

# Capital flows after the crisis: recent developments and investor motivations

Carol C. Bertaut

Division of International Finance  
Federal Reserve Board of Governors

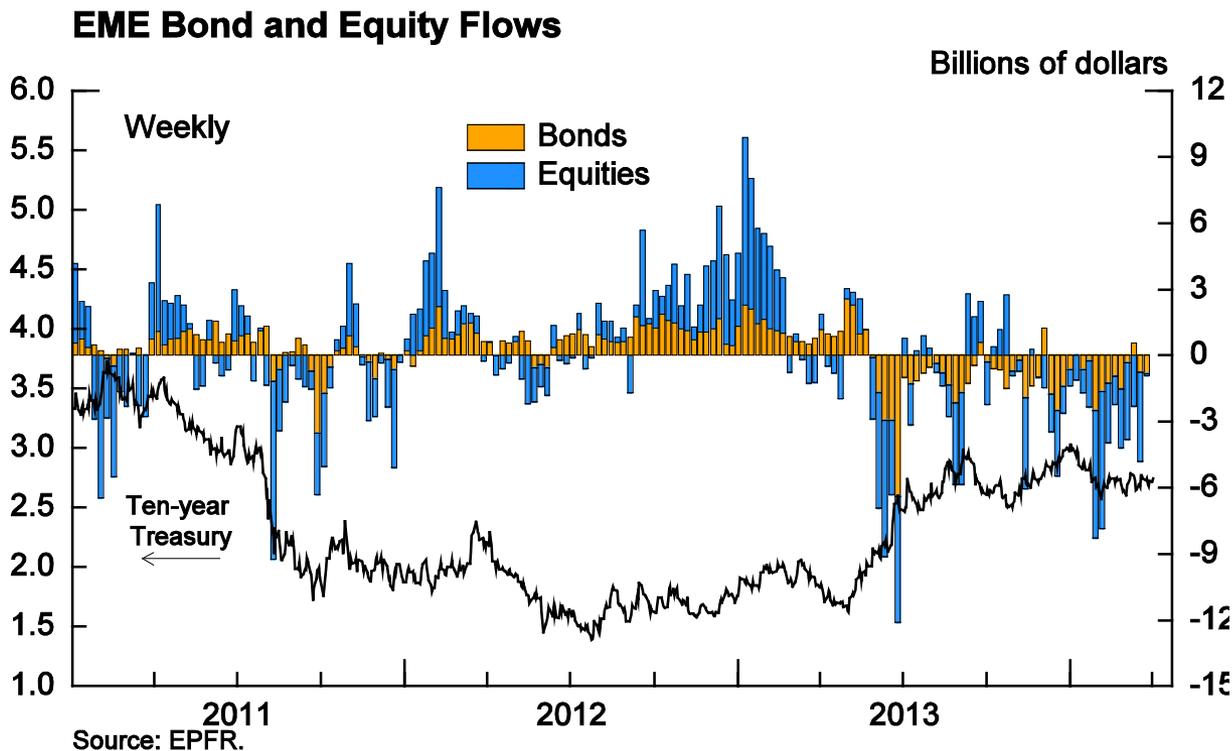
Presentation for “The Political Economy of International Money”  
Federal Reserve Bank of Dallas and Southern Methodist University  
April 3-4

The views presented are solely the responsibility of the author and should not be interpreted as reflecting the views of the Board of Governors of the Federal Reserve System or any other persons associated with the Federal Reserve System

# “Hot topic” for capital flows: Large inflows to EMEs since the global financial crisis (GFC)

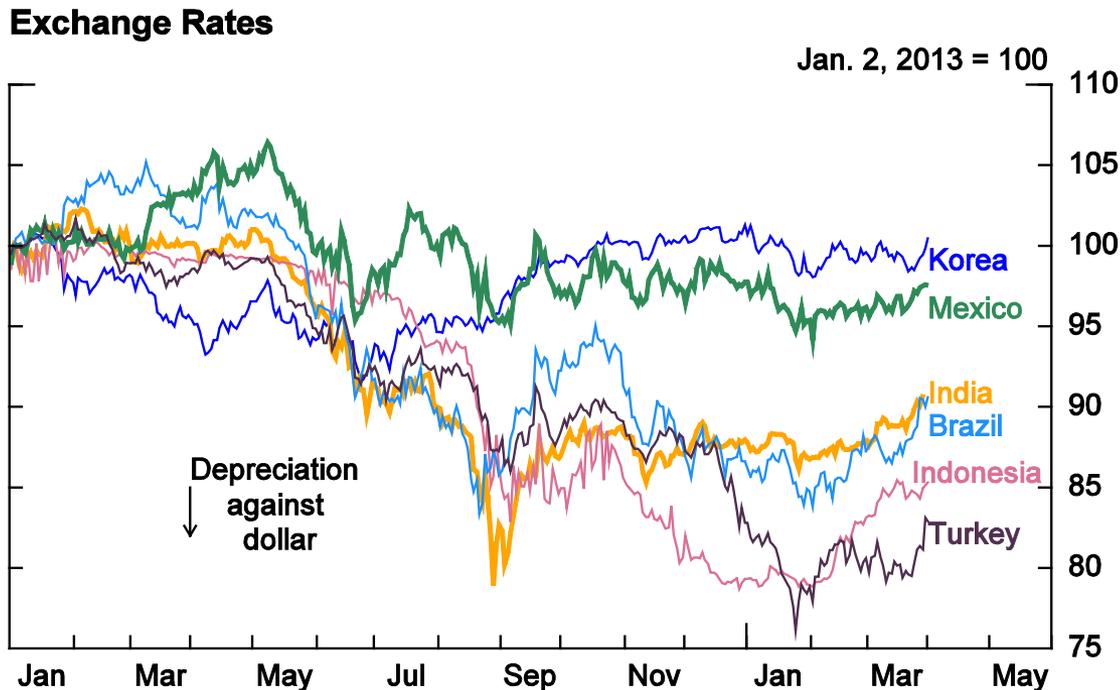
- Concerns about inflows leading to excessive currency appreciation in EMEs (“currency wars”)
- Potential for financial instability if flows suddenly reverse
- Research into motivations for capital flows:
  - Were capital inflows “pulled” by developments in EMEs themselves?
  - Or “pushed” by investor country/global factors including very low interest rates in AEs?
    - Actions of “reach for yield” investors
  - Ahmed and Zlate (2013), Forbes and Warnock (2012), Fratzcher et al (2013), Ghosh et al (2012)

# Developments in early summer 2013 with increased awareness of Fed intention to begin tapering asset purchases



- Large outflows from EME dedicated mutual funds as Treasury yields rise according to EPFR
- EME fund outflows continue into 2014

# Financial market reactions

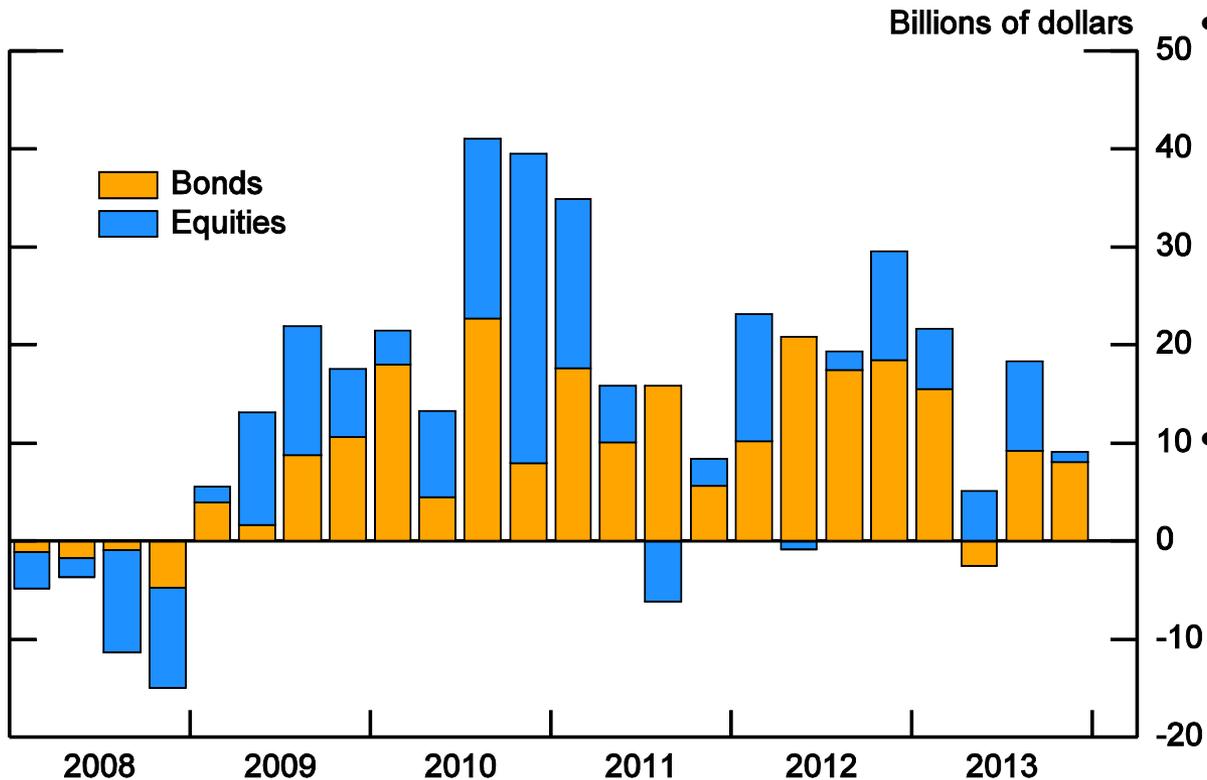


- Exchange rates of many EMEs came under pressure especially in late summer
- Similar signs of financial market stress in stock prices and bond yields/EMBI spreads
- Stabilization as many EMEs undertook policy responses including raising policy rates, intervention in FX markets

- Were these movements responses of “reach for yield” investors unwinding positions?
- More comprehensive capital flow data don’t suggest same degree of “unwind” from EME exposures
- Fund flows reflect behavior of retail investors
  - Don’t include “stickier” positions of major institutional investors (pension funds) or potentially offsetting flows from hedge funds and other managed money accounts

# Get a somewhat different picture if we look at estimated total U.S. acquisitions of EME securities: Slower purchases, but not outflows

**U.S. Purchases of EME Securities**

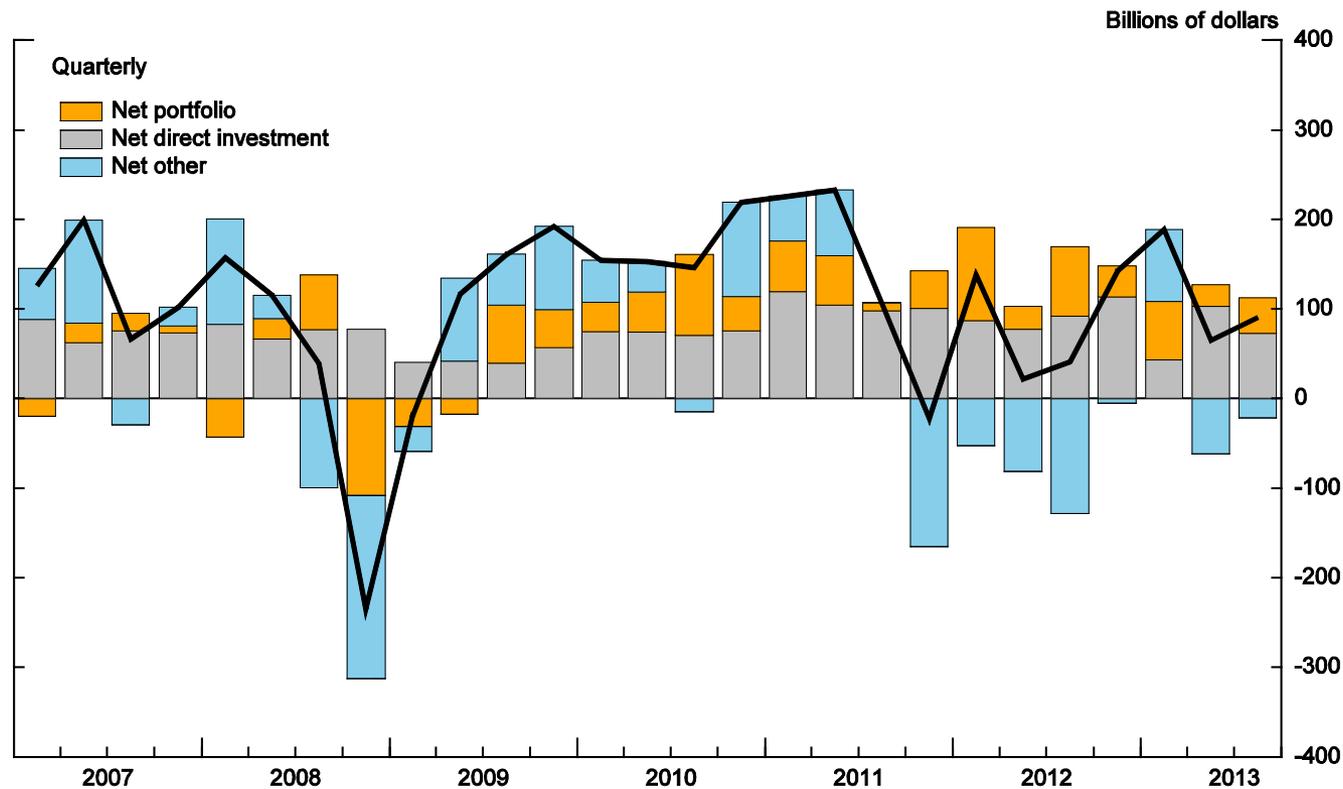


- Correctly identifying U.S. net purchases of EME securities from official data (TIC securities transactions) is challenge given well-known transactions bias in TIC flows

- Estimated purchases are IF staff calculations from new methodology based on changes in newly-available monthly holdings of securities by country (extracting from estimated valuation changes)

# Moreover, comprehensive BOP data reported by EMEs don't show overall net capital outflows

## Flows to Selected Emerging Market Economies



Source: IMF International Financial Statistics, HAVER.

- How do we reconcile:
  - Financial market reactions, outflows from dedicated EME mutual funds
  - What looks like more stable portfolio responses overall?
- In the aggregate, can have little overall change in positions but with shifting composition of investors and resulting price changes
- Rapid price movements could reflect unwinding of “carry trade” positions
- Ideally would have disaggregated information on holdings and gross transactions of all parties involved in cross-border flows

# What can we learn about motivations of investors from the data we do have?

- Recent work with colleagues Alexandra Tabova and Vivian Wong\*
  - Did GFC and subsequent period of low interest rates encourage “reach for yield”/increased risk-taking in U.S. investors’ cross-border portfolios?
  - Or, conversely, did GFC encourage a “search for safety” given downgrades and damage to balance sheets?
    - We find that both motivations seem to have been at play

\*Bertaut, Tabova, and Wong: “Reach for yield” versus “search for safety”: evidence from the U.S. bond portfolio (2014)

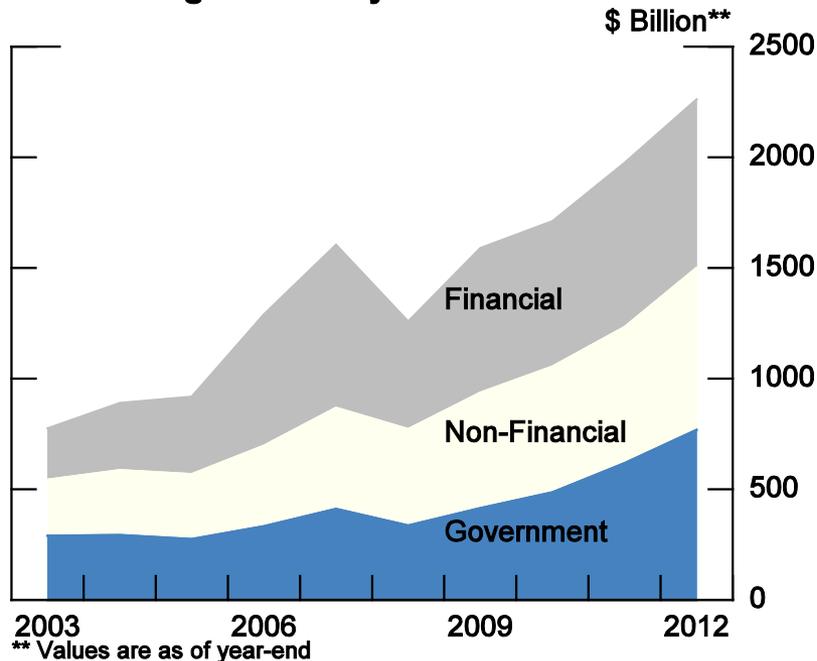
# Focus on the cross-border bond portfolio of U.S. investors

- Detailed, security-level data of U.S. investors' cross-border bond holdings collected through the Treasury International Capital (TIC) annual surveys for 2003-2012
  - Comprehensive: includes all foreign bonds held by U.S.-resident investors
  - Know details of individual securities held
  - Allows matching of securities held to credit ratings
  - Ability to compute actual returns to U.S. investors

# Growth and composition of U.S. foreign bond portfolio

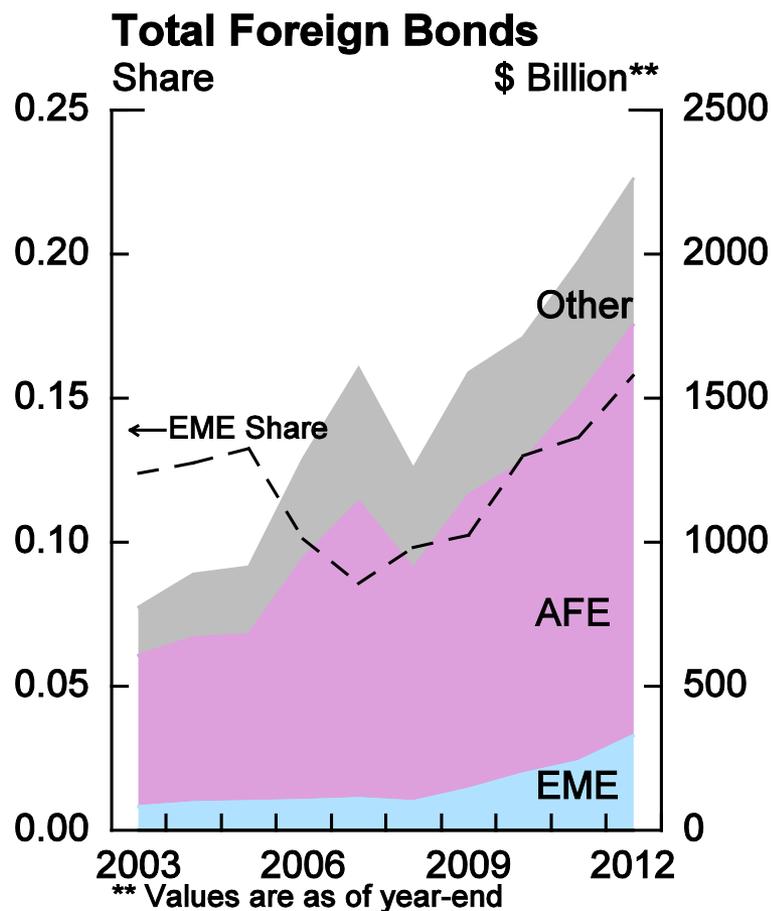
Since end-2008, holdings of foreign bonds increased \$670 billion to \$2.3 trillion

**Total Foreign Bonds by Sector**



- Still small share of U.S. total bond portfolio
  - substantial U.S. home bias
- But foreign share has grown faster than foreign share in bond market cap: home bias has declined
- By sector: about 1/3 each government, nonfinancial corporate, financial
- Composition is important
- Draw attention to role of foreign-issued financial sector debt
  - Literature on ability of financial sector to expand supply of high-grade financial assets (Gorton, Lewellen, and Metrick (2012); Krishnamurthy and Vissing-Jorgensen (2012))

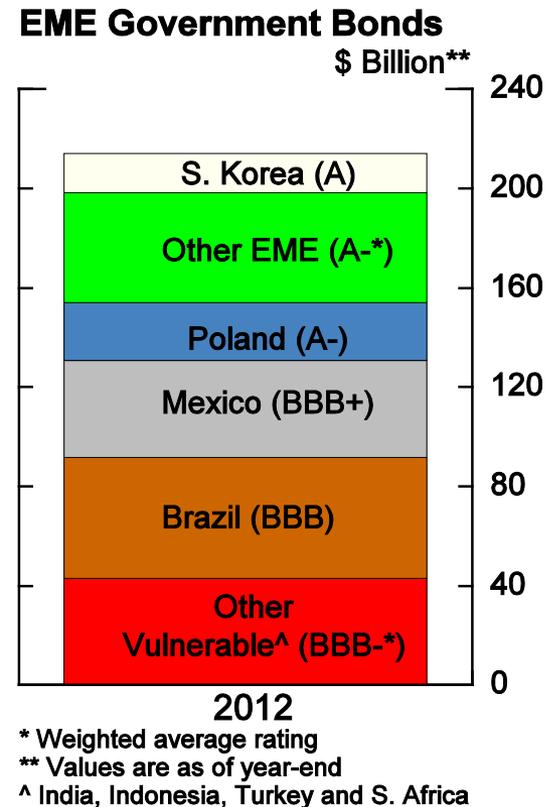
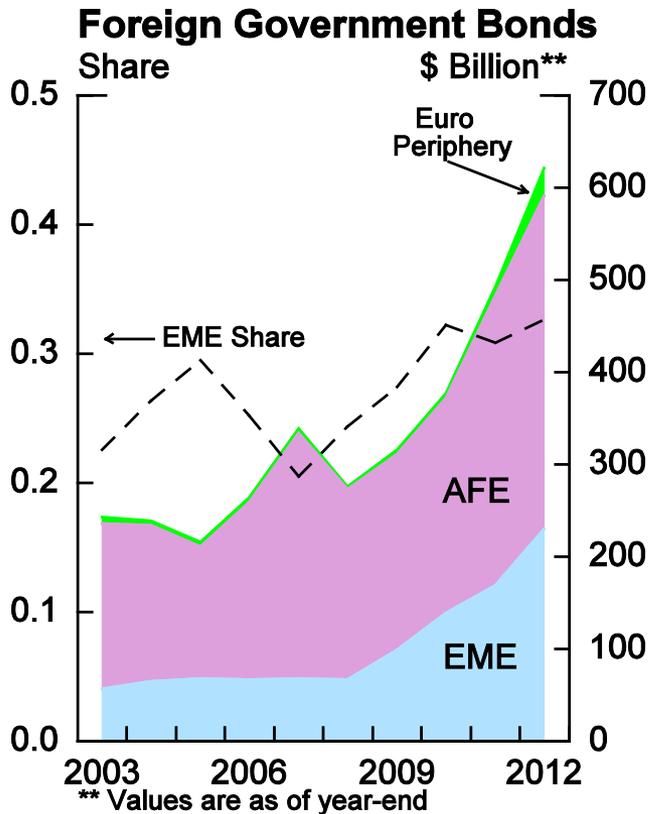
# Country composition of U.S. bond portfolio



- Majority of U.S. foreign bond holdings are in securities of AFEs
- And bonds issued by AFEs account for the majority of the increase in holdings post-crisis
- EME share has increased but is still small at ~15 percent

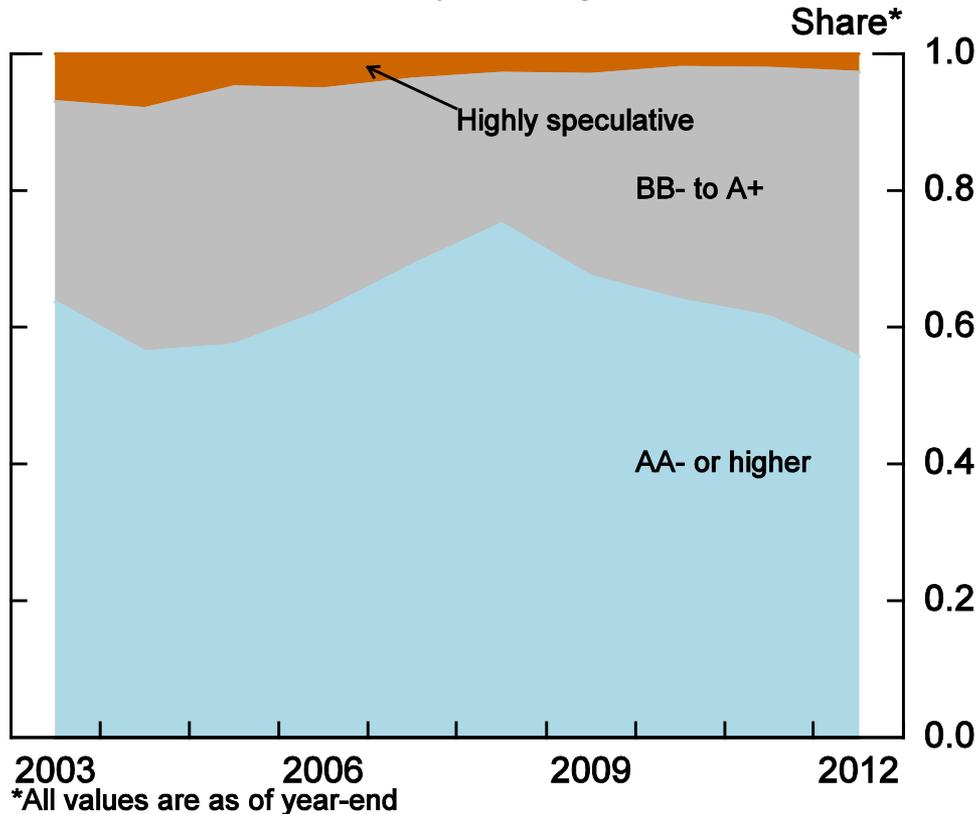
# Increase in EME holdings is more noticeable if we focus on government bonds

- Almost all of the increase in holdings of EME bonds is from government bonds, which increased \$152 billion
- None of which were rated higher than single A



# Credit rating shares of U.S. foreign government bond portfolio

**Government Bonds by Rating**



- Overall credit quality of portfolio of foreign government bonds has deteriorated since GFC
  - Reflects downgrades
  - And active portfolio choices, including increased holdings of EME bonds

# Government bond portfolio: Reach for yield?

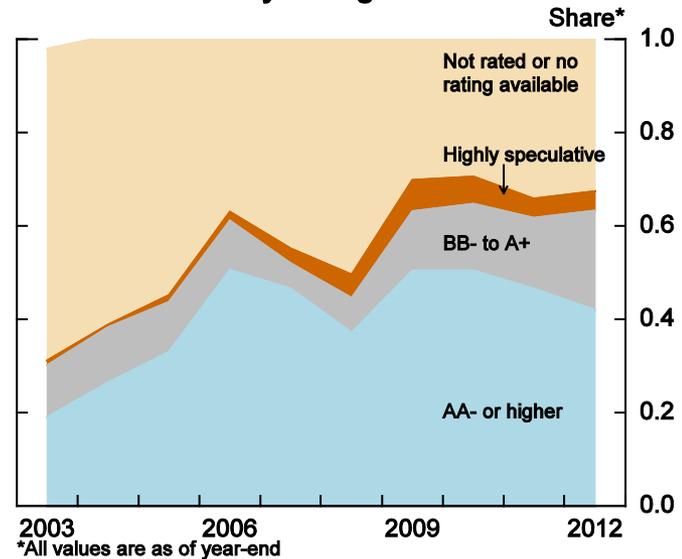
- Compare actual returns and weighted average “high quality” share for foreign government bonds with counterfactual where weights are kept fixed at 2007-2008 average
- Return was slightly higher while credit quality was slightly lower

	Yearly Returns (%)		High Credit Quality* (%)	
	Actual	Fixed wght**	Actual	Fixed wght**
<b>2009</b>	8.6	8.6	70.1	70.1
<b>2010</b>	7.7	7.7	65.8	68.9
<b>2011</b>	8.5	8.3	58.7	62.5
<b>2012</b>	10.1	9.2	57.1	61.6
* AA- or higher				
** at average 2008-2009 shares				

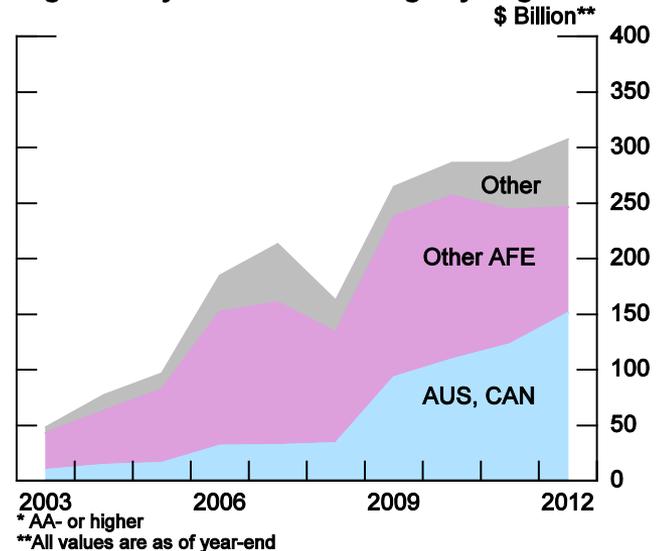
# Financial bonds

- Less attention paid to financial bond portfolio
- Holdings of foreign-issued financial sector debt increased almost as much as holdings of government bonds
- Overall credit quality of financial sector debt has also declined
- But lion's share of increase has been in high-grade debt: accounts for almost \$150 billion
- Country composition has changed, with a notable increase in holding of "high quality" financial debt of selected countries, especially Australia and Canada

**Financial Bonds by Rating**



**High Quality\* Financial Holdings by Region**



# Financial bond portfolio: Search for safety?

- Same actual and counterfactual exercise
- Despite downgrades/difficulty in getting high credit ratings, U.S. investors were able to prevent a much more notable deterioration in credit quality of the portfolio
- But this came at some cost in terms of return

	Yearly Returns (%)		High Credit Quality* (%)	
	Actual	Fixed wght**	Actual	Fixed wght**
<b>2009</b>	20.9	20.9	44.5	44.5
<b>2010</b>	7.2	9.5	49.5	30.9
<b>2011</b>	2.5	0.7	48.9	20.1
<b>2012</b>	11.7	15.1	43.3	29.5
* AA- or higher				
** at average 2008-2009 shares				

# Total foreign bond portfolio

- Portfolio reallocations moderated decline in portfolio quality
- U.S. investors gave up relatively little in terms of total return

	Yearly Returns (%)		High Credit Quality* (%)	
	Actual	Fixed wght**	Actual	Fixed wght**
<b>2009</b>	19.3	19.3	40.1	40.1
<b>2010</b>	8.2	8.6	39.8	38.5
<b>2011</b>	6.6	6.8	38.4	35.5
<b>2012</b>	11.0	11.0	35.4	32.7
* AA- or higher				
** at average 2008-2009 shares				

- Is this simply reaction of U.S. investors to changes in bond returns and risks?
- Or does it reflect changes in relative importance placed on these considerations?
- Address this question with portfolio choice model using annual panel data set of 45 countries for years 2003-2012

# Portfolio Choice Model

- Dependent variable: share of country  $i$  in U.S. foreign bond portfolio
- Explanatory variables:
  - individual country total returns expressed in dollars (capturing yields as well as capital gains)
  - covariance of returns with aggregate U.S. foreign bond portfolio
  - **credit quality**, proxied by share of highly rated bonds in countries' new issuance
  - standard controls for market size, transactions costs, proxies for information (distance, shares in U.S. trade)

## Panel Data Model: Country Shares in U.S. Portfolio

	Total	Govt.	Fin.	Non-fin.
Return				
pre-crisis	-0.96	0.68	3.16	0.37
post-crisis	4.70	0.88***	0.45	1.18
Credit quality				
pre-crisis	3.38*	0.25	5.32***	-1.02
post-crisis	4.47*	-0.42	8.70***	2.03
R-squared				
pre-crisis	0.53	0.56	0.63	0.30
post-crisis	0.40	0.64	0.63	0.29

Pre-crisis years: 2003-2007. Post-crisis years: 2009-2012.

Statistical significance: \*10% level \*\*\*1% level

Regressions also include covariance of returns and other controls

## Panel Data Model: Country Shares in U.S. Portfolio

	Total	Govt.	Fin.	Non-fin.
<b>Return</b>				
pre-crisis	-0.96	0.68	3.16	0.37
post-crisis	4.70	0.88***	0.45	1.18
<b>Credit quality</b>				
pre-crisis	3.38*	0.25	5.32***	-1.02
post-crisis	4.47*	-0.42	8.70***	2.03
<b>R-squared</b>				
pre-crisis	0.53	0.56	0.63	0.30
post-crisis	0.40	0.64	0.63	0.29

Pre-crisis years: 2003-2007. Post-crisis years: 2009-2012.

Statistical significance: \*10% level \*\*\*1% level

Regressions also include covariance of returns and other controls

## Panel Data Model: Country Shares in U.S. Portfolio

	Total	Govt.	Fin.	Non-fin.
Return				
pre-crisis	-0.96	0.68	3.16	0.37
post-crisis	4.70	0.88***	0.45	1.18
Credit quality				
pre-crisis	3.38*	0.25	5.32***	-1.02
post-crisis	4.47*	-0.42	8.70***	2.03
R-squared				
pre-crisis	0.53	0.56	0.63	0.30
post-crisis	0.40	0.64	0.63	0.29

Pre-crisis years: 2003-2007. Post-crisis years: 2009-2012.

Statistical significance: \*10% level \*\*\*1% level

Regressions also include covariance of returns and other controls

# Concluding remarks

- Depending on part of the portfolio we look at, we see evidence of both “reach for yield” and “search for safety”:
- Post-GFC, U.S. investors actively shifted their cross-border portfolios towards:
  - Higher-yielding, lower-rated government bonds
  - Higher-rated financial bonds
- Open question: why demands have shifted in different ways
  - different types of bonds appeal to different classes of investors, and these classes have responded differently to GFC and its aftermath?
  - Or common reaction to changing risk-return trade-offs available in the market?

# Concluding remarks (continued)

- End of the day: Don't see a dramatic shift of U.S. investors into EME securities (or riskier securities more generally)
- Do see important channel for demand for “safe” financial sector debt
  - And appears that foreign financial firms have been able to fill U.S. investor demand for “safe” investment alternatives\*

\*Bertaut, Tabova, and Wong: The replacement of safe assets in the U.S. financial bond portfolio and implications for the U.S. financial bond home bias (2014)

# And a cautionary note...

- Reminder that increased issuance of *supposedly* safe U.S. financial sector debt was a key driver in global capital flows leading up to the GFC
- Inflows from Europe into “high-grade” U.S. financial sector debt including MBS and other structured products were as large as the purchases of Treasuries and agencies by “saving glut” countries
- Raise a cautionary note to think more broadly about the sources and consequences of perceived risk-return trade-offs and how these play out through capital flows