and Schmukler (2011)

# Pension Fund Investment by Asset Class



Source: Raddatz and Schmukler (2011)



# Infrequent Trading

**Panel A. Monthly Average Percentage of Assets Traded by PFAs**

	PFA-Fund Level	
	Percentage of Assets Traded Relative to Assets Held	Share of Traded Portfolio
	(3)	(4)
<b>All Asset Classes</b>	17.4%	3.7%
Corporate Bonds	13.3%	0.3%
Financial-Institution Bonds	12.6%	0.1%
Government Bonds	13.6%	1.7%
Mortgage Bonds	18.0%	0.4%
Equity	35.8%	1.3%

**Panel B. Proportion of Fixed-Income Instruments Bought and Held Until Expiration**

PFA level	PFA-Fund Level			
	Ratio of Units at First Purchase to Maximum Units in Portfolio		Ratio of Units at Expiration to Maximum Units in Portfolio	
	Average	Standard Deviation	Average	Standard Deviation
	(5)	(6)	(7)	(8)
Corporate Bonds	0.87	0.14	0.87	0.17
Financial-Institution	0.87	0.13	0.90	0.10
Government Bonds	0.61	0.21	0.89	0.07
Mortgage Bonds	0.84	0.10	0.71	0.13

*Note: Data from 2002-2005. The percentage of assets traded is calculated on a monthly basis. Source: Raddatz and Schmukler (2011)*

# Herding

- Following Lakonishok (1992), no herding occurs when the probability of buying an asset is equal among all assets being traded
- Therefore, a measure of the probabilities of buying across assets provides a test of the hypothesis of no herding
- $H(i,t) = |B(i,t)/N(i,t) - p(t)| \cdot AF(i,t)$ ,
  - Where  $p(t)$  = probability of buying an asset
  - $B(i,t)$  = number of funds that increase their holdings of asset  $i$  at time  $t$
  - $S(i,t)$  = number of sellers of asset  $i$  at time  $t$
  - $N(i,t) = S(i,t) + B(i,t)$ , the total number of active funds in asset  $i$  at time  $t$
  - And  $AF(i,t)$  is an adjustment factor

# Herding

- Under the hypothesis of no herding, the number of buyers follows a binomial distribution with parameters  $p(t)$  and  $N(i,t)$ , and the  $AF(i,t)$  is the expected value of the first term on the RHS
  - $AF(i,t) = E(|p(i,t) - E[p(i,t)]|)$ , with  $p(i,t)$  the probability of buying asset  $i$  at time  $t$
  - The proportion of all funds that buy during period  $t$  is used as a proxy for  $E[p(i,t)]$
- The tables below report the herding statistic displaying the mean for each asset class and its corresponding standard error

# When PFAs Trade, They Do It Similarly: Herding

## Herding at the PFA Level

	Herding Statistic			Average Probability of Buying an Asset
	Assets Traded by More than One PFA	Assets Traded by More than Two PFAs	Assets Traded by More than Three PFAs	
	(1)	(2)	(3)	(4)
<b>All Asset Classes</b>	0.90 *** (0.29)	2.41 *** (0.41)	3.84 *** (0.47)	49.05%
<b>Domestic Assets</b>				
Corporate Bonds	3.10 *** (0.64)	10.24 *** (0.92)	13.78 *** (0.06)	51.61%
Financial-Institution Bonds	6.16 *** (0.92)	10.31 *** (1.38)	9.21 *** (1.81)	51.27%
Government Bonds	-2.11 (0.16)	0.79 *** (0.25)	3.82 *** (0.46)	64.58%
Mortgage Bonds	4.58 *** (0.07)	2.21 *** (0.06)	1.20 *** (0.06)	12.66%
Equity	1.46 *** (0.24)	1.94 *** (0.27)	2.44 *** (0.32)	53.44%

*Note: Data from 2002-2005. The percentage of assets traded is calculated on a monthly basis. Source: Raddatz and Schmukler (2011)*

# When PFAs Trade, They Do It Similarly: Herding

## Herding within PFAs across Funds

	Assets Traded by More than One Fund	Assets Traded by More than Two Funds	Assets Traded by More than Three Funds	Average Probability of Buying an Asset
	(1)	(2)	(3)	(4)
<b>All Asset Classes</b>	-2.15 (0.47)	2.49 *** (0.69)	5.36 *** (0.84)	48.77%
<b>Domestic Assets</b>				
Corporate Bonds	-0.62 (0.71)	5.84 *** (1.01)	11.85 *** (0.24)	58.15%
Financial-Institution Bonds	0.27 (0.97)	8.63 *** (1.38)	12.38 *** (1.85)	44.77%
Government Bonds	-3.26 (0.38)	4.87 *** (0.68)	9.28 *** (1.03)	56.32%
Mortgage Bonds	-2.93 (0.10)	-0.83 (0.12)	1.22 *** (0.25)	10.35%
Equity	-1.39 (0.45)	-1.03 (0.54)	-1.25 (0.76)	58.16%

*Note: Data from 2002-2005. The percentage of assets traded is calculated on a monthly basis. Source: Raddatz and Schmukler (2011)*

# When PFAs Trade, They Do It Similarly: Herding

## Herding at the PFA-Fund Level

	Herding Statistic			Average Probability of Buying an Asset
	Assets Traded by More than One Fund	Assets Traded by More than Two Funds	Assets Traded by More than Three Funds	
	(1)	(2)	(3)	(4)
<b>All Asset Classes</b>	-1.46 (0.31)	0.63 * (0.37)	1.48 *** (0.36)	52.83%
<b>Domestic Assets</b>				
Corporate Bonds	-0.96 (0.47)	2.46 *** (0.58)	4.58 *** (0.07)	54.95%
Financial-Institution Bonds	1.42 ** (0.76)	6.09 *** (1.03)	8.37 *** (1.23)	43.97%
Government Bonds	-4.56 (0.19)	-0.97 (0.25)	0.22 (0.32)	57.65%
Mortgage Bonds	0.18 ** (0.08)	-0.17 (0.07)	-0.11 (0.07)	9.29%
Equity	0.50 ** (0.29)	1.15 *** (0.28)	1.33 *** (0.29)	54.44%

*Note: Data from 2002-2005. The percentage of assets traded is calculated on a monthly basis. Source: Raddatz and Schmukler (2011)*

# When PFAs Trade, They Herd

## Herding at the PFA Level – Multi-Fund Period

	Herding Statistic			Average Probability of Buying an Asset
	Assets Traded by More than One PFA	Assets Traded by More than Two PFAs	Assets Traded by More than Three PFAs	
	(1)	(2)	(3)	
<b>All Asset Classes</b>	-1.01 (0.47)	2.00 *** (0.71)	4.02 *** (0.77)	45.65%
<b>Domestic Assets</b>				
Corporate Bonds	1.65 ** (0.79)	12.52 *** (1.33)	20.55 *** (0.06)	51.32%
Financial-Institution Bonds	7.49 *** (1.18)	13.17 *** (1.77)	11.46 *** (2.48)	33.21%
Government Bonds	-5.06 (0.29)	-0.83 (0.44)	1.88 ** (0.86)	55.44%
Mortgage Bonds	1.06 *** (0.08)	-0.63 (0.05)	-0.81 (0.05)	3.94%
Equity	0.34 (0.41)	0.42 (0.43)	0.49 (0.50)	57.54%

*Note: Data from 2002-2005. The percentage of assets traded is calculated on a monthly basis. Source: Raddatz and Schmukler (2011)*

# When PFAs Trade, They Herd

## 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)
<b>All Asset Classes</b>	5.87 *** (0.92)	3.54 *** (0.65)	7.99 *** (0.49)	5.65 *** (0.66)	4.67 *** (0.84)
<b>Domestic Assets</b>					
Corporate Bonds	13.61 *** (1.93)	11.47 *** (0.85)	20.80 *** (0.08)	10.51 *** (0.88)	13.02 *** (1.06)
Financial-Institution Bonds	6.63 *** (2.61)	10.78 *** (1.29)	15.33 *** (1.21)	9.49 *** (1.25)	13.56 *** (1.70)
Government Bonds	1.21 (1.72)	4.91 *** (0.84)	2.96 *** (0.44)	4.94 *** (0.67)	2.08 *** (0.80)
Mortgage Bonds	5.02 *** (0.85)	2.89 *** (0.17)	1.24 *** (0.08)	2.52 *** (0.14)	3.26 *** (0.32)
Equity	6.32 *** (0.43)	0.69 * (0.45)	10.43 *** (0.60)	6.68 *** (0.64)	- -

*Note: Data from 2002-2005. The percentage of assets traded is calculated on a monthly basis. Source: Raddatz and Schmukler (2011)*



# Herding Occurs Both in Buying and Selling

## Herding within Fund Types Across PFAs, with Buy and Sell Decomposition

	Herding Statistic								
	Assets Traded by More than One Fund			Assets Traded by More than Two Funds			Assets Traded by More than Three Funds		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Total	Buy	Sell	Total	Buy	Sell	Total	Buy	Sell
<b>All Asset Classes</b>	3.71 *** (0.29)	5.88 *** (0.50)	2.01 *** (0.33)	5.22 *** (0.41)	8.85 *** (0.76)	5.60 *** (0.50)	5.80 *** (0.57)	9.97 *** (1.15)	4.74 *** (0.77)
<b>Domestic Assets</b>									
Corporate Bonds	12.33 *** (0.68)	11.65 *** (0.76)	15.01 *** (0.04)	19.57 *** (0.85)	16.14 *** (1.36)	22.54 *** (0.05)	24.03 *** (1.02)	20.30 *** (1.64)	26.80 *** (0.08)
Financial-Institution Bonds	12.51 *** (1.01)	14.34 *** (1.29)	12.18 *** (1.99)	15.49 *** (1.51)	17.57 *** (2.51)	18.63 *** (2.15)	14.47 *** (2.62)	19.81 *** (5.28)	18.38 *** (3.70)
Government Bonds	1.20 *** (0.35)	1.19 *** (0.41)	1.22 ** (0.70)	3.43 *** (0.67)	0.28 (0.88)	6.24 *** (0.98)	3.10 *** (1.18)	3.26 *** (1.36)	2.96 * (1.93)
Mortgage Bonds	1.93 *** (0.08)	10.73 *** (0.31)	-0.81 (0.03)	0.21 *** (0.07)	24.91 *** (0.82)	-0.94 (0.04)	-0.10 (0.08)	19.25 *** (0.83)	-1.07 (0.05)
Equity	5.20 *** (0.32)	6.69 *** (0.33)	0.47 (0.77)	5.88 *** (0.35)	7.19 *** (0.39)	2.42 *** (0.75)	7.54 *** (0.43)	8.92 *** (0.47)	3.64 *** (0.91)

Note: Data from 2002-2005. The percentage of assets traded is calculated on a monthly basis. Source: Raddatz and Schmukler (2011)

# Herding Increased after Regulatory Reform

## Herding for Fund Type C

**Panel A. Herding Statistic**

	Assets Traded by More than One PFA		Assets Traded by More than Two PFAs		Assets Traded by More than Three PFAs	
	Before Regulatory Reform	After Regulatory Reform	Before Regulatory Reform	After Regulatory Reform	Before Regulatory Reform	After Regulatory Reform
Corporate Bonds	4.15 ** (1.81)	7.07 *** (1.94)	2.19 ** (0.98)	8.85 *** (2.38)	1.85 ** (0.90)	8.29 *** (2.85)
Financial-Institution Bonds	-0.57 (2.22)	7.01 ** (3.13)	-0.43 (2.96)	8.03 ** (4.16)	7.61 (4.03)	6.47 ** (2.32)
Government Bonds	-0.44 (0.44)	-0.00 (0.27)	1.10 (0.87)	0.79 ** (0.46)	3.40 ** (1.44)	2.30 *** (0.87)
Mortgage Bonds	6.56 *** (0.21)	6.02 *** (0.20)	3.46 *** (0.19)	2.65 *** (0.18)	1.70 *** (0.17)	1.10 *** (0.16)
Equity	0.81 * (0.61)	2.64 *** (0.68)	1.16 ** (0.70)	3.15 *** (0.79)	1.60 ** (0.83)	4.14 *** (0.96)

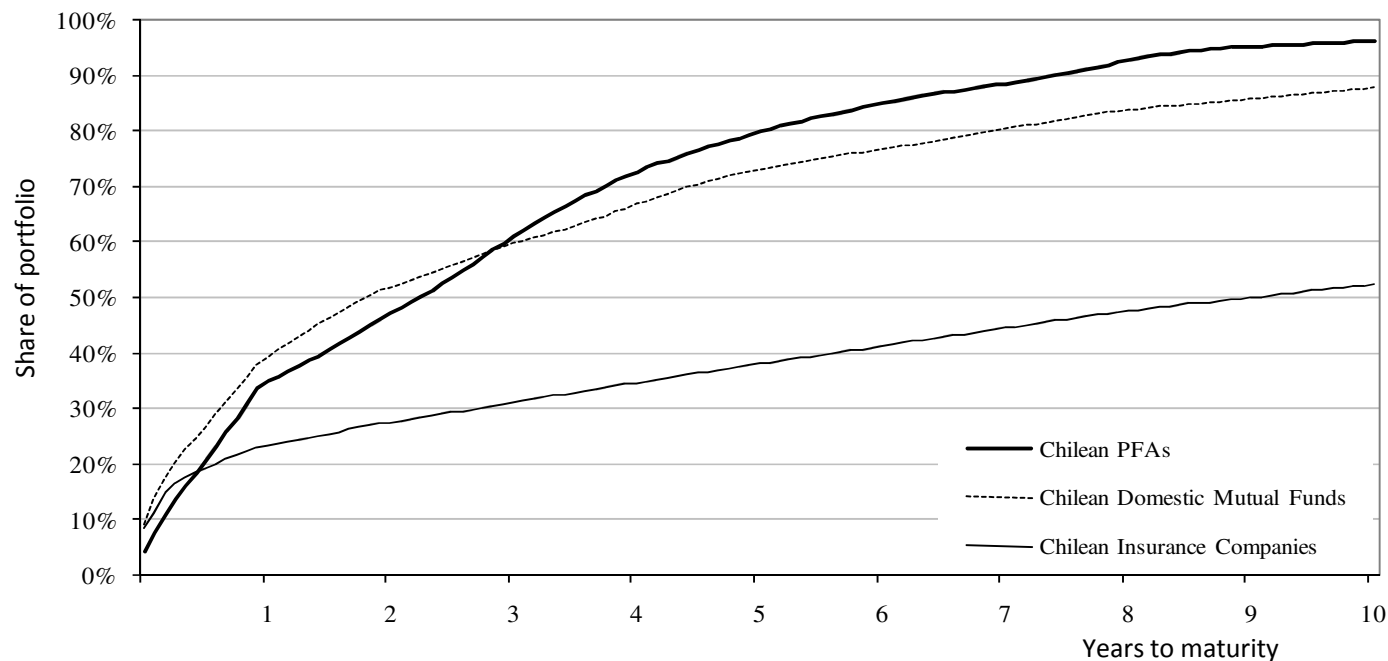
**Panel B. P-Value for Hypothesis Testing: Herding Before the Reform > Herding After the Reform**

	Assets Traded by More than One PFA	Assets Traded by More than Two PFAs	Assets Traded by More than Three PFAs
Corporate Bonds	0.93	1.00	0.99
Financial-Institution Bonds	0.98	0.95	0.40
Government Bonds	0.79	0.40	0.28
Mortgage Bonds	0.01	0.00	0.00
Equity	0.98	0.98	0.99

*Note: Data from 2002-2005. The percentage of assets traded is calculated on a monthly basis. Source: Raddatz and Schmukler (2011)*

# Along with MFs, PFAs Tend to Invest Short Term

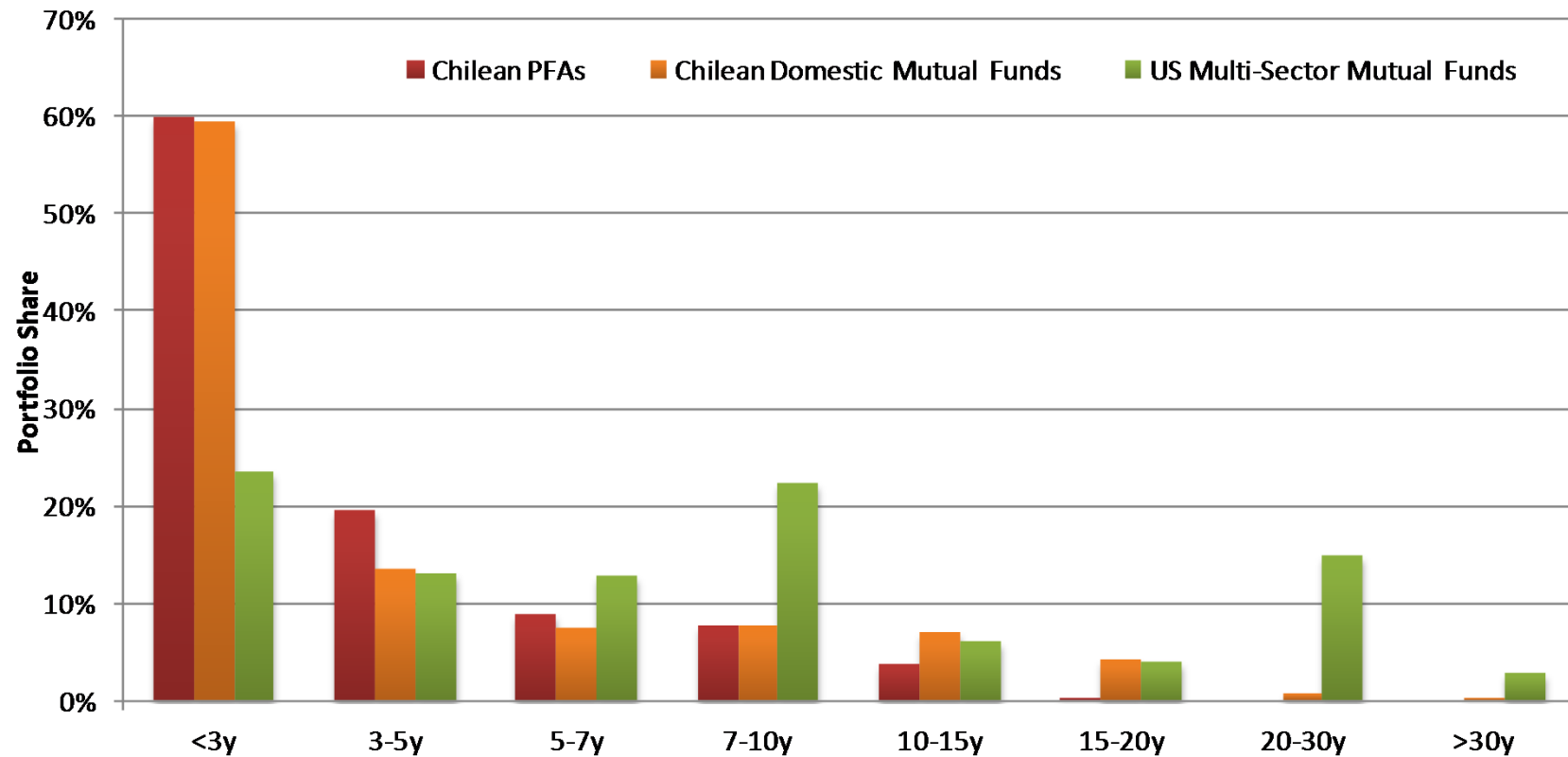
Maturity Structure of Chilean Domestic Mutual Funds and PFAs  
vs. Insurance Companies



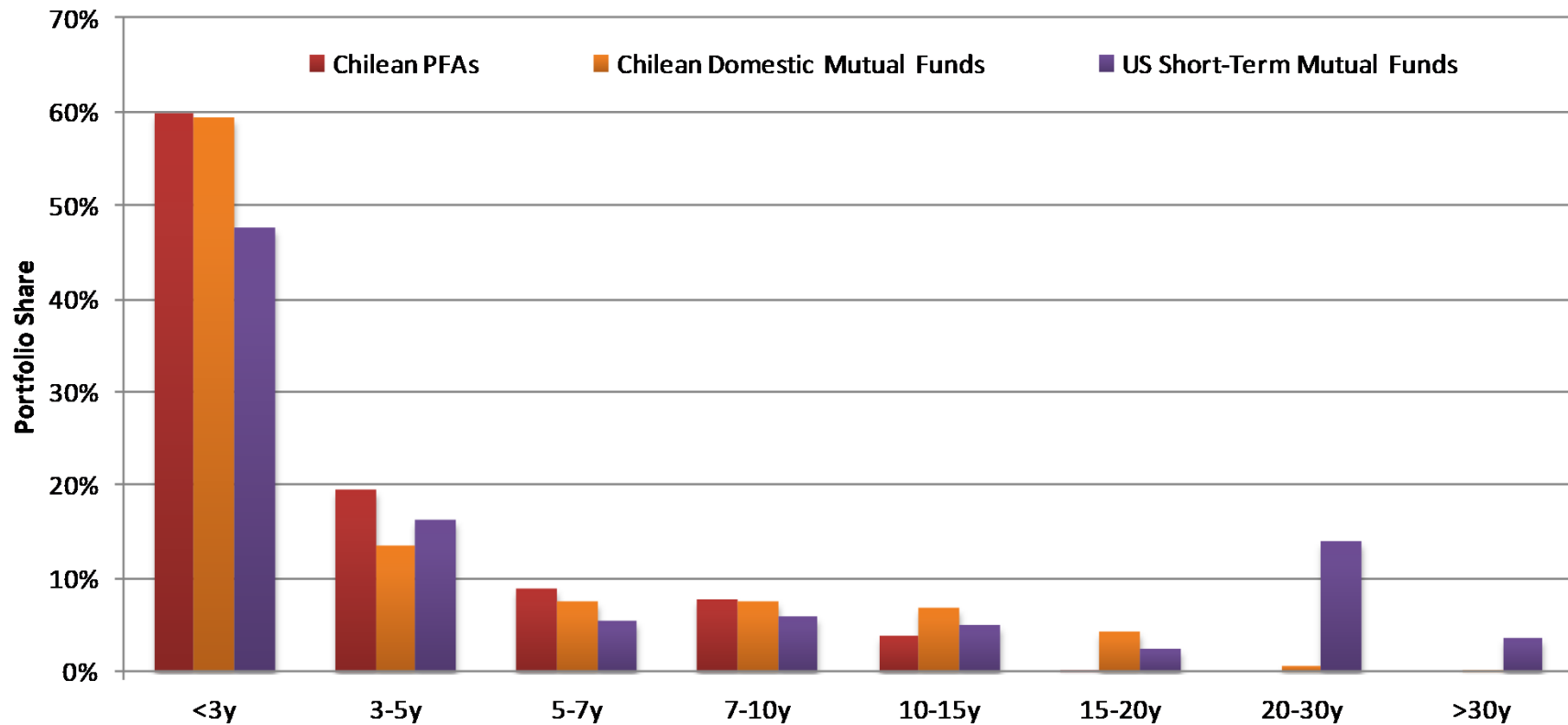
	Avg. Maturity
(1) Chilean Insurance Companies	10.32
(2) Chilean Domestic Mutual Funds	3.88
(3) Chilean PFAs	3.16

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. Source: Opazo, Raddatz, Schmukler (2011)

# Along with MFs, PFAs Tend to Invest Short Term



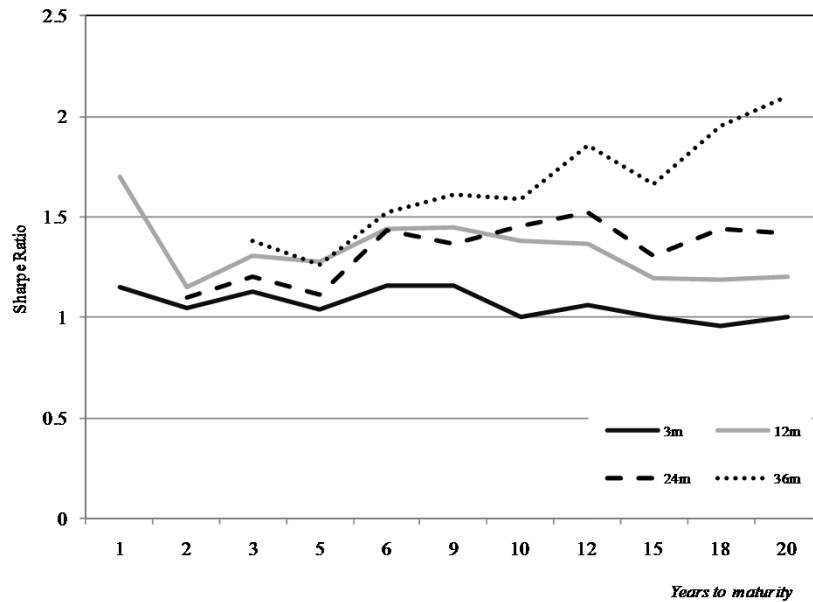
# Even When Compared to US Short-Term Funds



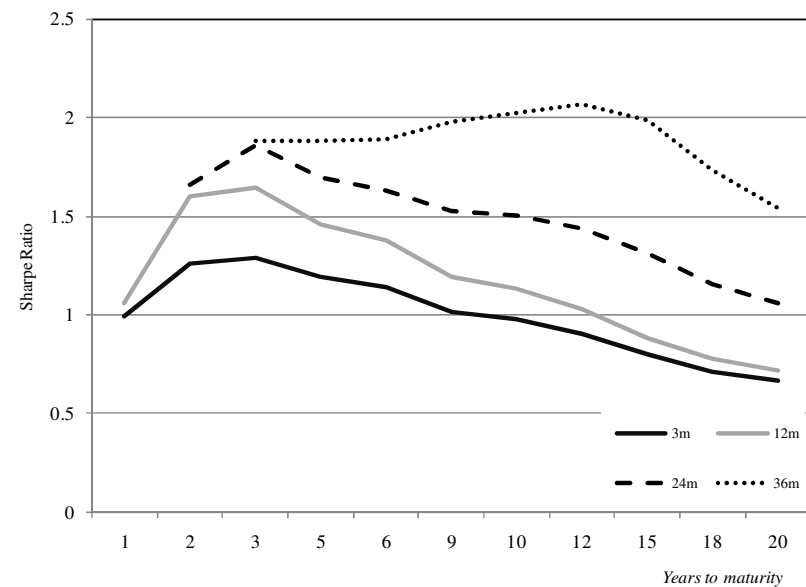
# And Even When Investing Long Term Pays Off

## Bond Sharpe Ratio at Different Maturities and Holding Periods

Indices of Chilean Government Inflation-Indexed Bonds



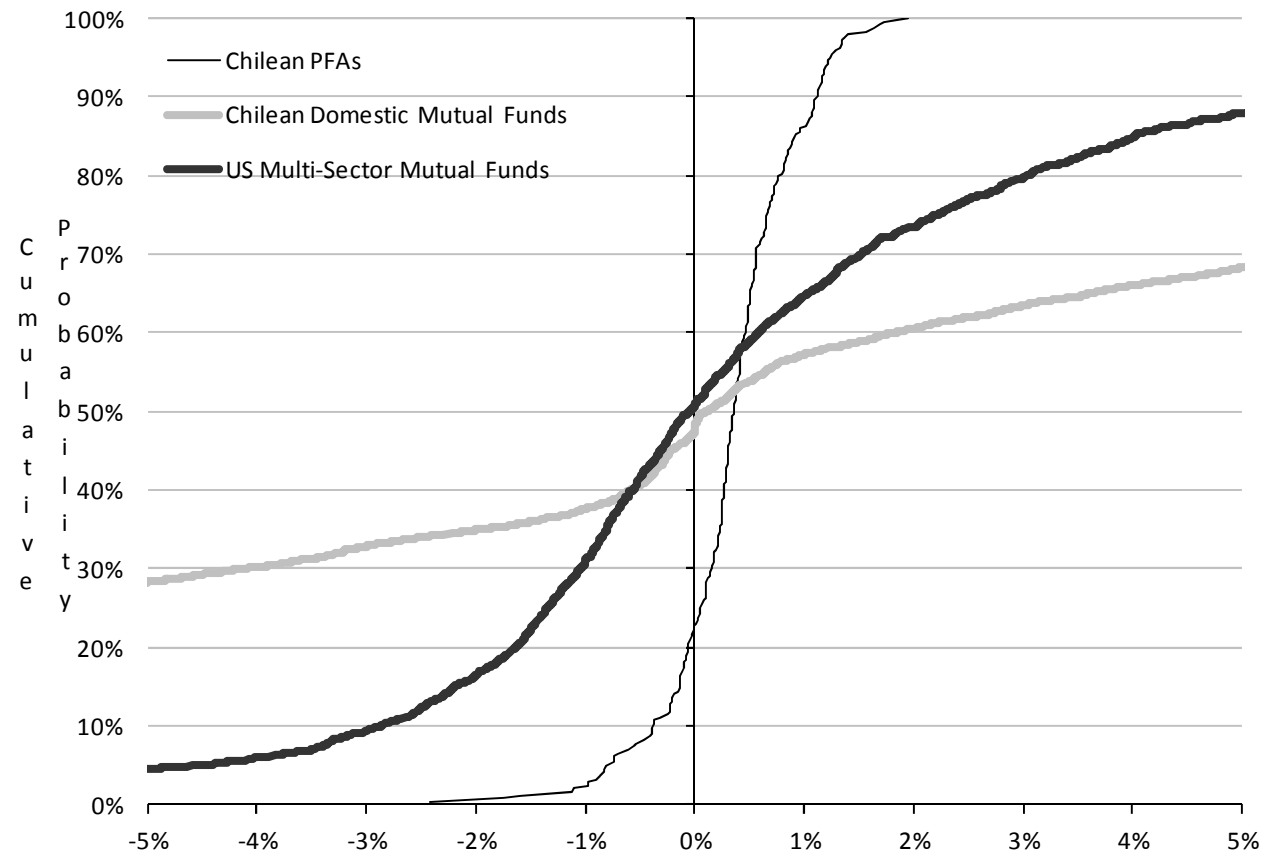
Indices Based on the Estimated Yield Curve



Note: This figure presents the Sharpe ratios (average returns/standard deviations) of Chilean bonds of different maturities for various holding periods (3 months, 1 year, 2 years, and 3 years). It shows statistics for indices of government inflation-indexed bonds, and using prices from model-based estimations of the yield curve. Source: Opazo, Raddatz, Schmukler (2011).

# Chilean Mutual Funds are Highly Exposed to Large Net Outflows

Net Inflows to Chilean MFs and PFAs Compared to US Mutual Funds



Source: Opazo, Raddatz, Schmukler (2011).

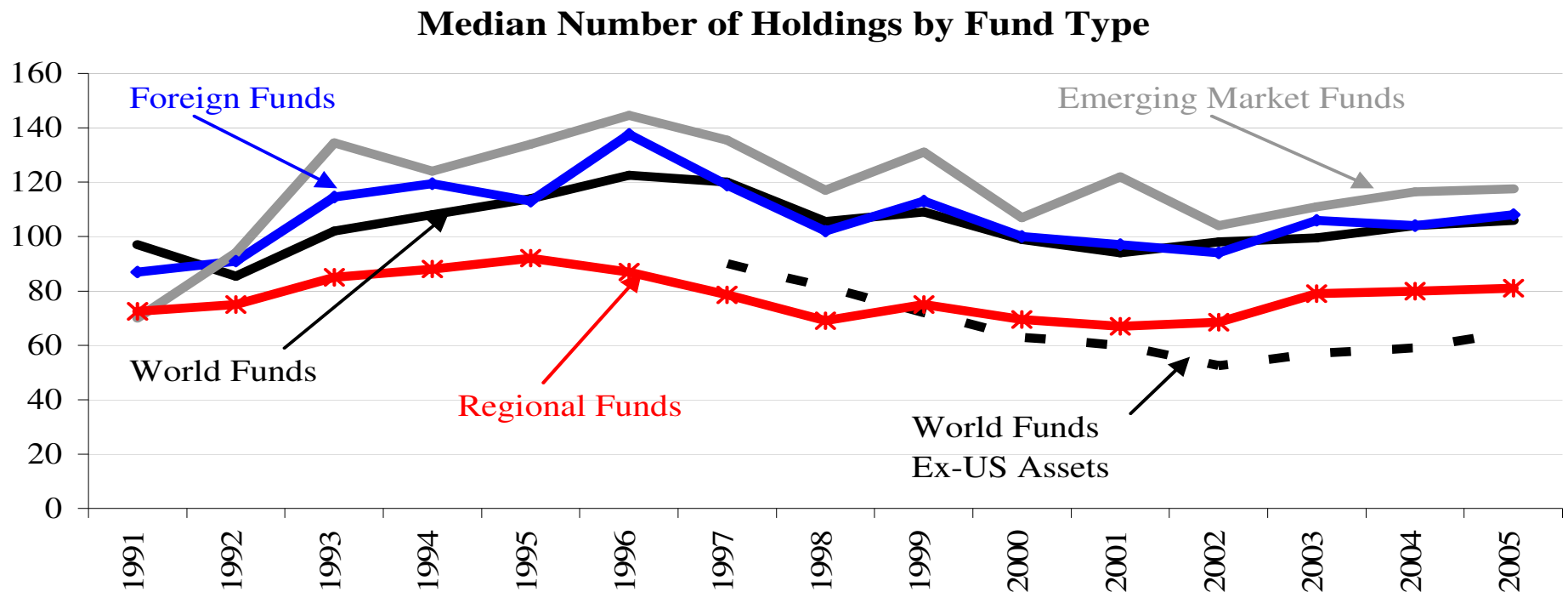


# Other International Evidence





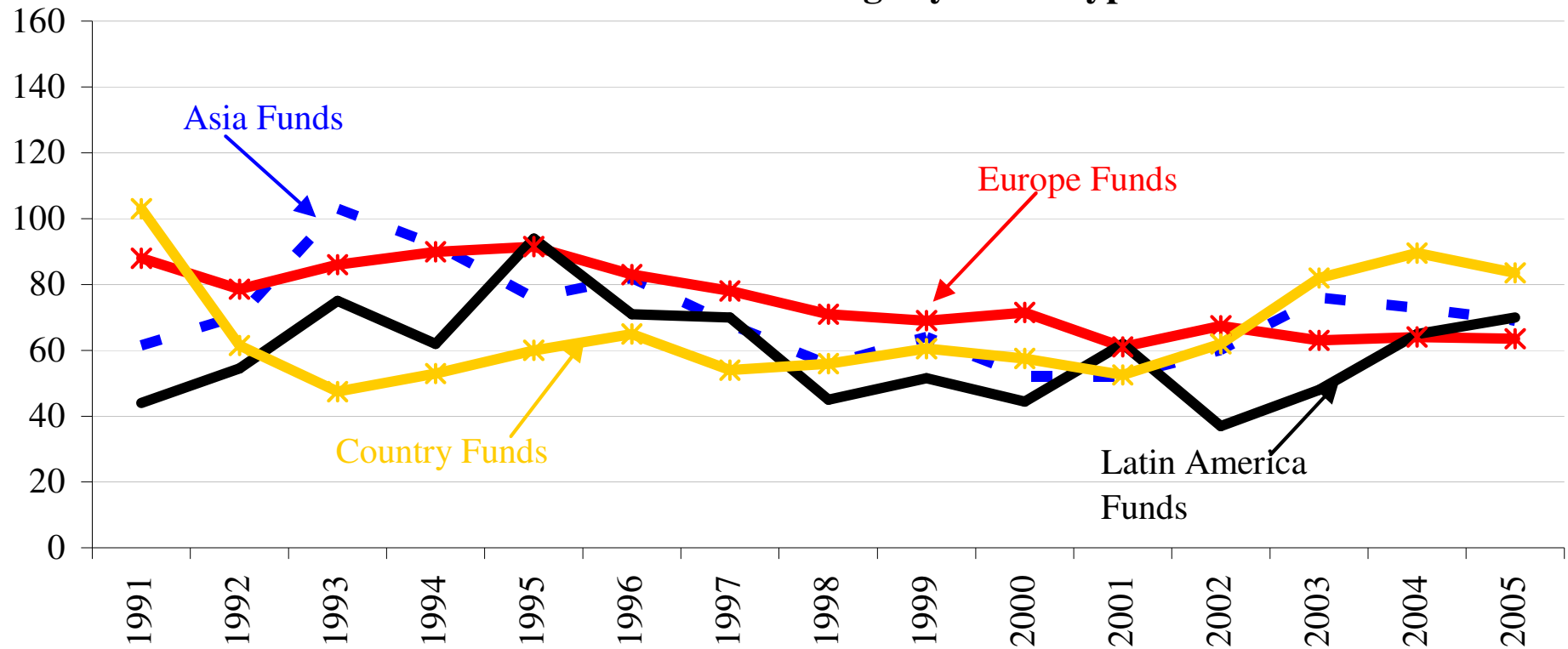
# Similar Number of Holdings Across Fund Types and Relatively Constant over Time



Source: Didier, Rigobon, and Schmukler (2011)

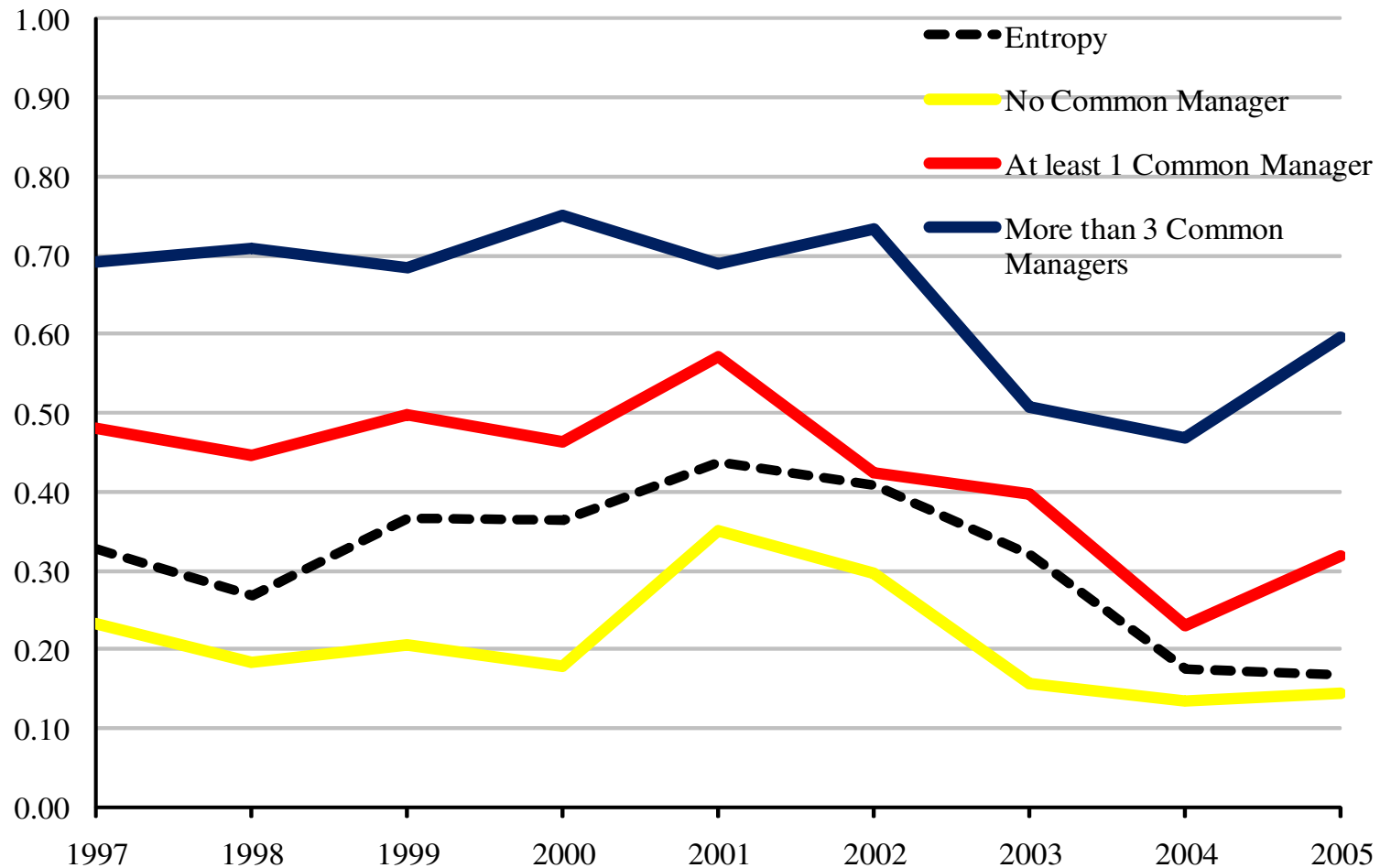
# Similar Number of Holdings Across Fund Types and Relatively Constant over Time

Median Number of Holdings by Fund Type



# Having Managers in Common Increases Entropy

## Entropy Measures across All Holdings



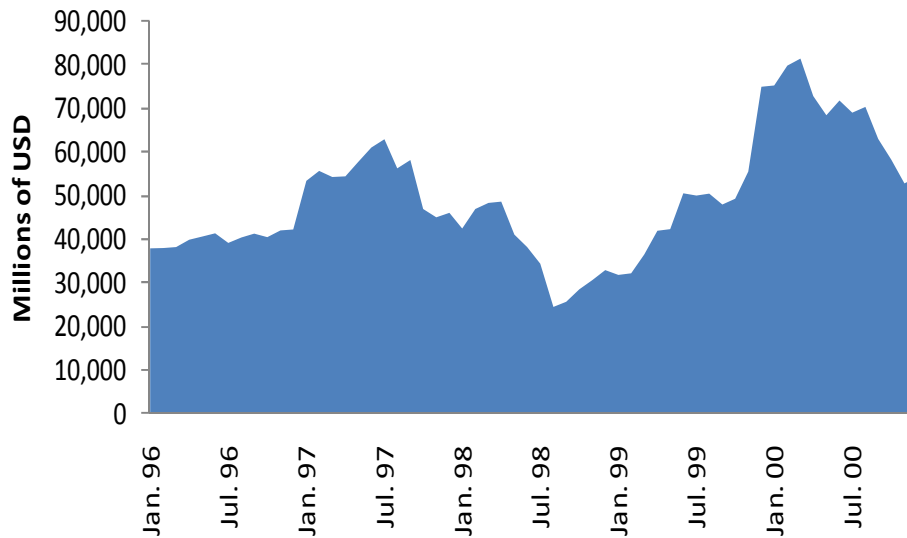
# Family Effects are Relevant

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

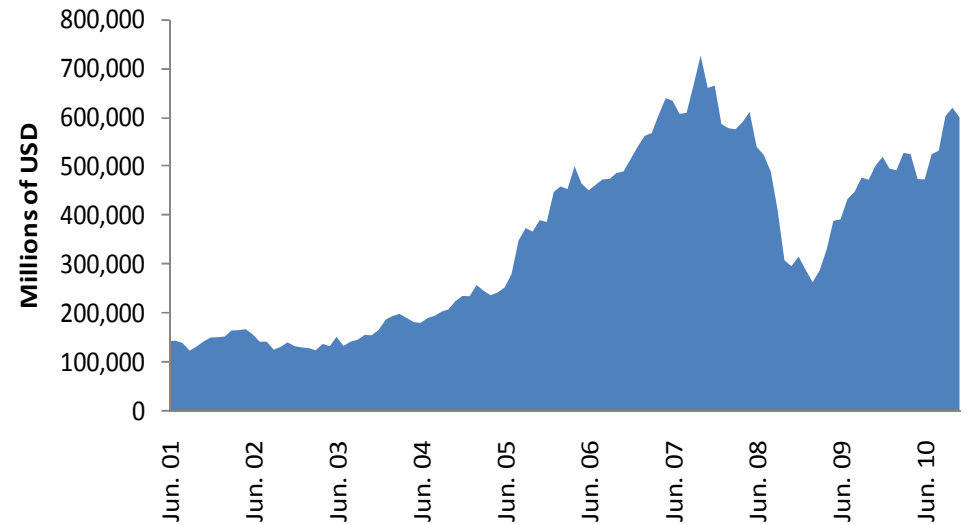
	% of Net Assets in Top Ten Holdings				
	(1)	(2)	(3)	(4)	(5)
<b>Adjusted R-squared</b>	0.01	0.32	0.33	0.39	0.40
<b>Independent Variables</b>					
Year Dummies	Yes	No	Yes	No	Yes
Fund Type Dummies	No	No	No	Yes	Yes
Family Dummies	No	Yes	Yes	Yes	Yes
<b>No. of Observations</b>	6,379	6,379	6,379	6,379	6,379

# Evolution of Total Assets in Global Equity Funds

1996-2000

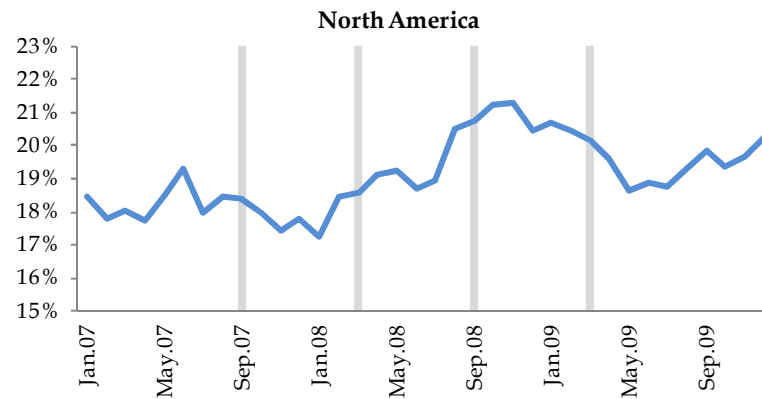
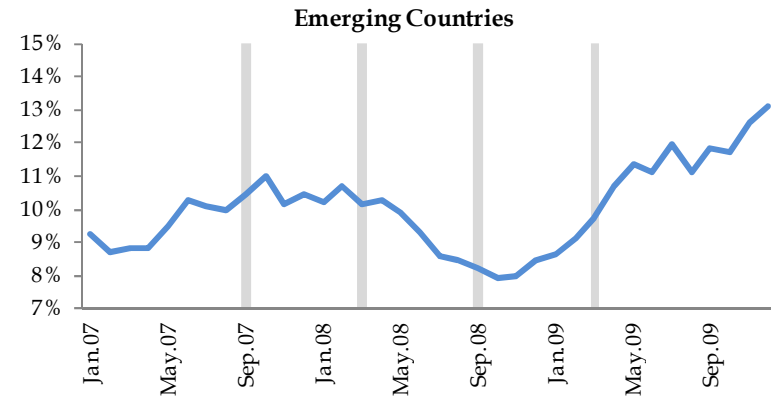
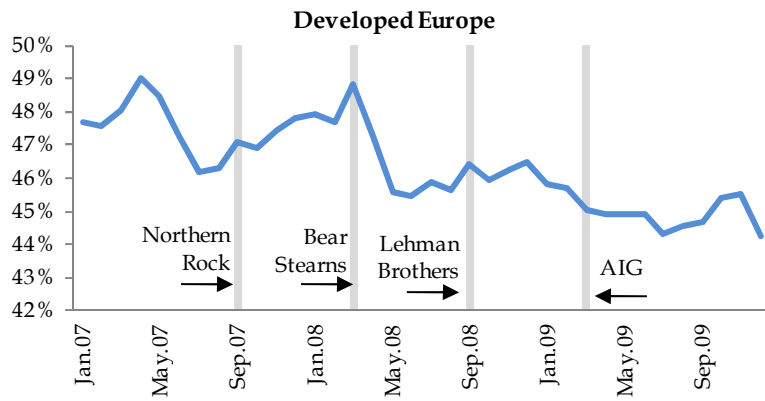


2001-2010



# Evolution of Portfolio Composition around the GFC

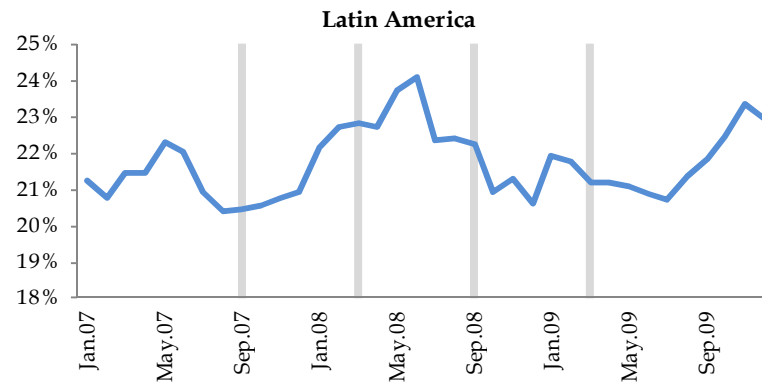
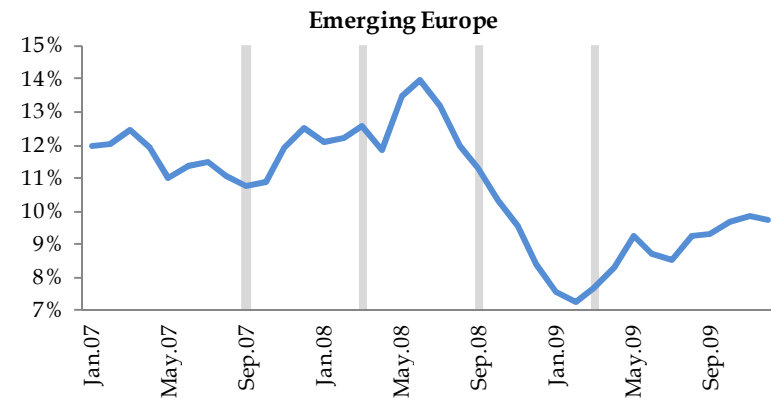
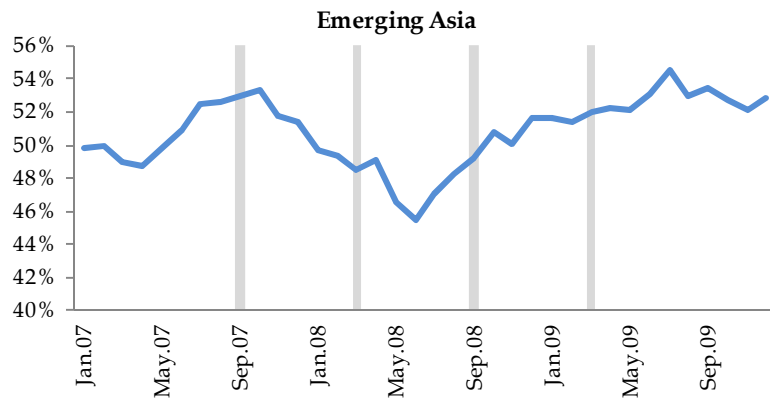
## Global Equity Funds



— Average portfolio shares

# Evolution of Portfolio Composition around the GFC

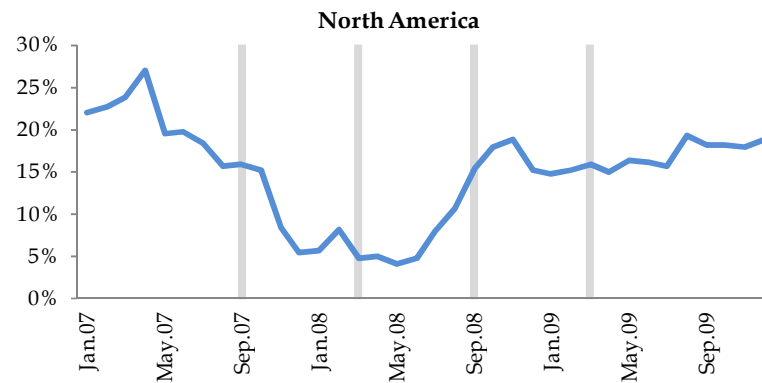
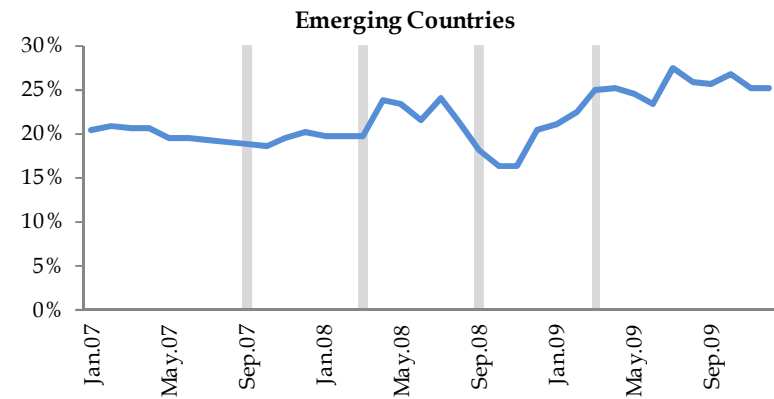
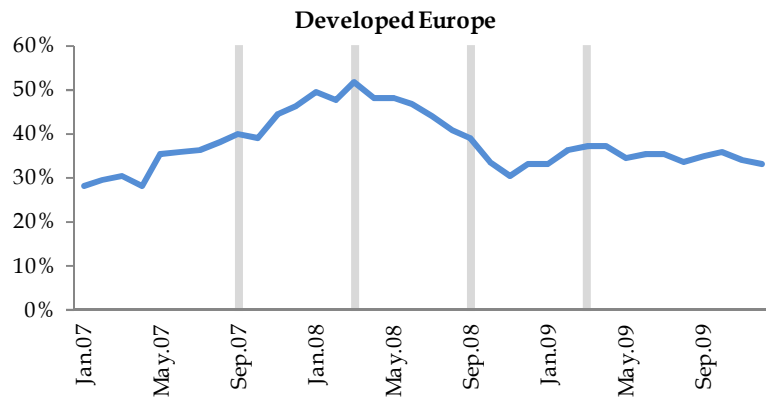
## Global Emerging Equity Funds



— Average portfolio shares

# Evolution of Portfolio Composition around the GFC

## Global Bond Funds

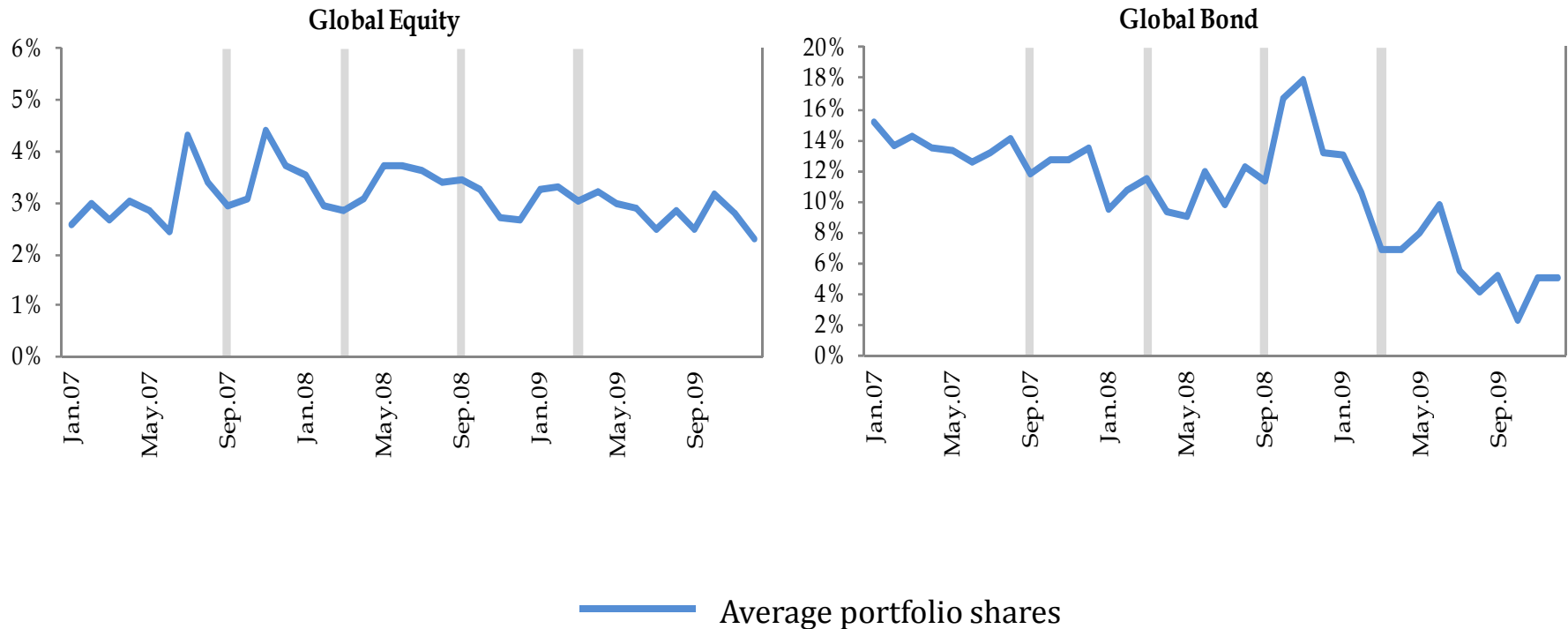


— Average portfolio shares



# Evolution of Portfolio Composition around the GFC

## Cash Weights - Global Funds





# Conclusions



## Concluding Remarks: Bottom Line

- In terms of financial development, substantially different and better than before, even when “insurmountable”
  - Deeper systems, in domestic and international fronts
  - More saving and more resources available in the economy
  - Less crowding out by governments, but governments still large
  - According to some measures, consumers appear to be better served
  - Financial system more complex, somewhat more diversified
    - Not that much bank-based
    - Bonds and equity play bigger role, corporate bonds emerging
    - Institutional investors much more prominent
  - Nature of financing is also changing
    - Longer maturities and less dollarization – less credit risk
    - More local financing, though foreign markets important for some
    - Fewer mismatches in domestic and external balance sheets

## Concluding Remarks: Bottom Line


- But no finance for all!
  - Financial development through capital markets not spread to all firms
- 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
  - Incentives might play crucial role for more risk taking
  - Expansion to areas relatively easy to finance
  - Might not necessarily yield desired socially optimal outcome
  - Financial intermediaries brain of the economy ...
  - ... but work differently than expected

## Concluding Remarks: Bottom Line

- Not clear how to proceed in many areas
  - Institutional investors are emblematic
  - Similarly with banks and capital markets
- Nor what to expect from capital market financing
- Plus lack of obvious paradigm at international level
  - Collapse of role models: no roadmap after the crisis
  - E.g. what to make of securitization and mortgage financing?
- Eventually, need to catch up, grow, and take risk without undermining stability: strong trade-off
  - Macro-prudential policies might not help
  - Hard to distinguish spurious boom from leapfrog
  - Especially for lagging areas and countries
- More questions than answers – several areas for further work

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## Example I: Can Funds Go Longer and Riskier?

- Large chunk of savings intermediated by asset managers
  - Spend significant part of fees in marketing
    - Perhaps could be diverted to asset management?
  - Avoid risk taking, forgoing long-term returns for investors ...
  - ... and risk capital for corporations
    - Distinct from usual stories related to the global crisis
  - Also shy away from smaller corporations (outside blue chips) ...
  - ... even when publicly listed (formal, regulated, transparent)
  - However, this strategy shields asset managers from volatility
- 
- 

# Pension Funds in Chile: Taking Stock

- PFAs are large financial market players
- 6 PFAs operating, largest 2 PFAs represent 55% of the system's assets (largest represents 30%)
- Behave as asset management companies
- Relatively short-term horizons
- Hold an important part of their portfolios in assets that capture mainly (undiversifiable) country risk
- Connected to other financial institutions (ownership, deposits)
- Important liquidity providers
  - Large shocks to them may affect liquidity provision
  - Country shock amplified by liquidity provision and ownership linkages

# Pension Funds in Chile: Why Do They Herd?

- Do not trade much, but trade similar assets when they do
  - Potential consequences for asset price fluctuations and access
- Relation with opaqueness consistent with incentives not to deviate from the pack
- Evidence on the role of regulation is ambiguous
  - No decline in herding after the 1999 reform
  - But herding stronger in funds where the band should be tighter (riskier on average)
- Regulation induced industry structure?
  - Competition in risk minimization




## Example II: How Important Are Different Incentives?

- Regulatory incentives to minimize risk relative to benchmark
  - Having similar portfolios minimizes that risk
  - Induces herding and use of benchmark indexes
  - Evidence for the relevance of regulation on the intensive margin is limited
- But why should the industry benchmark be tilted toward low risk, short maturity end?
  - Hysteresis
  - Cost of information acquisition
    - Focus on low information intensity assets
- Equilibriums can be quite persistent

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## Example II: How Important Are Different Incentives?

- Investor side – market discipline
    - Outflows (or the threat of) / redemptions
    - Based on short-term returns
    - Outflows potentially more important for MFs – systemic
    - But PFAs have quiet stable source of funds and investors seem sticky
  - 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”
- 
- 

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## Some of the General Policy Challenges

- Step up the state's oversight without undermining private monitoring
  - Generate healthy competition among financial intermediaries without perverse incentives
  - Promote market discipline through standardization and benchmarking without boosting short-termism
  - Foster long-term risk while being able to monitor managers
  - Contrarian behavior and long-term arbitrage opportunities without generating backlash due to negative outcomes
  - Think of alternative ways of promoting participation (mandatory participation, shared infrastructure)
  - Take advantage of useful international diversification
- 
- 



Muchas gracias!