BANK FOR INTERNATIONAL SETTLEMENTS

# International monetary policy spillovers: mind the variation

**Stefan Avdjiev**

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*The views expressed in this presentation are those of the author and not necessarily those of the Bank for International Settlements*

# Drivers of international capital flows

- **Existing Literature:**

  *Milesi-Ferretti and Tille (2011); Forbes and Warnock (2012); Fratzscher (2012); Cerutti, Claessens and Ratnovski (2014); Bruno and Shin (2015); Correa et al (2015); Rey (2015); Miranda-Agrippino and Rey (2015); McCauley et al (2015); Koepke (2015); Cerutti, Claessens and Rose (2017)*

- **Global (push) factors**
  - AE Monetary Policies
  - Global Risk Aversion (VIX)
  - Global GDP growth

- **Local (pull) factors**
  - Local GDP growth
  - Local asset returns
  - Country risk

# Impact of global factors on international capital flows

- **Global Risk Aversion** (VIX) - unambiguously negative impact
- **Global GDP growth** - unambiguously positive impact
- **AE Monetary Policies** – no conclusive empirical evidence
  - Evidence of a **negative relationship**
    - *Bruno and Shin (2015)*
    - *Ghosh et al. (2014)*
  - Evidence of a **positive relationship**
    - *Jeanneau and Micu (2002)*
    - *Correa et al. (2016)*
  - **Mixed** results
    - *Goldberg (2002)*
    - *Cerutti et al. (2014)*

# Impact of AE MP on XB flows

- An important (implicit) assumption in the literature is that the impact of global factors on XB flows is constant.

- Nevertheless, there is (growing) evidence that the impact varies considerably:
  - Over **Time**
    - *Avdjiev, Gambacorta, Goldberg and Schiaffi (2017)*
    - *Avdjiev and Hale (2017)*
  - Across **Lenders**
    - *Avdjiev, Gambacorta, Goldberg and Schiaffi (2017)*
  - Across **MP components**
    - *Avdjiev and Hale (2017)*
  - Across **Currencies**
    - *Avdjiev, Koch, McGuire and von Peter (2017) – BIS contribution to the IBRN*
    - *Avdjiev and Takáts (2016)*
  - Across **Borrowing Sectors**
    - *Avdjiev, Hardy, Kalemli-Özcan and Servén (2017)*

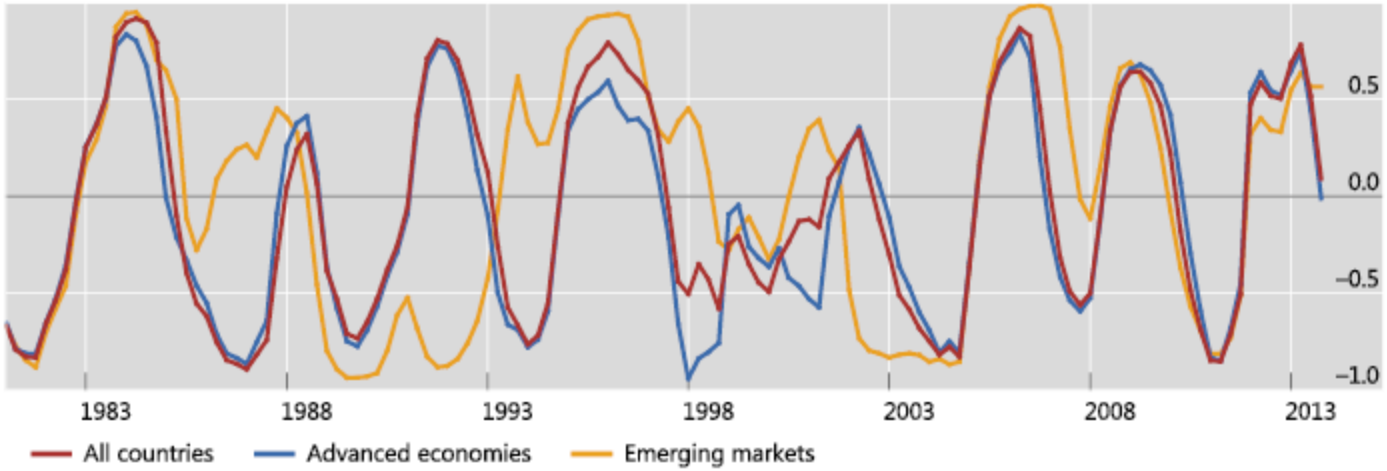
**Table 2 – Locational baseline regressions (by borrowing country)**

| Explanatory variables | Dependent variable: ΔCross-border loans † | | | Dependent variable: ΔInternational debt securities ‡ | | |
|---|---|---|---|---|---|---|
| | All | to banks | to non-banks | All | by banks | by non-banks |
| ΔFed funds rate (1) | -1.95*** | -2.48*** | -1.86*** | -1.76*** | -2.26** | -1.44** |
| | (0.38) | (0.58) | (0.34) | (0.66) | (0.95) | (0.69) |
| Log(VIX) | -2.75*** | -2.51*** | -3.10*** | -2.31*** | -5.22*** | -1.49* |
| | (0.59) | (0.96) | (0.62) | (0.75) | (1.77) | (0.83) |
| ΔReal GDP | 0.54*** | 0.57*** | 0.50*** | 0.09 | 0.20 | 0.08 |
| | (0.09) | (0.12) | (0.08) | (0.10) | (0.24) | (0.13) |
| ΔSovereign rating (2) | 2.80*** | 4.37*** | 0.02 | 0.56 | -1.50 | 0.30 |
| | (1.06) | (1.40) | (0.84) | (0.85) | (2.82) | (1.05) |
| Chinn-Ito index (3) | -1.35 | -3.03 | 0.30 | 8.11*** | 10.72** | 4.87 |
| | (1.79) | (2.87) | (1.85) | (2.89) | (4.61) | (3.03) |
| ΔReal global GDP | 0.50*** | 0.81*** | 0.34** | 0.00 | -0.18 | -0.15 |
| | (0.16) | (0.24) | (0.16) | (0.26) | (0.79) | (0.30) |
| Observations | 3,327 | 3,327 | 3,327 | 3,327 | 2,961 | 3,326 |
| R-squared | 0.11 | 0.07 | 0.08 | 0.05 | 0.03 | 0.03 |

*Avdjiev, Gambacorta, Goldberg and Schiaffi (2017)*

# Variation over time

Figure 1: Rolling correlation between federal funds rate and quarterly growth rate of LBSR claims.



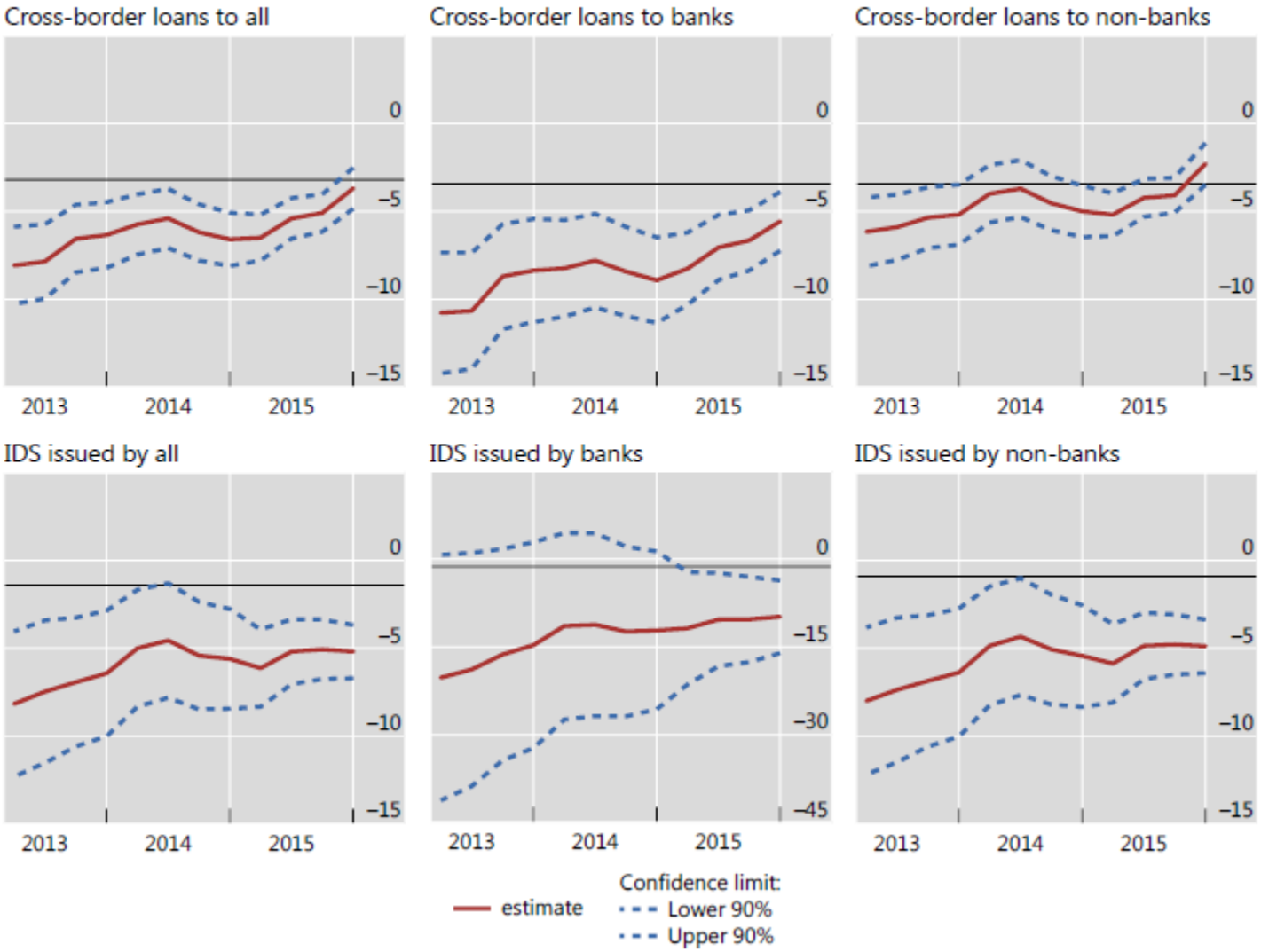

*Avdjiev and Hale (2017)*

**Table 3 - Locational baseline regressions (by borrowing country) with structural breaks**

| | Dependent variable: ΔCross-border loans † | | | Dependent variable: ΔInternational debt securities ‡ | | | Dependent variable: ΔTotal cross-border flows (loans and debt securities) | | |
|---|---|---|---|---|---|---|---|---|---|
| | All | to banks | to non-banks | All | by banks | by non-banks | All | to banks | to non-banks |
| ***Pre-break*** | | | | | | | | | |
| ΔFF (1) | -3.19*** | -3.44*** | -3.42*** | -1.42 | -1.26 | -0.90 | -2.07*** | -2.57*** | -2.09*** |
| | (0.49) | (0.81) | (0.56) | (1.03) | (1.36) | (1.20) | (0.36) | (0.71) | (0.37) |
| VIX (2) | -3.94*** | -4.43*** | -4.36*** | -1.09 | -5.63** | -0.21 | -3.11*** | -4.09*** | -2.70*** |
| | (0.94) | (1.63) | (1.07) | (1.28) | (2.66) | (1.56) | (0.67) | (1.39) | (0.69) |
| ***Post-break - up to 2013:Q1*** | | | | | | | | | |
| ΔFF (1) | -8.07*** | -10.79*** | -6.16*** | -8.17*** | -20.23 | -8.00*** | -7.96*** | -11.50*** | -6.44*** |
| | (1.336) | (2.088) | (1.188) | (2.510) | (12.75) | (2.542) | (1.00) | (1.96) | (0.93) |
| VIX (2) | -2.68** | -2.12 | -2.87*** | -3.07** | -5.60 | -2.51* | -3.14*** | -2.73* | -2.88*** |
| | (1.071) | (1.671) | (1.063) | (1.476) | (5.225) | (1.517) | (0.83) | (1.61) | (0.79) |
| ***Post-break - up to 2015:Q4*** | | | | | | | | | |
| ΔFF (1) | -3.68*** | -5.56*** | -2.29*** | -5.19*** | -9.82*** | -4.88*** | -4.37*** | -5.84*** | -3.85*** |
| | (0.71) | (1.02) | (0.72) | (0.92) | (3.79) | (0.93) | (0.47) | (0.84) | (0.49) |
| VIX (2) | -0.32 | 0.77 | -0.99 | -1.55 | -1.25 | -0.83 | -1.18* | 0.41 | -1.13* |
| | (0.81) | (1.27) | (0.77) | (1.06) | (3.12) | (1.04) | (0.60) | (1.18) | (0.58) |

*Avdjiev, Gambacorta, Goldberg and Schiaffi (2017)*

Post-break sensitivities to ΔFFR, evolution over time — Graph 5




*Avdjiev, Gambacorta, Goldberg and Schiaffi (2017)*

# Variation across lenders

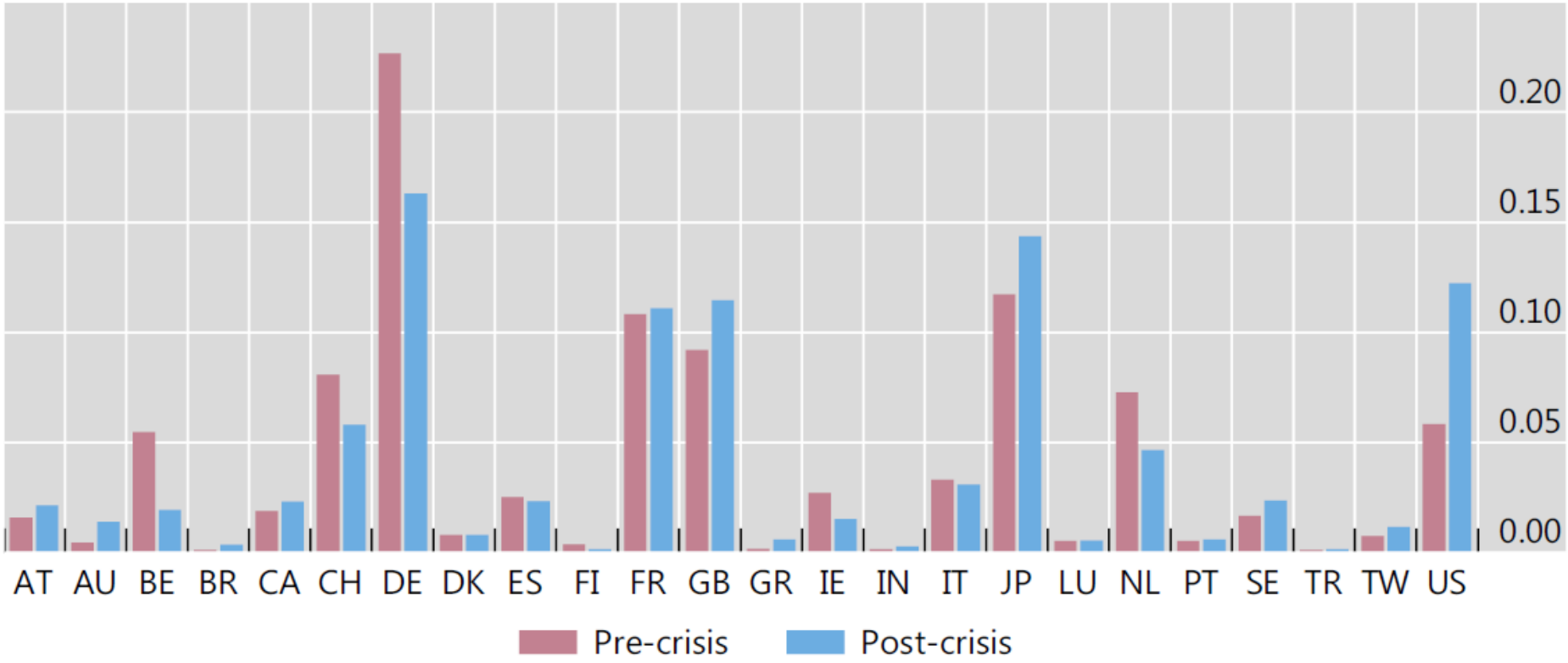
**Table 5 - Drivers of the shifts in lender-specific sensitivities**

| | Dependent variable: Structural change in the coefficient for ΔFed funds rate $\beta_1^{PostBreak} - \beta_1^{PreBreak}$ | | | Dependent variable: Structural change in the coefficient for Log(VIX) $\beta_2^{PostBreak} - \beta_2^{PreBreak}$ | | |
|---|---|---|---|---|---|---|
| **Explanatory variables** | (I) | (II) | (III) | (IV) | (V) | (VI) |
| Pre-break Capital ratio (2008) | 0.41** | 0.31* | 0.35* | 0.53** | 0.67*** | 0.46** |
| | (0.19) | (0.189) | (0.19) | (0.25) | (0.24) | (0.23) |
| Pre-break Average bank size (2008) | 1.38*** | 1.46*** | 1.29** | -0.76 | -0.82 | -0.56 |
| | (0.50) | (0.52) | (0.51) | (0.77) | (0.78) | (0.72) |
| Pre-break Prudential index (2008) | -0.47 | | | 0.57 | | |
| | (0.31) | | | (0.44) | | |
| Pre-break LTV index (2008) | | -1.27 | | | -0.87 | |
| | | (0.80) | | | (1.089) | |
| Pre-break Local reserve requirement index (2008) | | | -0.83 | | | 3.30*** |
| | | | (0.74) | | | (0.99) |
| Sectoral fixed effects | yes | yes | yes | yes | yes | yes |
| Observations | 87 | 87 | 87 | 87 | 87 | 87 |
| Q (1) | 279.41 | 285.33 | 286.36 | 256.62 | 254.91 | 236.59 |
| Degrees of Freedom test Q | 81 | 81 | 81 | 81 | 81 | 81 |
| $I^2$ (2) | 0.71 | 0.72 | 0.72 | 0.69 | 0.68 | 0.66 |
| $\tau^2$ (3) | 14.67 | 15.47 | 15.51 | 32.73 | 32.31 | 26.24 |
| Adjusted R-squared | 20.51 | 17.81 | 17.72 | 17.76 | 16.81 | 28.76 |

*Avdjiev, Gambacorta, Goldberg and Schiaffi (2017)*

# Shares of lending banking systems

## All sectors




*Avdjiev, Gambacorta, Goldberg and Schiaffi (2017)*

**Table 6 - Drivers of the shifts in lender-specific weights**

| | Dependent variable: Change in the lending national banking system weights $w^{Postbreak} - w^{PreBreak}$ | | | Dependent variable: Change in the lending national banking system weights $w^{Postbreak} - w^{PreBreak}$ | | |
|---|---|---|---|---|---|---|
| **Explanatory variables** | (I) | (II) | (III) | (IV) | (V) | (VI) |
| Pre-break Capital ratio (2008) | 0.14* | 0.12** | 0.07* | 0.21** | 0.15** | 0.09* |
| | (0.04) | (0.02) | (0.03) | (0.05) | (0.03) | (0.03) |
| Pre-break Average bank size (2008) | 0.31 | 0.27 | 0.29 | 0.51 | 0.42 | 0.43 |
| | (0.20) | (0.19) | (0.18) | (0.20) | (0.19) | (0.19) |
| Pre-break Prudential index (2008) | -0.10 | | | -0.29** | | |
| | (0.05) | | | (0.07) | | |
| Pre-break LTV index (2008) | | -0.13 | | | -0.43* | |
| | | (0.10) | | | (0.14) | |
| Pre-break Local reserve requirement index (2008) | | | 0.45** | | | 0.51** |
| | | | (0.08) | | | (0.10) |
| Pre-break Deposits to total assets ratio (2008) | | | | 0.04** | 0.02** | 0.01** |
| | | | | (0.00) | (0.00) | (0.00) |
| Net interest income over total income (2008) | | | | 59.48* | 32.23* | 19.15* |
| | | | | (19.54) | (17.56) | (10.70) |
| Local claims over Foreign claims (2008) | | | | 2.53* | 2.86* | 3.41** |
| | | | | (0.81) | (0.83) | (0.78) |
| Sectoral fixed effects | yes | yes | yes | yes | yes | yes |
| Observations | 87 | 87 | 87 | 75 | 75 | 75 |
| Adjusted R-squared | 0.05 | 0.04 | 0.07 | 0.14 | 0.11 | 0.13 |

*Avdjiev, Gambacorta, Goldberg and Schiaffi (2017)*

# Variation across US MP components

# Two main components of US Monetary Policy

- Decompose US federal funds (FF) rate into two components:
  - Macro Fundamentals component = Taylor rule-implied FF rate (TR)
  - Monetary Policy (MP) Stance component= FF – TR

- Higher TR component indicates improvement in US macro fundamentals
  - Signals better growth prospects for EMEs (whose growth is positively correlated with U.S. growth).
  - Increases in XB flows to EMEs.
  - Effect is especially strong during periods of high risk tolerance

- Higher MP component indicates tighter US MP Stance (relative to fundamentals)
  - Increases banks' cost of funding without a corresponding increase in returns
  - Decreases in XB flows to EMEs.
  - Effect is especially strong during periods of low risk tolerance

*Avdjiev and Hale (2017)*

# Summary of time series regressions

| | Emerging market economies | | Advanced economies | |
|---|---|---|---|---|
| | Boom | Stagnation | Boom | Stagnation |
| US federal funds rate (FF) | 0.40** | -0.34** | 0.19 | 0.48** |
| FF split into | | | | |
| Monteray policy stance (MP) | 0.17 | -0.37* | -0.063 | 1.20*** |
| Taylor rule-implied FF rate (TR) | 0.55*** | -0.31* | 0.36** | -0.015 |

*Avdjiev and Hale (2017)*

# Summary of panel regressions

| | Emerging market economies | | Advanced economies | | |
|---|---|---|---|---|---|
| | Boom | Stagnation | Boom | Stagnation | Controls |
| FF | 0.67*** | -0.86*** | 1.11*** | 0.59** | Borrower-lender FE, trend |
| FF | 0.38** | -0.73*** | 1.09*** | 0.38 | Borrower-lender FE, trend, TL, TB |
| Interacted with regime | | | | | |
| FF | 0.31** | -0.60*** | 0.94*** | 0.57*** | Borrower-lender FE, trend, TL, TB |
| MP | 0.18 | -1.63*** | 0.85*** | 0.77** | Borrower-lender FE, trend |
| TR | 0.99*** | -0.17 | 1.28*** | 0.43 | |
| MP | -0.20 | -1.58*** | 0.95*** | 0.25 | Borrower-lender FE, trend, TL, TB |
| TR | 0.74*** | 0.04 | 1.18*** | 0.49 | |
| Interacted with regime | | | | | |
| MP | -0.25 | -1.59*** | 0.80*** | 0.37 | Borrower-lender FE, trend, TL, TB |
| TR | 0.58*** | 0.44* | 1.01*** | 0.80*** | |

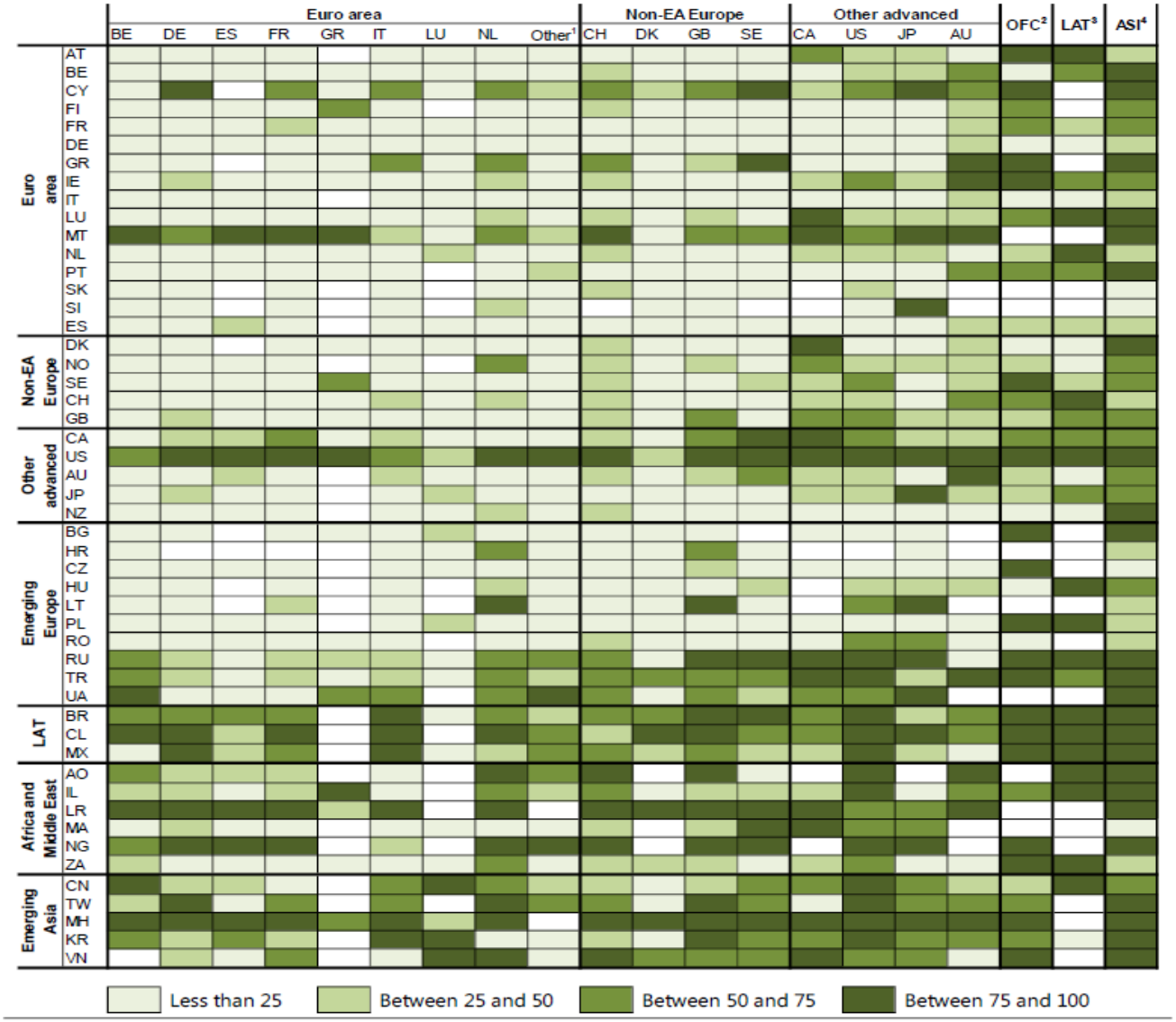
*Avdjiev and Hale (2017)*

# Variation across currencies

## US dollar share in cross-border bank lending in Q4 2014

By nationality of lending bank (columns) and residence of borrower (rows), in per cent

Graph 1




*Avdjiev and Takáts (2016)*

## Expected impact of monetary policy on cross-border bank lending

By channel and monetary policy type

Table 1

| Channel | Denomination MP | Lender MP | Borrower MP |
|---|---|---|---|
| *Bank lending* | - | - | + |
| *Balance sheet* | - | + | - |
| *Yield differential* | + | - | + |

*Avdjiev, Koch, McGuire and von Peter (2017)*

## Impact of monetary policy on cross-border claims denominated in US dollars

Benchmark specifications, by borrowing sector — Table 2

| | All sectors | | | Banks | | | Non-banks | | |
|---|---|---|---|---|---|---|---|---|---|
| | polrate | ssr | cb assets | polrate | ssr | cb assets | polrate | ssr | cb assets |
| **Panel A** | | | | | | | | | |
| *LendMP* | 3.11*** | 3.16*** | 2.87*** | 3.68*** | 3.94*** | 3.47*** | 1.37** | 1.12* | 0.47 |
| | | | | (0.00) | (0.00) | (0.00) | (0.05) | (0.08) | (0.51) |
| *BorrMP* | 0.22** | 0.28*** | 0.25*** | 0.28 | 0.41** | 0.35* | 0.08 | 0.10 | 0.06 |
| | | | | (0.16) | (0.03) | (0.07) | (0.48) | (0.34) | (0.61) |
| *DenoMP* | -2.69*** | -0.96** | 0.32 | -3.10*** | -0.81*** | 0.73*** | -1.81*** | -1.21*** | 0.14*** |
| | | | | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) |
| **Panel B** | | | | | | | | | |
| *D.LendMP* | 1.782*** | 2.094*** | 1.741*** | 2.387*** | 2.983*** | 2.359** | 1.805*** | 1.532*** | 1.103** |
| | (0.645) | (0.586) | (0.649) | (0.915) | (0.817) | (0.919) | (0.524) | (0.479) | (0.503) |
| *LD.LendMP* | 1.876*** | 2.107*** | 1.675*** | 1.999** | 2.289*** | 1.747** | 0.911 | 1.922** | 2.121*** |
| | (0.577) | (0.517) | (0.543) | (0.812) | (0.730) | (0.789) | (0.838) | (0.760) | (0.753) |
| *LD2.LendMP* | -0.434 | -0.958** | -0.615 | -0.609 | -1.289** | -0.757 | -3.104*** | -4.355*** | -6.038*** |
| | (0.490) | (0.488) | (0.485) | (0.664) | (0.655) | (0.640) | (1.024) | (0.909) | (0.976) |
| *LD3.LendMP* | -0.116 | -0.085 | 0.073 | -0.093 | -0.048 | 0.117 | 1.755*** | 2.021*** | 3.287*** |
| | (0.267) | (0.259) | (0.280) | (0.294) | (0.287) | (0.301) | (0.511) | (0.459) | (0.525) |
| *D.BorrMP* | 0.134* | 0.170** | 0.149** | 0.224* | 0.301** | 0.259** | 0.039 | 0.051 | 0.021 |
| | (0.071) | (0.071) | (0.070) | (0.121) | (0.119) | (0.120) | (0.079) | (0.079) | (0.079) |
| *LD.BorrMP* | 0.012 | 0.110 | 0.109 | -0.140 | 0.066 | 0.028 | 0.001 | 0.044 | 0.009 |
| | (0.091) | (0.090) | (0.088) | (0.199) | (0.187) | (0.189) | (0.082) | (0.081) | (0.081) |
| *LD2.BorrMP* | 0.103 | -0.007 | -0.020 | 0.345 | 0.123 | 0.139 | -0.013 | -0.053 | -0.027 |
| | (0.095) | (0.093) | (0.092) | (0.222) | (0.208) | (0.209) | (0.069) | (0.067) | (0.067) |
| *LD3.BorrMP* | -0.031 | 0.006 | 0.013 | -0.154** | -0.078 | -0.079 | 0.051* | 0.062** | 0.052* |
| | (0.036) | (0.035) | (0.034) | (0.073) | (0.068) | (0.068) | (0.030) | (0.030) | (0.030) |
| *D.DenoMP* | -0.691 | -0.980*** | 0.291 | -0.387 | -0.723 | 0.618** | -2.195*** | -1.308*** | 0.057 |
| | (0.737) | (0.321) | (0.229) | (1.048) | (0.448) | (0.308) | (0.587) | (0.305) | (0.185) |
| *LD.DenoMP* | 1.010 | -0.208 | 0.655** | 2.168** | 0.117 | 1.253*** | 1.773** | -0.838* | 0.337 |
| | (0.758) | (0.442) | (0.268) | (1.014) | (0.609) | (0.364) | (0.719) | (0.449) | (0.250) |
| *LD2.DenoMP* | -5.827*** | -0.504 | -0.836*** | -9.041*** | -1.032 | -1.687*** | -1.915* | 1.265** | 0.160 |
| | (0.991) | (0.602) | (0.306) | (1.442) | (0.822) | (0.424) | (1.094) | (0.592) | (0.307) |
| *LD3.DenoMP* | 2.817*** | 0.732** | 0.214 | 4.156*** | 0.830* | 0.546** | 0.531 | -0.333 | -0.413*** |
| | (0.570) | (0.319) | (0.152) | (0.820) | (0.430) | (0.229) | (0.602) | (0.301) | (0.155) |
| *ln_VIX* | -1.462** | -2.667*** | -1.472*** | -0.030 | -1.673* | -0.649 | -2.613*** | -4.473*** | -2.346*** |
| | (0.652) | (0.676) | (0.534) | (0.887) | (0.970) | (0.754) | (0.665) | (0.729) | (0.533) |
| *Observations* | 36,347 | 36,347 | 36,347 | 26,711 | 26,711 | 26,711 | 26,861 | 26,861 | 26,861 |
| *R-squared* | 0.013 | 0.012 | 0.012 | 0.011 | 0.010 | 0.010 | 0.013 | 0.013 | 0.013 |
| *Adj R2* | 0.0101 | 0.00965 | 0.00928 | 0.00765 | 0.00646 | 0.00687 | 0.00925 | 0.00964 | 0.00922 |
| *Lend_N* | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 |
| *Borr_N* | 55 | 55 | 55 | 53 | 53 | 53 | 54 | 54 | 54 |

*Avdjiev, Koch, McGuire and von Peter (2017)*

Dependent variable: change in the growth rate (second derivative) of cross-border claims during the 2013 taper tantrum episode[1,2]

Table 7

| | Borrower location | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | All | All | All | All | All | EMEs | AEs | AEs ex US |
| USD share in Q1 2013 | –0.343*** | –0.206*** | –0.171* | –0.107 | –1.101*** | –2.291*** | –0.123 | –0.168 |
| | (0.125) | (0.104) | (0.092) | (0.082) | (0.323) | (0.683) | (0.204) | (0.238) |
| USD Share*USDSH_B_OTH | | | | | 0.001 | 0.009 | 0.004 | 0.007 |
| | | | | | (0.007) | (0.013) | (0.004) | (0.005) |
| USD Share*USDSH_L_OTH | | | | | 0.023*** | 0.046*** | 0.000 | 0.000 |
| | | | | | (0.007) | (0.014) | (0.004) | (0.005) |
| Borrower FEs | Yes | Yes | No | No | Yes | Yes | Yes | Yes |
| Lender FEs | Yes | No | Yes | No | Yes | Yes | Yes | Yes |
| Number of observations | 1,217 | 1,217 | 1,217 | 1,217 | 1,217 | 543 | 674 | 647 |
| R–squared (in %) | 8.00 | 4.88 | 3.01 | 0.14 | 9.02 | 16.01 | 10.32 | 10.62 |

Notes: USDSH_B_OTH is the average US dollar share for a given borrower from *other* lenders (as of end-March 2013); USDSH_L_OTH is the average US dollar share for a given lender to *other* borrowers (as of end-March 2013). Robust standard errors in parentheses, ***p<0.01, **p<0.05, *p<0.1.

[1] Dependent variable is the difference between the average of exchange rate adjusted cross-border bank lending flows during the taper tantrum episode (Q2 and Q3 2013) and the average of two quarters immediately preceding taper tantrum episode (Q4 2012 and Q1 2013) as a percentage of amounts outstanding at the end of Q3 2012. [2] All coefficient estimates and standard errors are multiplied by 100 to ease representation.

*Avdjiev and Takáts (2016)*

# Variation across borrowing sectors

# Drivers of Total Debt Inflows, by Sector
# (Quarterly AHKS data, missing filled from Public Sources)

Panel A: All Countries

| | (1) Total | (2) Public | (3) Banks | (4) Corp. | (5) Total w/DI Debt | (6) Corp. w/DI Debt |
|---|---|---|---|---|---|---|
| $\log(\text{VIX}_{t-1})$ | -4.974*** | 0.960 | -4.362*** | -1.572*** | -5.744*** | -2.003*** |
| | (1.260) | (0.667) | (0.989) | (0.419) | (1.516) | (0.696) |
| GDP Growth$_{it-1}$ | 0.232*** | -0.00864 | 0.190*** | 0.0501*** | 0.239*** | 0.0730*** |
| | (0.0650) | (0.0146) | (0.0490) | (0.0156) | (0.0541) | (0.0164) |
| Observations | 2695 | 2695 | 2695 | 2695 | 2615 | 2615 |
| $R^2$ | 0.041 | 0.002 | 0.045 | 0.028 | 0.044 | 0.028 |
| CountryFE | Yes | Yes | Yes | Yes | Yes | Yes |

Panel B: Advanced Economies

| | (1) Total | (2) Public | (3) Banks | (4) Corp. | (5) Total w/DI Debt | (6) Corp. w/DI Debt |
|---|---|---|---|---|---|---|
| $\log(\text{VIX}_{t-1})$ | -9.101*** | 0.813 | -7.630*** | -2.284** | -10.57*** | -3.196 |
| | (2.676) | (1.400) | (2.068) | (0.962) | (3.132) | (1.563) |
| GDP Growth$_{it-1}$ | 0.506*** | 0.0616 | 0.363** | 0.0819 | 0.480*** | 0.101** |
| | (0.179) | (0.0340) | (0.131) | (0.0466) | (0.141) | (0.0420) |
| Observations | 1127 | 1127 | 1127 | 1127 | 1109 | 1109 |
| $R^2$ | 0.065 | 0.002 | 0.056 | 0.026 | 0.065 | 0.027 |
| CountryFE | Yes | Yes | Yes | Yes | Yes | Yes |

Panel C: EM

| | (1) Total | (2) Public | (3) Banks | (4) Corp. | (5) Total w/DI Debt | (6) Corp. w/DI Debt |
|---|---|---|---|---|---|---|
| $\log(\text{VIX}_{t-1})$ | -2.261** | 1.077 | -2.265*** | -1.073*** | -2.336** | -1.117*** |
| | (0.829) | (0.652) | (0.706) | (0.253) | (0.922) | (0.374) |
| GDP Growth$_{it-1}$ | 0.116*** | -0.0394*** | 0.118*** | 0.0381*** | 0.142*** | 0.0635*** |
| | (0.0347) | (0.0123) | (0.0346) | (0.00928) | (0.0416) | (0.0161) |
| Observations | 1372 | 1372 | 1372 | 1372 | 1310 | 1310 |
| $R^2$ | 0.071 | 0.021 | 0.116 | 0.075 | 0.073 | 0.053 |
| CountryFE | Yes | Yes | Yes | Yes | Yes | Yes |

*Avdjiev, Hardy, Kalemli-Özcan and Servén (2017)*

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