Global Asset Allocation Shifts

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Motivation

Background:

- Strong fluctuations in international portfolio flows
  (often attributed to unconventional monetary policies)
- Rise of bond issuance in riskier parts of the spectrum (HY, EM)
  as bond markets have partly displaced traditional bank lending

  $\Rightarrow$ Securities often held indirectly via collective investment vehicles

$\Rightarrow$ Common perception that **fund investors chase returns** and potentially create price pressures, amplifying asset price movements ▸ Quote

★ Overall, need to enhance understanding of **portfolio decisions** of fund investors, **re-balancing** motives and the link to asset prices ...

What we do in the paper ...

- Investigate **global asset allocation decisions** by U.S. fund investors
- Look at a broad menu of asset classes (equities and bonds)
  $\rightarrow$ holistic **cross-asset** class perspective

Main questions:

- What are the broad patterns of GAAS by IIs and RIs?
- What is the role of **monetary policy** in affecting GAA shifts?
- Do fund investors chase returns and search for yield (SFY)?

Preview of findings

1. We find a strong **factor structure** in asset reallocations ...
   - Two factors account for more than 90% of the total variation
   - Rotation (US bonds vs equities) / Diversification (US vs foreign assets)

2. In **FOMC** weeks, we detect abnormal reallocation shifts into US equities and out of everything else $\rightarrow$ adds to FOMC-related anomalies
   (Pre-FOMC drift - Lucca and Moench 2015, FOMC cycle in returns - Cieslak et al. 2014)

3. Institutional investors chase returns in a similar fashion than RIs do ...

4. Some evidence for search for yield by institutional investors, when constraining the asset menu to bond markets

Literature

- Behavior of (US) (fund) investors, and their global investment decisions
  (e.g. Bohn and Tesar 1996, Brennan and Cao 1997; Froot et al. 2001; Albuquerque et al 2009; Hau/Rey 2009; Curcuru et al. 2011)
- (Unconventional) monetary policy and capital flows
  (e.g. Fratzscher 2011; Fratzscher et al. 2013; Burger et al. 2014)
- International propagation of shocks
  (e.g. Jinjarak et al. 2011; Jothikasthira et al. 2012; Raddatz and Schmukler 2012; Puy 2014)
- Pre-FOMC drift and other anomalies
  (e.g. Lucca/Moench 2015; Cieslak et al. 2014, Mueller et al. 2014)
- Monetary policy, search for yield, and risk-taking
  (e.g. Rajan 2006; Borio/Zhu 2008; Gambacorta 2009; Adrian/Shin 2010; Bekaert et al. 2013; Hau and Lai 2014; Chodorow-Reich 2014; Becker/Ivashina 2014; McCauley et al. 2015, La Spada 2015)

Data

Fund data taken from **EPFR database**, plus data from other sources.

Weekly data on fund flows, total net assets, returns computed from NAV changes.

Look at main asset classes, equities and bonds

- Dedicated funds, split by **regions** and/or **market segment**
- All Funds and Retail/Institutional
- US-domiciled, USD-denominated
- Sample period: 01/2006-12/2014

Various adjustments and cleaning to make data amenable for our purposes

★ If wealth is not constant, fund flows do not necessarily indicate portfolio adjustments (Curcuru et al, 2011)

→ Track **reallocations** (accounting for wealth effects) instead of just flows

Measuring portfolio reallocations

Measure of **active change in portfolio allocation**

(Grinblatt et al. 1995 and Curcuru et al. 2011)

$$X_{t;i}^{W} = w_{t;i} - w_{t-1;i}\frac{R_{t;i}}{R_{t,p}}$$

- $w_{t;i} = A_{t;i} / \sum_{i=1}^{N} A_{t;i}$: weight of asset class $A_{t;i}$ in the investor's portfolio
- $R_{t,p}$ gross return of that portfolio, $R_{t,p} = \sum_{i=1}^{N} w_{t-1;i} R_{t;i}$.

★ X_t^W captures component of flows into investment funds that induces a change in the asset allocation in relation to aggregate portfolio wealth

▸ AW-perspective

Summary statistics

		mu	std	ac1	$\text{corr}_{r_{t-1}}$	$\text{corr}_{y_{t-1}}$	mu	std	ac1
		wealth weighted, weekly basis points (X_t^W)					asset weighted, w. bps (X_t^A)		
Equities	Global	-0.03	3.51	0.23	0.07	-0.32	-0.43	23.50	0.26
	US	-2.06	9.62	0.19	-0.11	-0.02	-4.30	18.97	0.19
	Europe	0.12	0.67	0.62	0.19	-0.20	22.71	113.91	0.57
	AsiaPac.	0.03	0.67	0.44	0.20	-0.10	4.42	107.82	0.44
	EM	0.41	2.33	0.26	0.26	0.04	10.00	60.34	0.13
	LatAm.	-0.00	0.45	0.28	0.28	-0.03	0.16	158.54	0.27
	EMEA	0.01	0.15	0.45	0.24	-0.18	13.19	140.61	0.44
	EM-Asia	0.06	0.94	0.47	0.33	0.06	9.15	91.86	0.47
Bonds	Global	0.31	0.63	0.40	0.16	-0.01	22.33	40.22	0.41
	US	0.90	6.80	0.43	0.20	-0.26	3.04	28.91	0.39
	DM	0.02	0.29	0.70	0.14	0.28	8.47	60.41	0.68
	Global-HY	0.01	0.63	0.04	0.12	0.03	7.02	218.54	0.03
	US-HY	0.12	1.64	0.44	0.34	0.15	4.30	59.93	0.43
	EM-Hard	0.04	0.23	0.35	0.22	-0.12	15.65	74.50	0.28
	EM-Blend	0.06	0.23	0.51	0.05	-0.32	19.65	79.43	0.46

▸ Returns and Yields

Identifying asset allocation shifts

Start by a bird's eye (cross-asset class) view to investigate main reallocation shifts

$\Rightarrow$ Compute **statistical** factors ...

- Pool reallocation measures $X_{t,i}^{W}$ across asset classes
- Run PCA on the covariance matrix of reallocation measures

★ Strong (and very intuitive) **factor structure** in reallocations

- **Rotation** - captures switches between US equities and US bonds
- **Diversification** - move out of US assets and into foreign assets

▸ Factors: Retail vs Institutional

Statistical reallocation factors

		PC1	PC2	PC3	PC4
Equities	Global	-0.16	0.49	0.71	-0.14
	US	0.83	-0.35	0.18	-0.10
	Europe	-0.00	0.06	0.03	0.03
	AsiaPac.	-0.00	0.05	-0.01	0.05
	EM	-0.05	0.23	-0.61	-0.54
	LatAm.	-0.01	0.03	-0.04	-0.01
	EMEA	-0.00	0.01	-0.01	0.00
	EM-Asia	-0.02	0.09	-0.10	-0.04
Bonds	Global	-0.03	-0.00	-0.01	0.00
	US	-0.52	-0.74	0.14	-0.10
	DM	-0.01	0.01	0.01	-0.00
	Global-HY	-0.01	0.01	-0.01	0.01
	US-HY	-0.02	0.10	-0.26	0.81
	EM-Hard	-0.01	0.00	-0.02	0.02
	EM-Blend	-0.00	0.00	-0.01	-0.01
% Var expl.		79.35	12.01	5.23	1.62

Economic reallocation factors

→ Rely on insights from PCA to construct **economic** reallocation factors ...

$$\begin{bmatrix} \hat{X}_t^{ROT} \\ \hat{X}_t^{DIV} \end{bmatrix} = \mathbf{q} \times \begin{bmatrix} \mathbf{X}'_{t;E} & \mathbf{X}'_{t;B} \end{bmatrix}'$$

$$\mathbf{q} = \begin{bmatrix} 0 & 1 & \mathbf{0}_{1\times 6} & 0 & -1 & \mathbf{0}_{1\times 5} \\ 1 & -1 & \mathbf{1}_{1\times 6} & 1 & -1 & \mathbf{1}_{1\times 5} \end{bmatrix}.$$

$\mathbf{X}_{t;E}$, $\mathbf{X}_{t;B}$: 8×1, 7×1 vectors collecting reallocation measures for equities (by regions) and bonds (by market segment)

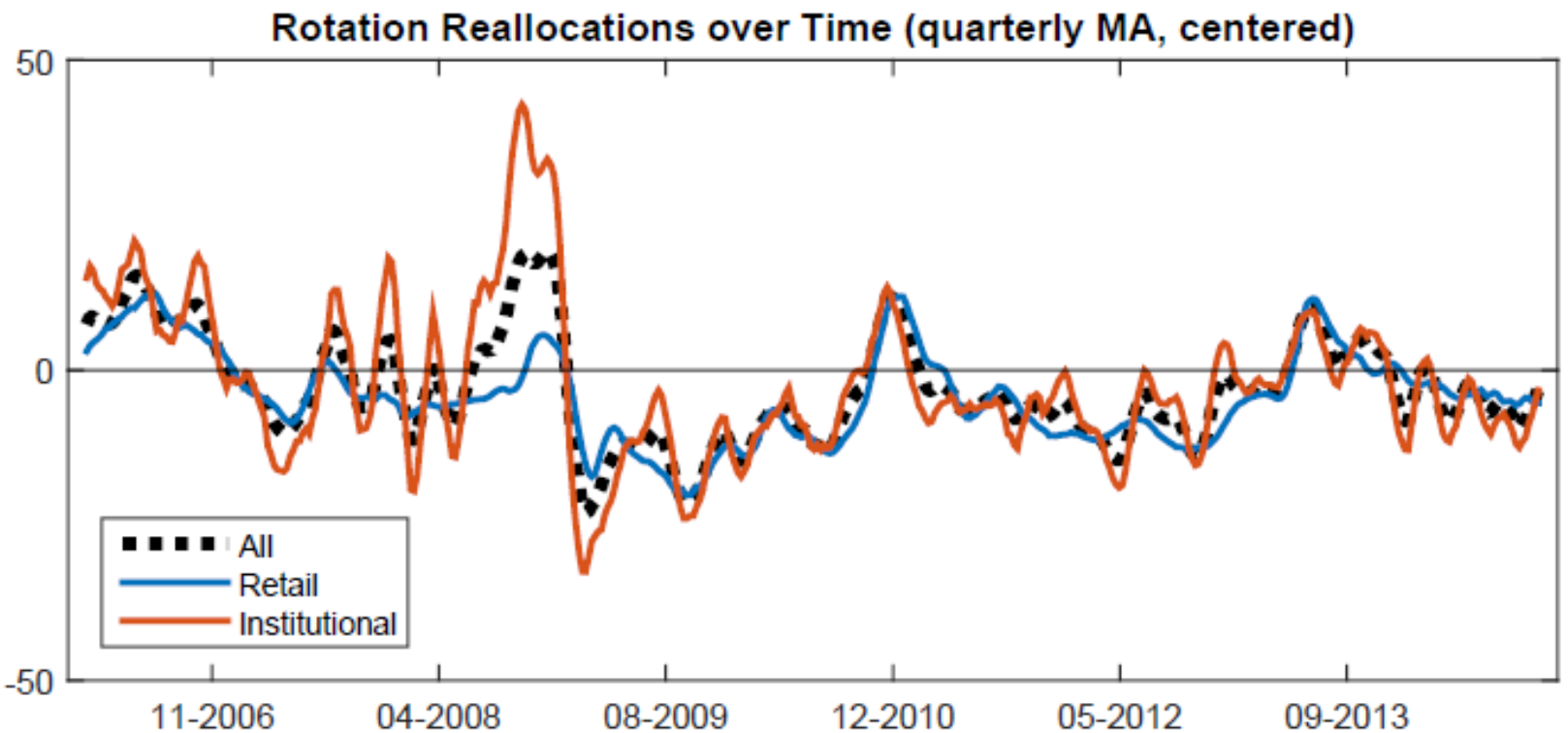
$$\mathbf{X}_{t;E} = \begin{bmatrix} X_{t;E}^{Global} & X_{t;E}^{US} & \dots & X_{t;E}^{EM-Asia} \end{bmatrix}'$$

$$\mathbf{X}_{t;B} = \begin{bmatrix} X_{t;B}^{Global} & X_{t;B}^{US} & \dots & X_{t;B}^{EM-Blend} \end{bmatrix}'$$

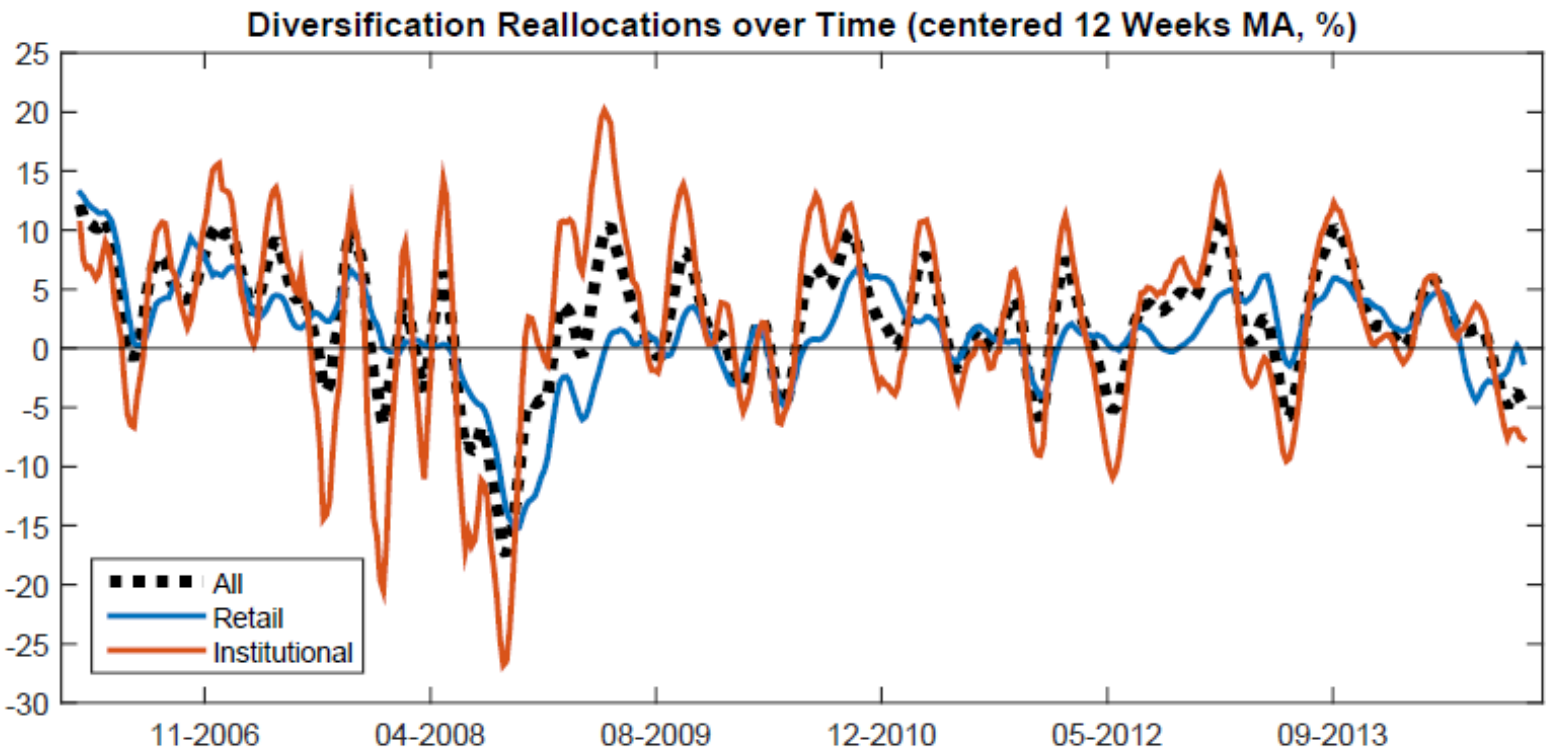
Correlation of 99% and 80% with statistical ROT and DIV factors

▸ q - ret/ylds

Portfolio reallocations over time: Rotation



Portfolio reallocations over time: Diversification



▸ Weights - ROT ▸ Weights - DIV

Asset allocation, monetary policy and risk-taking

- Key question if **monetary policy spurs risk-taking** (Borio and Zhu 2008, Adrian and Shin 2010)
- Study behavior of investors via quantities (reallocation of assets)

→ Do global asset reallocations of U.S. fund investors bear a link to monetary policy?

Tackle these issues from **two angles**:

1. Study reallocations around scheduled FOMC events
2. Explore link between reallocations and the shape of the yield curve

FOMC meetings and GAAS

Recently, **anomalies** related to US MP events have been documented ...

- Pre-FOMC drift in stock markets
  (Lucca/Moench, 2015)
- FOMC cyclical return pattern
  (Cieslak, Morse and Vissing-Jorgensen 2014)

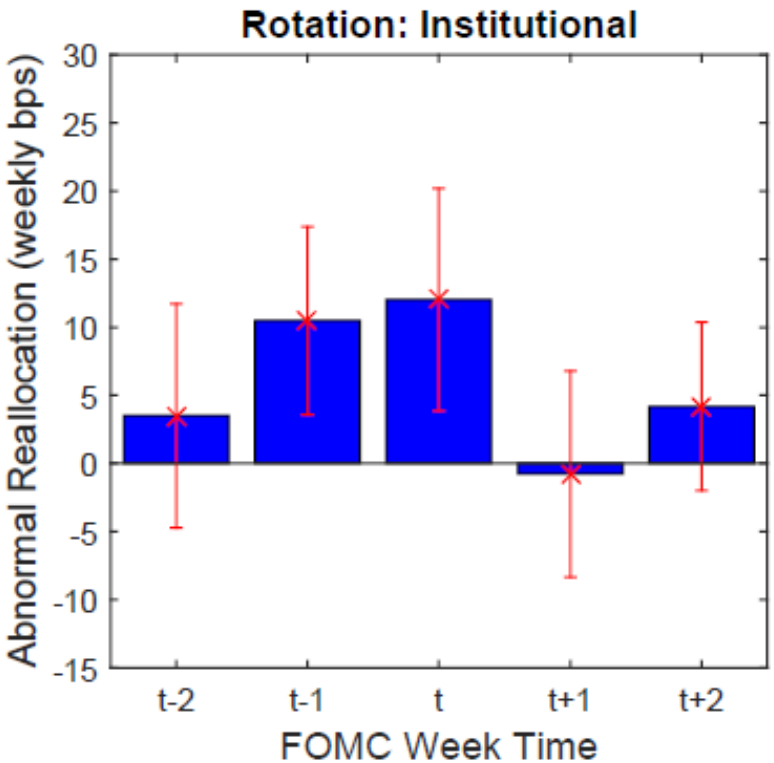
Our context:

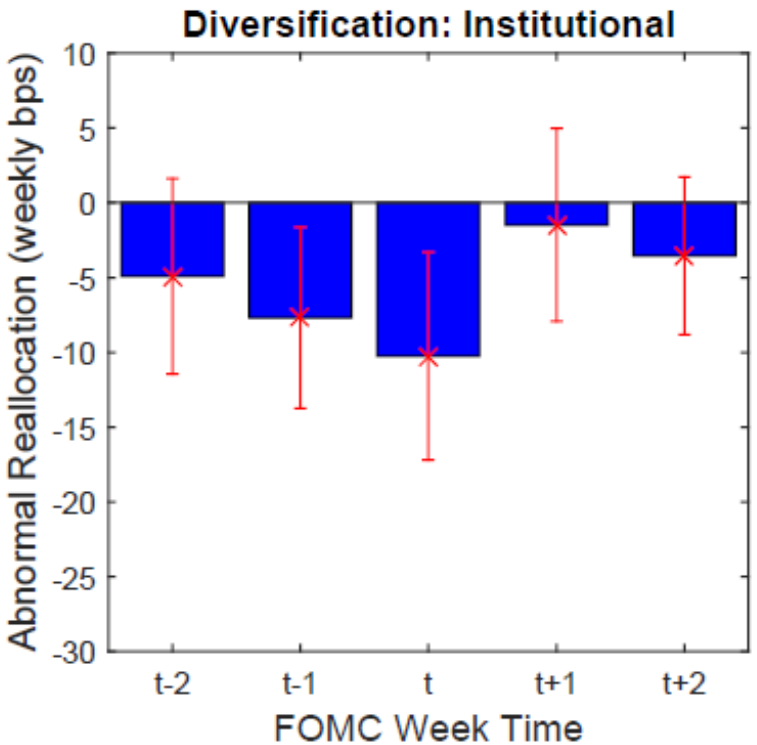
→ Look at portfolio reallocations around scheduled US MP events

→ Is there evidence for any **abnormal reallocations** in FOMC weeks?

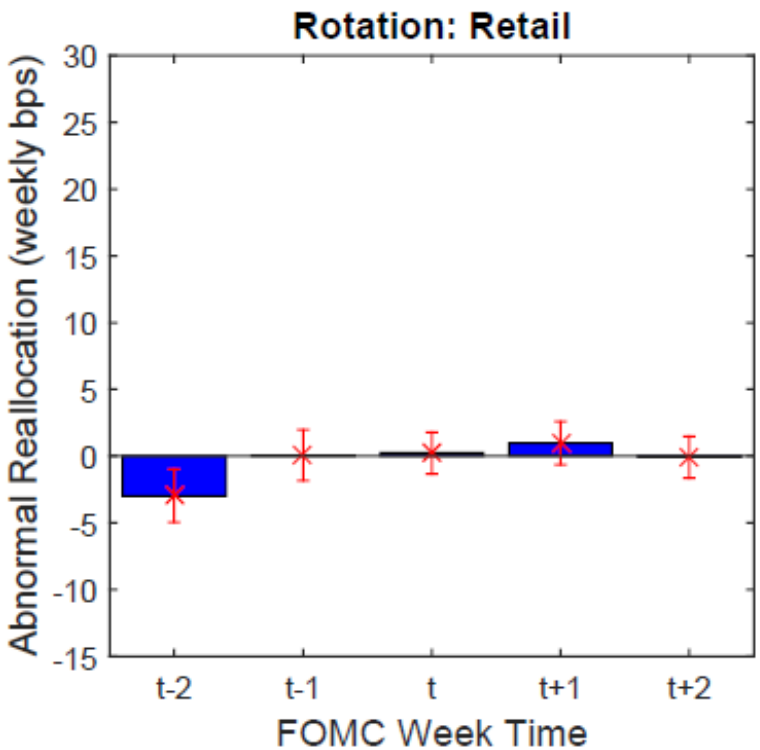
▸ Methods

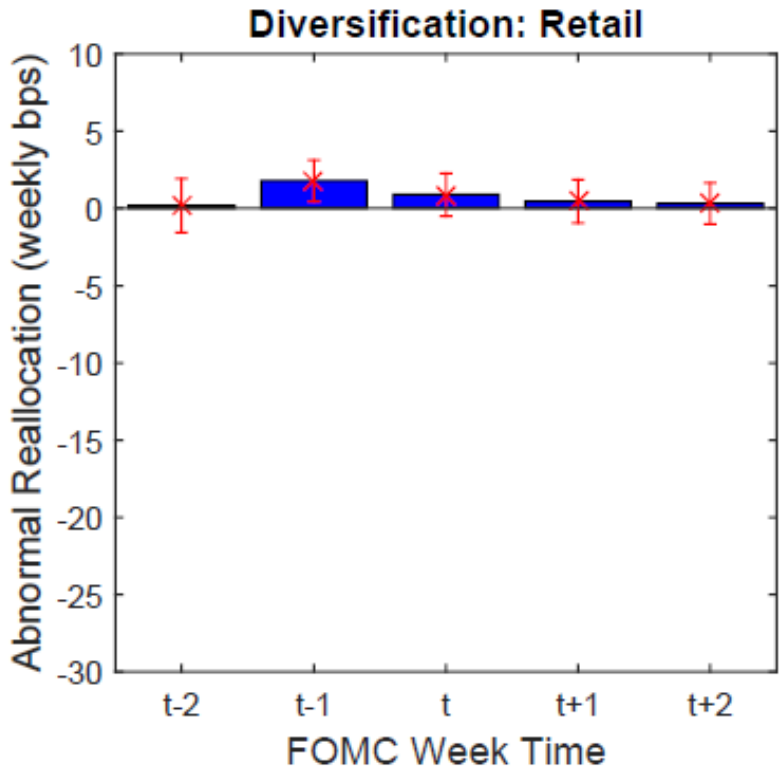
FOMC events and institutional investors





FOMC events and retail investors





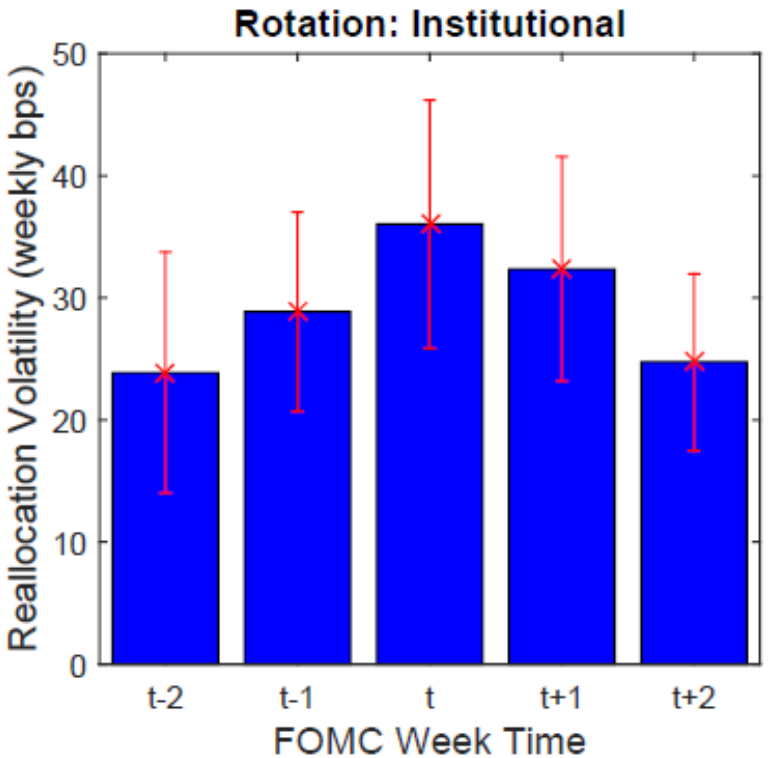
Reallocation shifts and FOMC events

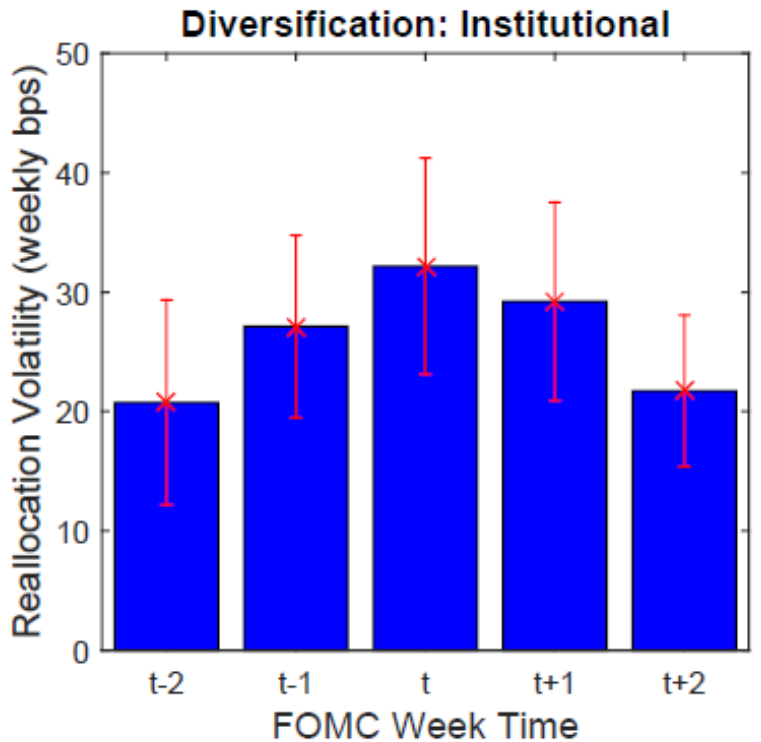
$$X_{i;t}^{W} \times 100 = a + \sum_{k} b_i^k \times \mathbf{1}_{t-2+k}(FOMC - Week) + e_t.$$

	Retail		Institutional	
	ROT	DIV	ROT	DIV
$FOMC_{t-2}$	-2.98	0.19	3.50	-4.91
	(-2.53)	(0.18)	(0.72)	(-1.26)
$FOMC_{t-1}$	0.06	1.79	10.49	-7.68
	(0.05)	(2.24)	(2.55)	(-2.13)
$FOMC_t$	0.23	0.89	12.02	-10.25
	(0.25)	(1.08)	(2.48)	(-2.48)
$FOMC_{t+1}$	0.98	0.46	-0.77	-1.48
	(1.01)	(0.55)	(-0.17)	(-0.38)
$FOMC_{t+2}$	-0.07	0.32	4.18	-3.55
	(-0.08)	(0.40)	(1.14)	(-1.13)
constant	-4.18	0.83	-6.25	6.03
	(-3.36)	(1.04)	(-2.61)	(3.55)

FOMC meetings and volatility of reallocations

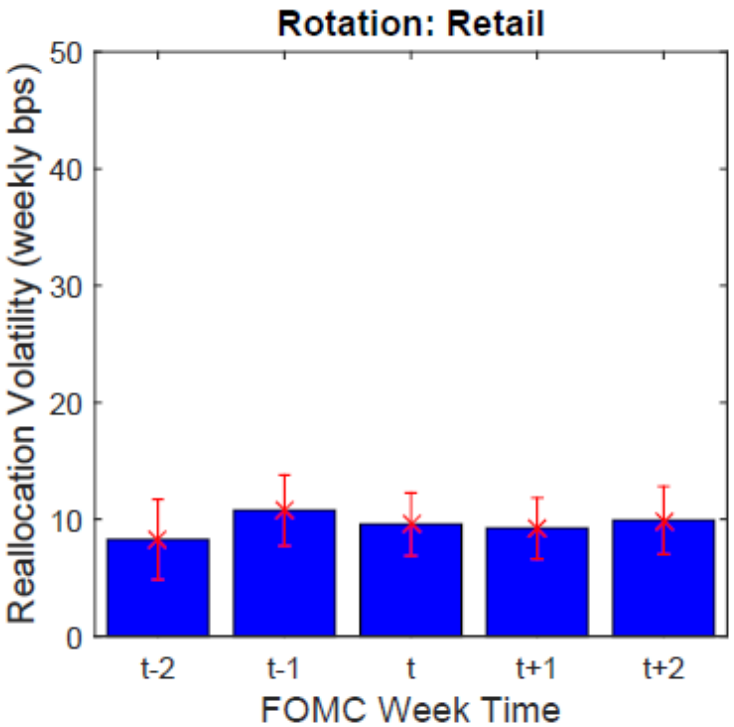
Institutional investors

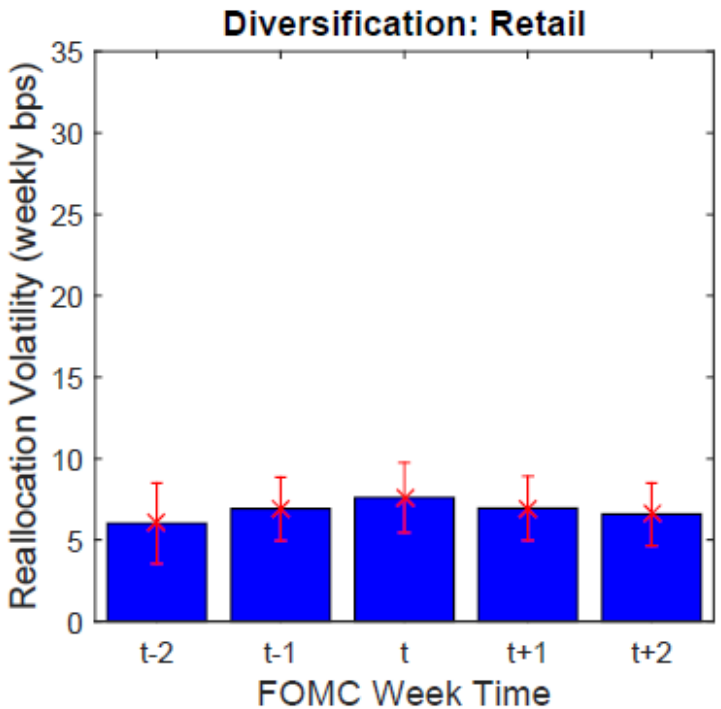




FOMC meetings and volatility of reallocations

Retail investors





▸ Macro - ROT ▸ Macro - DIV

Distinguishing FOMC events by easing and tightening

- Easing policies of the Fed over large parts of our sample

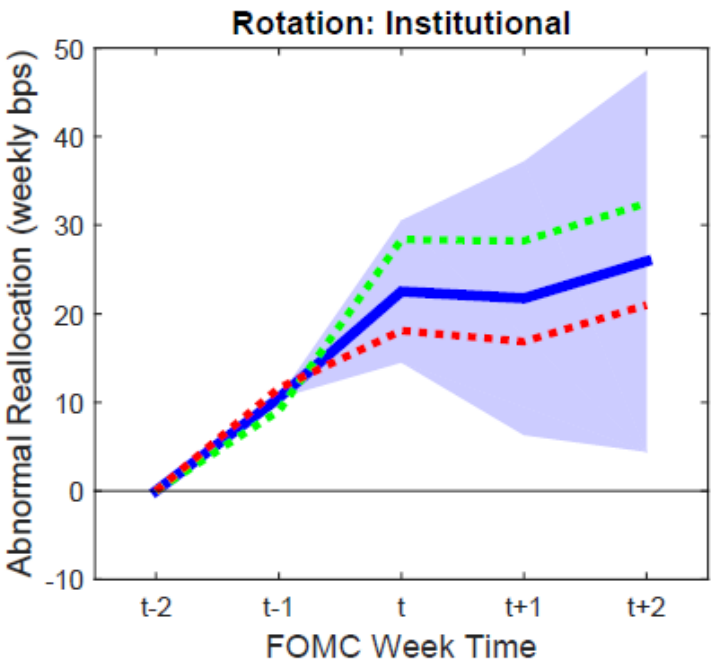
  $\rightarrow$ sequence of Fed easing decisions that were unexpected by market participants but good news for stock markets?

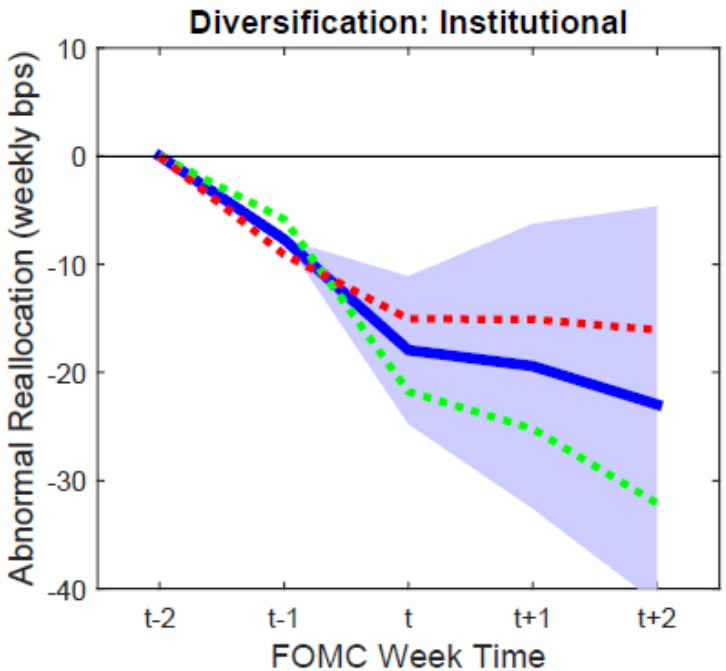
- Classify FOMC events by "easing" or "tightening"
  - Changes in YC front-end to proxy for changes in expectations about medium-term path of policy rate (e.g. Hanson and Stein, 2014)
  - Split by easing ($\Delta y(2) < 0$) and tightening ($\Delta y(2) > 0$)

  - Also classify by change in t.p. and QE vs non-QE

Cumulative reallocations

Institutional investors





easing $(\Delta y(2) < 0)$ vs **tightening** $(\Delta y(2) > 0)$

▸ Regressions

Reallocation factors and monetary conditions

Study if reallocation factors bear a relation to changes in the shape of the U.S. **yield curve** (also see McCauley et al. 2015 on off-shore USD credit)

$\Delta y^{(2)}$ and $\Delta y_{\perp}^{(10)}$ to proxy for changes in expectations about medium-term path of policy rate and term premium (e.g. Hanson and Stein, 2014)

Simple regressions of ROT/DIV factors on a set of (contemporaneous) covariates

- account for financial and macroeconomic conditions more broadly
- mechanical portfolio rebalancing to fixed benchmark target

▸ AW-Bonds

Rotation and monetary and financial conditions

	$ROT_t = a + d\,\Psi_t + \mathbf{b}'\,\mathbf{Z}_t \times \mathbf{\Psi}_t + e_t$					
	Retail			Institutional		
	(1)	(2)	(3)	(4)	(5)	(6)
constant	-0.04	-0.04	-0.05	-0.02	-0.02	-0.04
	(-7.48)	(-7.61)	(-7.65)	(-1.41)	(-1.38)	(-2.10)
Ψ_t			0.02			0.03
			(2.56)			(1.40)
$\Delta y(2)$	0.38	0.65	1.59	-0.03	1.79	6.18
	(0.83)	(1.31)	(2.28)	(-0.02)	(0.91)	(2.29)
$\Delta y(10\perp)$	0.86	0.87	1.56	4.38	4.63	5.02
	(1.77)	(1.85)	(2.21)	(2.29)	(2.59)	(2.13)
$\triangle def_t$		1.46	1.56		6.01	6.55
		(2.31)	(2.21)		(2.89)	(2.10)
$\triangle vix_t$		-1.12	-3.04		-1.89	-5.23
		(-2.24)	(-4.48)		(-0.98)	(-2.09)
$\triangle ads_t$		-1.00	-0.77		-2.68	-2.08
		(-2.23)	(-1.37)		(-1.82)	(-1.06)
$\bar{R}^2$	0.01	0.04	0.10	0.02	0.05	0.07

Diversification and monetary and financial conditions

	$DIV_t = a + d\,\Psi_t + \mathbf{b}'\,\mathbf{Z}_t \times \mathbf{\Psi}_t + e_t$					
	Retail			Institutional		
	(1)	(2)	(3)	(4)	(5)	(6)
constant	0.01	0.01	0.01	0.02	0.02	0.03
	(3.92)	(4.01)	(3.01)	(1.77)	(1.69)	(2.24)
Ψ_t			0.00			-0.02
			(0.28)			(-0.97)
$\Delta y(2)$	1.28	0.09	0.14	0.19	-2.62	-5.27
	(3.14)	(0.26)	(0.32)	(0.11)	(-1.39)	(-2.20)
$\Delta y(10\perp)$	0.37	0.12	0.29	-0.83	-1.57	-3.77
	(0.72)	(0.35)	(0.68)	(-0.72)	(-1.24)	(-2.16)
$\triangle def_t$		-2.43	-2.16		-5.66	-10.43
		(-6.04)	(-4.91)		(-2.75)	(-4.53)
$\triangle vix_t$		-0.98	-1.97		-2.42	-6.05
		(-2.25)	(-4.02)		(-1.86)	(-3.70)
$\triangle ads_t$		0.25	0.38		1.67	1.07
		(0.67)	(0.94)		(1.53)	(0.71)
$\bar{R}^2$	0.03	0.18	0.17	-0.00	0.05	0.11

Results so far ...

1. Intuitive factor structure in global asset reallocations
   - Two dominant factors in driving GAAS – ROT/DIV
2. Impact of monetary policy on reallocations on reallocations
   - Abnormal reallocations around FOMC weeks
     $\rightarrow$ IIs switch into U.S. equities and out of everything else
   - Sensitivity of reallocation factors to shape of YC [mostly IIs]

$\Rightarrow$ Now, take a closer look at return-chasing (RC) vs search for yield (SFY)

- Factor perspective
- Asset-class view

Reallocation factors and past return performance differentials

	Retail			Institutional		
k	$k=1$	$k=4$	$k=12$	$k=1$	$k=4$	$k=12$
$ROT_{t:t+k} = a + b \times ret_t + e_{t:t+k}$						
b	0.99	1.27	0.15	-1.00	-2.48	-11.58
t	(1.94)	(0.76)	(0.03)	(-0.59)	(-0.66)	(-1.17)
$\bar{R}^2$	0.01	-0.00	-0.00	-0.00	-0.00	0.00
$DIV_{t:t+k} = a + b \times ret_t + e_{t:t+k}$						
b	2.13	5.61	11.01	4.28	9.40	10.69
t	(4.51)	(4.65)	(2.80)	(3.33)	(2.54)	(2.00)
$\bar{R}^2$	0.09	0.07	0.04	0.03	0.03	0.01

Characteristics I Characteristics II

Reallocation factors and past yield differentials

	Retail			Institutional		
k	$k=1$	$k=4$	$k=12$	$k=1$	$k=4$	$k=12$
$ROT_{t:t+k} = a + b \times y_t + e_{t:t+k}$						
b	-2.72	-10.41	-28.02	-4.61	-18.35	-51.74
t	(-6.12)	(-3.91)	(-2.01)	(-3.35)	(-3.47)	(-2.43)
$\bar{R}^2$	0.08	0.11	0.11	0.02	0.07	0.13
$DIV_{t:t+k} = a + b \times y_t + e_{t:t+k}$						
b	-2.73	-9.37	-21.21	0.23	3.51	17.80
t	(-7.32)	(-5.25)	(-4.15)	(0.18)	(0.80)	(1.33)
$\bar{R}^2$	0.16	0.20	0.17	-0.00	0.00	0.04

Additional results

Return-chasing and search for yield - asset class view

We compute $LZ_{k,l}$-statistics given by

$$LZ_{k,l} = \frac{1}{T} \sum_{t=1}^{T} \sum_{i=1}^{N} X^{W}_{i;t:t+k} \times Z_{i;t-l:t}$$

$\rightarrow$ generalizes the LM-stat of Grinblatt et al. (1995) and Curcuru et al (2011)

$\rightarrow$ measures extent to which investors **tilt portfolio** to assets that recently saw a high realisation of **instrument** $Z_{i;t-1}$.

- We consider **four** types of asset-class specific instruments:
  i), lagged 1-week returns, ii), lagged 4-week returns, iii) lagged 12-week returns [momentum vs contrarian] iv) lagged yields [SFY]

- Inference via GMM

Return-chasing and search for yield: Retail investors

Z_{t-1}	ret_{t-1}	ret_{t-4}	ret_{t-12}	y_{t-1}
	1 Week reallocation shifts $X^{W}_{i;t:t+1}$			
		Equities **and** Bonds		
LZ, %	1.27	0.58	0.29	0.02
(t-stat)	(2.94)	(1.94)	(1.32)	(1.18)
		Equities Only		
LZ, %	0.55	0.45	0.34	0.00
(t-stat)	(3.58)	(4.01)	(3.52)	(0.71)
		Bonds Only		
LZ, %	1.14	0.50	0.16	-0.02
(t-stat)	(7.05)	(5.53)	(1.91)	(-0.83)

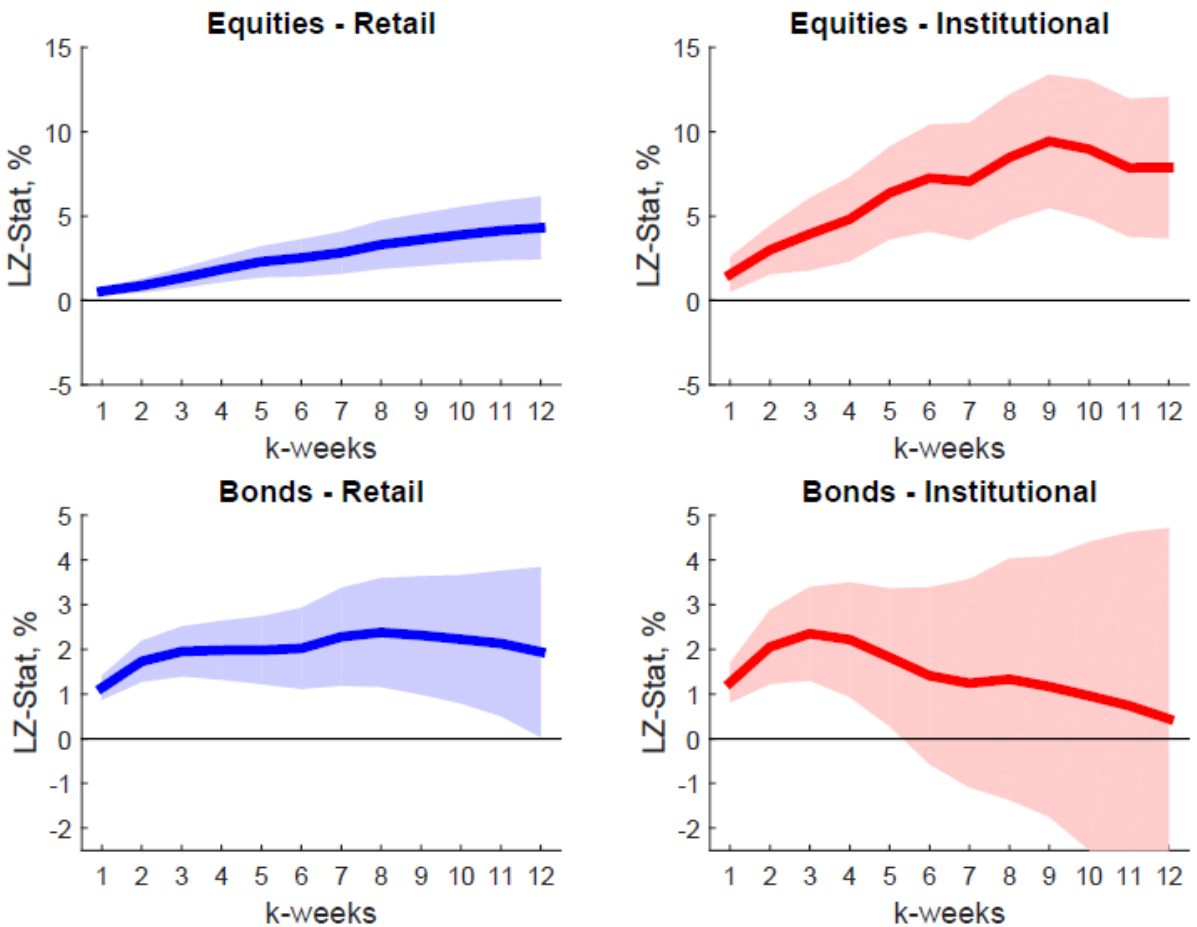
▸ LZ-stat (k=12)

Return-chasing and search for yield: Institutional investors

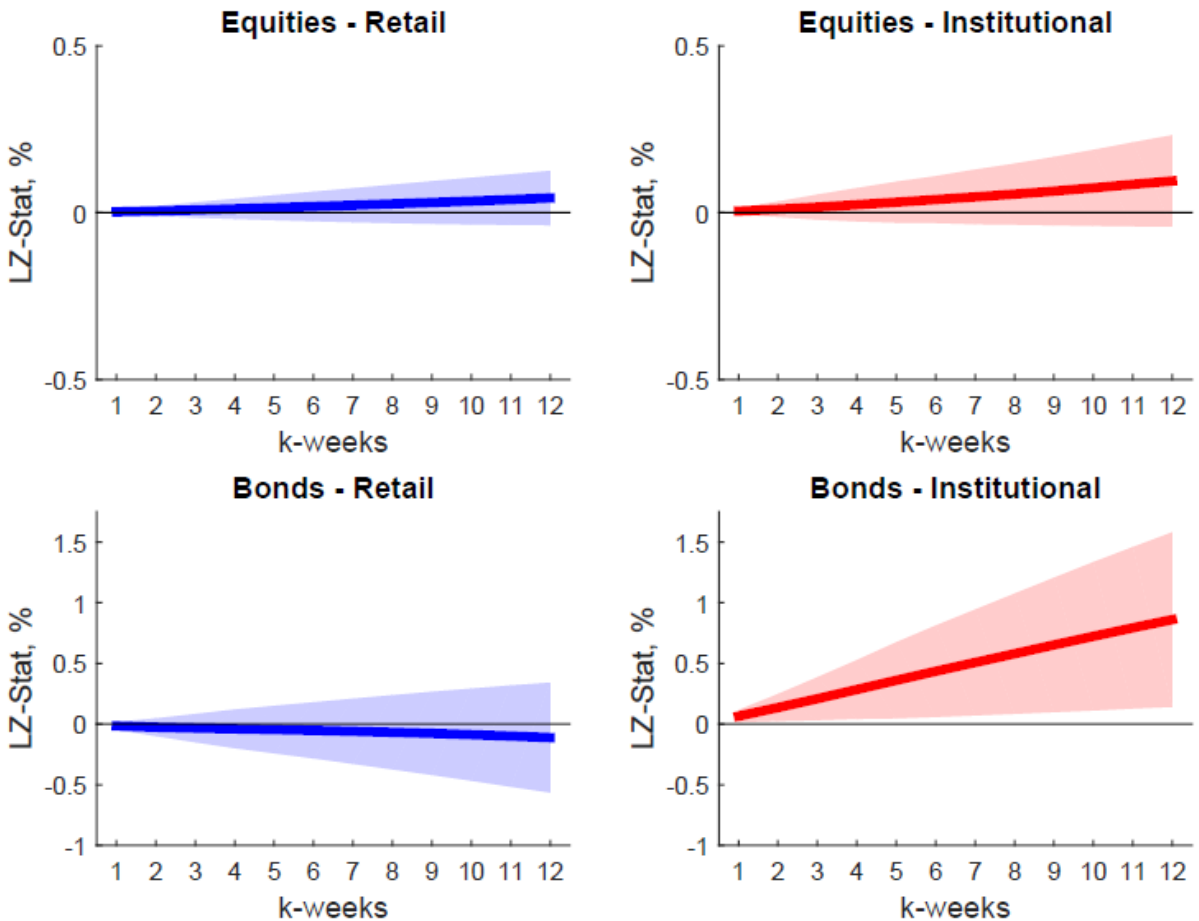
Z_{t-1}	ret_{t-1}	ret_{t-4}	ret_{t-12}	y_{t-1}
	1 Week reallocation shifts $X^{W}_{i;t:t+1}$			
		Equities **and** Bonds		
LZ, %	1.91	0.86	-0.08	0.01
(t-stat)	(1.73)	(1.45)	(-0.17)	(0.49)
		Equities Only		
LZ, %	1.55	1.23	0.70	0.00
(t-stat)	(2.47)	(3.31)	(3.32)	(0.83)
		Bonds Only		
LZ, %	1.25	0.56	0.04	0.06
(t-stat)	(4.65)	(2.72)	(0.19)	(2.12)

▸ LZ-stat (k=12)

LZ-stats over longer horizons - past performance



LZ-stats over longer horizons - past yields



Conclusion

- Global portfolio reallocations captured by **two distinct factors**
  - Rotation - U.S. equities vs U.S. bonds
  - Diversification - Foreign vs domestic assets
- **Monetary policy** and portfolio reallocations:
  - Abnormal reallocations into US equities (and out of everything else) before and during FOMC weeks (driven by institutional fund investors)
- Institutional investors chase returns like retail investors do ...
- Within the fixed income universe, IIs reallocate to higher yielding / riskier segments consistent with a "search for yield"

Quote

Example from the IMF GFSR 2014, Ch. 2, p.26

"The inclination of retail investors (mutual funds) to follow momentum trading and to react to international shocks requires close monitoring of their positions. Even in markets dominated by institutional investors, volatile retail investors can affect asset prices significantly"

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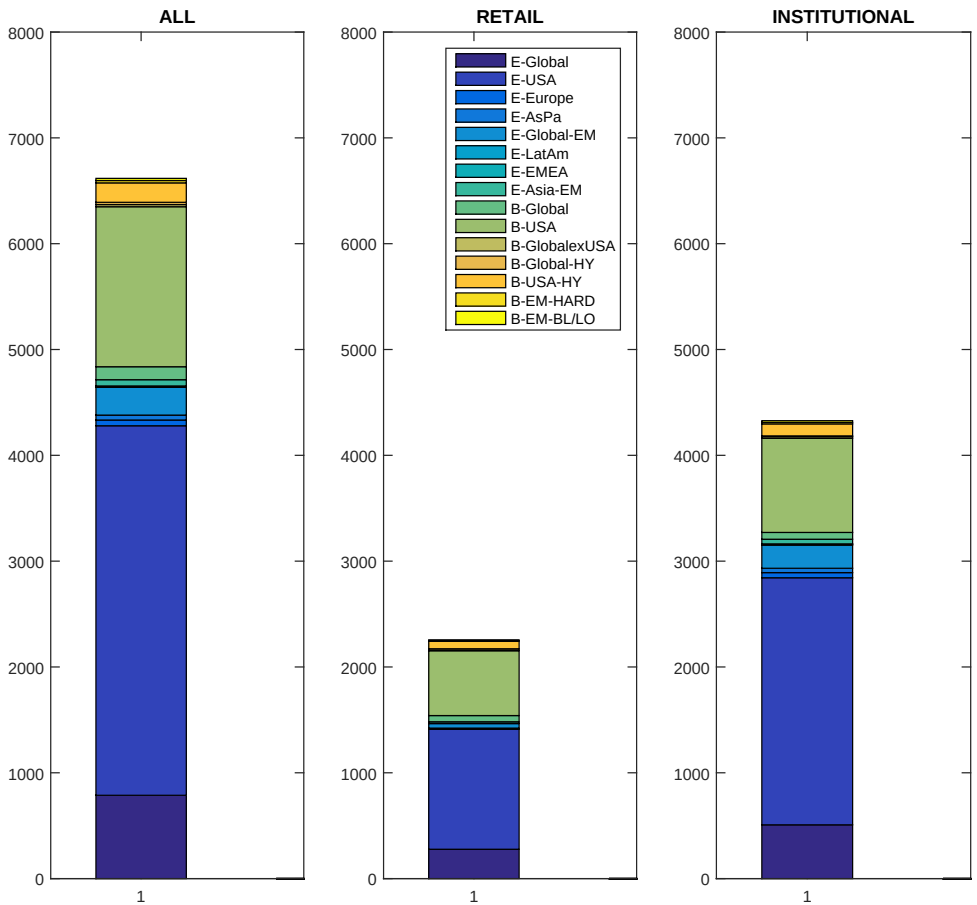
EPFR: AuM Coverage (12/2014)



Flows and asset-weighted reallocation measure

The flow equation is given by

$$f_{t;i} = A_{t;i} - A_{t-1;i} R_{t;i}$$

We also make use of asset-weighted reallocation measures

$$X^{A}_{t;i} = \frac{A_{t;i} - A_{t-1;i} R_{t;i} \frac{W_t}{W^*_t}}{A_{t-1;i}},$$

where $W_t = \sum_{i=1}^{N} A_{t;i}$. In the absence of active changes in the portfolio composition, total wealth would evolve as $W^*_t = \sum_{i=1}^{N} A_{t-1;i} R_{t,p}$.

W_t / W^*_t: an adjustment factor.

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Summary statistics - Prices

Panel B:		Prices: Returns and Yields							
		mu	std	min	max	SR, p.a.	mu	std	T-t1
		return, % p.w. (ret_t)					yield, % p.a. (y_t)		
Equities	Global	0.10	2.69	-15.65	7.96	0.20	2.60	0.48	0.49
	US	0.16	2.53	-15.97	10.34	0.38	2.01	0.29	0.25
	Europe	0.13	3.03	-13.75	9.85	0.23	3.36	0.73	0.54
	AsiaPac.	0.08	2.63	-15.06	13.36	0.15	2.54	0.51	0.81
	EM	0.15	3.24	-20.66	12.38	0.27	2.69	0.61	0.84
	LatAm.	0.20	4.40	-32.61	15.46	0.29	3.19	0.69	1.00
	EMEA	0.07	4.24	-26.58	16.31	0.07	2.60	1.07	2.57
	EM-Asia	0.19	3.27	-17.05	17.80	0.36	2.53	0.52	-0.04
Bonds	Global	0.08	0.64	-2.96	2.35	0.64	2.98	1.05	-2.18
	US	0.05	0.49	-3.97	2.05	0.37	3.43	1.42	-2.85
	DM	0.08	0.94	-3.06	5.96	0.37	2.72	0.63	-1.53
	Global-HY	0.09	1.14	-8.10	4.67	0.40	9.05	3.34	-1.29
	US-HY	0.09	1.06	-7.29	4.99	0.45	7.77	1.91	-1.56
	EM-Hard	0.11	1.20	-9.57	6.18	0.52	6.42	1.12	-0.53
	EM-Blend	0.08	1.38	-9.06	5.00	0.29	6.36	1.09	-0.71

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Statistical factors: Retail and Institutional

		Retail				Institutional			
		PC1	PC2	PC3	PC4	PC1	PC2	PC3	PC4
Equities	Global	0.15	0.49	-0.58	-0.46	-0.27	0.38	0.72	-0.36
	US	0.64	-0.67	-0.06	-0.14	0.87	-0.23	0.15	-0.25
	Europe	0.00	0.02	-0.01	-0.03	-0.01	0.06	0.05	0.07
	AsiaPac.	-0.00	0.04	-0.00	0.11	-0.01	0.04	0.01	0.15
	EM	0.00	0.15	-0.00	0.30	-0.08	0.35	-0.66	-0.55
	LatAm.	-0.00	0.02	-0.00	0.02	-0.01	0.03	-0.04	0.07
	EMEA	0.00	0.01	-0.01	0.01	-0.00	0.01	-0.01	0.02
	EM-Asia	0.01	0.07	-0.01	0.07	-0.02	-.09	-0.09	0.23
Bonds	Global	-0.03	-0.06	0.02	0.65	-0.01	-0.00	-0.01	0.17
	US	-0.75	-0.48	-0.18	-0.23	-0.41	-0.81	-0.01	-0.23
	DM	-0.00	0.05	-0.04	0.08	-0.01	0.00	-0.00	0.02
	Global-HY	-0.00	0.04	0.08	-0.01	-0.00	0.00	-0.01	0.03
	US-HY	-0.01	0.20	0.79	-0.41	-0.02	0.08	-0.09	0.58
	EM-Hard	-0.01	0.01	0.01	0.02	-0.00	0.01	-0.01	0.04
	EM-Blend	-0.00	0.00	-0.00	0.02	-0.00	0.00	-0.01	0.00
% Var expl.		75.61	13.28	6.61	1.93	86.96	7.62	3.53	0.74

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Weighting matrix for returns and yields

Returns (or yields) corresponding to the two reallocation factors

$\rightarrow$ specify weighting matrix $\mathbf{q}$ such that it is always one unit "long" and one unit "short"

$$\mathbf{q} = \begin{bmatrix} 0 & 1 & \mathbf{0}_{1\times 6} & 0 & -1 & \mathbf{0}_{1\times 5} \\ 1/13 & -1/2 & \mathbf{1/13}_{1\times 6} & 1/13 & -1/2 & \mathbf{1/13}_{1\times 5} \end{bmatrix}.$$

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Reallocation factors - characteristics I

Panel A:		Quantities: Portfolio Reallocations					
		mu	std	ac1	mu	std	ac1
		reallocation, w. bps (X_t^W)			change of weight, w. bps ($\triangle W_t$)		
Retail	ROT	-4.21	9.44	0.64	-1.32	90.26	-0.09
	DIV	1.37	6.84	0.53	0.82	34.68	0.10
Insti.	ROT	-2.07	29.76	0.10	0.41	85.01	-0.11
	DIV	2.20	25.55	0.02	0.42	62.38	0.09

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Reallocation factors - characteristics II

Panel B:		Prices: Returns and Yields			
		mu	std	mu	std
		return, % p.w. (ret_t)		yield, % p.a. (y_t)	
Retail	ROT	0.11	2.57	-1.42	1.51
	DIV	0.01	1.10	1.50	0.73
Insti.	ROT	0.10	2.58	-1.42	1.51
	DIV	-0.00	1.15	1.50	0.73

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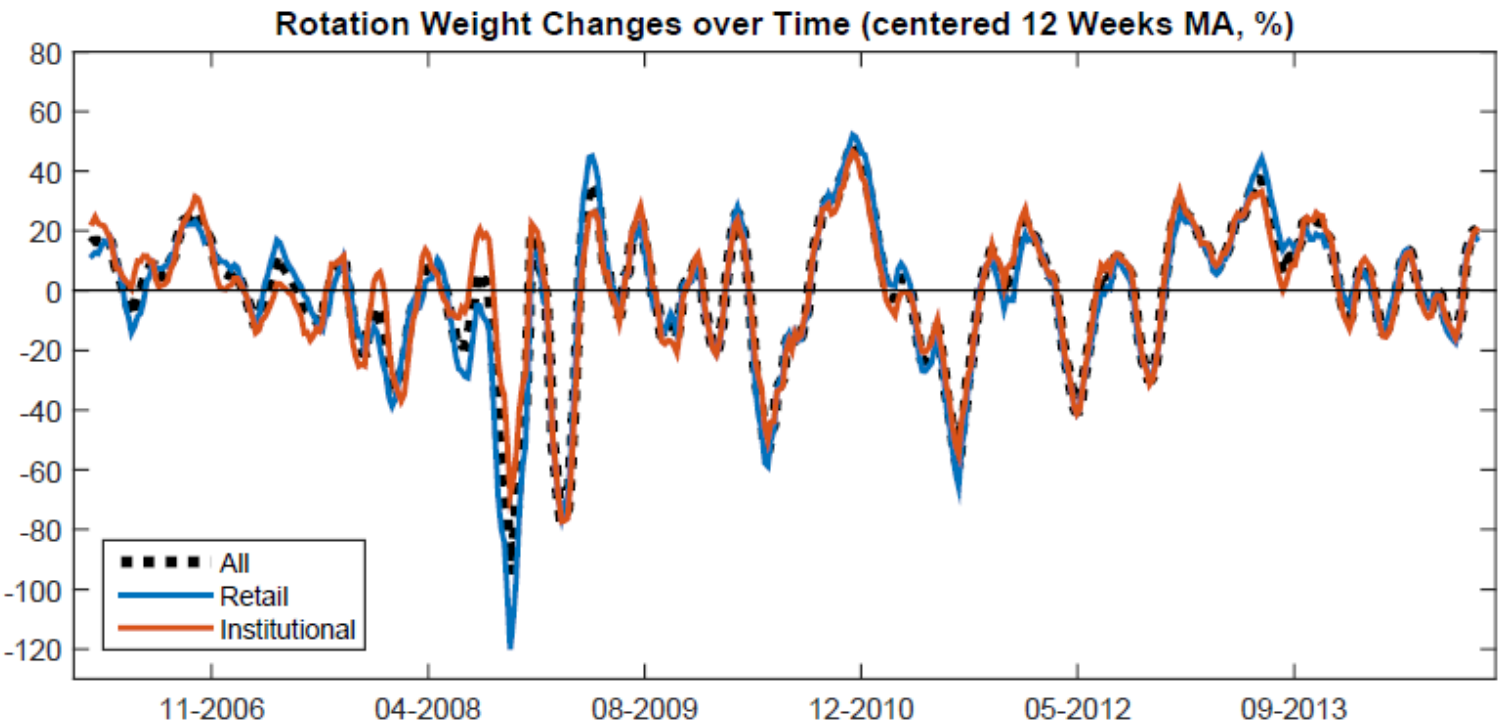
Portfolio weights over time: Rotation



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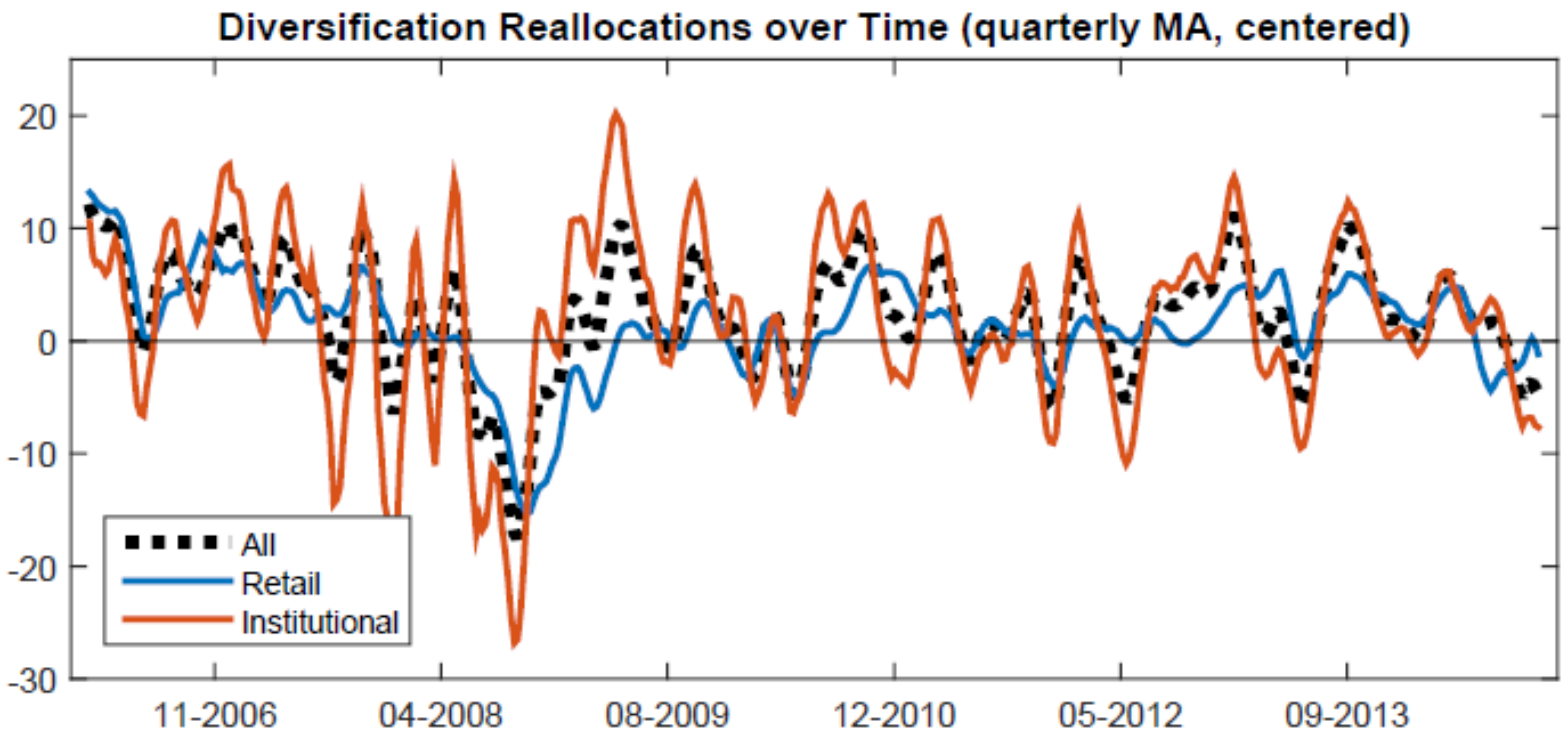
Portfolio weights over time: Diversification



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Rotation: Future returns and business cycle conditions

$$Y_{i;t:t+k} = a + b_i \times ROT_{i;t} + e_{i;t:t+k}$$

	Retail			Institutional		
Horizon k	b	t	R^2	b	t	R^2
$Y_{i;t:t+k} = ret_{i;t:t+k}$	Future Returns					
1 week	-0.02	(-1.24)	0.00	-0.01	(-1.97)	0.01
4 weeks	-0.07	(-2.19)	0.02	-0.03	(-2.10)	0.03
12 weeks	-0.15	(-1.80)	0.03	-0.06	(-2.09)	0.04
$Y_{i;t:t+k} = \triangle ads_{i;t:t+k}$	Future Economic Condition					
1 week	-0.10	(-2.55)	0.01	-0.02	(-1.21)	0.00
4 weeks	-0.42	(-1.66)	0.01	-0.13	(-1.41)	0.01
12 weeks	-0.75	(-1.24)	0.01	-0.30	(-2.11)	0.02

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Return-chasing and search for yield - longer horizon LZ-stats

	Retail				Institutional			
	returns			yields	returns			yields
Z_{t-1}	ret_{t-1}	ret_{t-4}	ret_{t-12}	y_{t-1}	ret_{t-1}	ret_{t-4}	ret_{t-12}	y_{t-1}
Panel B:	12 Weeks reallocation shifts $X^{W}_{i;t:t+12}$							
	Equities **and** Bonds							
LZ, %	3.95	2.88	2.71	0.34	-1.15	-2.78	-1.29	0.24
(t-stat)	(1.12)	(0.95)	(0.86)	(1.14)	(-0.18)	(-0.44)	(-0.36)	(0.65)
	Equities Only							
LZ, %	4.31	3.94	3.16	0.04	7.89	7.11	4.90	0.10
(t-stat)	(3.81)	(2.95)	(2.24)	(0.89)	(3.10)	(2.78)	(2.69)	(1.15)
	Bonds Only							
LZ, %	1.94	0.72	0.33	-0.11	0.44	-0.83	-0.76	0.86
(t-stat)	(1.68)	(0.58)	(0.26)	(-0.41)	(0.17)	(-0.29)	(-0.37)	(1.97)

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Estimating abnormal reallocations

$$X_{i;t}^{W} \times 100 = a + \sum_{k} b_i^k \times \mathbf{1}_{t-2+k}(FOMC - Week) + e_t.$$

FOMC week dummy captures 72 weeks with scheduled FOMC announcement, sample: 01/2006 - 12/2014 (470 weekly obs.)

The two weeks before/after FOMC meetings are not not included when there are not at least two (non-event) weeks between two FOMC event windows.

Depending on # weeks there are between two FOMC meetings, the exact length of the event window will thus slightly vary

- Event window covers 34 $(t-2)$, 72 $(t-1)$, 72 (t), 71 $(t+1)$, and 67 $(t+2)$
- Remaining weeks that do not fall in any event window sum to 154

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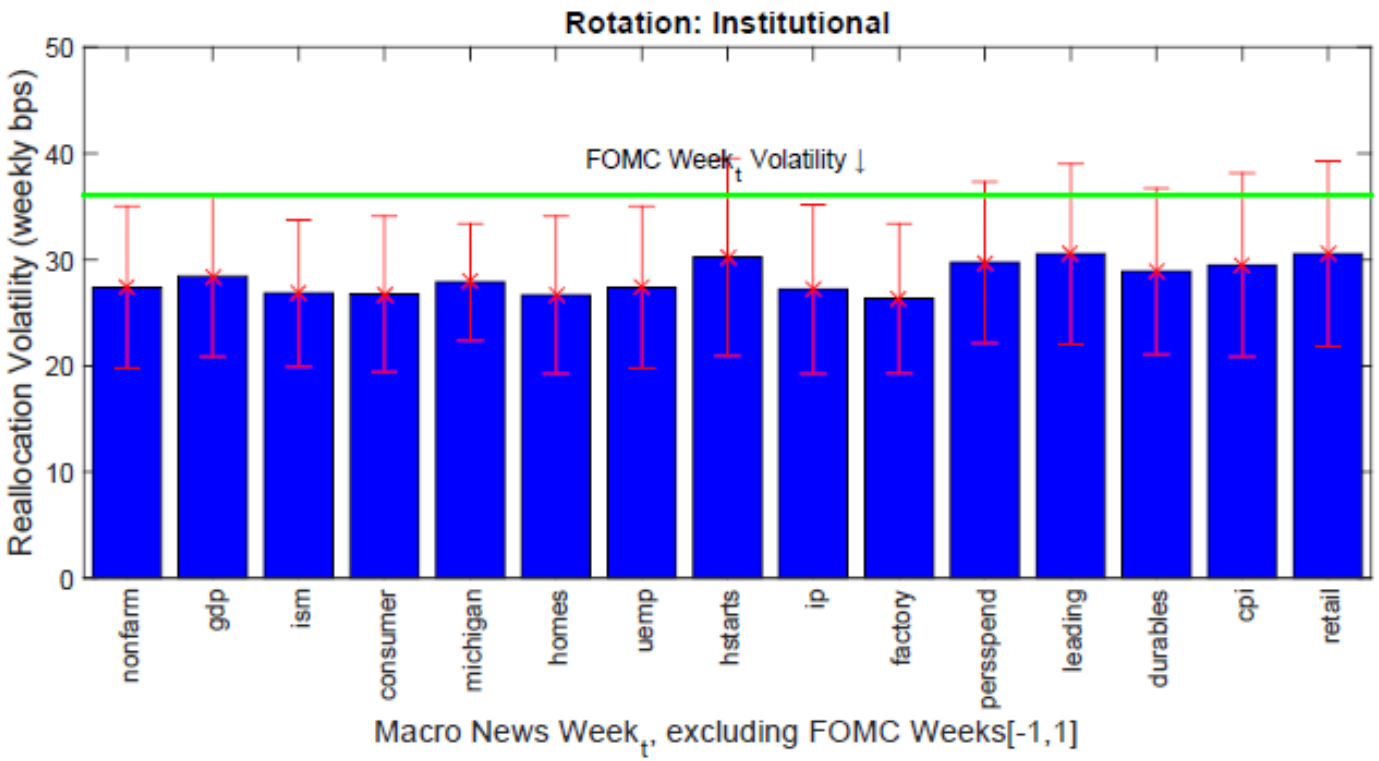
Macro news and the volatility of reallocations

Rotation



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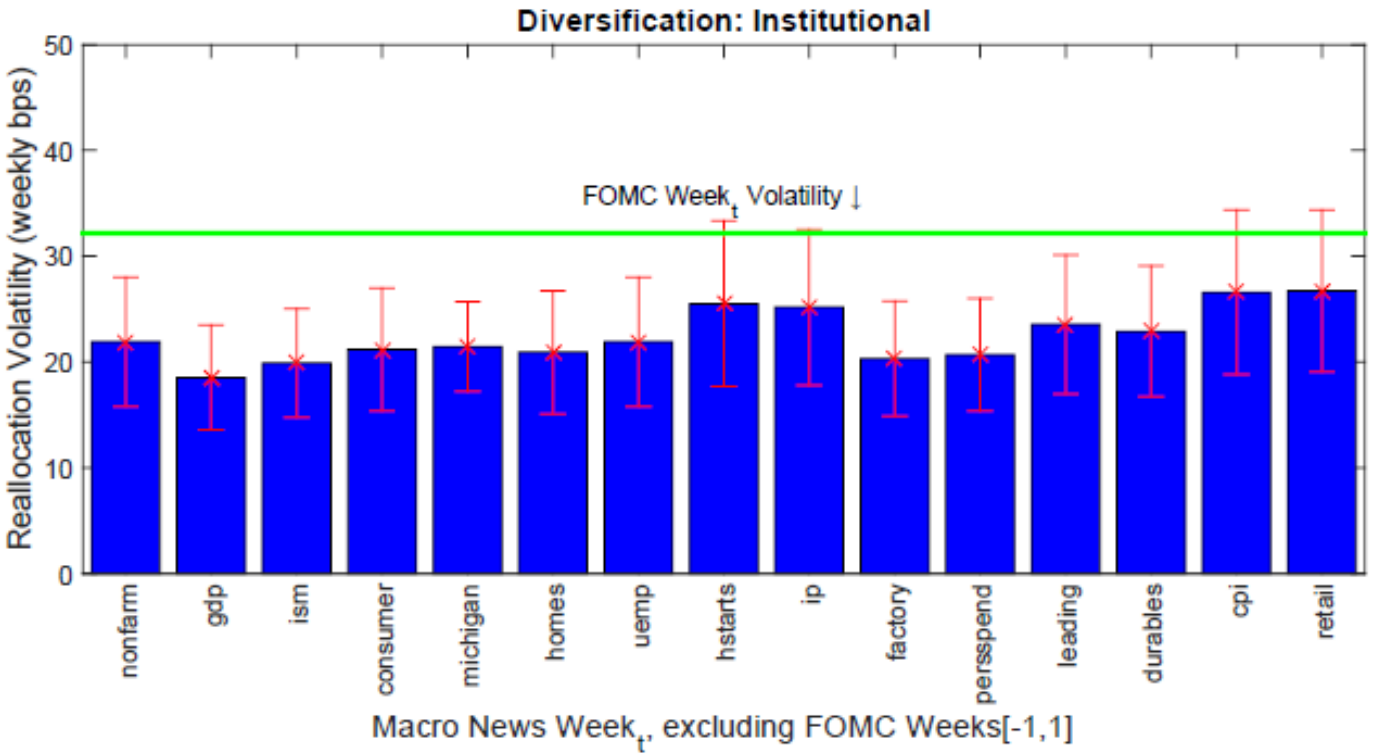
Macro news and the volatility of reallocations

Diversification



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Institutional reallocation shifts by FOMC types

Easing vs tightening

$$X_{i;t}^{W} \times 100 = a + \sum_{k} b_i^k \times \mathbf{1}_{t-2+k}^{y>0}(FOMC - Week) + \sum_{k} b_i^k \times \mathbf{1}_{t-2+k}^{y<0}(FOMC - Week) + e_t,$$

	Rotation		Diversification	
	tightening	easing	tightening	easing
	$\Delta y(2) > 0$	$\Delta y(2) < 0$	$\Delta y(2) > 0$	$\Delta y(2) < 0$
$FOMC_{t-2}$	9.12	-1.50	-5.12	-4.73
	(1.63)	(-0.23)	(-1.53)	(-0.75)
$FOMC_{t-1}$	9.02	11.60	-5.82	-9.09
	(1.58)	(2.32)	(-1.41)	(-1.79)
$FOMC_{t}$	19.34	6.49	-15.94	-5.95
	(2.76)	(1.11)	(-2.51)	(-1.21)
$FOMC_{t+1}$	-0.13	-1.24	-3.44	-0.04
	(-0.02)	(-0.20)	(-0.71)	(-0.01)
$FOMC_{t+2}$	4.25	4.14	-6.89	-1.00
	(0.86)	(0.91)	(-1.69)	(-0.25)
constant	-6.25		6.03	
	(-2.61)		(3.55)	

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Fixed Income - Asset-Weighted Reallocations

$$X_t^A = a + d\,\Psi_t + \mathbf{b}'\,\mathbf{Z}_t \times \mathbf{\Psi}_t + e_t$$

	US bonds		DM bonds		Global HY		US HY		EM Hard		EM Blend	
	Retail	Insti.	Retail	Insti.	Retail	Insti.	Retail	Insti.	Retail	Insti.	Retail	Insti.
const.	0.08	0.05	-0.05	0.09	0.16	0.05	-0.01	0.13	0.29	0.06	0.00	0.05
	(6.35)	(1.43)	(-0.97)	(1.62)	(2.90)	(0.95)	(-0.42)	(3.35)	(5.96)	(1.51)	(0.06)	(0.92)
Ψ_t	-0.06	-0.07	0.06	0.06	0.11	0.20	-0.00	0.08	-0.01	-0.11	0.08	0.58
	(-3.65)	(-1.53)	(1.07)	(0.78)	(1.39)	(1.76)	(-0.05)	(1.23)	(-0.22)	(-1.34)	(1.27)	(3.48)
$\Delta y(2)_t$	-3.99	-9.50	-15.92	-27.55	-4.24	-25.78	-7.23	-23.49	-8.86	-30.70	-0.54	-46.42
	(-2.79)	(-2.11)	(-3.31)	(-2.82)	(-0.77)	(-2.33)	(-2.06)	(-4.82)	(-2.20)	(-4.33)	(-0.13)	(-3.07)
$\Delta y(10\perp)_t$	-0.91	-7.94	3.69	-3.61	5.63	-6.61	-9.18	-11.90	-17.73	-29.81	-1.31	-35.61
	(-0.74)	(-2.00)	(0.75)	(-0.58)	(1.14)	(-0.70)	(-2.37)	(-2.19)	(-4.34)	(-4.25)	(-0.49)	(-2.02)
$\triangle def_t$	-0.75	-8.06	-13.33	-31.58	-25.94	-62.77	-28.21	-40.80	-21.88	-43.28	-0.29	-26.69
	(-0.56)	(-1.30)	(-2.04)	(-3.85)	(-5.01)	(-5.86)	(-5.58)	(-3.69)	(-3.74)	(-3.87)	(-0.09)	(-1.16)
$\triangle vix_t$	7.76	18.15	20.60	23.30	-3.50	6.33	-9.56	-12.73	0.90	-7.09	10.21	4.73
	(5.68)	(3.60)	(4.16)	(2.42)	(-0.64)	(0.58)	(-2.11)	(-1.60)	(0.20)	(-0.92)	(2.51)	(0.28)
$\triangle ads_t$	0.92	5.71	-15.64	-12.01	-5.41	-7.39	4.14	10.35	8.57	1.45	-6.75	-5.27
	(0.88)	(1.56)	(-3.40)	(-1.37)	(-1.00)	(-0.87)	(0.99)	(1.76)	(1.78)	(0.20)	(-2.36)	(-0.37)
$\bar{R}^2$	0.15	0.12	0.09	0.10	0.05	0.07	0.15	0.18	0.06	0.09	0.02	0.04

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