

# Data Sources: EPFR and CPIS

Stephanie Curcuru  
Federal Reserve Board

NBER Workshop on Data Sources in  
International Finance  
July 7, 2014

*Disclaimer: The views in this paper 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 of any other person associated with the Federal Reserve System.*

# Introduction

- ▶ **EPFR: Emerging Portfolio Fund Research, Inc**
  - Investment fund flows and asset allocation data
  - 15K funds with investments in 130 countries
  - \$23.5 trillion in total assets
  
- ▶ **CPIS: Coordinated Portfolio Investment Survey**
  - Bilateral equity and debt holdings
  - Data from 78 source countries on investment in about 240 destination countries

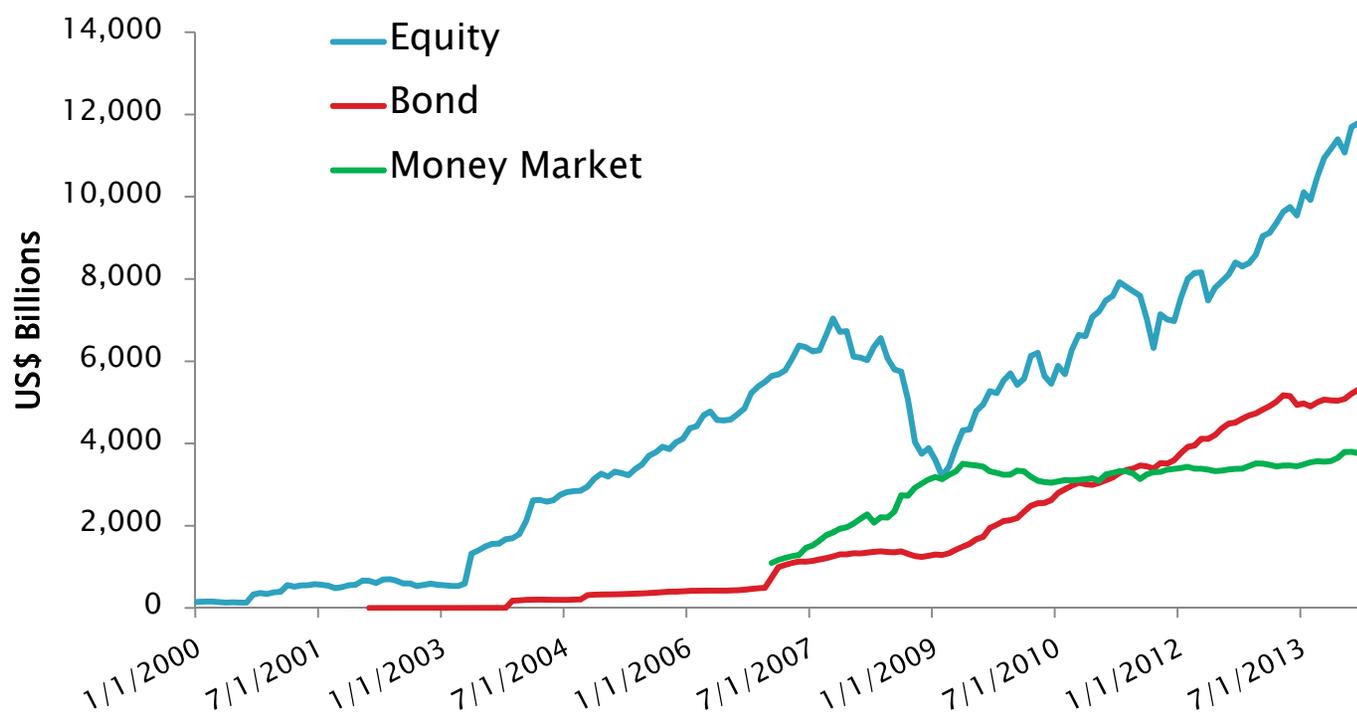
# Outline

- ▶ Data Description
- ▶ Accessing the data
- ▶ Literature Review
- ▶ Using the data
- ▶ Pricing
- ▶ References

# EPFR: Data Description

## ► Coverage

- 15K funds as of 7/2/14 (9,677 equity; 4,269 bond;642 other)
- \$23.5 trillion in total assets



Data Sources: EPFR and CPIS

# EPFR: Data Description

- ▶ Daily flows available at 5pm EST for the previous day
- ▶ Weekly fund flows available 5pm EST each Thursday for the previous 7 days (not all funds report daily)
- ▶ Monthly 5pm EST on the 23<sup>rd</sup> for the previous month
- ▶ Fund flows history:
  - Equity: to Jan 1995 (Monthly) , Oct 2000 (Weekly), and May 2007 (Daily)
  - Bond: to Jan 2004 (Monthly), Apr 2004 (Weekly), and May 2007 (Daily)
- ▶ Country allocation history:
  - Equity: to Jan 1995 (GEM funds) and Jan 2001 (Global funds)
  - Bond: to Nov 2001 (GEM funds) and Jul 2005 (Global funds)
- ▶ Sector/industry (GICS I/II) weightings, in % terms, of fund groups and individual asset managers and funds
  - Monthly data, history to 2006

# EPFR: Data Description

- ▶ Equity, Bond, Money Market, Balanced and Speciality fund groups
- ▶ Equity Fund Regional Groups
  - Developed market (DM)
  - Global
  - Asia Pacific
  - North America
  - Western Europe
  - All EM
  - Asia ex-Japan
  - EMEA
  - GEM
  - LatAm
  - Global Sector
  - BRIC

# EPFR: Data Description

- ▶ Bond fund groups include most of the equity regions, plus:
  - Local/Hard/Blend Currency
  - Floating Rate
  - High Yield
  - Inflation Protected
  - Mortgage Backed
  - Total Return
  - Government
  - Corporate
  - Short-term
  - Intermediate-term
  - Long-term

# EPFR: Data Description

- ▶ Fund type filters:
  - Type (ETF/Non-ETF)
  - Domicile
  - Currency
  - Benchmark
  - Investor type (retail, institutional, active, passive)
  - Thematic (commodity, frontier, bear, socially responsible, leverage 1x, 2x, 3x...many more)

# EPFR: Data Description

- ▶ Data collected for each fund
  - Each period (monthly, weekly, daily) the fund manager or administrator provides three items:
    1. Beginning of period assets,
    2. End of period assets, and
    3. Percentage change in net asset value (NAV).
- ▶ Firms send these data to US regulators and others (Bloomberg, Morningstar, etc.) in addition to EPFR
- ▶ Some funds also report their allocations to specific countries/regions on a monthly basis, including cash balance

# EPFR: Data Description

- ▶ Fund Flows:

*Local Currency (LC) Portfolio Change =*

*Beginning Period Assets x NAV Performance*

*LC Fund Flows = End Period Assets*

*- Beginning Period Assets - Portfolio Change*

*US\$ Fund Flows =*

*LC Fund Flows x Average Exchange Rate*

- ▶ Country Flows:

*Country flow = Prior month allocation x total fund flow*

# EPFR: Accessing the Data

- ▶ Easy to use web interface
- ▶ Aggregation and scaling options
  - Individual funds, fund categories, countries
  - US\$ Flows, per period or cumulative
  - Total Net Assets (TNA)
  - Flows as % TNA, per period or cumulative
  - NAV % change, per period or cumulative
  - Country allocation at fund or manager level
- ▶ Various output options (table, chart, XML, excel, text, sql)

# EPFR: Accessing the Data

- ▶ Other delivery methods:
  - FTP delivery
  - Haver Analytics/DLX delivery
  - Personalized daily/weekly/monthly charts and Excel reports delivered by email – e.g. flows by country, sector, or asset class
  - Email delivery of EPFR Chartbook, research reports with latest sector, country and regional equity allocations, and news releases
  - Ad-hoc email delivery of EPFR research notes pertaining to latest flow/positioning data signals.
  - Calls with EPFR macro and quant analysts

# EPFR: Literature Review

- ▶ **Systemic risk/risk propagation:**
  - Broner et al 2006; Jinjara and Zheng 2014; Jotikasthira et al 2012; Puy 2014; Raddatz and Schmukler 2012
- ▶ **Evaluating push/pull factors:**
  - Canela et al 2006; Fratzscher 2011; Jotikasthira et al 2012; Lo Duca 2012; Puy 2014
- ▶ **Capital controls/macroprudential measures:**
  - Forbes et al 2012; Lambert et al 2013

# EPFR: Literature Review

- ▶ Effect of unconventional monetary policy:
  - Burns et al 2014; IADB 2014; Lin et al 2014; Fratzscher et al 2013
- ▶ Other:
  - Gelos and Wei 2006 – transparency
  - Wei et al 2010 – response to IMF programs
  - Miao and Pant 2012 – more timely indicator of BOP flows
  - Raddatz et al 2014 – benchmark effect

# EPFR: Using the data

- ▶ Papers including helpful descriptions on using EPFR data:
  - Raddatz and Schmukler 2012;
  - Raddatz et al 2014;
  - Jinjarak and Zheng 2014;
  - Miao and Pant 2014

# EPFR: Using the data

- ▶ **Potential biases in EPFR sample**
  - Between 5 and 25% of the float-adjusted market capitalization of individual equity markets
  - Domiciles for most of the funds are in advanced countries
  - Historically, retail funds dominated number of funds (though currently evenly split between retail and institutional investors); missing central bank flows (Jotikasthira et al 2012, Ree and Choi 2014)
  - Cross-country average correlations between the EPFR and TIC ownership change series are ~ 22% for emerging countries. (Jotikasthira et al 2012)
  - Includes a significant fraction of index funds; country allocations of these funds have low volatility (Jotikasthira et al 2012)

# EPFR: Using the data

- ▶ Methods of “cleaning” EPFR data (Fratzscher 2011; Jinjarak and Zheng 2014, others)
  - Correcting for changing sample:
    - Retain only those funds which are continuously reporting throughout the sample period
    - Alternatively, keeping funds with more than 30 weeks of observations
  - Exclude funds with less than USD 5 million AUM
  - Exclude funds that record at times extreme net inflows or net outflows
  - Exclude funds for which no geographic allocations information is available

# EPFR: Using the data

- ▶ Thoughts on country–level flow estimates

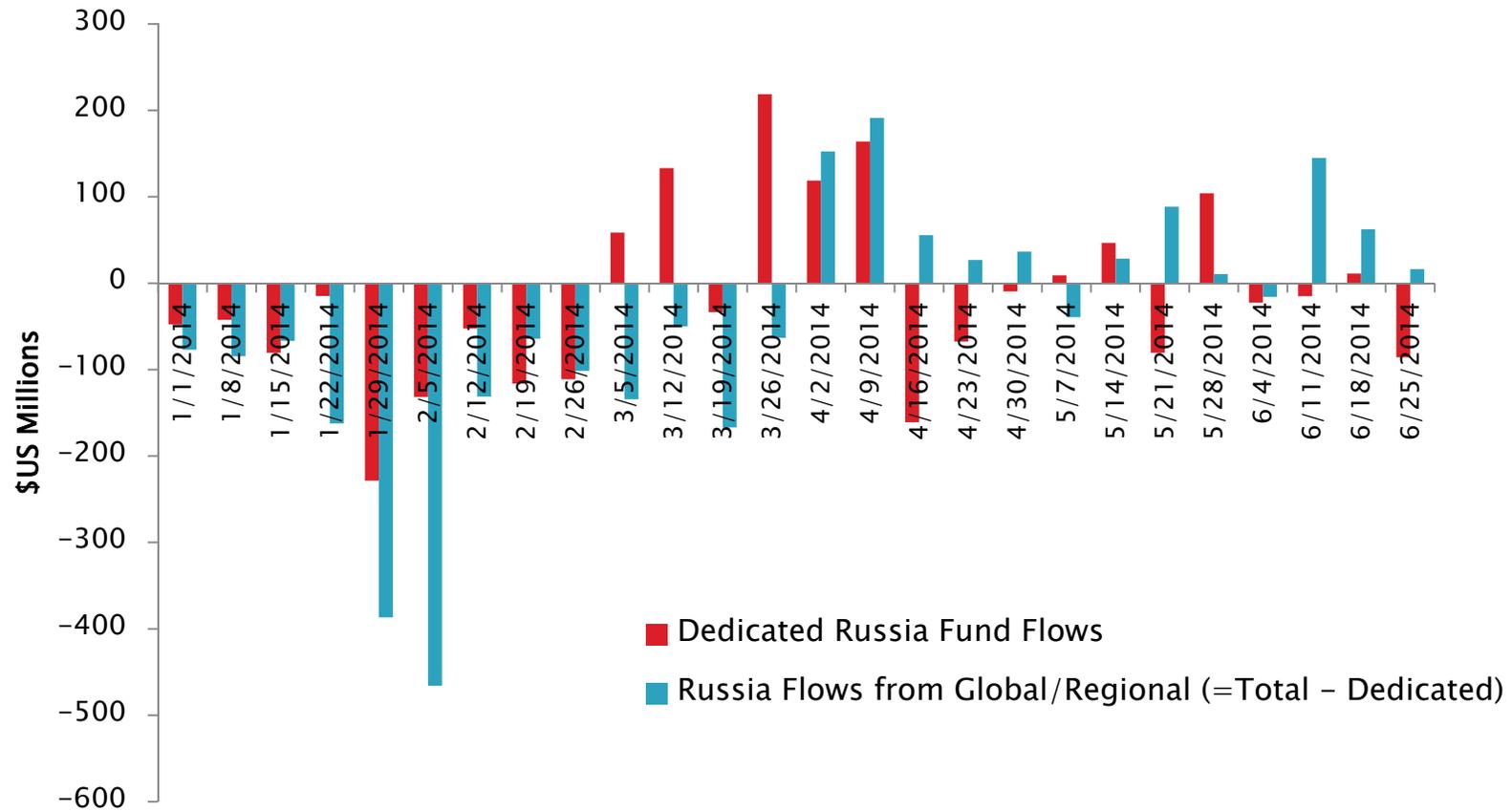
- Country level flows are estimated from the monthly country allocations:

*Country flow = prior month allocation x total fund flow*

- For funds investing in multiple countries, there will be no inter–country reallocation between months
  - flows will be either into all countries or out of all countries in intermediate reporting periods
- Not an issue for dedicated country flows

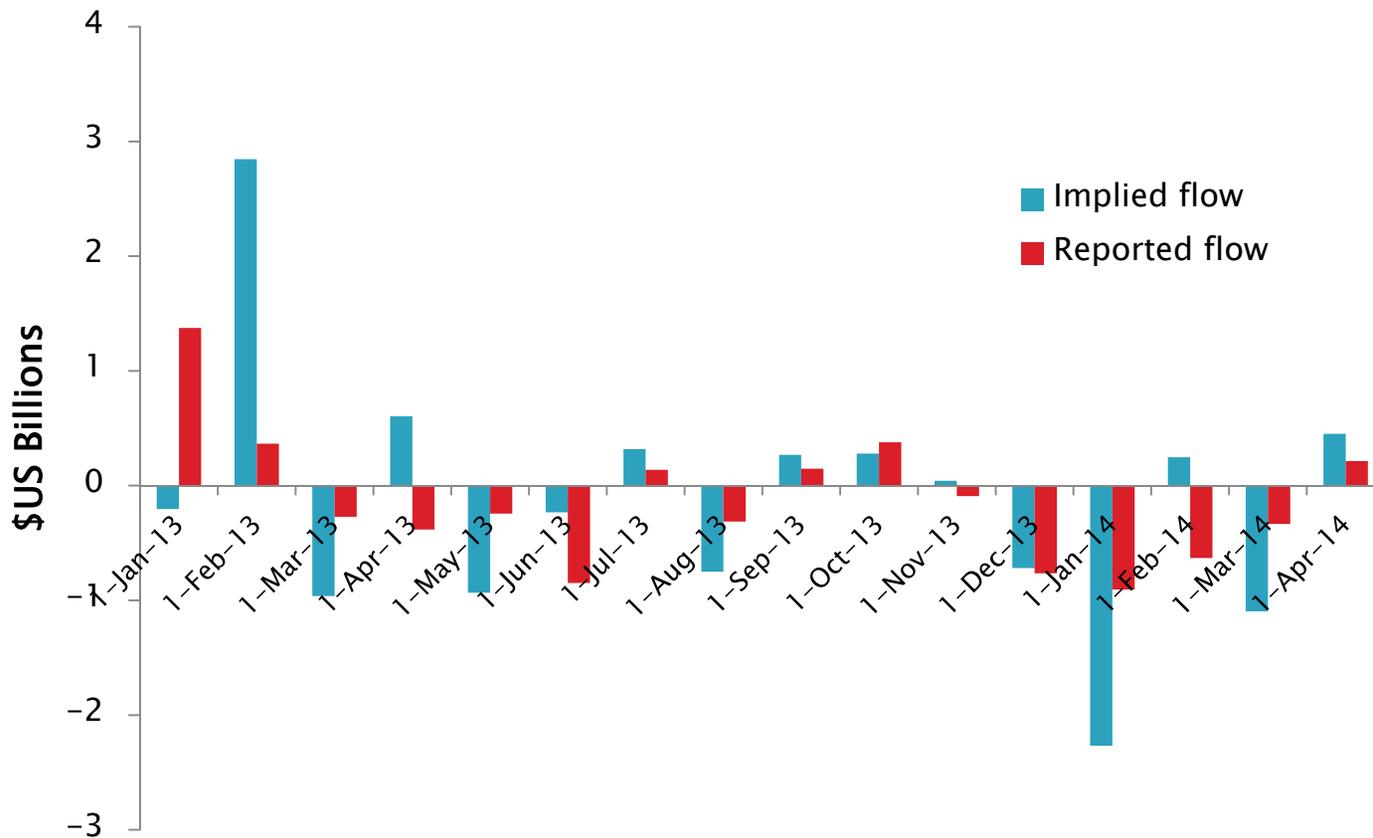
# EPFR: Using the data

- ▶ During recent turmoil, flows to dedicated Russia funds differed from estimates of flows to Russia from global/regional funds



# EPFR: Using the data

- ▶ Reported estimates of flows to Russia have also been more volatile than flows implied from changes in NAV and returns



# EPFR: Using the data

- ▶ Thoughts on country-level flow estimates
  - Allocation-estimated flows may lead to excessive co-movement among countries and over-identification of common factors
  - Raddatz and Schmukler 2012; Raddatz et al 2014 construct flows using indexes to estimate returns, use the benchmark when it is declared for the fund
  - Focusing on fund level flows into country-dedicated and regional funds should resolve this bias

# EPFR: Pricing

- ▶ EPFR offers discounted pricing to customers who are doing exclusively academic research.
- ▶ Pricing guidelines:
  - One-time delivery of aggregate level historical data: \$5K–\$10K;
  - One-time delivery of fund-detail level historical data: \$10K–\$20K;
  - Annual subscriptions which include all historical data plus one year of updates are available at a 50% discount.
- ▶ Contact:
  - Simon Ringrose, Managing Director
  - EPFR Global, 80 Sherman Street, Cambridge MA 02140
  - tel 617–864–4999 ext 30; cell 617–513–3322
  - [www.epfr.com](http://www.epfr.com)

# EPFR: References

- ▶ Broner, F., R.G. Gelos, and C. Reinhart. “When in peril, retrench: Testing the portfolio channel of contagion.” *Journal of International Economics* Volume 69, Issue 1, June 2006, Pages 203–230.
- ▶ Burns, A., M. Kida, J. Lim, S. Mohapatra and M. Stocker. Unconventional Monetary Policy Normalization in High–Income Countries: Implications for Emerging Market Capital Flows and Crisis Risks. The World Bank Policy Research Working Paper No. 6830, April 2014.
- ▶ Canela, M., E. Collazo and J. Santiso. Capital flows to BRIC’s countries: Fundamentals or just liquidity? Working paper, 2006.
- ▶ Forbes, K., M. Fratzscher, T. Kostka and R. Straub. “Bubble thy neighbor: Portfolio effects and externalities from capital controls.” NBER Working Paper 18052. May 2012.
- ▶ Fratzscher, M. “Capital Flows, Push versus Pull Factors and the Global Financial Crisis” ECB Working Paper No. 1364 July 2011.
- ▶ Fratzscher, M., M. Lo Duca and R. Straub. “On the international spillovers of US quantitative easing.” ECB Working Paper No. 1557, June 2013.
- ▶ Gelos, R.G., and S. Wei. “Transparency and international portfolio holdings.” *Journal of Finance* Vol. 60 No. 6, Dec 2006 pp 2987–3020.
- ▶ Inter–American Development Bank. “Global Recovery and Monetary Normalization: Escaping a Chronicle Foretold? March 2014
- ▶ Jinjarak, Y. and H. Zheng. “Granular Institutional Investors and Global Market Interdependence.” *Journal of International Money and Finance* 46 (2014) 61–81.

# EPFR: References (cont.)

- ▶ Jotikasthira, C., C. Lundblad and R. Ramadorai . “Asset fire sales and purchases and the international transmission of funding shocks.” *The Journal of Finance*, Vol. 67, Iss. 6, pages 2015–2050, December 2012
- ▶ Lambert, F., J. Ramos–Tallada and C. Rebillard. “Capital controls and spillover effects: evidence from Latin–American countries” Working paper, October 2013.
- ▶ Lim, J., S. Mohapatra and M. Stocker . “Tinker, Taper, QE, Bye? The Effect of Quantitative Easing on Financial Flows to Developing Countries” Working paper, January 2014
- ▶ Lo Duca, M., 2012. Modelling the time varying determinants of portfolio flows to emerging markets. ECB Working Paper Series, Working Paper No. 1468
- ▶ Miao, Y. and M. Pant. “Coincident Indicators of Capital Flows.” IMF Working Paper No. 55, February 2012.
- ▶ Raddatz, C. and S. Schmukler. “On the international transmission of shocks: microevidence from mutual fund portfolios.” *Journal of International Economics*, Vol 88 Issue 2 November 2012, pp 357–374.
- ▶ Raddatz, C., S. Schmukler and T. Williams. “International Asset Allocations and Capital Flows: The Benchmark Effect.” The World Bank Working Paper 6866, May 2014
- ▶ Puy, D. “Institutional Investor Flows and the Geography of Contagion.” Working paper, July 2013.
- ▶ Wei, Shang–Jin, Zhiwei Zhang, and Qingyuan Du, 2010, Does the global fireman inadvertently add fuel to the fire? New evidence from institutional investors’ response to IMF program announcements, *Journal of International Money and Finance* 29, 728–741.

# CPIS: Data Description

- ▶ Compiled by the IMF from country surveys
- ▶ Records aggregate bilateral cross-border holdings of equity securities and long- and short-term debt securities
- ▶ Data from 78 source countries on investment in about 240 destination countries
- ▶ Data is reported using BPM6 IIP valuation principles
- ▶ Holdings of domestic securities are excluded
- ▶ Annually as of end-December since 2001; also end-June beginning with data for June 2013)

# CPIS: Data Description

- ▶ Excludes data included as part of BOP DI, reserves, or derivatives.
- ▶ Augmented with information from: Securities Held as Foreign Exchange Reserves, and Securities Held by International Organizations
- ▶ Some economies report additional classifications by institutional sector of resident holder, institutional sector of nonresident issuer, sector of resident holder and sector of nonresident issuer for specified economies, currency composition of the holdings, and on short (negative) positions.
- ▶ Some economies also report on portfolio investment liabilities

# CPIS: Literature Review

- ▶ Global investment patterns
  - Aggarwal et al 2008 – gravity model
  - Feletti and Monti 2008 – mutual funds
  - Karolyi et al 2013 – investment by EM investors
  - Lane and Milesi-Ferretti (LMF) 2004 – euro area
  - Lane and Milesi-Ferretti (LMF) 2005 – general
  - Pongsaparn and Unteroberdoerster 2011 – integration and rebalancing in Asia
  - Hau and Rey 2008 – rebalancing

# CPIS: Literature Review

- ▶ Systemic risk/risk propagation:
  - Milesi-Ferretti et al 2010; Gourinchas et al 2012; Pericoli et al 2012
- ▶ Crisis investment focus
  - Bertaut 2008; Kamin and DeMarco 2010; Vermeulen 2011
- ▶ “External wealth of nations”
  - LMF 2007 constructs estimates of external assets and liabilities for 145 countries for the period 1970–2004.

# CPIS: Using the Data

- ▶ Website interface can be used to generate country-level reports:
  - Assets holdings by source country by issuer destination country
    - Confidential data listed separately without country allocation
  - Derived data on investment liabilities for each source country

# CPIS: Using the Data

- ▶ Data coverage is incomplete in some dimensions
  - Some destination information is confidential
  - Incomplete source country coverage (no data from China, oil exporters)
  - Survey issues for various countries. For example, the German survey did not cover holdings by households (LMF 2004)
  - Does not separately identify sovereign and corporate debt
  - The bilateral data can be distorted by third-party holdings, by which a resident in country A holds securities in country B through an institution residing in country C (LMF 2005 )

# CPIS: Using the Data

- ▶ Methods of “cleaning” CPIS data
  - Corporate and sovereign debt holdings estimated using the US TIC data (Kamin and Demarco 2010, Gourinchas et al 2012)
  - Correction for large US ABS holdings by funds incorporated in the Cayman islands using the US TIC data (Kamin and DeMarco 2010, Gourinchas et al 2012)

# CPIS: Pricing

- ▶ Data available at no cost at [cpis.imf.org](http://cpis.imf.org)
- ▶ Can also be queried using the IMF eLibrary which requires a subscription for some functions.
  - Individual subscriptions cost \$10–\$99/year.
  - Institutional subscriptions available, free to academic institutions in developing economies

# CPIS: References

- ▶ Aggarwal, R., C. Kearney and B. Lucey. “Is gravity a cultural artefact? The role of cultural distance in foreign portfolio investment.” Working paper, January 2008
- ▶ Bertaut, C. “Assessing the Potential for Further Foreign Demand for U.S. Assets: Has Financing U.S. Current Account Deficits Made Foreign Investors Overweight in U.S. Securities?” Board of Governors of the Federal Reserve System, IFDP No. 950, October 2008.
- ▶ Felettigh, A., and P. Monti. “How to interpret the CPIS data on the distribution of foreign portfolio assets in the presence of sizeable cross-border positions in mutual funds. Evidence for Italy and the main euro-area countries.” Banca D’Italia Occasional Paper No. 16, August 2008
- ▶ Forbes, K., M. Fratzscher, T. Kostka and R. Straub. “Bubble thy neighbor: Portfolio effects and externalities from capital controls.” NBER Working Paper 18052. May 2012.
- ▶ Gourinchas, P. , H. Rey, and K. Truempler. "The financial crisis and the geography of wealth transfers." *Journal of International Economics*, Volume 88, Issue 2, November 2012, Pages 266–283.
- ▶ Hau, H., and H. Rey. “Global Portfolio Rebalancing Under the Microscope.” NBER Working Paper No. 14165, July 2008.
- ▶ Kamin, S., and L. DeMarco. “How Did a Domestic Housing Slump Turn into a Global Financial Crisis?” Board of Governors of the Federal Reserve System, IFDP No. 994, January 2010.
- ▶ Karolyi, G.A., D. Ng and E. Prasad. “The Coming Wave.” HKIMR Working Paper No. 08/2013, June 2013

# CPIS: References (cont.)

- ▶ Lane, P. and G.M. Milesi-Ferretti . “International Investment Patterns,” IMF Working Paper 04/134, July 2004
- ▶ Lane, P., and G.M Milesi-Ferretti. “The International Equity Holdings of Euro Area Investors.” IIS Discussion Paper No. 104, December 2005.
- ▶ Lane, P. and G.M. Milesi-Ferretti. “The External Wealth of Nations Mark II: Revised and Extended Estimates of External Assets and Liabilities.” *Journal of International Economics* 73, 223–250, November 2007.
- ▶ Milesi-Ferretti, G.M., F. Strobbe and N. Tamirisa. “Bilateral Financial Linkages and Global Imbalances: a View on the Eve of the Financial Crisis.” IMF Working Paper No. 257, November 2010.
- ▶ Pericoli, F.M., E. Pierucci and L. Ventura. “International Investment Positions and Risk Sharing: An Empirical Analysis on the Coordinated Portfolio Investment Survey.” Working paper, June 2012.
- ▶ Pongsaparn, R. and O. Unterroberdoerster. “Financial Integration and Rebalancing in Asia.” IMF working paper 243, October 2011.
- ▶ Vermeulen, R. “International Diversification During the Financial Crisis: A Blessing for Equity Investors?” DNB Working paper No. 324, December 2011.