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Non-bank financial intermediaries and dollar funding stresses

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*The views expressed here are mine and not necessarily those of the Bank for International Settlements

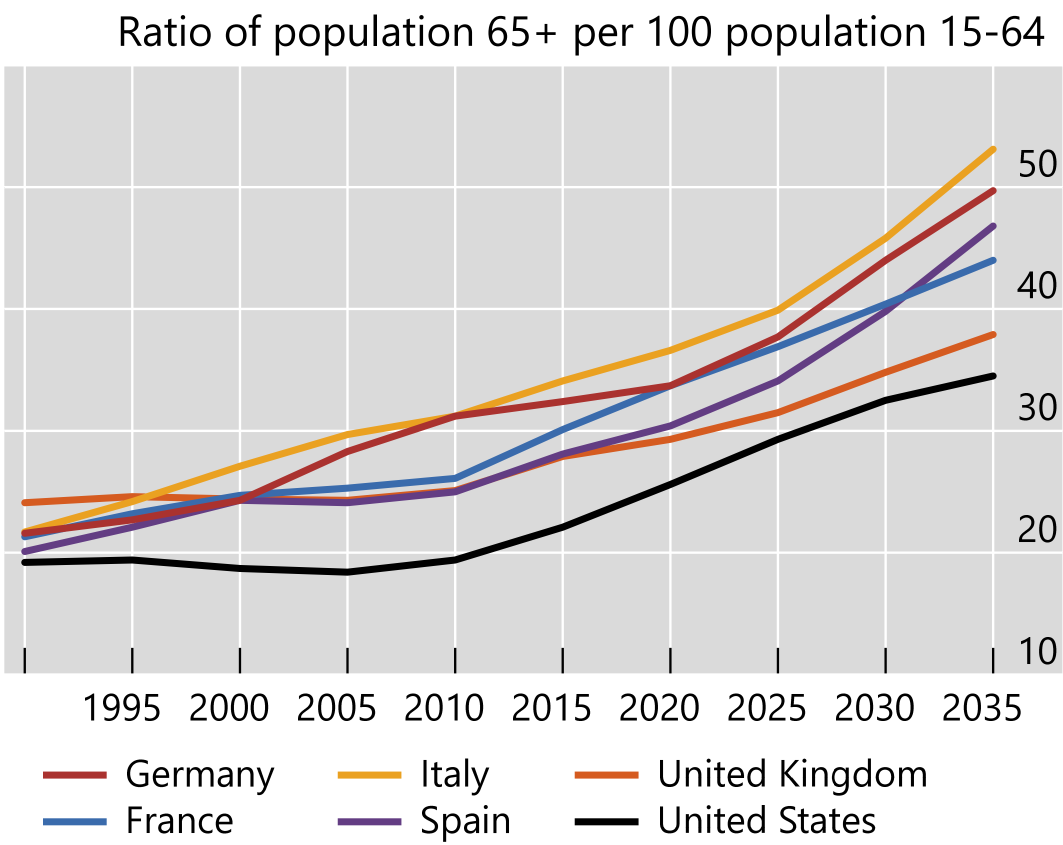
Changing nature of external sector vulnerability

- Traditional Asian emerging market economy (EME) vulnerabilities (eg, 1997 Asian crisis)
  - Borrower perspective
  - Borrow in foreign currency (currency mismatch)
  - Borrow short-term (maturity mismatch)

- New elements from capital markets that resemble advanced economy (AE) features
  - Creditor perspective (outward portfolio investment)
  - FX funding needs due to currency hedging and risk mitigation
  - Increasingly important role of **non-bank financial intermediaries (NBFIs)**

Long-term trends

Old age dependency ratio[1]

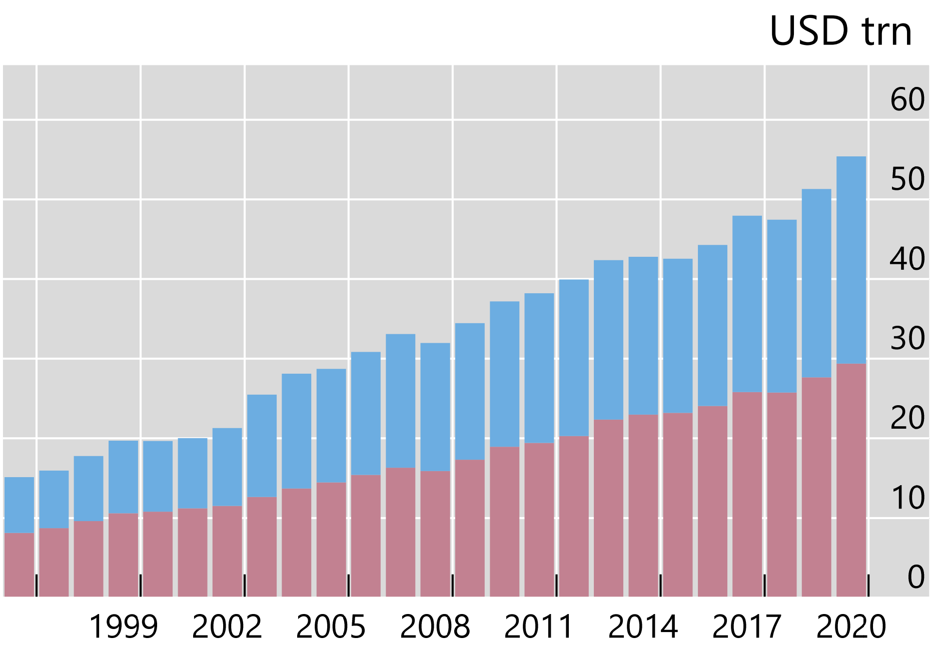


[1] Forecast based on the medium fertility variant.

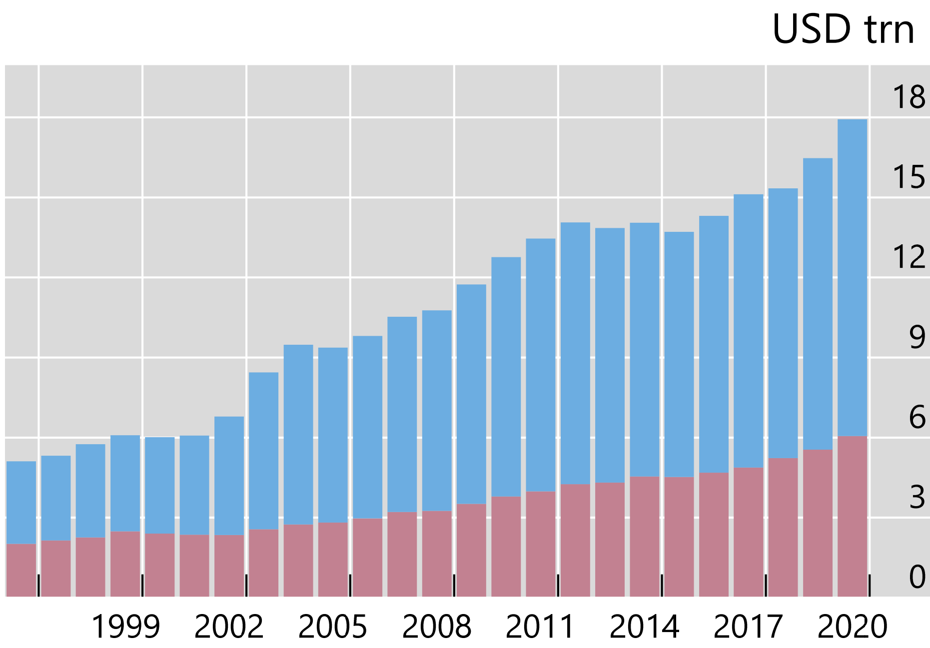
Source: United Nations.

Pension funds and insurance companies

Financial assets



Debt securities



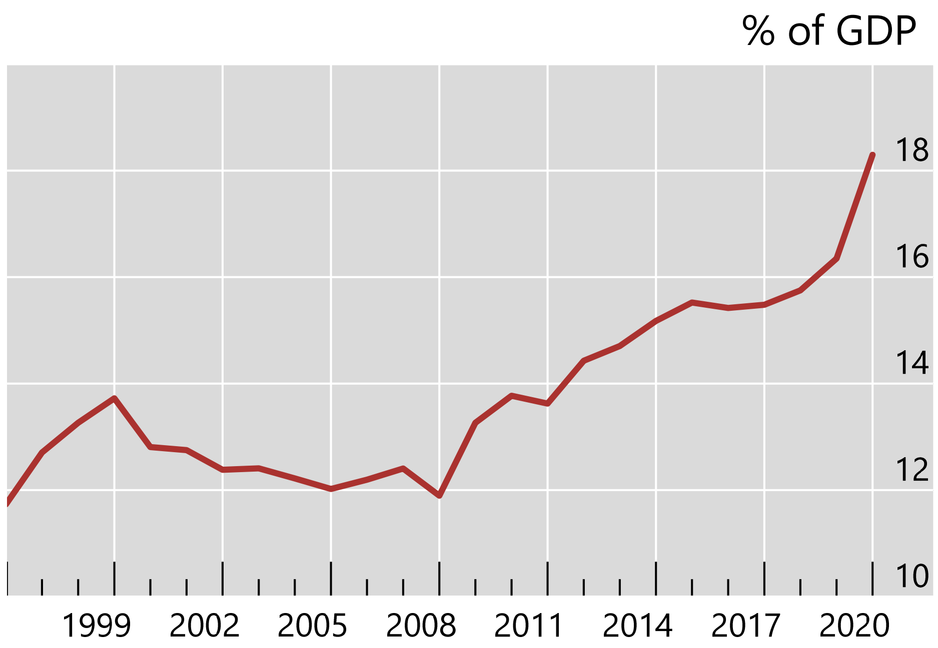
Pension funds[1] Insurance companies[2]

[1] Sum across BE, DE, DK, ES, FI, JP, NO, SE and US. [2] Sum across BE, DE, DK, ES, FI, FR, GR, JP, LU, NO, SE and US.

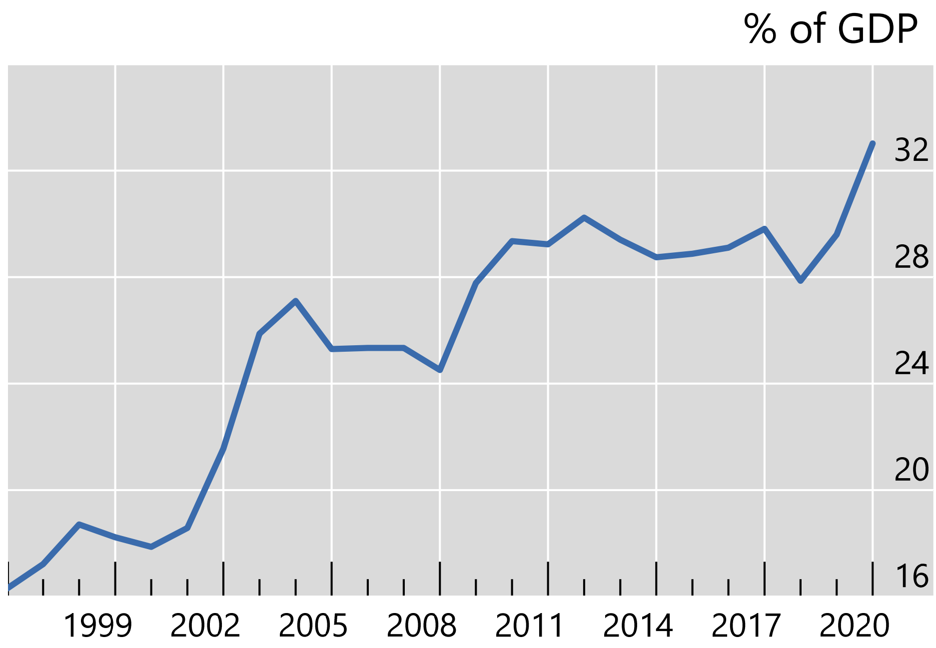
Sources: OECD; Datastream; BIS calculations.

Debt securities of pension funds and insurance companies

Pension funds



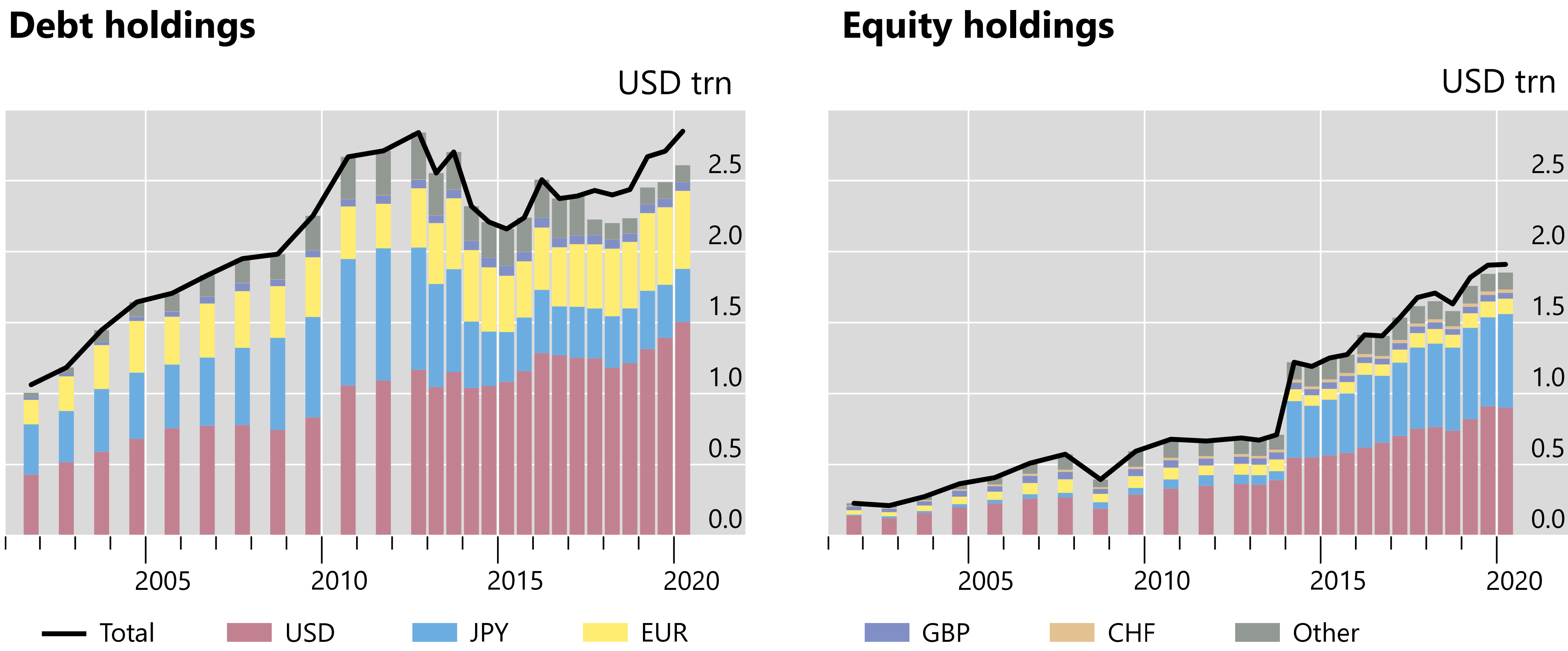
Insurance companies



[1] Sum across BE, DE, DK, ES, FI, JP, NO, SE and US. [2] Sum across BE, DE, DK, ES, FI, FR, GR, JP, LU, NO, SE and US.

Sources: IMF, *World Economic Outlook*; OECD; Datastream; BIS calculations.

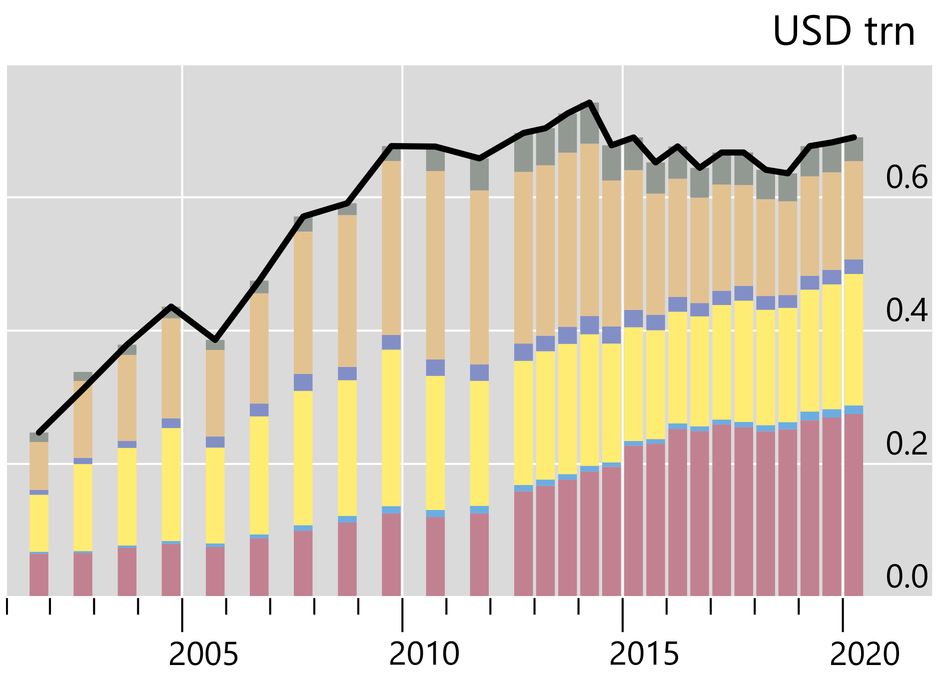
External portfolio assets are held in several international currencies: Case of Japan in the IMF CPIS data (blue indicates JPY claims)



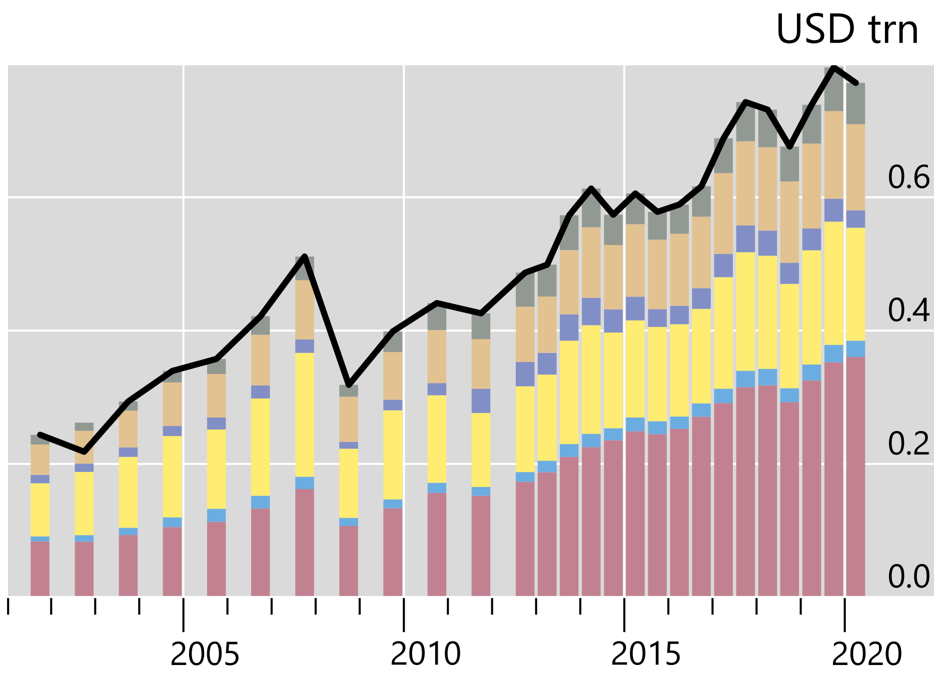
Source: IMF, *Coordinated Portfolio Investment Survey*.

Case of Switzerland in IMF CPIS data (brown indicates CHF claims)

Debt holdings



Equity holdings

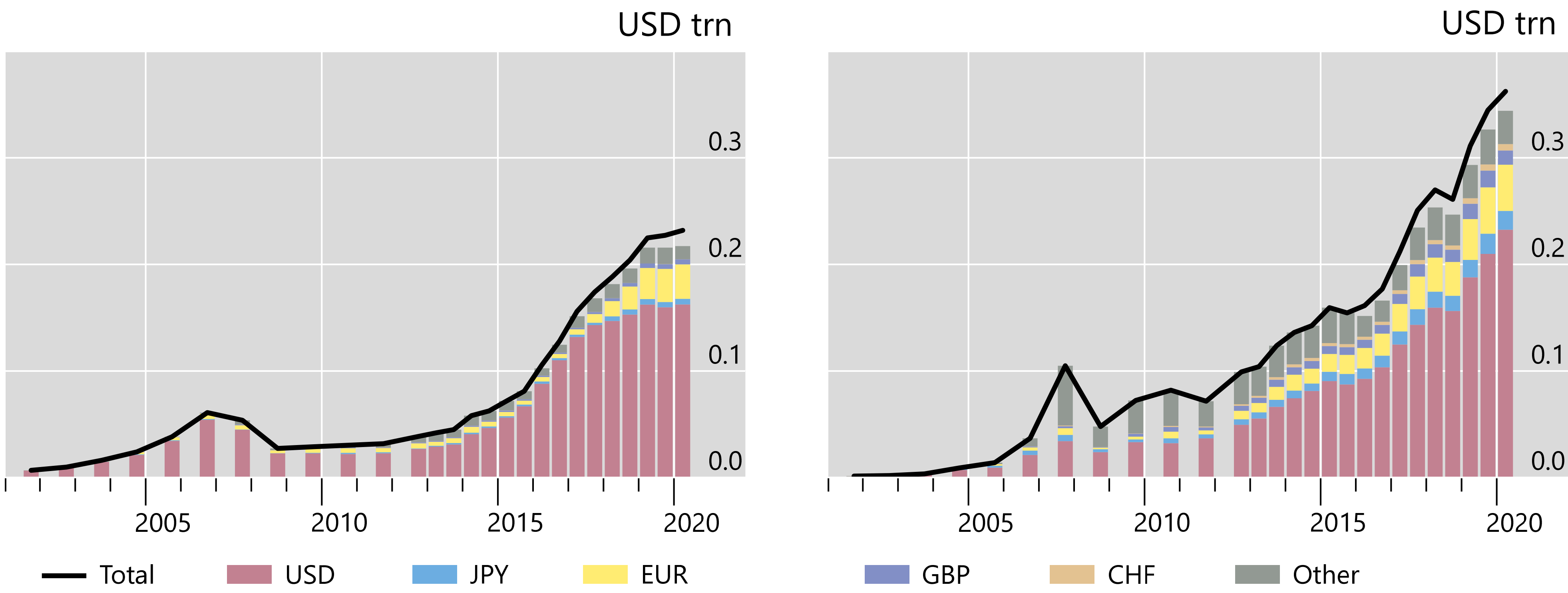


Total USD JPY EUR GBP CHF Other

Source: IMF, *Coordinated Portfolio Investment Survey*.

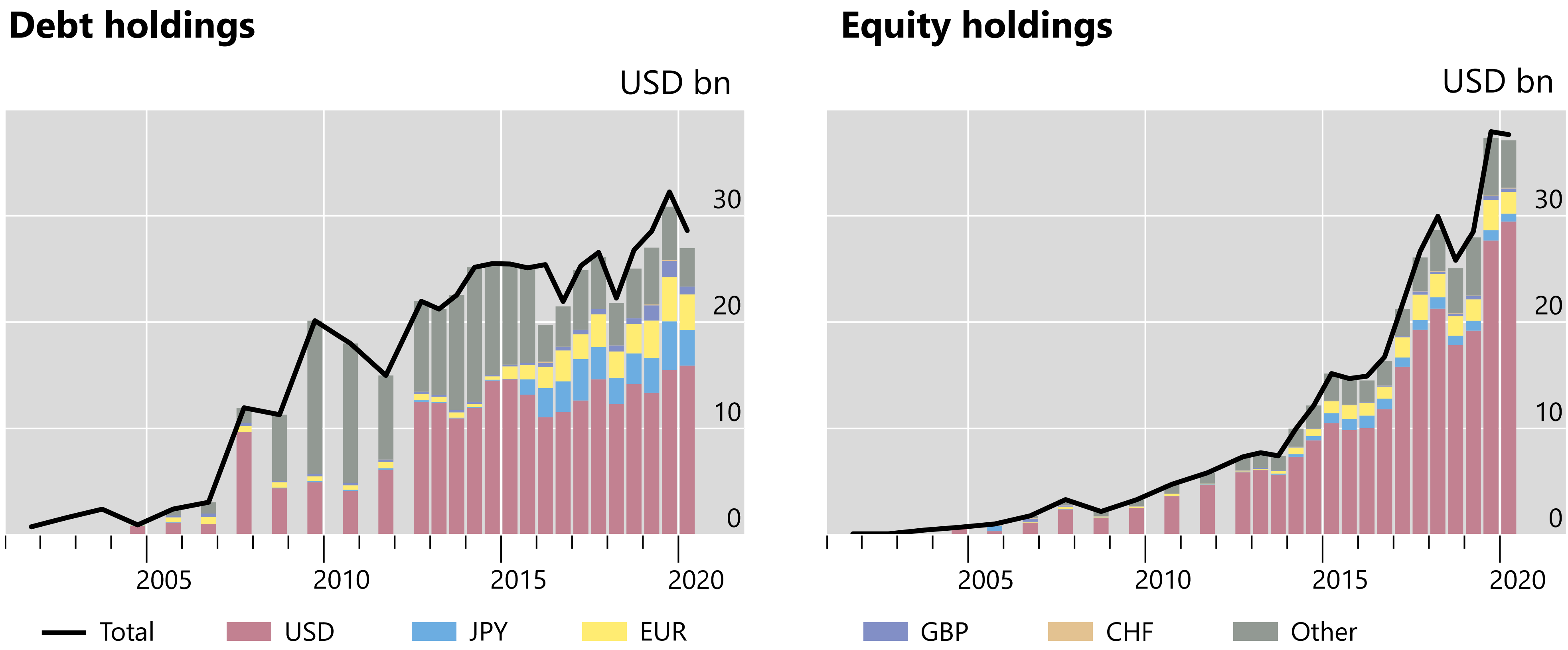
For Korea, most external claims are in dollars, and rapid increase in equity holding is also notable (note: CPIS excludes FX reserves; “equity” includes bond fund shares)

Debt holdings **Equity holdings**



Source: IMF, *Coordinated Portfolio Investment Survey*.

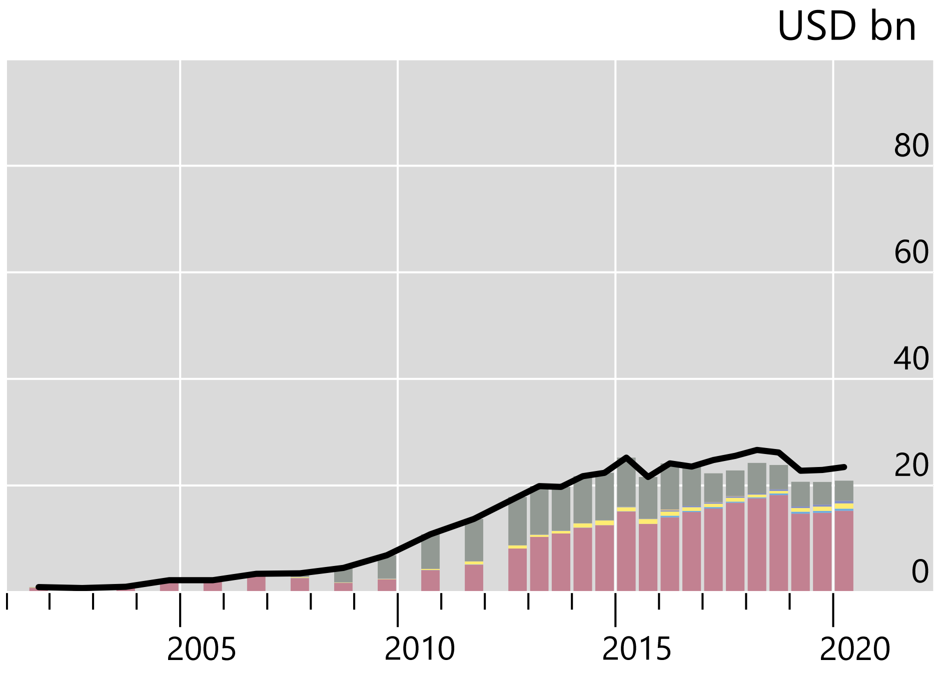
Thailand has a smaller portfolio, but similar composition and trends as Korea



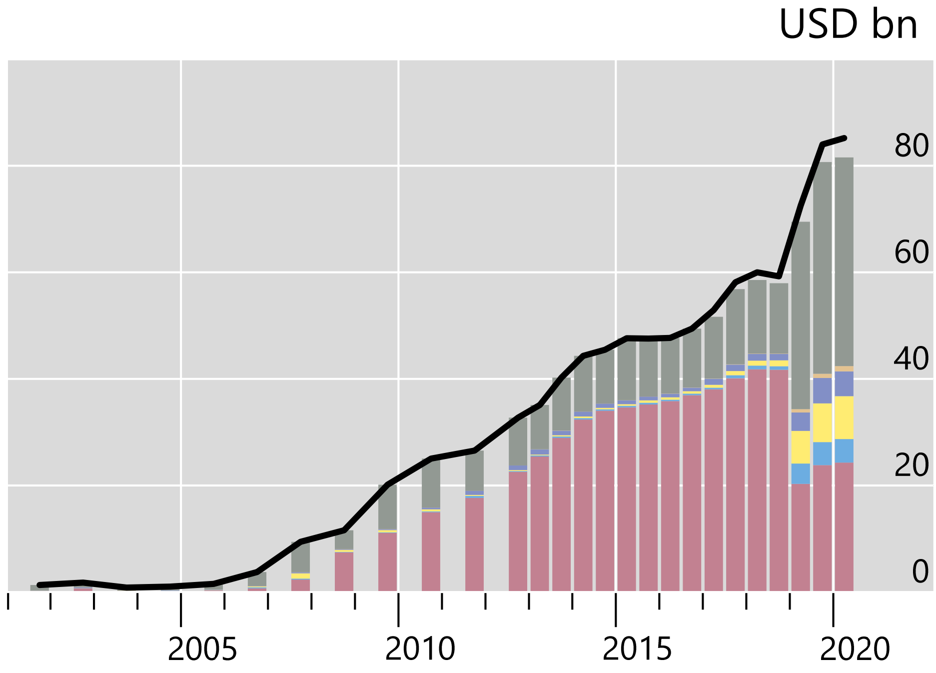
Source: IMF, *Coordinated Portfolio Investment Survey*.

Malaysia: currency composition of international portfolio investment

Debt holdings



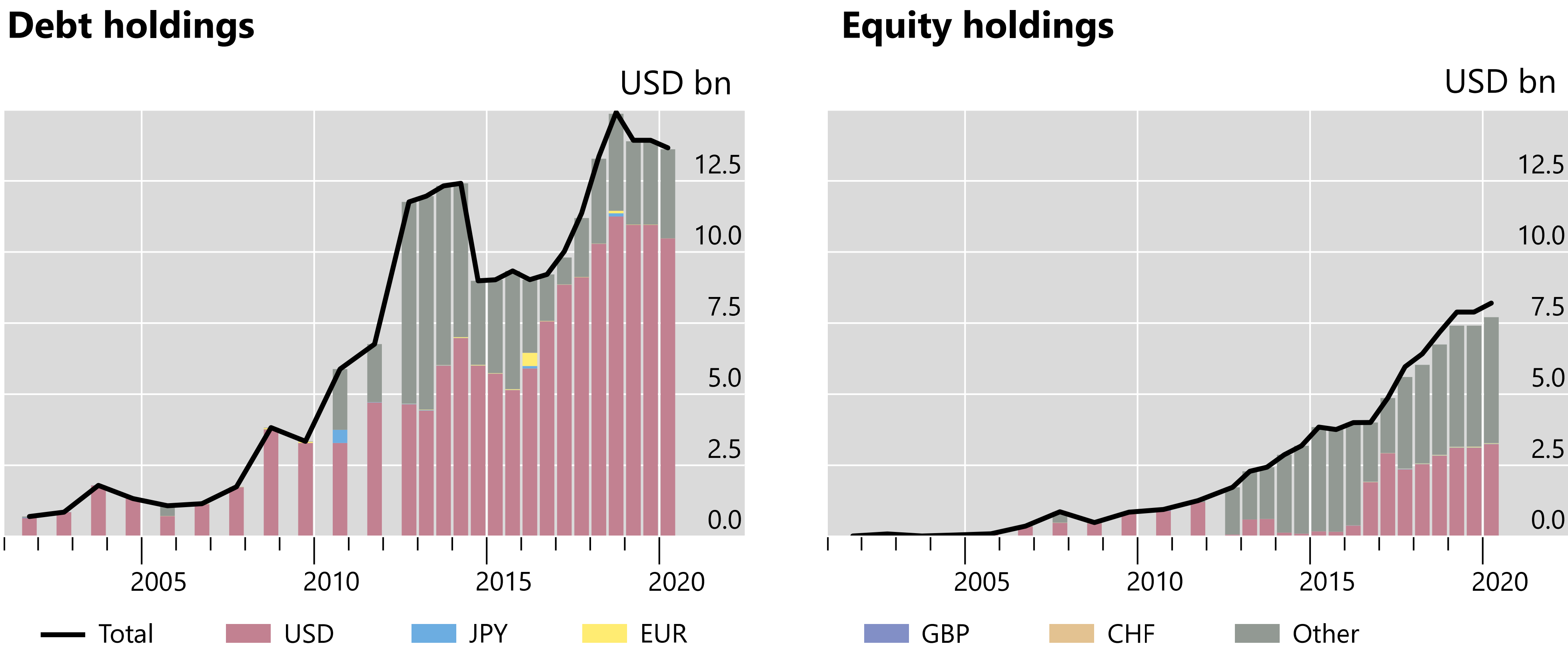
Equity holdings



Total USD JPY EUR GBP CHF Other

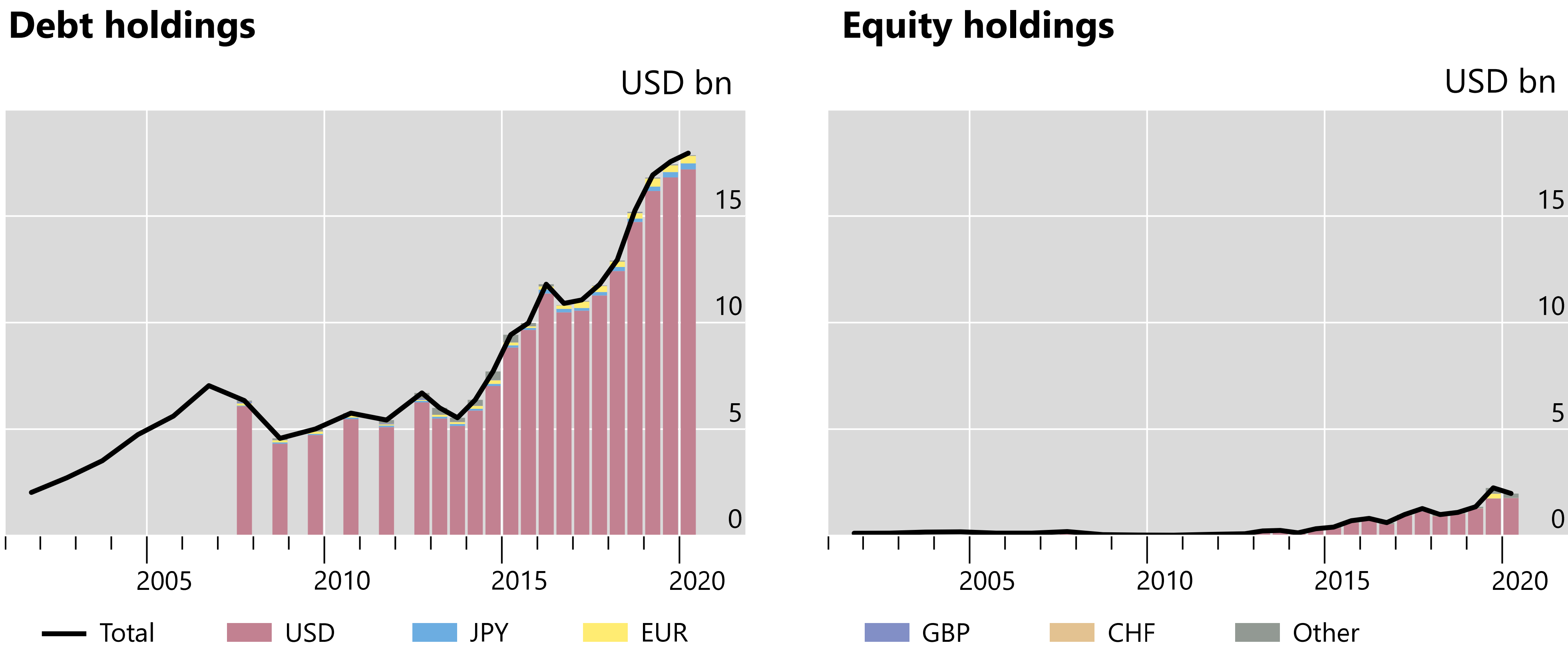
Source: IMF, *Coordinated Portfolio Investment Survey*.

Indonesia: currency composition of international portfolio investment



Source: IMF, *Coordinated Portfolio Investment Survey*.

Philippines: currency composition of international portfolio investment

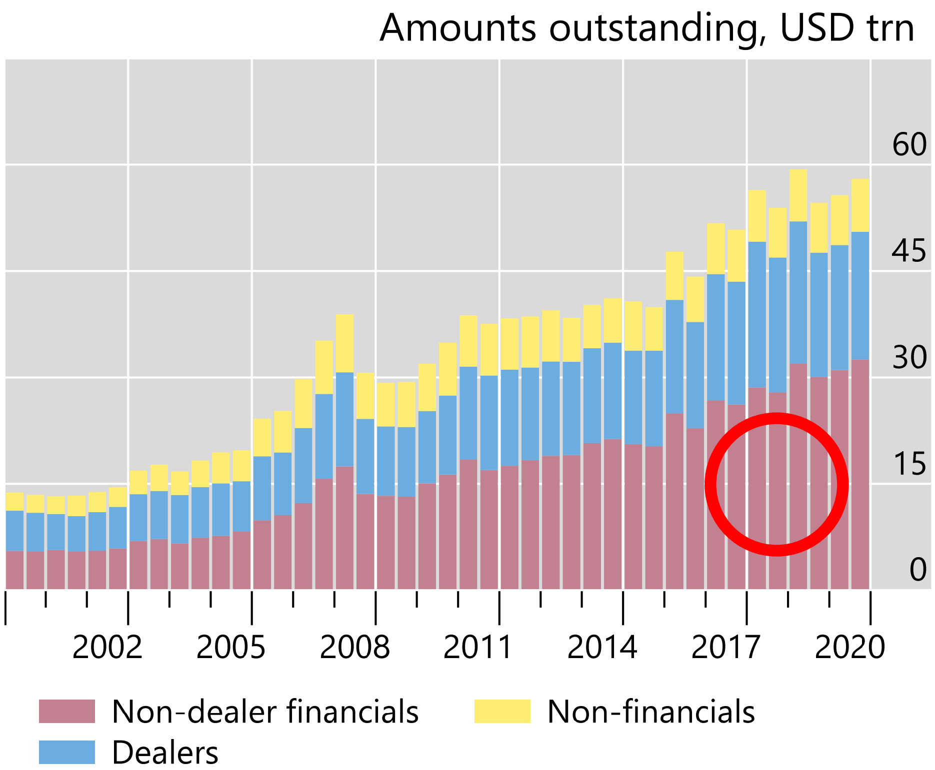


Source: IMF, *Coordinated Portfolio Investment Survey*.

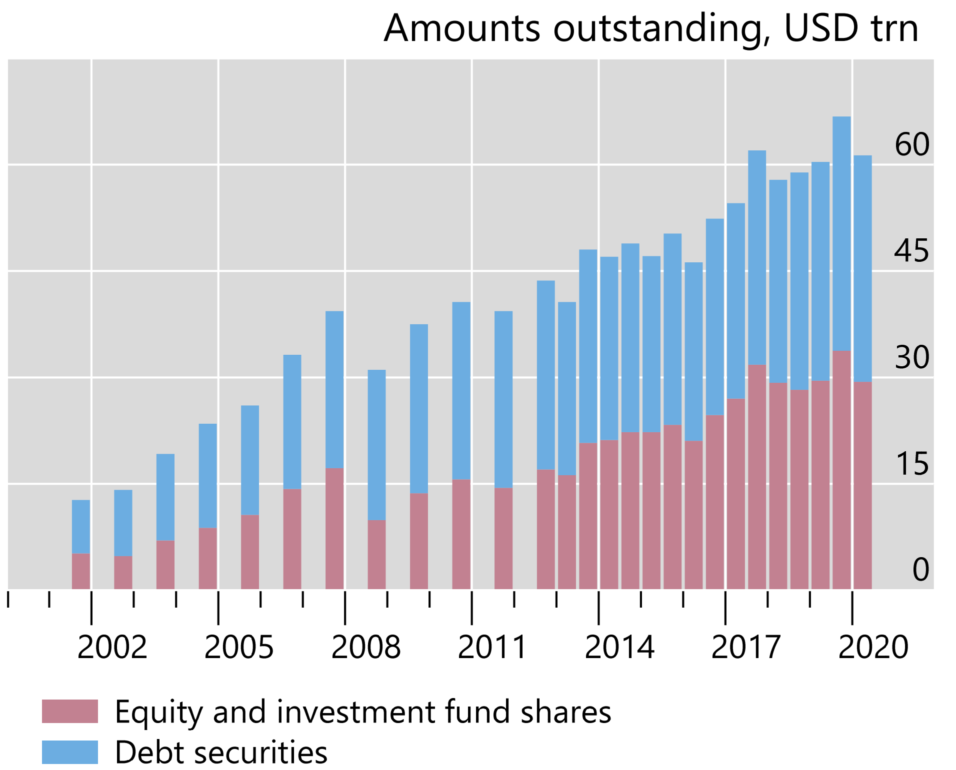
External portfolio investment holdings and currency hedging activity

BIS data on FX swaps show largest increase for NBFIs (left panel) and track portfolio holdings (right panel)

BIS FX forwards and swaps series[1]



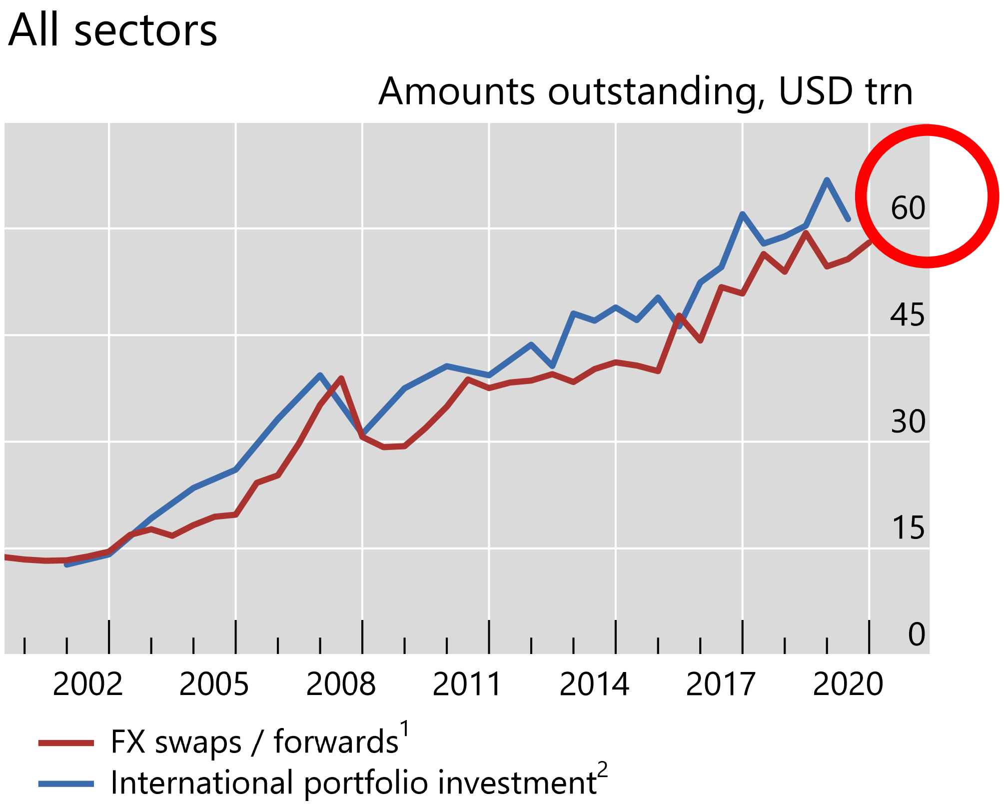
CPIS International portfolio investment series[2]

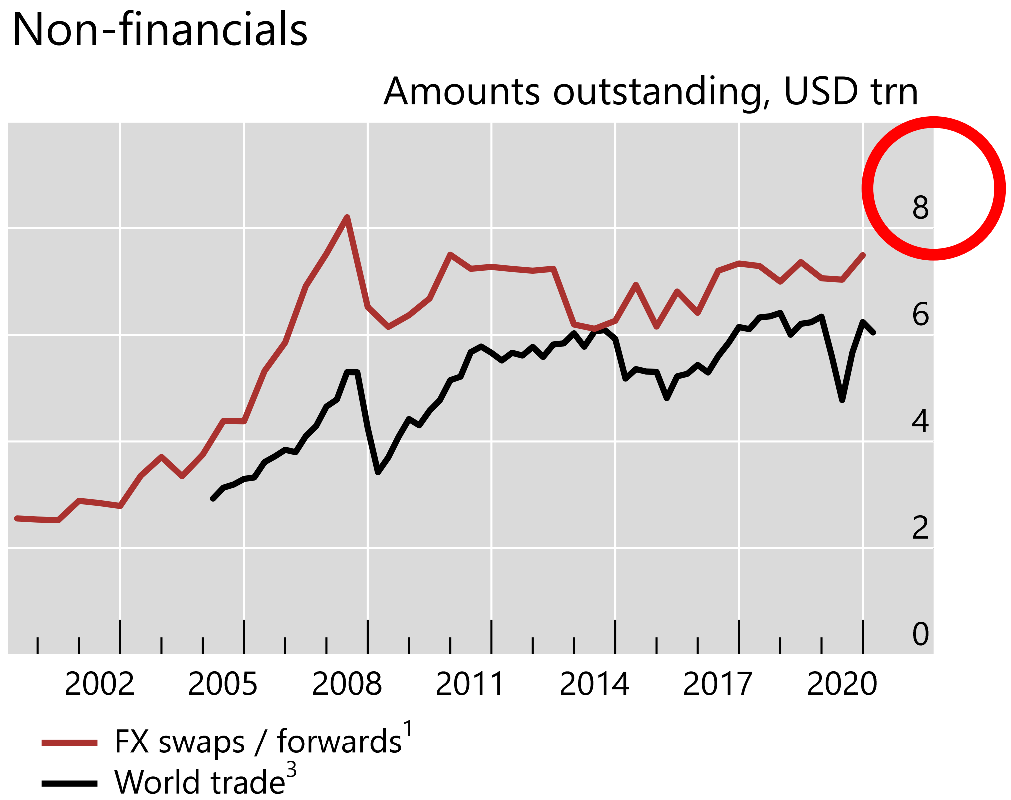


[1] Notional amounts outstanding on a net-net basis. [2] Portfolio investment by all sectors in CPIS-reporting countries.

Sources: IMF, *Coordinated Investment Portfolio Survey*; BIS OTC derivatives statistics.

BIS data on FX swaps and forwards track external portfolio investment
Non-financial counterparty swaps and forwards are small, and track world trade



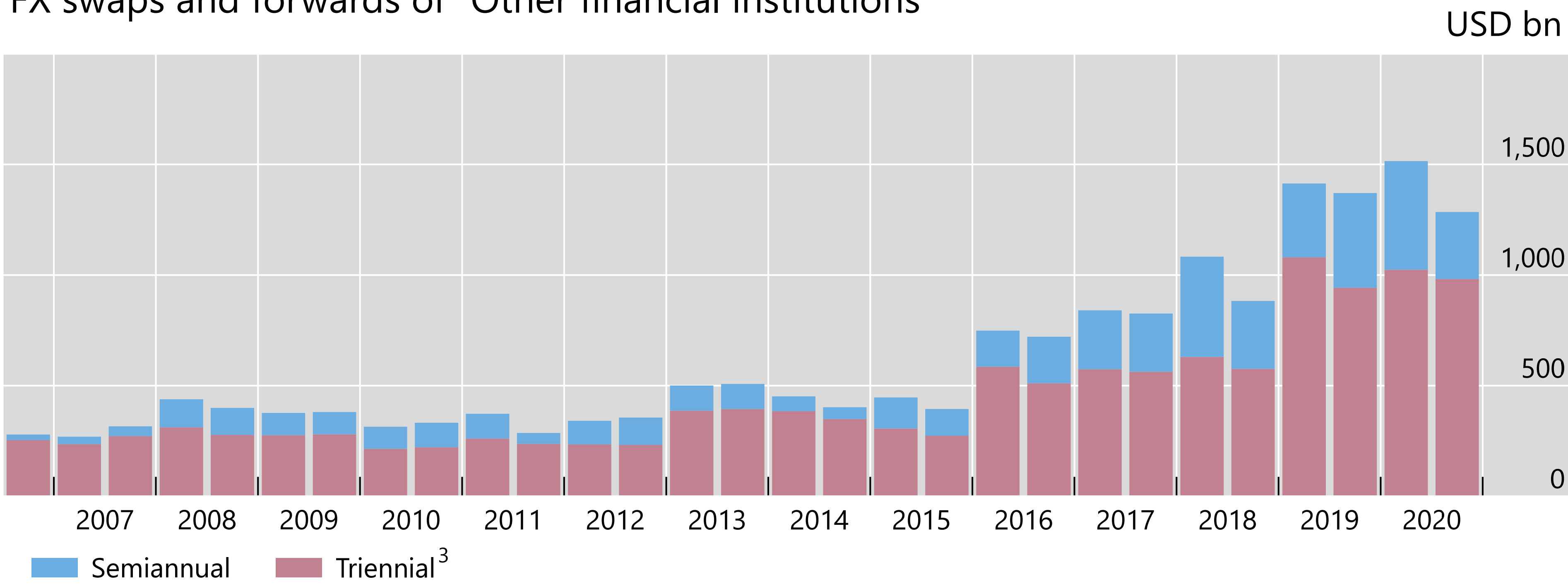


[1] Notional amounts outstanding on a net-net basis. [2] Portfolio investment by all sectors in CPIS-reporting countries. [3] Exports of goods and services, quarterly flows.

Sources: IMF, *Coordinated Investment Portfolio Survey*; World Trade Organisation; BIS OTC derivatives statistics.

For several Asian currencies, FX swaps outstanding have increased rapidly[1]

FX swaps and forwards of "Other financial institutions"

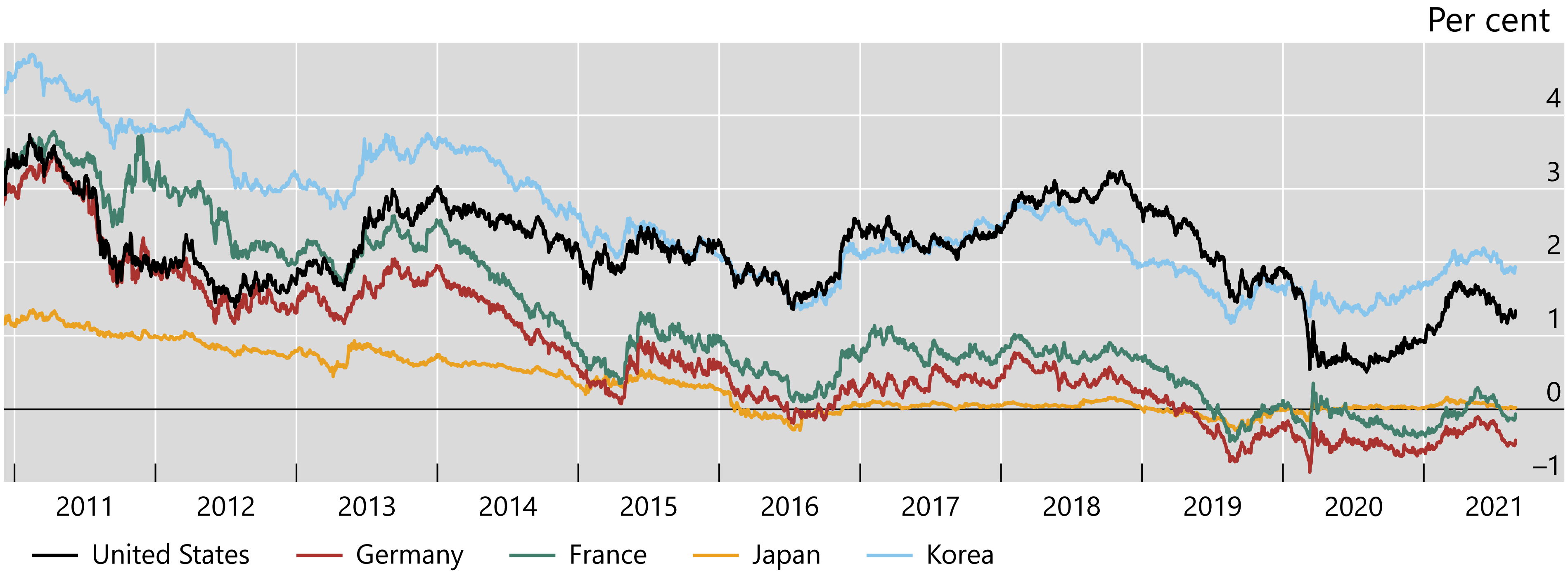


[1] Selected currencies (IDR, KRW, MYR, PHP, THB) reported on one side of the contracts. [2] Excluding banks classified as reporting dealers. [3] Triennial Central Bank Survey of Foreign Exchange and OTC Derivatives Markets were conducted in 2007, 2010, 2013, 2016 and 2019; Triennial aggregates for other years are estimated based on the growth rates of semiannual OTC aggregates.

Source: BIS OTC derivatives statistics.

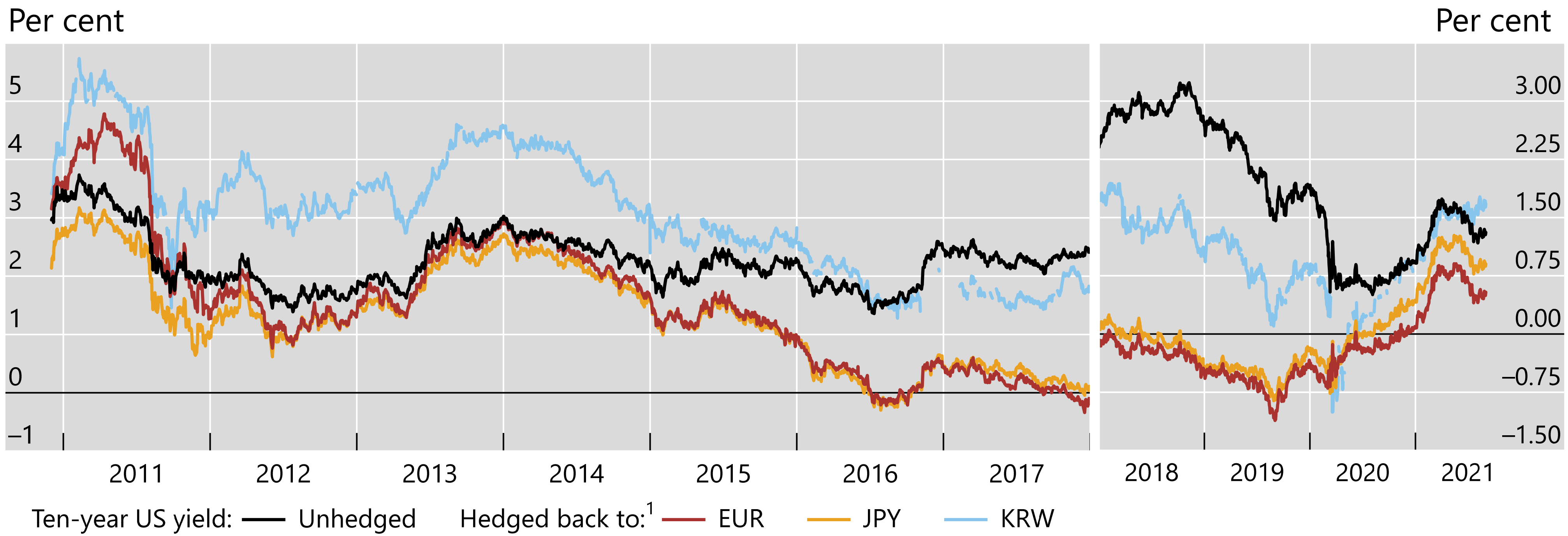
Hedged yields & the swap market

Ten-year government bond yields vary widely across countries



Source: Bloomberg.

10 yr UST yield hedged back to EUR, JPY and KRW (1 year rolling hedges) indicate yield opportunities with hedging for investors in euro area, Japan and Korea



[1] One-year rolling window, computed as [(one-year USD-respective currency forward rate/USD-respective currency spot rate)-1]*100.

Sources: Bloomberg; BIS calculations.

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Dollar funding stresses & covered interest parity (CIP) deviations

Currency hedging activity entails dollar funding needs

- **Covered interest parity** holds when dollar interest rate implicit in FX swap equals dollar interest rate in money markets

$$\frac{1 + r_{USD}}{1 + r_{LC}} = \frac{Fwd\ USD}{Spot\ USD}$$

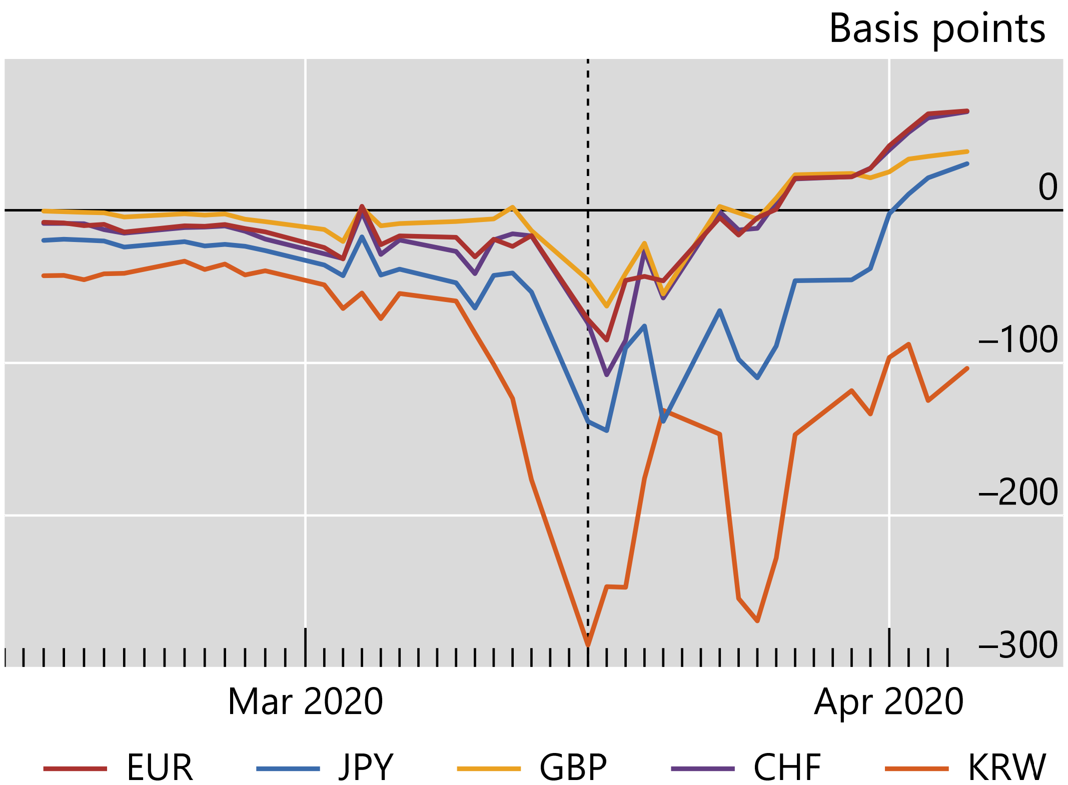
- Deviations arise if dollar funding conditions in swap market are tight:

$$\frac{1 + r_{USD}}{1 + r_{LC}} < \frac{Fwd\ USD}{Spot\ USD}$$

- **FX basis** is indicator of tightness in dollar funding conditions

$$FX\ basis = \frac{1 + r_{USD}}{1 + r_{LC}} - \frac{Fwd\ USD}{Spot\ USD}$$

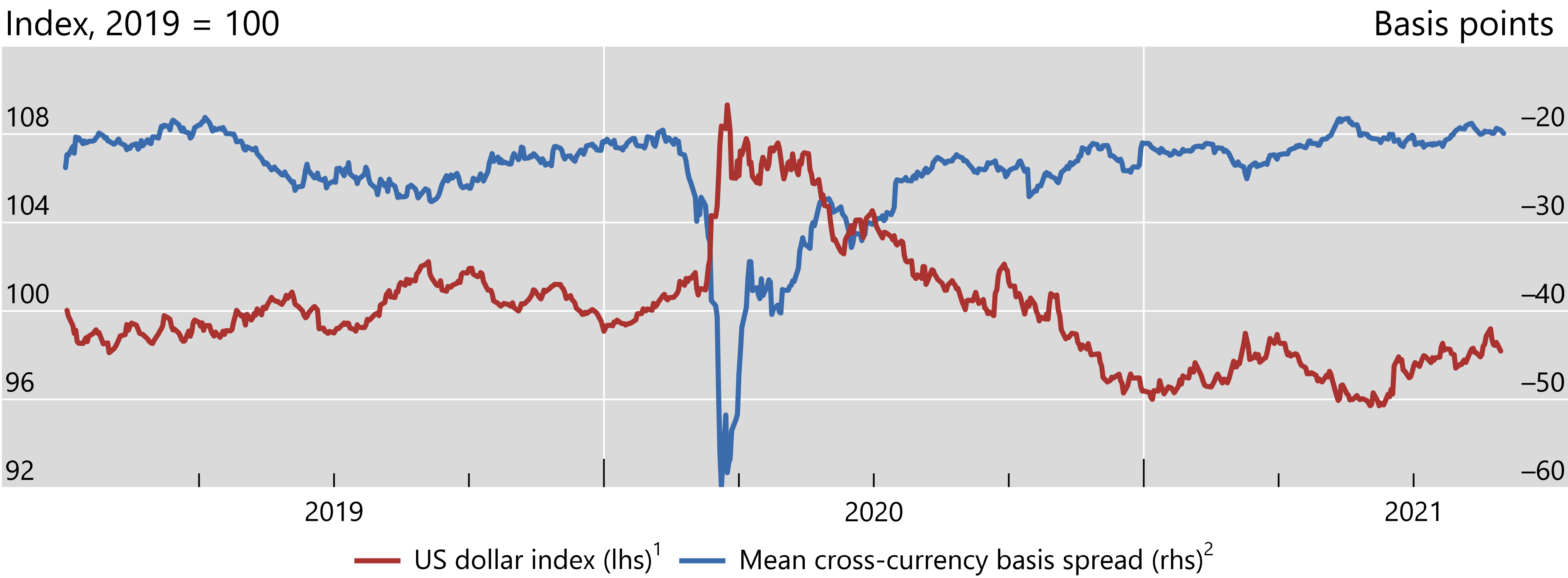
During March 2020, 3-month FX basis widened[1], indicating dollar funding stresses



[1] three-month FX basis calculated as the spread between three-month US dollar Libor and three-month FX swap-implied US dollar rates. The vertical dashed line indicates 15 March 2020 (the announcement of the enhancement of swap lines between the Federal Reserve and five central banks).

Sources: Bloomberg; BIS calculations.

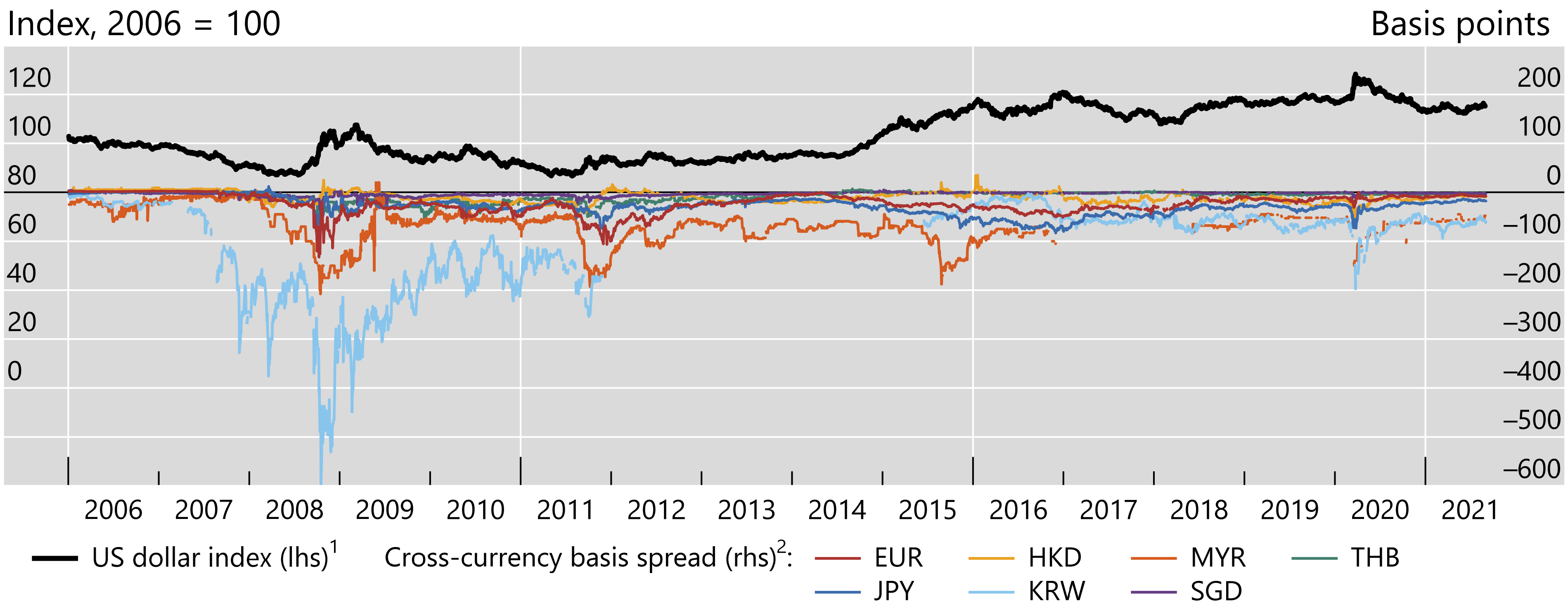
Time dimension of FX basis shows that stronger dollar is associated with reduced dollar funding supply in capital markets



[1] Trade-weighted nominal dollar index based on goods and services trade, broad. Higher values indicate a stronger US dollar.
[2] Average of the **one-year** FX basis for CAD, EUR, GBP, HKD, KRW, JPY, MYR, SGD and THB vis-à-vis the US dollar.

Sources: Federal Reserve Bank of St Louis, FRED; Bloomberg; BIS calculations.

Asian currencies, including KRW, exhibit sensitivity to reversal in USD funding conditions



[1] Trade-weighted nominal dollar index based on goods and services trade, broad. Higher values indicate a stronger US dollar.
[2] **One-year** FX basis vis-à-vis the US dollar.

Sources: Federal Reserve Bank of St Louis, FRED; Bloomberg; BIS calculations.

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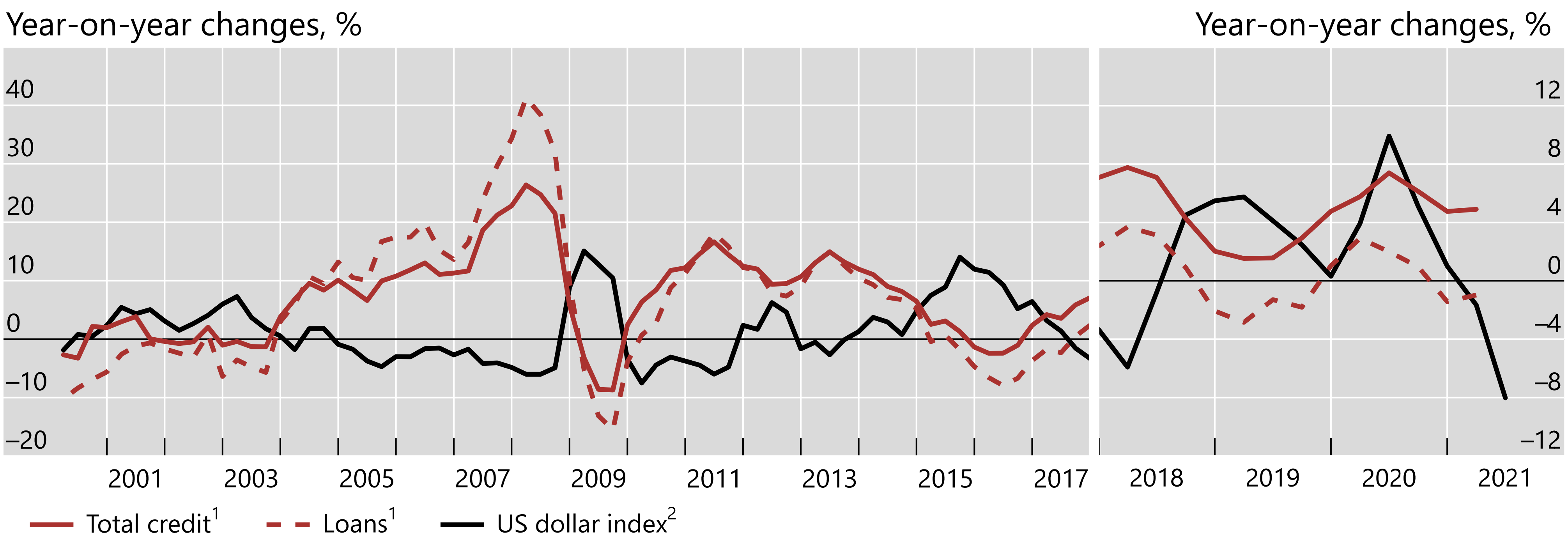
Policy implications for reducing impact of fluctuations in global liquidity conditions

US dollar credit to EMEs fluctuate with US dollar index; global liquidity conditions that affect FX bases also affect broader financial conditions



[1] Annual growth of US dollar-denominated credit or loans to non-banks in EMEs. [2] Annual growth of the trade-weighted nominal dollar index based on trade in goods and services, major EMEs. An increase indicates a stronger US dollar.

Sources: Federal Reserve Bank of St Louis, FRED; Datastream; Dealogic; Euroclear; Thomson Reuters; Xtrakter Ltd; national data; BIS locational banking statistics; BIS effective exchange rate statistics; BIS calculations.

Long-term development of capital markets combined with development of monetary and macroprudential frameworks

- IMF Integrated Policy Framework (IPF) envisages complementary roles for domestic macroprudential frameworks, FX intervention and capital flow management (CFM) policies

- Among BIS member central banks, macro-financial stability frameworks (MFSFs) envisage broad policy toolkits for monetary policy frameworks
  - Report of BIS central banks in Asian Consultative Council https://www.bis.org/publ/othp34.pdf (November, 2020)
  - Report of BIS central banks in the Consultative Council for the Americas + others https://www.bis.org/publ/othp37.pdf (April, 2021)

- G20 (eg, IFA WG) would be a suitable forum to compare notes and further reach consensus, including with other IOs