International Asset Allocation and Capital Flows: The Benchmark Effect

Claudio Raddatz Sergio Schmukler Tomas Williams

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- Many theories and empirical work about how capital is invested internationally
- Most of the literature has focused on the role of fundamentals
- In this paper, another factor, mostly ignored in the international finance literature
- "The benchmark effect"

- Benchmark effect: impact that well-known indexes play as a coordinating mechanism to guide asset allocation and capital flows
 - E.g., developed market, emerging market, and regional indexes
- Effect can be important because most international assets are allocated across countries by intermediaries, notably mutual funds
- These intermediaries typically declare a benchmark index to follow
- More funds follow benchmarks more passively
 - As a way to cut costs, increase transparency, and provide alternative and simple investment vehicles
 - E.g. indexed funds and exchange-traded funds (ETFs)
- The creation of indexes triggers the creation of funds following them
- Benchmark effect seems important to understand
 - Relevant for the industry, countries, and researchers

- For the industry, principal-agent problems
- Benchmarks help alleviate typical agency problems that arise in financial intermediation
- Benchmarks help mutual fund managers guide their investment allocation
- They also help compare the managers' performance against wellknown indexes on a short-run basis
- Benchmarks help both investors and owners of the mutual fund companies diminish principal-agent problems
- Thus, are likely to continue being popular
- However, there are many other reasons that might make benchmarks relevant, and the analysis here would still go through

- For countries, coordination and guiding mechanism
- Benchmarks can act as a coordinating mechanism if they lead mutual funds to move in tandem in given markets, having systemic effects
- Even when investors care about performance, managers optimally choose assets in the index (Basak and Pavlova, 2012)
- A coordinating mechanism is important for funds to have aggregate effects because individual funds tend to be relatively small
- But these effects are not obvious
 - Funds declare prospectus benchmarks but do not need to follow them
 - Greater deviations from benchmarks could bring greater profitability (Cremers and Petajisto, 2009)
- Quantifying the extent of this coordinating mechanism seems crucial

- For researchers, benchmarks offer several advantages
- Help compare individual portfolios against some well-known specific asset allocations—otherwise difficult to evaluate these portfolios
- Benchmarks mechanically connect the investment decisions and capital flows of mutual funds to some external portfolio
- Study how tight these relations are across different investors
 - Do the funds more loosely connected to the benchmarks follow similar investment patterns?
- Benchmarks are determined exogenously and receive constant rebalances, thus evaluate the effects of these exogenous shocks
- By linking different assets in the same portfolio, benchmarks can trigger contagion effects—shocks across these assets

- Benchmark effects already mentioned in the broader discussions
- Israel (2010), Business Week (2010)
 - From the MSCI Emerging Market Index to the World (Developed) Index
 - Fears of capital outflows even when move due better fundamentals
 - Israel's weight in the EM 3.17%, and 0.37% in the WI Index
 - From May to August, the Tel Aviv 25 Index rose only 2.8%, lower than the 7.3% increase in the EM Index and the 4.9% in the EAFE Index



- i. How do benchmark indexes behave?
 - How do shocks to returns get transmitted to benchmarks?
- ii. How important are benchmarks for the mutual fund investments across countries?
 - Does the relation between funds and benchmarks vary by the degree of activism across funds?
- iii. What is the relation between asset allocations and capital flows?
 - How do benchmark weights affect capital flows?
- iv. Do shocks to relative returns and exogenous adjustments to the benchmarks generate allocations and capital flows?

Presentation

- I. Motivation
- II. Data
- III. Benchmarks
- IV. Effects on Asset Allocation
- V. Effects on Capital Flows
- VI. Conclusions

Presentation

I. Motivation

II. Data

- III. Benchmarks
- **IV.** Effects on Asset Allocation
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II. Data: Micro-level Dataset on Mutual Funds

- Data coverage (monthly frequency)
 - 2,837 equity funds: Jan 1996-Jul 2012
 - 838 bond funds: Jan 1997-Jul 2012
- Merged data from EPFR and Morningstar Direct for mutual funds
 - Dead and alive international open-end funds
 - Investments in 52 countries
- Variables
 - Total net assets (TNA)
 - % of the funds' assets allocated to each country
 - Investor type: active/passive, ETF/non-ETF
 - Investment scopes (geographical regions)
 - Others: fund domicile, family, main currency denomination
 - Prospectus and analyst assigned benchmarks

II. Additional Data

- Fund prices (NAV) from Datastream and Morningstar Direct
 - Used to compute returns and injections to funds
- Country stock and bond market indexes (U.S. dollars)
 - MSCI, S&P, JP Morgan, among others, and local sources
 - Used to compute the flows to the countries
 - Country-level indexes to compute returns at country level
- Benchmark country weights
 - % that each country represents in several international benchmarks
 - MSCI, FTSE, JPMorgan, and specific data from Morningstar Direct
 - <u>Match</u> mutual funds with benchmarks using the prospectus benchmark
 - If missing, analyst-assigned benchmark

II. Evolution of Total Assets in Equity Funds



II. Evolution of Total Assets in Bond Funds



II. Evolution of Total Assets in Equity Funds by Fund Type



Truly Active
Mildly Active
Closet Indexing
Explicit Indexing

II. Evolution of Total Assets in Bond Funds by Fund Type



■ Truly Active

■ Mildly Active

■ Closet Indexing

Explicit Indexing

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III. Benchmarks

- As of May 2012 in Datastream
 - 267,415 active equity indexes
 - 63,616 active bond indexes
- Major producers of indexes
 - MSCI, FTSE, Russell, S&P and Dow Jones for equity indexes
 - JPMorgan, Merrill Lynch, Citigroup and Barclays for bond indexes
- Broad indexes but also more specific indexes
 - Index Level (Price, net and gross returns)
 - Currency (USD, EUR or local)
 - Size (small, mid or large cap)
 - Style (value or growth)
- Most of these indexes are market capitalization corrected by other factors

III. Benchmarks

Equity Benchmarks								
Log Country Weights								
	(1)	(2)	(3)	(4)	(5)	(6)		
Variables	iables Cross Section							
Log Market Cap.	0.635 ***					0.604 ***		
	(0.104)					(0.112)		
Log Real GDP PPP per Capita		0.646 ***				0.115		
		(0.181)				(0.172)		
Country Risk			0.08 ***			0.038 *		
			(0.019)			(0.022)		
Quality of Institutions				0.023		0.042 ***		
				(0.038)		(0.011)		
Capital Account Openness					0.175	0.041		
					(0.110)	(0.087)		
Constant	-7.472 ***	-5.836 ***	-5.658 ***	0.300	0.213	-11.482 ***		
	(1.254)	(1.768)	(1.475)	(0.304)	(0.195)	(1.515)		
Benchmark Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes		
Number of Observations	916	915	916	916	916	915		
R-squared	0.474	0.334	0.344	0.287	0.295	0.507		

III. Benchmark

R-squared

		E	quity Benchma	rks				
	Log Difference Country Weights							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables			Monthly			Semi Annual	Annual	Biannual
Relative Returns	0.959 ***	0.957 ***	0.96 ***	0.96 ***	0.961 ***	0.958 ***	0.883 ***	0.327 ***
	(0.013)	(0.013)	(0.014)	(0.014)	(0.014)	(0.019)	(0.017)	(0.018)
Fixed Effects	No	B and T	BT	СВ	BT and CB	BT and CB	BT and CB	BT and CB
Number of Observations	98,549	98,549	98,549	98,549	98,549	93,704	88,751	79,687
R-squared	0.997	0.998	0.998	0.998	0.998	0.988	0.982	0.979
		В	ond Benchman	rks				
			Log Diff	erence Country	7 Weights			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables			Monthly			Semi Annual	Annual	Biannual
Relative Returns	1.024 ***	1.023 ***	1.022 ***	1.028 ***	1.027 ***	0.824 ***	0.772	0.733 ***
	(0.030)	(0.033)	(0.033)	(0.029)	(0.032)	(0.058)	(0.088)	(0.112)
Fixed Effects	No	B and T	BT	СВ	BT and CB	BT and CB	BT and CB	BT and CB
Number of Observations	10,076	10,076	10,076	10,076	10,076	9,430	8,689	7,331

0.997

0.997

0.997

0.983

0.973

0.965

0.996

0.996

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IV. Log Weights versus Log Benchmark Weights

	Equity Fund	S			
	Total	Degree c	e of Activism		
	Sample	Explicit	Closet	Mildly	Truly
Variable	Sample	Indexing	Indexing	Active	Active
I	Log Weights (Fund by Fund-M	ledian Coeffici	ent)		
Log Benchmark Weights	0.793***	0.998***	0.957***	0.761***	0.552***
	(0.292)	(0.049)	(0.19)	(0.177)	(0.343)
Median Observations per Fund	524	336	441	658	483
Number of Funds	2478	70	772	818	818
R-Squared	0.645	0.991	0.825	0.628	0.42
(%) of Significant Coefficients at					
the 1% level	98.4	100	100	99.9	95.2
	Log Weights	5			
Log Benchmark Weights	0.771***	0.965***	0.929***	0.774***	0.604***
	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)
Observations	1,619,985	37,187	449,715	641,816	491,267
R-Squared	0.609	0.943	0.816	0.618	0.398
	Log Weights (Fund-Countr	y Fixed Effects)		
Log Benchmark Weights	0.671***	0.950***	0.870***	0.680***	0.473***
	(0.005)	(0.009)	(0.006)	(0.006)	(0.006)
Observations	1,619,985	37,187	449,715	641,816	491,267
R-Squared	0.845	0.978	0.905	0.819	0.802
Log Weights	s (Fund-Country Fixed Effects	and Fund-Tim	e Fixed Effec	ts)	
Log Benchmark Weights	0.687***	0.956***	0.862***	0.685***	0.521***
	(0.005)	(0.01)	(0.006)	(0.007)	(0.006)
Observations	1,619,985	37,187	449,715	641,816	491,267
R-Squared	0.861	0.98	0.913	0.834	0.827

IV. Log Weights versus Log Benchmark Weights

	Bond Fu	nds					
	Total		Degree of Activism				
Variable	Sample	Explicit Indexing	Closet Indexing	Mildly Active	Truly Active		
	Log Weights (Fund by Fund	d-Median Coefficie	ent)				
Log Benchmark Weights	0.785***	0.789***	0.919***	0.746***	0.349***		
	(0.4)	(0.005)	(0.141)	(0.234)	(0.564)		
Median Observations per Fund	511	338	782	609	237		
Number of Funds	153	2	54	49	48		
R-Squared	0.479	0.839	0.658	0.441	0.108		
(%) of Significant Coefficients at							
the 1% level	91.5	100	100	100	72.9		
	Log Weig	ghts					
Log Benchmark Weights	0.777***	0.789***	0.909***	0.806***	0.434***		
	(0.006)	(0.004)	(0.006)	(0.007)	(0.012)		
Observations	91,466	676	38,264	34,337	18,189		
R-Squared	0.445	0.838	0.655	0.471	0.123		
	Log Weights (Fund-Cou	ntry Fixed Effects))				
Log Benchmark Weights	0.535***	0.646***	0.714***	0.587***	0.146***		
	(0.016)	(0.032)	(0.02)	(0.017)	(0.026)		
Observations	91,466	676	38,264	34,337	18,189		
R-Squared	0.768	0.989	0.812	0.765	0.694		
Log Weight	ts (Fund-Country Fixed Effe	ects and Fund-Tim	e Fixed Effec	ts)			
Log Benchmark Weights	0.586***	0.640***	0.733***	0.603***	0.243***		
	(0.016)	(0.032)	(0.021)	(0.017)	(0.032)		
Observations	91,466	676	38,264	34,337	18,189		
R-Squared	0.791	0.99	0.824	0.789	0.734		

IV. Adding Log Industry Weights

Equity Funds									
	Total	Degree of Activism							
	Sampla	Explicit	Closet	Mildly	Truly				
Variable	Jampie	Indexing	Indexing	Active	Active				
	Log V	Veights							
Log Benchmark Weights	0.757***	0.963***	0.924***	0.763***	0.582***				
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)				
Log Industry Weights	0.140***	0.014***	0.035***	0.135***	0.253***				
	(0.003)	(0.003)	(0.003)	(0.004)	(0.006)				
Observations	1,619,985	37,187	449,715	641,816	491,267				
R-Squared	0.610	0.943	0.816	0.619	0.404				
	Log Weights (Fund-O	Country Fixed	d Effects)						
Log Benchmark Weights	0.667***	0.947***	0.866***	0.677***	0.470***				
	(0.005)	(0.009)	(0.006)	(0.006)	(0.006)				
Log Industry Weights	0.140***	0.138***	0.101***	0.132***	0.157***				
	(0.009)	(0.021)	(0.009)	(0.014)	(0.017)				
Observations	1,619,985	37,187	449,715	641,816	491,267				
R-Squared	0.845	0.978	0.905	0.819	0.802				
Log Weig	hts (Fund-Country Fixed 1	Effects and F	und-Time Fix	ed Effects)					
Log Benchmark Weights	0.707***	0.962***	0.861***	0.693***	0.534***				
	(0.012)	(0.024)	(0.016)	(0.018)	(0.026)				
Log Industry Weights	-1.459***	0.597	1.689***	0.084	-0.966***				
	(0.078)	(0.928)	(0.311)	(2.762)	(0.042)				
Observations	1,457,988	37,171	436,237	591,178	393,402				
R-Squared	0.865	0.980	0.912	0.833	0.838				

IV. Adding Log Industry Weights

Bond Funds							
	Total		Degree o	f Activism			
	Sample	Explicit	Closet	Mildly	Truly		
Variable	Sample	Indexing	Indexing	Active	Active		
	Log W	eights					
Log Benchmark Weights	0.775***	0.789***	0.931***	0.763***	0.457***		
	(0.006)	(0.004)	(0.006)	(0.008)	(0.011)		
Log Industry Weights	0.240***	0.096	0.609***	0.133*	0.001		
	(0.051)	(0.156)	(0.044)	(0.073)	(0.077)		
Observations	91,466	676	43,112	26,719	20,959		
R-Squared	0.446	0.838	0.686	0.445	0.132		
	Log Weights (Fund-C	Country Fixed	l Effects)				
Log Benchmark Weights	0.534***	0.642***	0.710***	0.544***	0.218***		
	(0.016)	(0.032)	(0.021)	(0.022)	(0.030)		
Log Industry Weights	0.029	-0.334***	0.165***	0.282***	-0.148**		
	(0.031)	(0.088)	(0.027)	(0.053)	(0.072)		
Observations	91,466	676	43,112	26,719	20,959		
R-Squared	0.768	0.989	0.856	0.824	0.742		
Log Weigl	hts (Fund-Country Fixed I	Effects and Fi	und-Time Fix	ed Effects)			
Log Benchmark Weights	0.586***	0.640***	0.733***	0.603***	0.243		
	(0.053)	(0.023)	(0.048)	(0.072)	(0.151)		
Log Industry Weights	-0.661**	-0.367***	1.817	0.626**	-0.183		
	(0.280)	(0.005)	(01.797)	(0.309)	(0.302)		
Observations	91,466	676	38,264	34,337	18,189		
R-Squared	0.791	0.99	0.824	0.789	0.734		

IV. Controlling for Macroeconomic Variables

	Equity Fu	nds				
		Degree of Activism				
Variable	Total Sample	Explicit Indexing	Closet Indexing	Mildly Act	ive Truly Active	
Log	Weights (Fund-Country Fixed Effec	ts and Fund-Time Fixe	ed Effects)			
Log Benchmark Weights	0.866***	1.037***	1.012***	0.924***	0.642***	
	(0.013)	(0.021)	(0.015)	(0.018)	(0.016)	
Expected Variables as Controls	Yes	Yes	Yes	Yes	Yes	
Actual Variables as Controls	No	No	No	No	No	
Observations	761,058	19,428	202,894	288,924	249,812	
R-Squared	0.896	0.981	0.935	0.878	0.867	
Log	Weights (Fund-Country Fixed Effec	ts and Fund-Time Fixe	ed Effects)			
Log Benchmark Weights	0.719***	0.961***	0.858***	0.717***	0.566***	
	(0.005)	(0.011)	(0.007)	(0.007)	(0.007)	
Expected Variables as Controls	No	No	No	No	No	
Actual Variables as Controls	Yes	Yes	Yes	Yes	Yes	
Observations	1,164,715	26,558	321,420	464,310	352,427	
R-Squared	0.886	0.983	0.93	0.863	0.858	

IV. Controlling for Macroeconomic Variables

	Bond Fun	ds					
			Degree of Activism				
Variable	Total Sample	Explicit Indexing	Closet Indexing	Mildly Act	tive Truly Active		
Log V	Veights (Fund-Country Fixed Effec	ts and Fund-Time Fix	ked Effects)				
Log Benchmark Weights	0.573***	0.748***	0.767***	0.566***	0.127***		
	(0.023)	(0.029)	(0.025)	(0.027)	(0.042)		
Expected Variables as Controls	Yes	Yes	Yes	Yes	Yes		
Actual Variables as Controls	No	No	No	No	No		
Observations	62,182	578	26,672	23,110	11,822		
R-Squared	0.778	0.986	0.787	0.776	0.775		
Log V	Veights (Fund-Country Fixed Effec	ts and Fund-Time Fix	ked Effects)				
Log Benchmark Weights	0.552***	0.744***	0.742***	0.587***	0.115***		
	(0.021)	(0.035)	(0.026)	(0.023)	(0.034)		
Expected Variables as Controls	No	No	No	No	No		
Actual Variables as Controls	Yes	Yes	Yes	Yes	Yes		
Observations	62,274	532	26,103	23,415	12,224		
<u>R-Squared</u>	0.815	0.991	0.839	0.81	0.777		

IV. Exogenous component

Weights for benchmark B, country c, time t



IV. Exogenous Shocks to Benchmarks and Mutual Funds

	Equity Fun	ds				
	Degree of Activism					
Variable	Sample	Explicit Indexing	Closet Indexing	Mildly Active	Truly Active	
	Log Weigh	its				
Log Buy and Hold Benchmark Weight	0.794***	0.970***	0.937***	0.798***	0.635***	
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	
Exogenous Component	0.636***	0.776***	0.735***	0.678***	0.482***	
	(0.052)	(0.104)	(0.055)	(0.057)	(0.080)	
Observations	1,381,151	31,920	384,982	551,297	412,952	
R-Squared	0.646	0.949	0.835	0.656	0.441	
Log Weights (Fund	d-Country Fixed Effect	ts and Fund-Time F	Fixed Effects)			
Log Buy and Hold Benchmark Weight	0.715***	0.971***	0.855***	0.717***	0.558***	
	(0.006)	(0.012)	(0.008)	(0.007)	(0.007)	
Exogenous Component	0.498***	0.712***	0.651***	0.505***	0.322***	
	(0.027)	(0.080)	(0.042)	(0.034)	(0.029)	
Observations	1,381,151	31,920	384,982	551,297	412,952	
R-Squared	0.875	0.983	0.922	0.851	0.843	

IV. Exogenous Shocks to Benchmarks and Mutual Funds

	Bond Fun	ds					
	TT (1		Degree of Activism				
Variable	Sample	Explicit Indexing	Closet Indexing	Mildly Active	Truly Active		
	Log Weigh	nts					
Log Buy and Hold Benchmark Weight	0.759***	0.787***	0.892***	0.775***	0.419***		
	(0.007)	(0.005)	(0.007)	(0.007)	(0.011)		
Exogenous Component	0.686***	0.617**	0.793***	0.625***	0.608***		
	(0.058)	(0.247)	(0.070)	(0.082)	(0.125)		
Observations	76,964	640	32,043	28,861	15,420		
R-Squared	0.424	0.840	0.632	0.443	0.110		
Log Weights (Fund	d-Country Fixed Effec	ts and Fund-Time F	ixed Effects)				
Log Buy and Hold Benchmark Weight	0.580***	0.693***	0.752***	0.606***	0.180***		
	(0.020)	(0.048)	(0.026)	(0.025)	(0.033)		
Exogenous Component	0.502***	0.439***	0.637***	0.539***	0.201***		
	(0.041)	(0.054)	(0.054)	(0.060)	(0.077)		
Observations	76,964	640	32,043	28,861	15,420		
R-Squared	0.794	0.991	0.820	0.789	0.753		

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Link benchmark weights and capital flows through identity



- is the flow (in dollars) to country *c* at time *t*
- *W_{ict}* is the portfolio weight the fund *i* decides to have at *c*,*t*
 - value of fund's assets at the beginning of t
- is the buy-and-hold weight at c
- is the net flow (in dollars) to fund *i* at time *t*

- V. Effects on Capital Flows
 - For index funds and no exogenous changes

- is the benchmark weight
- Thus,



How well does this pattern fit all the funds?

	Equity Fun	ds				
			Degree of Activism			
Statistic	Sample	Explicit Indexing	Closet Indexing	Mildly Active	Truly Active	
	Country Flows in Bi	llions USD				
Benchmark Weight*Fund Flows	0.744***	0.839***	0.690***	0.547***	0.407***	
	(0.028)	(0.036)	(0.014)	(0.014)	(0.017)	
Observations	962,344	12,895	286,890	378,626	283,933	
R-Squared	0.296	0.627	0.177	0.081	0.045	
Country Flows in Billions	USD (Fund-Country Fix	xed Effects an	nd Fund-Tim	ne Fixed Effe	ects)	
Benchmark Weight*Fund Flows	0.700***	0.794***	0.644***	0.468***	0.254***	
	(0.035)	(0.043)	(0.018)	(0.018)	(0.018)	
Observations	962,344	12,895	286,890	378,626	283,933	
R-Squared	0.410	0.700	0.299	0.192	0.214	

	Bond Fi	unds				
	T 1		Degree of Activism			
Statistic	Sample	Explicit Indexing	Closet Indexing	Mildly Active	Truly Active	
	Country Flows in	Billions USD				
Benchmark Weight*Fund Flows	0.605***	-	0.800***	0.599***	0.469***	
	(0.028)	-	(0.041)	(0.042)	(0.055)	
Observations	59,790	-	25,539	23,387	10,548	
R-Squared	0.072	-	0.110	0.070	0.043	
Country Flows in Billions	USD (Fund-Country	Fixed Effects an	d Fund-Tim	e Fixed Effe	cts)	
Benchmark Weight*Fund Flows	0.375***	-	0.764***	0.349***	-0.019	
	(0.046)	-	(0.061)	(0.065)	(0.084)	
Observations	59,790	-	25,539	23,387	10,548	
R-Squared	0.245	-	0.228	0.238	0.279	

- Changes in benchmark weights affect capital flows in at least two important and related ways
- i. Amplification/Dampening
 - Flows to a certain country in a benchmark are "amplified" under an increase in weights, i.e. are more sensitive to flows to the fund
 - Flows to a certain country in a benchmark are "dampened" under a decrease in weights, i.e. are less sensitive to flows to the fund
- ii. Contagion
 - Changes in weights in other countries sharing the benchmark matter for capital flows
 - At each point in time, the weights in different benchmarks for the same country can vary in different directions
 - Benchmarks matter

V. Amplification/Dampening



V. Amplification/Dampening



India-MSCI Emerging Markets

- The same country in the same period could be moving in different directions according to the benchmark
- Capture the difference in directions with

() ()

- Movements in benchmark weights can differ substantially
- This can be a consequence of movements in both relative returns and exogenous components

V. Contagion Effects: Percentage Change in W^B



V. Contagion Effects: Percentage Change in W^B



V. Contagion Effects: Percentage Change in W^{BH,B}



V. Contagion Effects: Percentage Change in E^B



Date	Count.	Benchmark Weight t-12	Benchmark Weight	Benchmark Weight t-12	Benchmark Weight	Diff. Max- Min W ^B	Diff. Max-Min BH	Diff. Max- Min Ex.Comp
2009m6	Turkey	EM Europe		ЕМ		- 50.1	3.8	16.3
		8.5	14.5	15.9	13.5	50.1	5.0	+0.3
2008m2	India -	AC Asia Pacific		BRIC		- 50.2	10 0	30.2
		2.7	4.4	16.3	16.0	50.2	17.7	
2007m10	China ·	AC Far East		BRIC		- 512	19.5	31.7
		5.1	12.2	25.9	37.4	51.2	17.5	
2005m11	Taiwan	AC Pacific		AC Asia Pacific		- 53.0	-0.5	54 4
		3.6	5.6	6.0	5.5	55.7	-0.5	J.T.T
2009m6	Poland	EM Eastern Europe		<i>EM</i>		- 560	53	51.6
		11.4	13.0	1.6	1.1	50.7	5.5	51.0

Brazil Benchmark Weight (Jan 2005=100)



Distance to Average

Summary Statistics-Log Differences

Max-Min

	Benchmark Weight	Benchmark Weight	Buy and Hold	Exogenous Episodes
Mean	5.4	17.7	-1.4	19.0
SD	6.1	16.2	14.5	22.3
Minimum	0.0	0.0	-133.1	-77.9
Maximum	75.8	111.5	85.1	157.3
p25	1.5	6.6	-5.9	5.6
p50	3.4	13.1	-0.4	13.7
p75	6.9	24.0	3.7	27.5





Australia-MSCI Asia Pacific Ex Japan

Presentation

- I. Motivation
- II. Data
- III. Benchmarks
- **IV.** Effects on Asset Allocation
- V. Effects on Capital Flows and Contagion
- VI. Conclusions

- Benchmarks have significant and large effects on mutual fund allocations and capital flows across countries
- i. Mutual funds follow benchmarks rather closely
 - A 1% change in a country weight in an index results in a 0.7% change in the weight of that country for the average mutual fund following it
 - Explicit indexing funds follow benchmarks almost one-for-one
 - The most active funds are still significantly influenced by the benchmarks; 50% of their allocation is explained by benchmark effect
 - Benchmark effects important even after controlling for industry weights and common macroeconomic fundamentals
 - Because benchmarks are closely related to market cap, there is a full immediate pass-through from returns to benchmark weights
 - Any positive (negative) shock to country returns implies that their weight increase (decrease) in the relevant benchmark index
 - But this does not need to imply a reallocation or capital flows, it depends on the subsequent flows into the funds

- ii. Benchmarks are important not only for the asset allocation of mutual funds but also for their capital flows across countries
 - Portfolio weights and capital flows are intertwined decisions
 - Funds allocate the injections they receive by investing them proportionally to the weights of different countries in the benchmark
 - For every dollar a fund that explicitly follows an index receives, it directs 80 cents according to the weight each country has in the index
 - This pattern decreases with the degree of activism
 - The effects of changes in benchmark weights on changes in capital flows depend the flow of capital into the fund
 - A higher benchmark weight implies amplification effects when funds receive more inflows and outflows
 - A lower weight implies dampening effects as countries become less sensitive to changes to the investors' flows
 - Of course, this is not the only factor determining capital flows

iii. Contagion effects across countries that share the same benchmark

- Shocks to relative returns generate a re-reweighting of all countries in a given benchmark index
- This induces similar effects in all mutual funds that benchmark themselves against that index
- These relative returns depend crucially on the countries that are included in the portfolio
- For a given country return, the relative returns in different benchmarks can differ substantially, sometimes in opposite directions
- These changes in relative returns can have significant and opposite effects in capital flows into the countries included in the index
- Exogenous changes in benchmark indexes affect benchmark weights and thus mutual fund allocations and country flows
- Exogenous changes due to downgrades/upgrades of countries, and changes in market cap, free float rate, regulatory changes
- Effect separate from any endogenous pressure that mutual funds might excise on allocations, returns, and eventually benchmark weights

- Benchmark effect seems important
- In addition to other important factors
 - Economic fundamentals
 - Contagion through margin calls
 - Herding
 - Momentum trading
- Useful framework given lack of "optimal portfolios"
- But still need to understand several effects in future research

- Pro-cyclicality
 - Price effect reflected in portfolio allocations and capital flows, but feedback loops still need to be understood
 - Potential relation to bubbles and crashes
- Inclusions and exclusions
 - What determines the intensive and extensive margins?
 - What are their effects in terms of prices, ability to raise capital, and investment into the countries and firms?
- Industry changes
 - Effects of growth in passive investors, reallocations across funds with different scopes (regional vs. global), new benchmarks
- Active fund management
- Aggregate effects vs. reallocations across investors

Thank you!