



Commodity price volatility and policy challenges: an emerging market perspective

Juan José Echavarría
Governor

CVII Meeting of Central Bank Governors of CEMLA
29 April, 2019



Contents

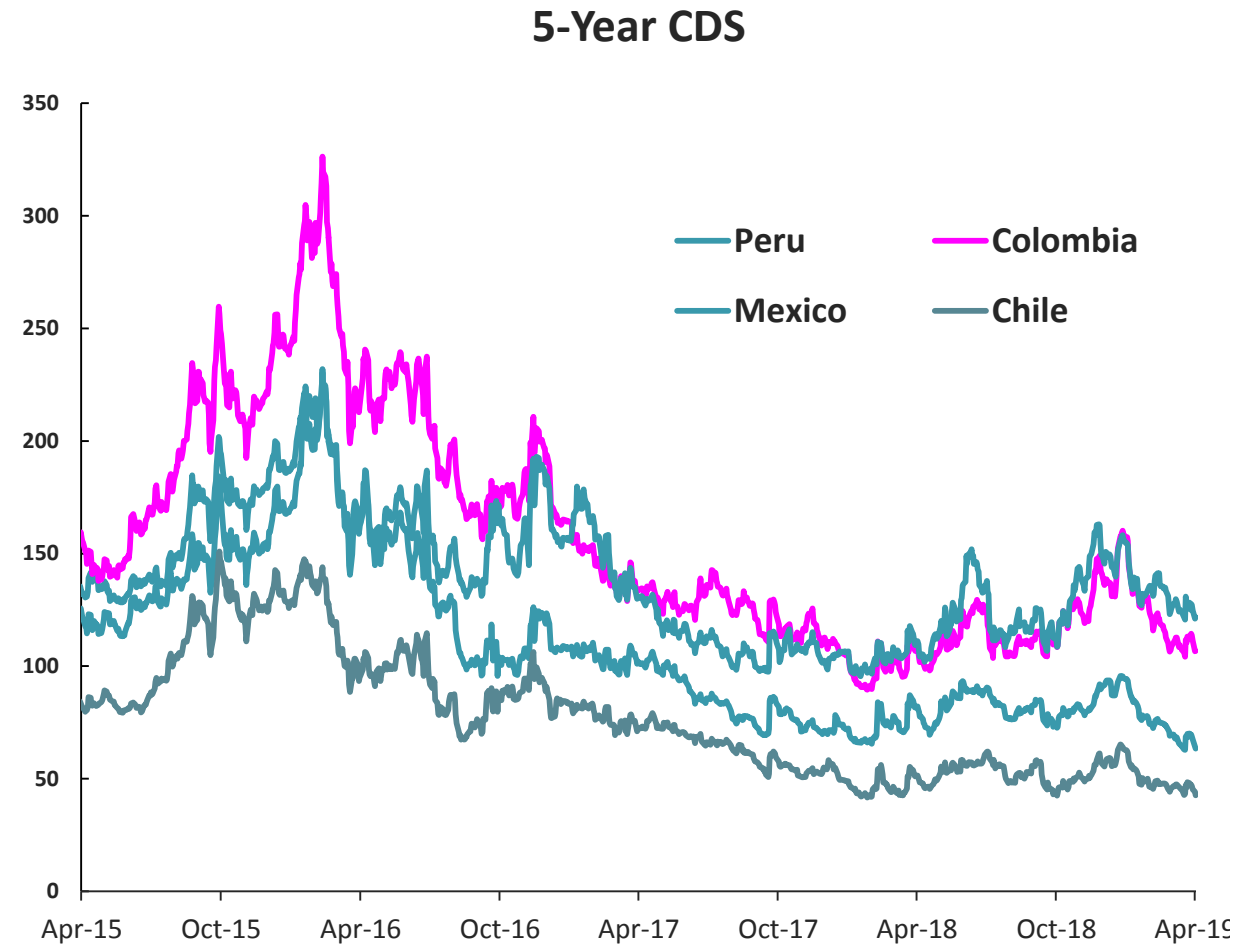
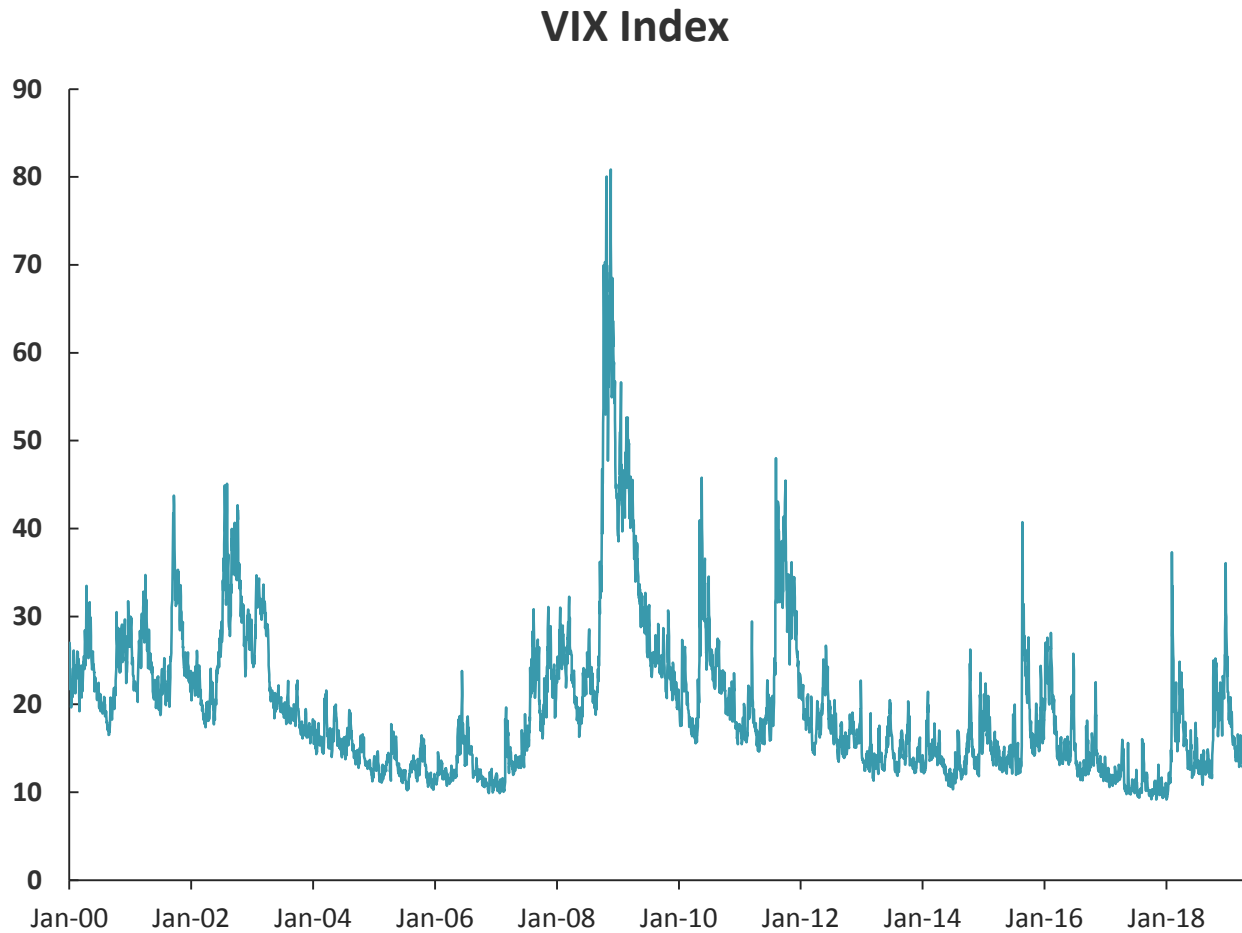
Global financial conditions and commodity prices

Policy implications of commodity price volatility

Monetary policy implications of commodity price volatility

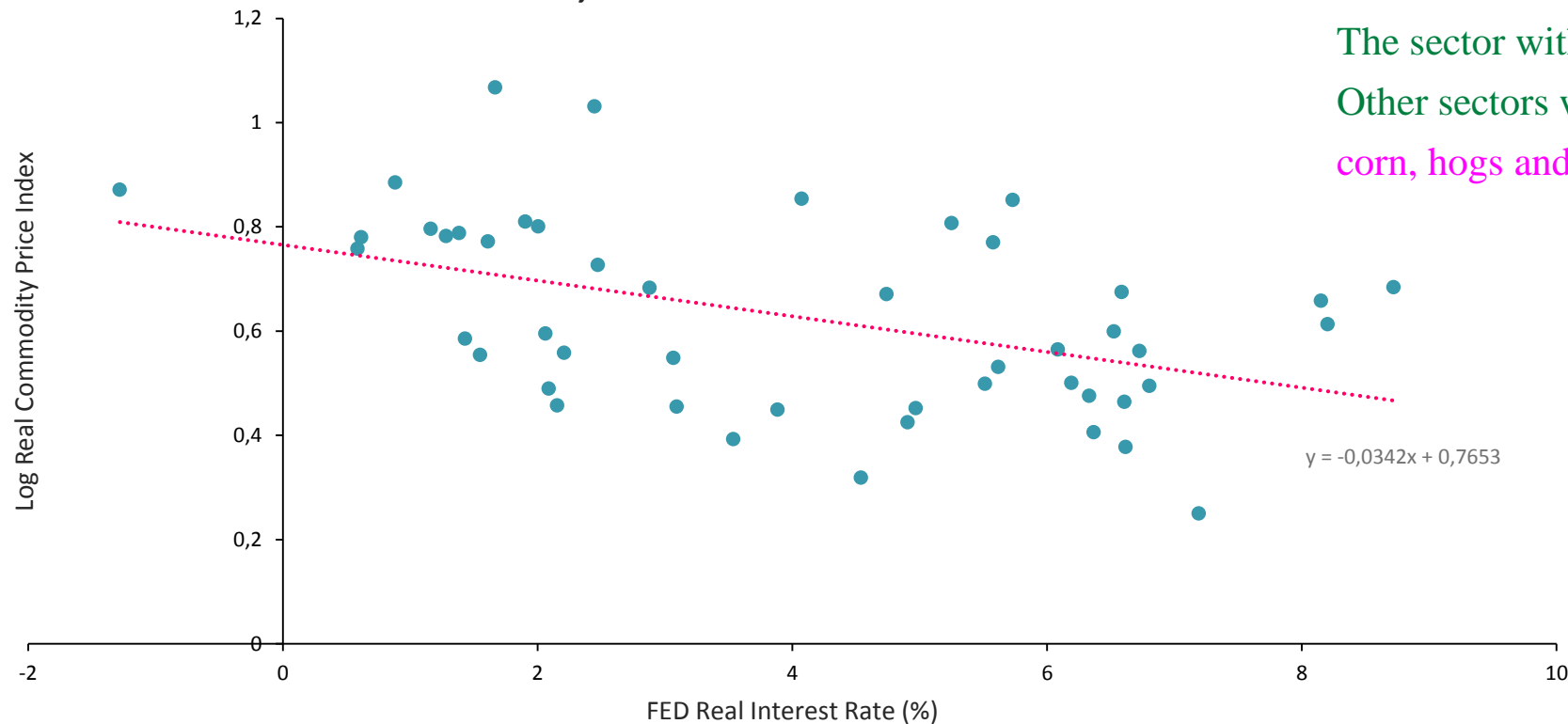
- Different theories have tried to explain commodity price behavior. For the case of oil...
 - Super Cycles of Commodity Prices (Erten and Ocampo, 2013):
 - There is a gradual change in prices long-term trends rather than a stochastic trend.
 - During the period 1865-2010, four past super cycles are identified, ranging between 30 to 40 years and with large amplitudes varying between 20% and 40% higher or lower than the long run trend.
 - Random Walk and Regime Shifts (Hamilton, 2008)
 - Oil prices have been historically unpredictable and follow a random walk. However, they might be explained by different regimes at different points in time.
 - Strong oil demand growth (e.g. China, Middle East and other newly industrialized economies)
 - Limits to expanding oil production (e.g. Drop in Saudi Arabia production since 2005)
 - Cartelization of commodity markets

- After a period of high market tightness and volatility, international financial conditions have improved and the expectations of further tightening have decreased...



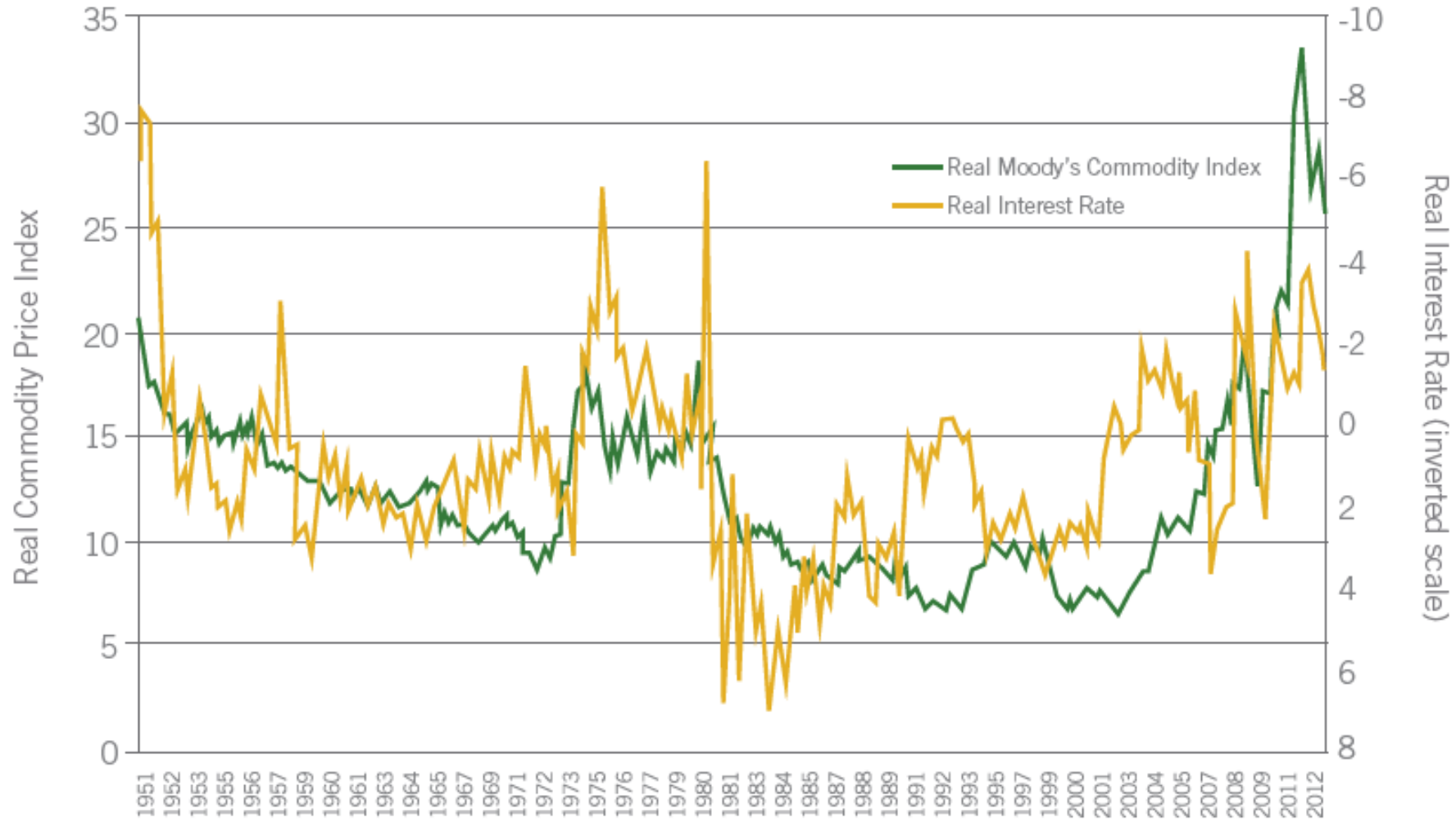
- ...such changes in financial conditions might have effects on commodity price behavior. Historically, **high real interest rates** have lead **low real commodity prices** (Frankel 2006)*.

Goldman Sachs Commodity Price Index vs. FED Real Interest Rate Annual, 1970-2017



The sector with the strongest correlation is **cattle**.
Other sectors with a strong correlation are **copper**,
corn, **hogs** and **soybeans**.

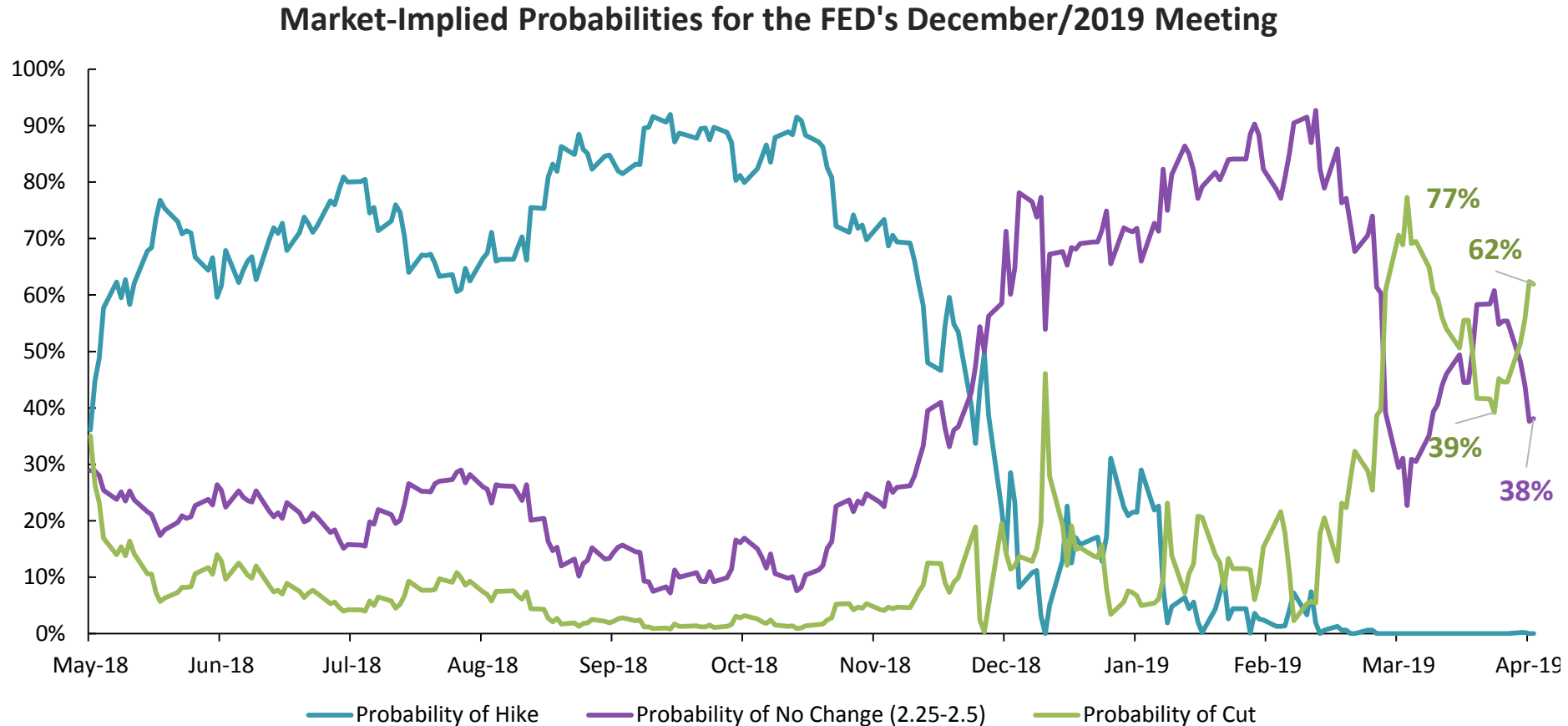
REAL INTEREST RATES AND COMMODITY PRICES, 1950-2012



- ...The negative correlation between an increase in real interest rates and a decrease in real prices of commodities occurs through a variety of mechanisms (Frankel, 2006):
 - By increasing the incentive for **extraction/selling** today rather than tomorrow, in order to earn interest on the proceeds from the sale
 - By decreasing firms' desire to carry **inventories** (higher opportunity costs)
 - By encouraging **speculators** to shift out of commodity contracts (especially spot contract), and **into treasury bills**.
- In its empirical study, Frankel finds that when the FED real interest rate goes up by 1 percentage point, it lowers the real commodity price index by 6 percent...

- Nevertheless, **many other factors** beyond real interest rates influence commodity prices (e.g. weather, political conditions in producing countries, sector specific microeconomic factors, etc.).
- Identifying the relationship between financial conditions and commodity prices is extremely difficult and is a debatable issue that has been widely discussed by academics.

- External financial conditions remain volatile...



Source: Bloomberg. Updated: April 25, 2019

- Central bank monetary policy responses in developed economies are still uncertain and volatile
- Global trade, investment and output remain under threat from ongoing trade tensions
- Some downside risks in systemic economies such as the euro area, China and the United States persist
- Political uncertainty and geopolitical conflict in some countries also add downside risk to global investment

- Hence, if there is a relationship between financial conditions and commodity prices, external volatility could generate terms of trade shocks.
- Therefore, it is important to analyze the challenges that commodity price volatility poses for policymakers in commodity dependent countries.



Contents

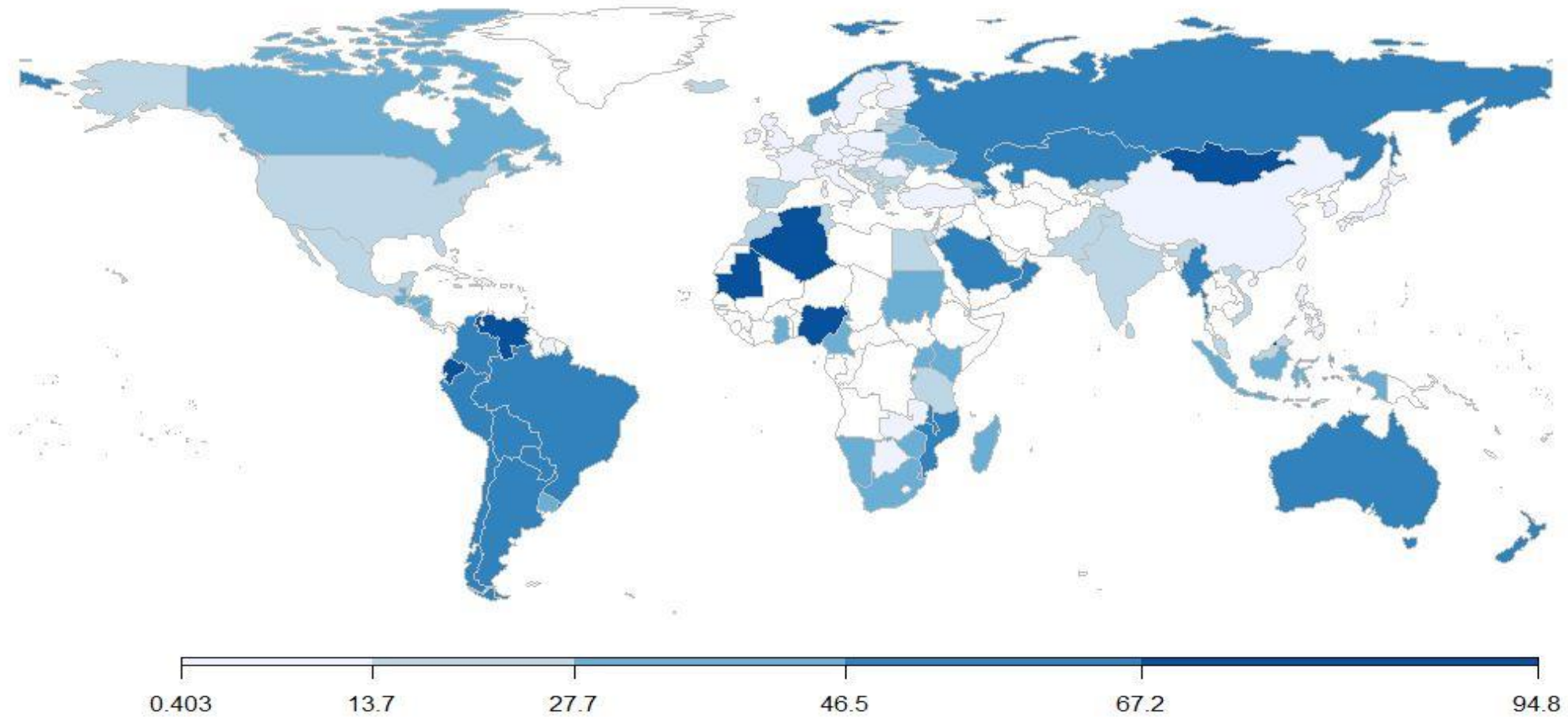
Global financial conditions and commodity prices

Policy implications of commodity price volatility

Monetary policy implications of commodity price volatility

- In a vast number of countries, commodities are a key part of the national economy...

Commodity exports (% Total exports) 2018



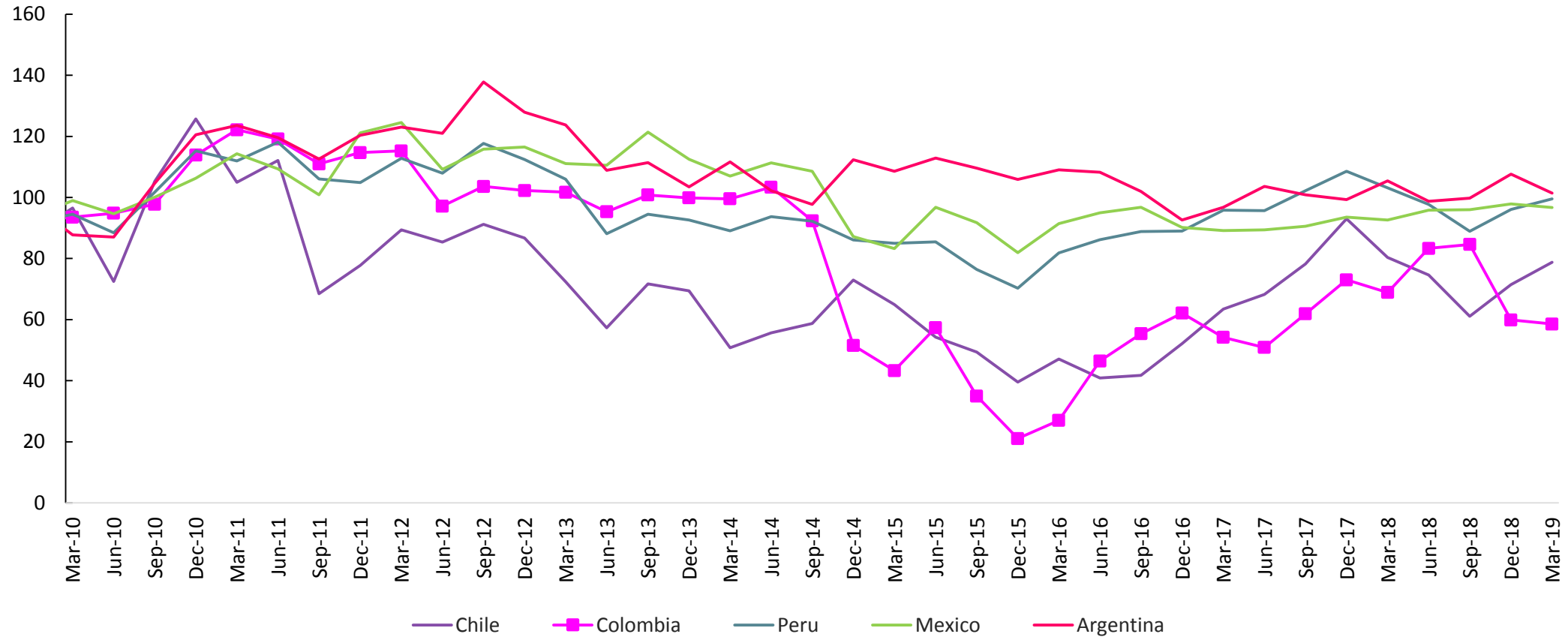
Source: IMF. UNCOMTRADE

¹ **Commodities groups:** Food and live animals; Beverages and tobacco; Crude materials, inedible, except fuels; Mineral fuels, lubricants and related materials; Animal and vegetable oils, fats and waxes; Manufactured goods classified chiefly by material. **12**

² The latest available data for Venezuela are as of 2013 and for Saudi Arabia are as of 2016.

- ...Commodity price behavior affects terms of trade in commodity exporting countries...

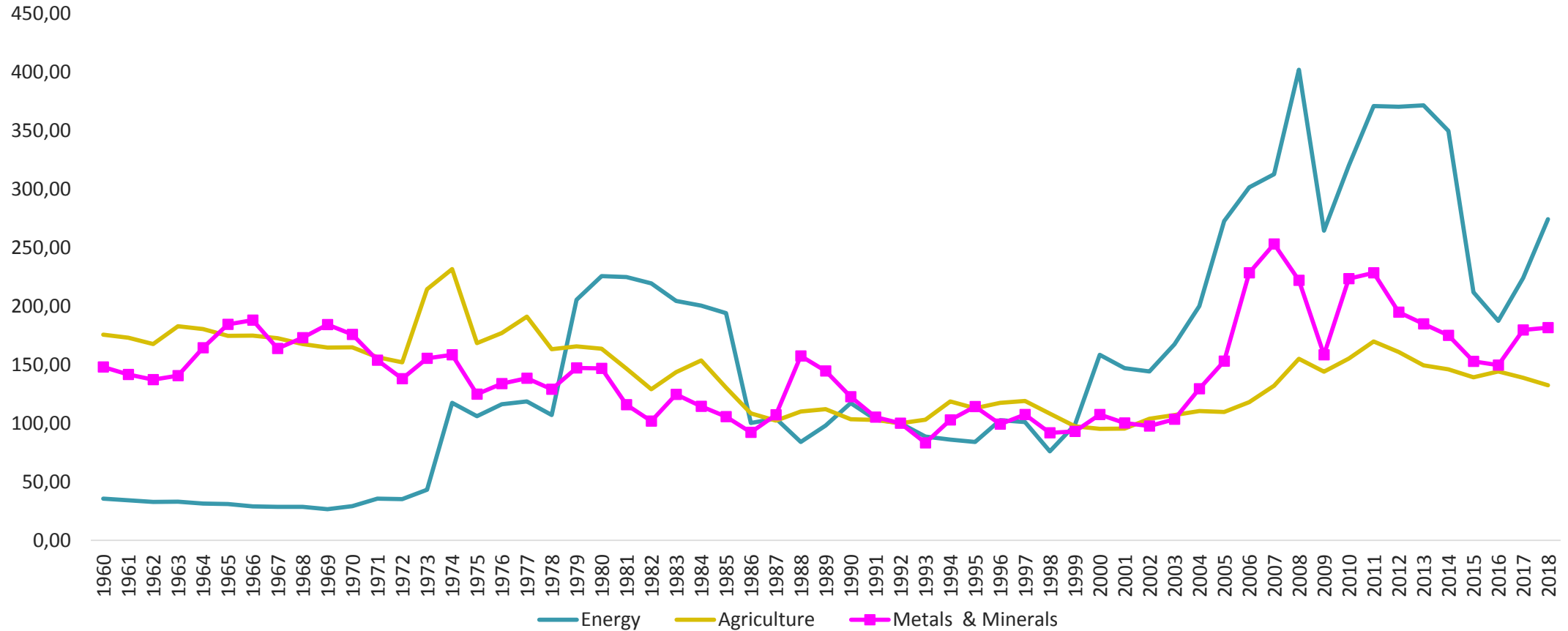
Terms of Trade (2010=100)



Fuente: Bloomberg

- ...Commodity prices are highly volatile; in particular **non-renewable commodities** (e.g. oil, energy and metal prices)...

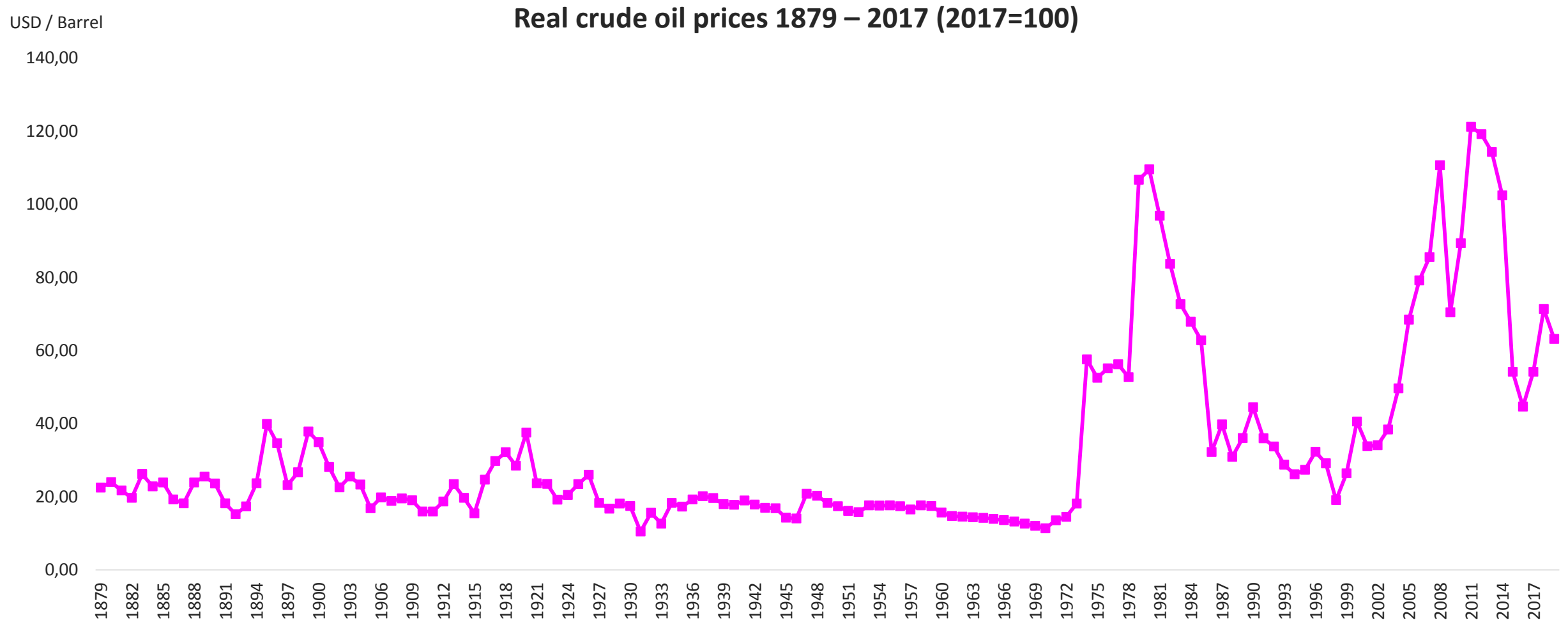
Real commodity price index (1992=2010)



Source: World Bank

Deflected by **MUV Index** - A proxy for the price of developing country imports of manufactures in U.S. dollar terms, used to assess cost escalation for imported goods. Updated twice a year, the index is a trade-weighted average of export prices of manufactured goods for 15 major developed and emerging countries, with local-currency based prices converted into current U.S. dollars using market exchange rates.

- ...In the last decades, **oil prices** have experienced a phase of high volatility, which implies significant challenges to oil exporting countries...



- ..Shocks to commodity prices may be large, difficult to predict and with variable persistence over time...

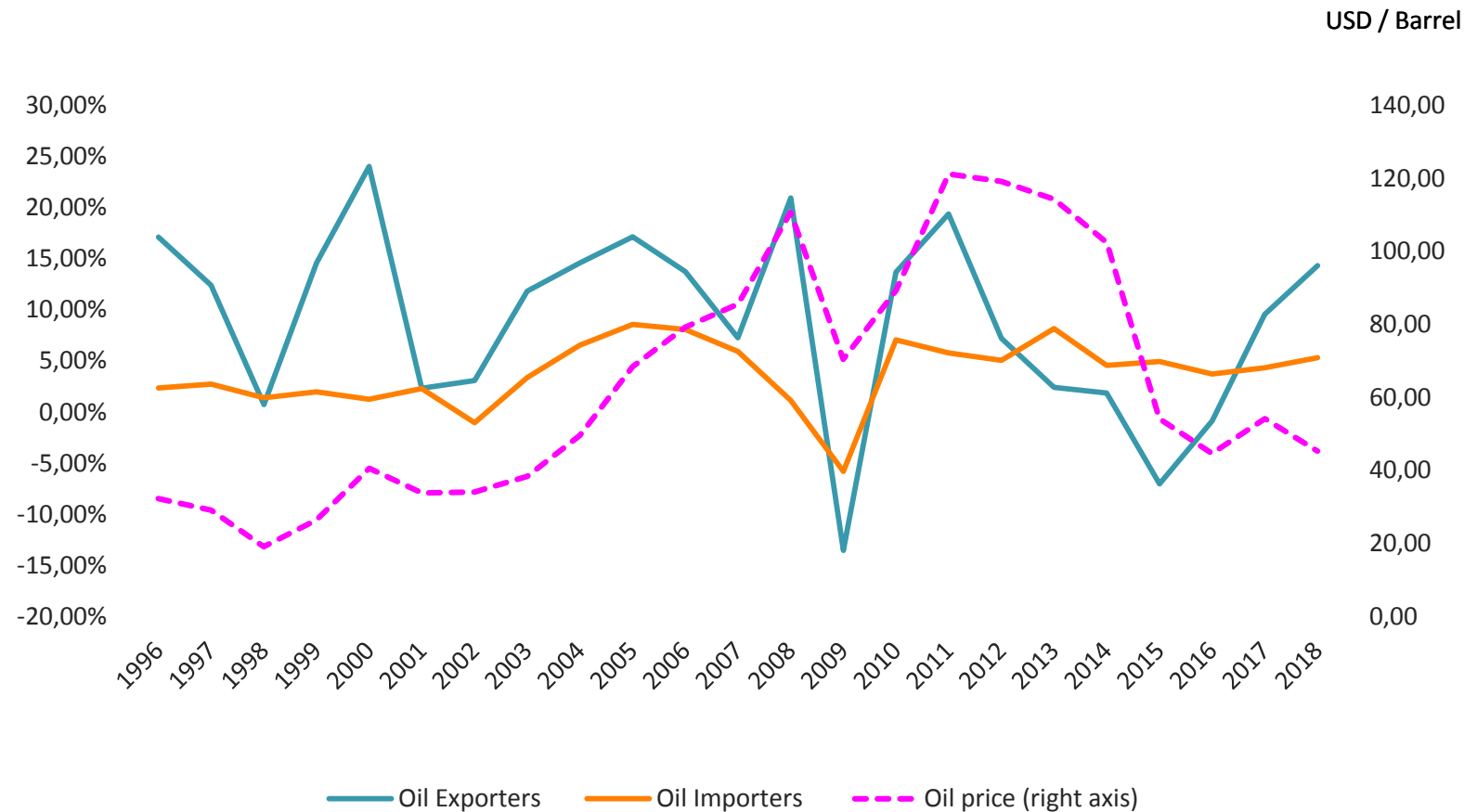
Oil in the 1990's, 2000's and 2010's



The solid line represents actual WTI crude oil daily prices for the period. The dashed lines are based on market projections for prices of WTI Futures Contracts from 1 month to the last data available of 2023 for some selected transaction dates when WTI prices reached a peak or a trough (the futures curve generally starts two months after this).

- ...Oil price shocks imply highly volatile **government revenues**. Oil dependent countries are more sensitive to oil price volatility than oil importers...

General government revenues growth and Oil Prices

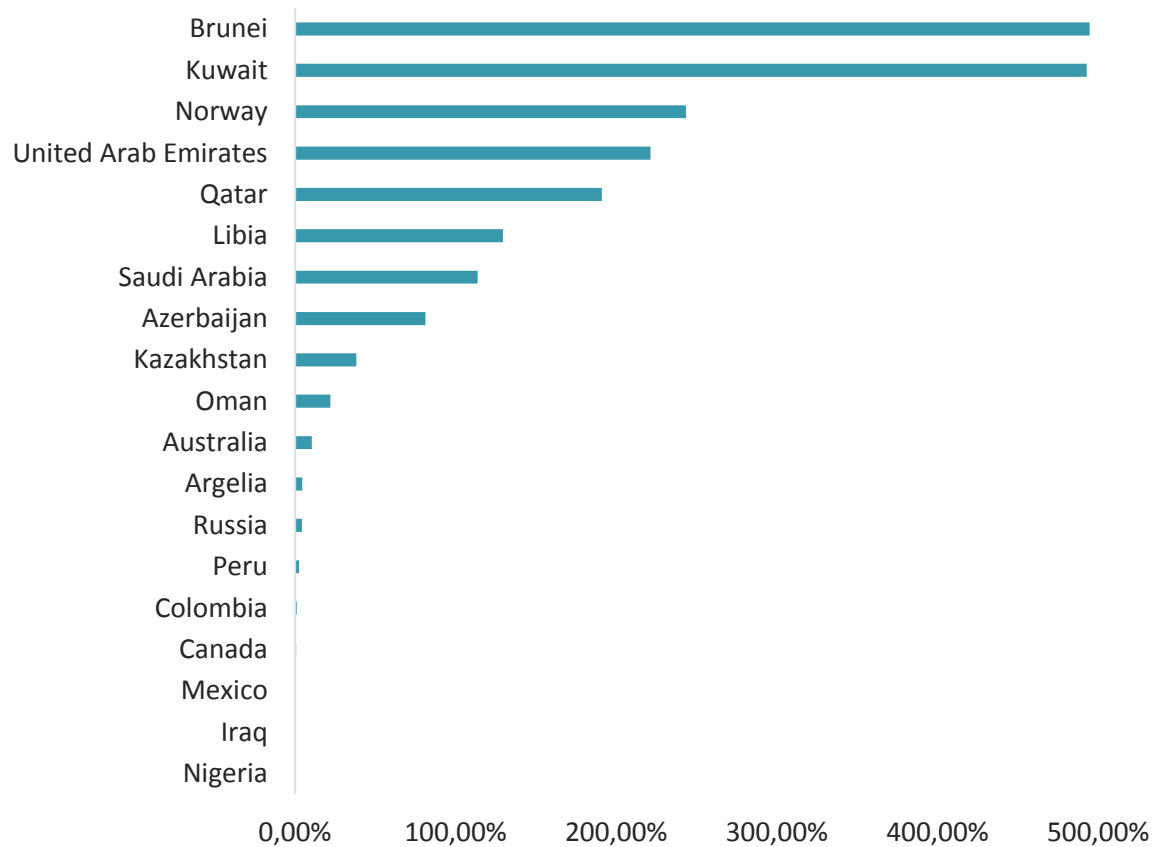


Source: IMF

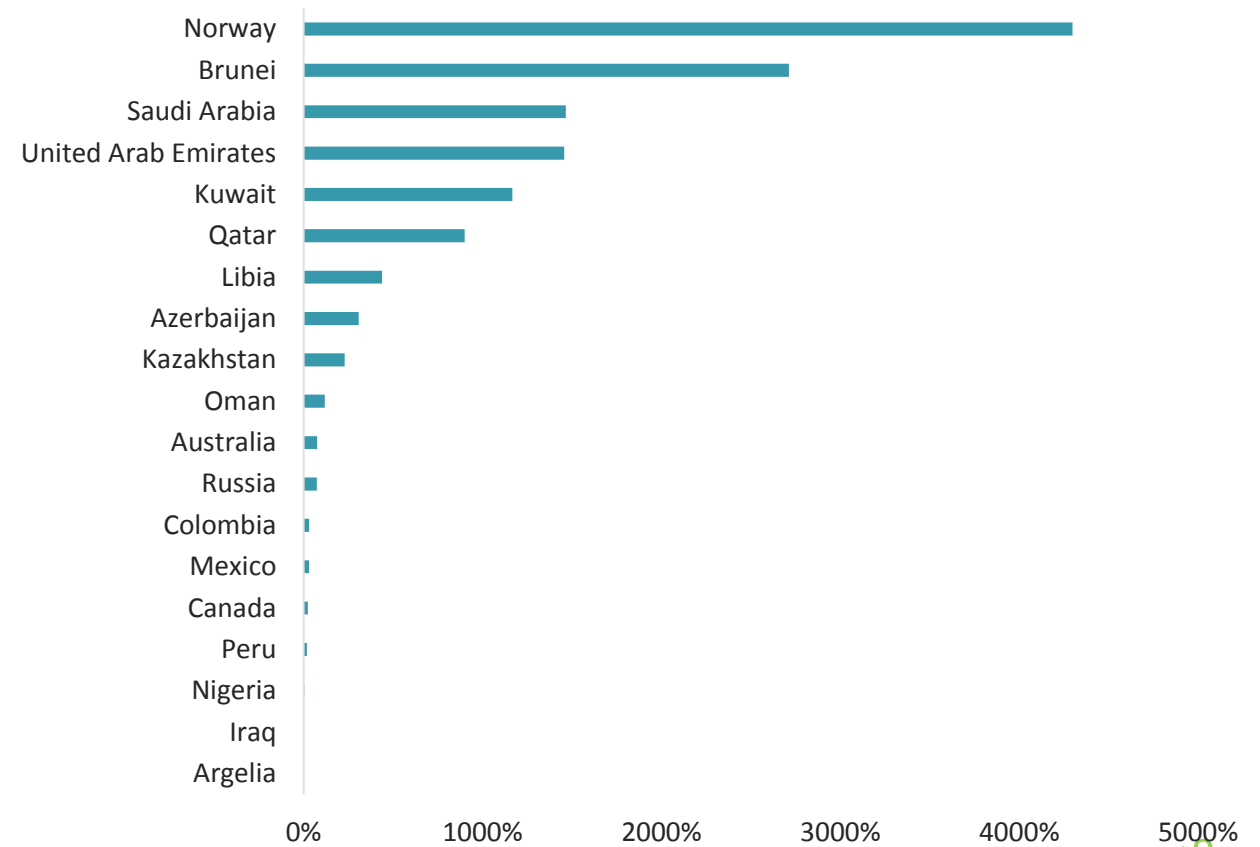
Oil exporters: Bolivia, Canada, Colombia, Ecuador, Iraq, Mexico, Nigeria, Oman, Peru, Sudan, United Arab Emirates, Norway, Kuwait, Qatar, Australia, Saudi Arabia. **Oil Importers:** Austria, Belgium, Germany, Spain, France, United Kingdom, Japan, United States, Switzerland, Argentina, Brazil, Hungary, India, Poland, Turkey, Thailand,

- ...Because of difficulties in fully hedging against commodity price fluctuations, commodity dependent countries take precautionary measures, such as establishing **sovereign wealth funds**. Currently these funds hold more than USD 4.1 trillion...

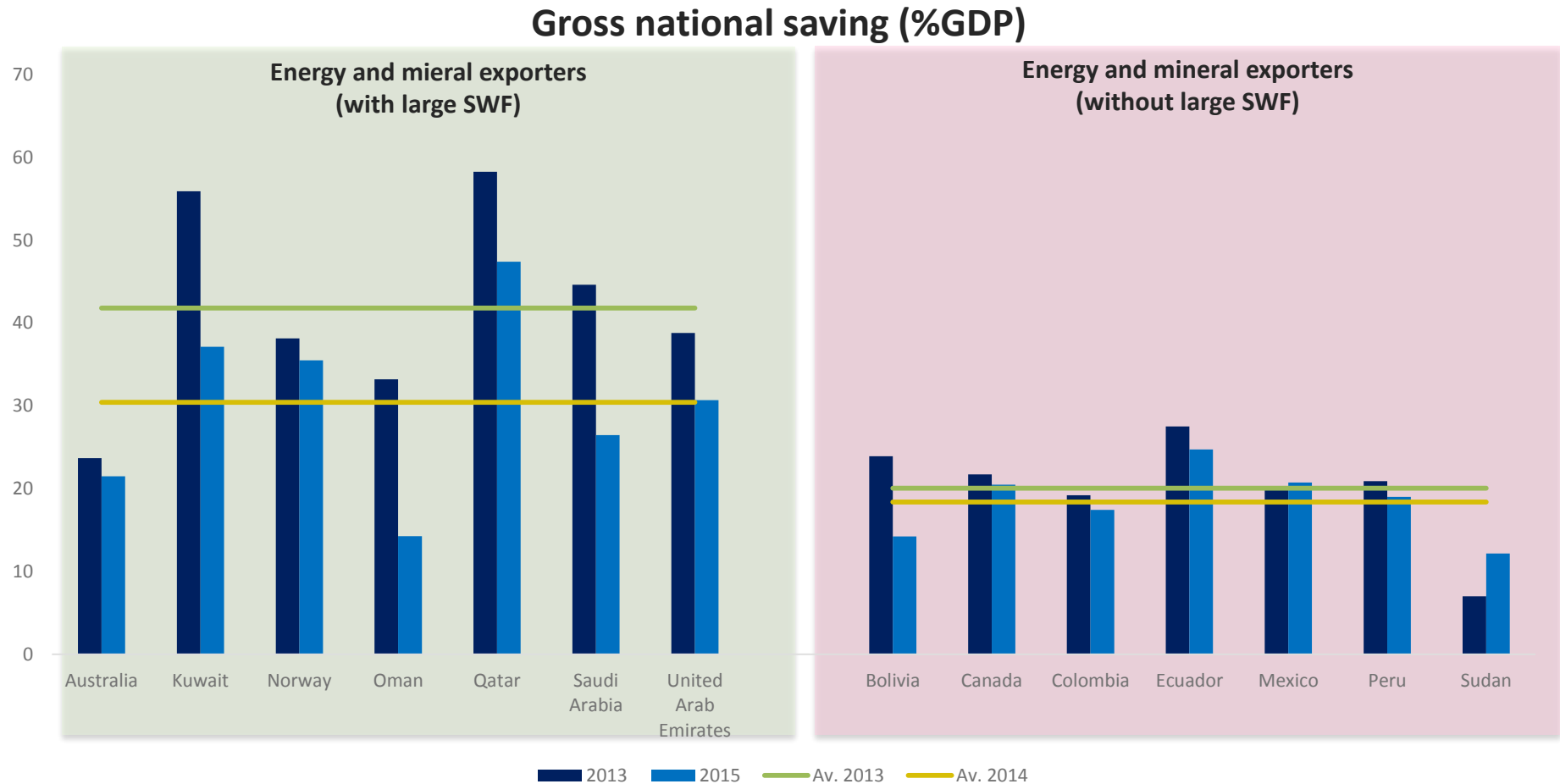
**Sovereign Wealth Funds 2019
(% GDP)**



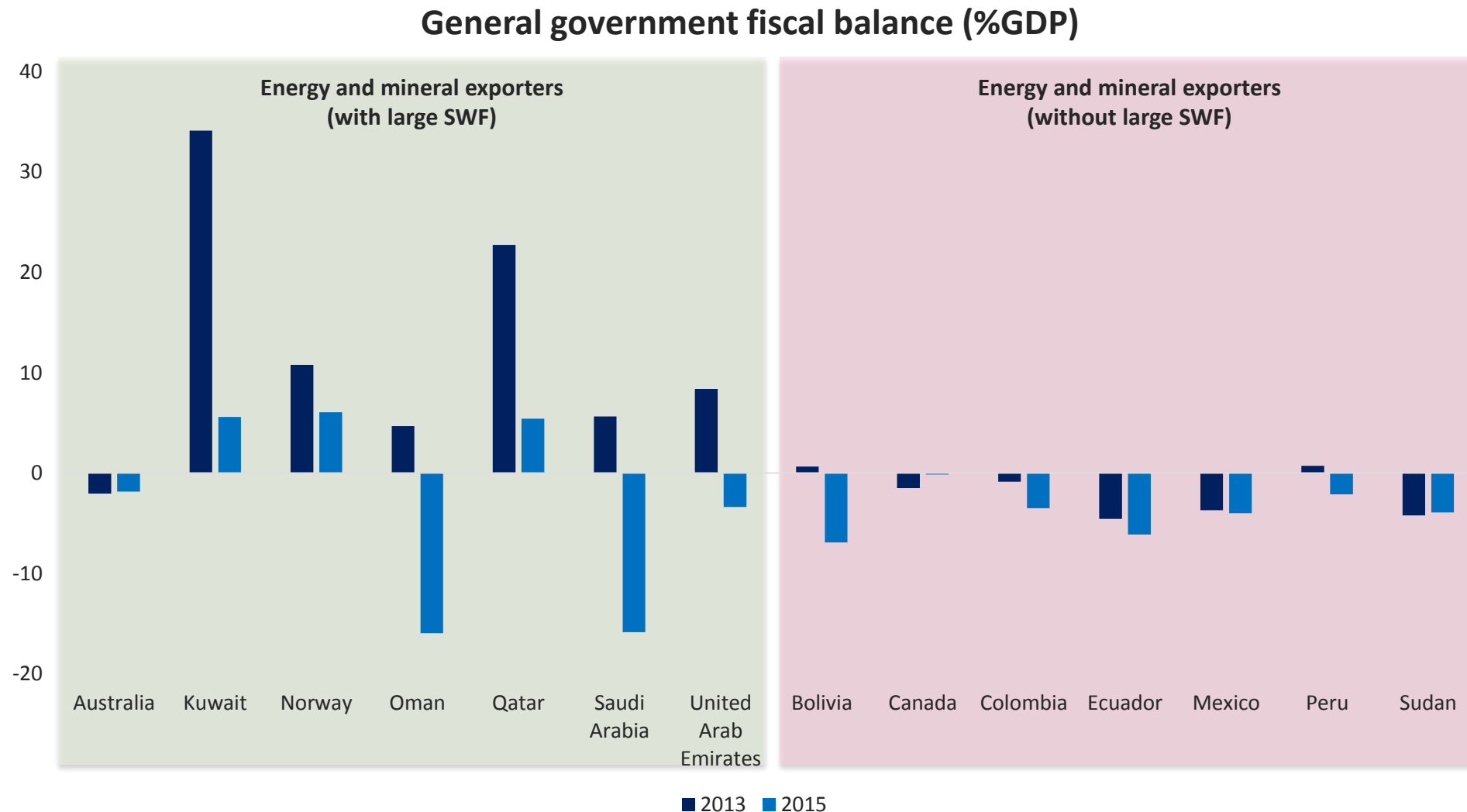
**Sovereign Wealth Funds 2019
(% Principal energy and mineral exports)**



- ...The existence of a sovereign wealth fund to cope with energy and mineral price volatility has important macroeconomic implications. Energy and mineral exporters with large sovereign wealth funds tend to have, on average, higher gross national saving rates...

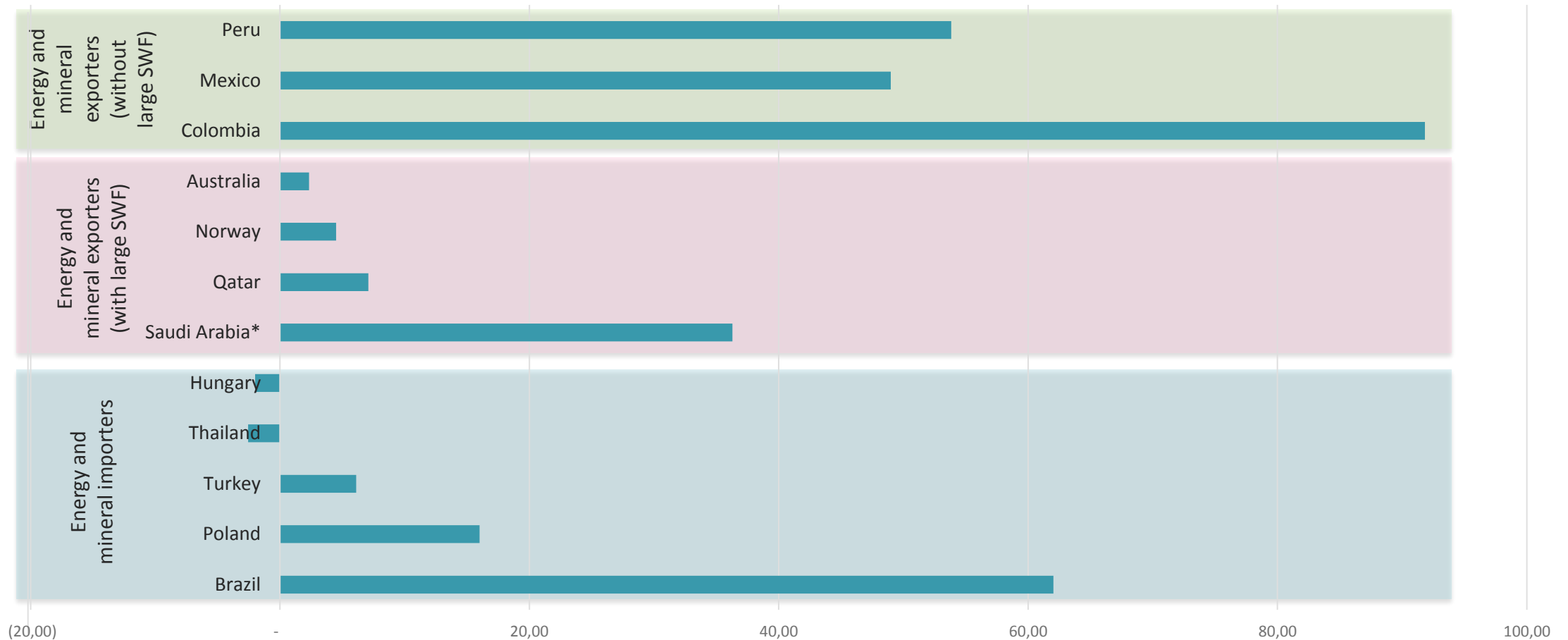


- ...Accordingly, energy and mineral exporters with **large sovereign wealth funds** tend to have **precautionary fiscal policies**...



- ...A downswing in energy and mineral prices causes exporters of these commodities to be **perceived as riskier**. However, exporters without sufficient hedging mechanisms are more sensitive.

Change in 5-year CDS (pbs 2014-2015)



Source: Bloomberg. SWF: Sovereign Wealth Fund.

*7-year CDS



Contents

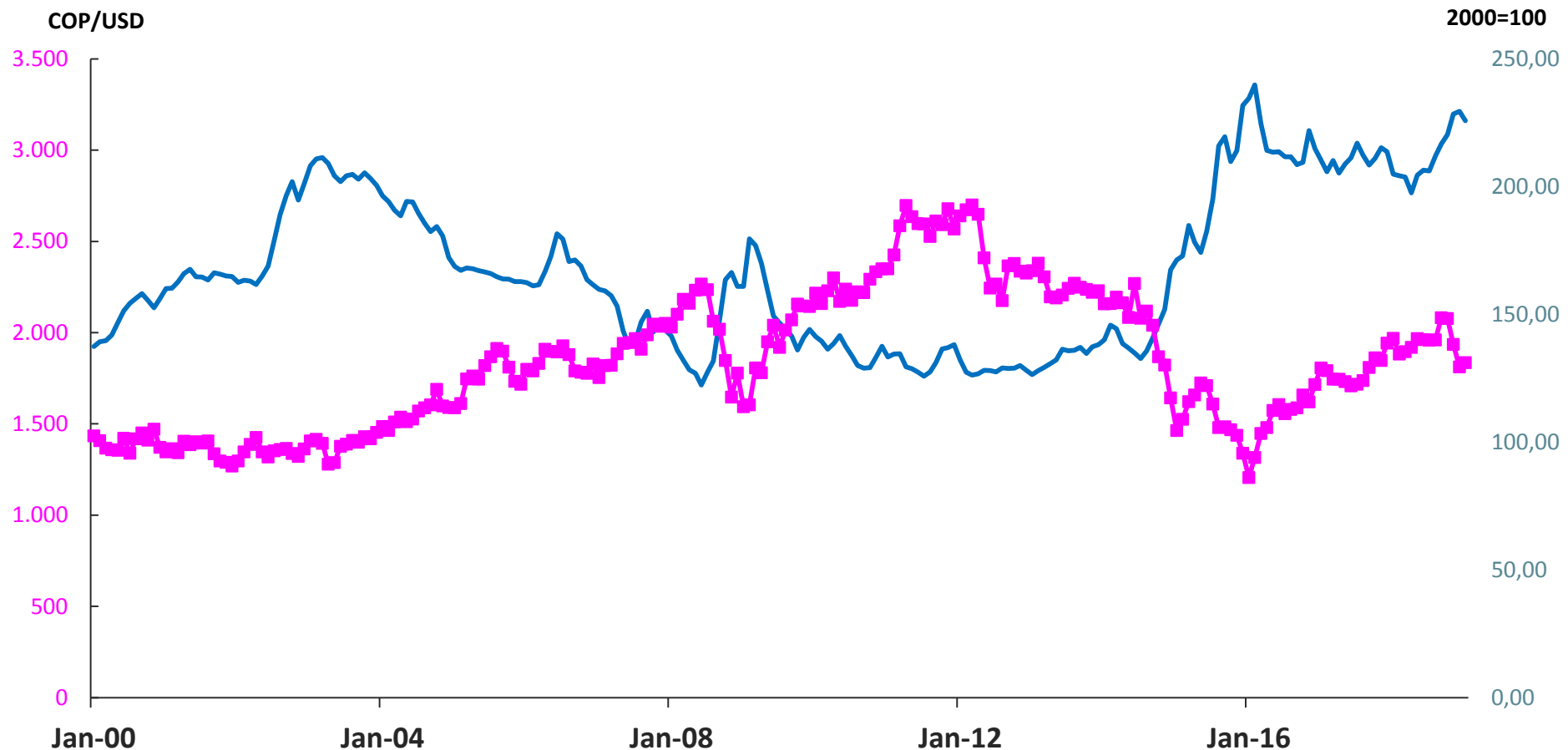
Global financial conditions and commodity prices

Policy implications of commodity price volatility

Monetary policy implications of commodity price volatility

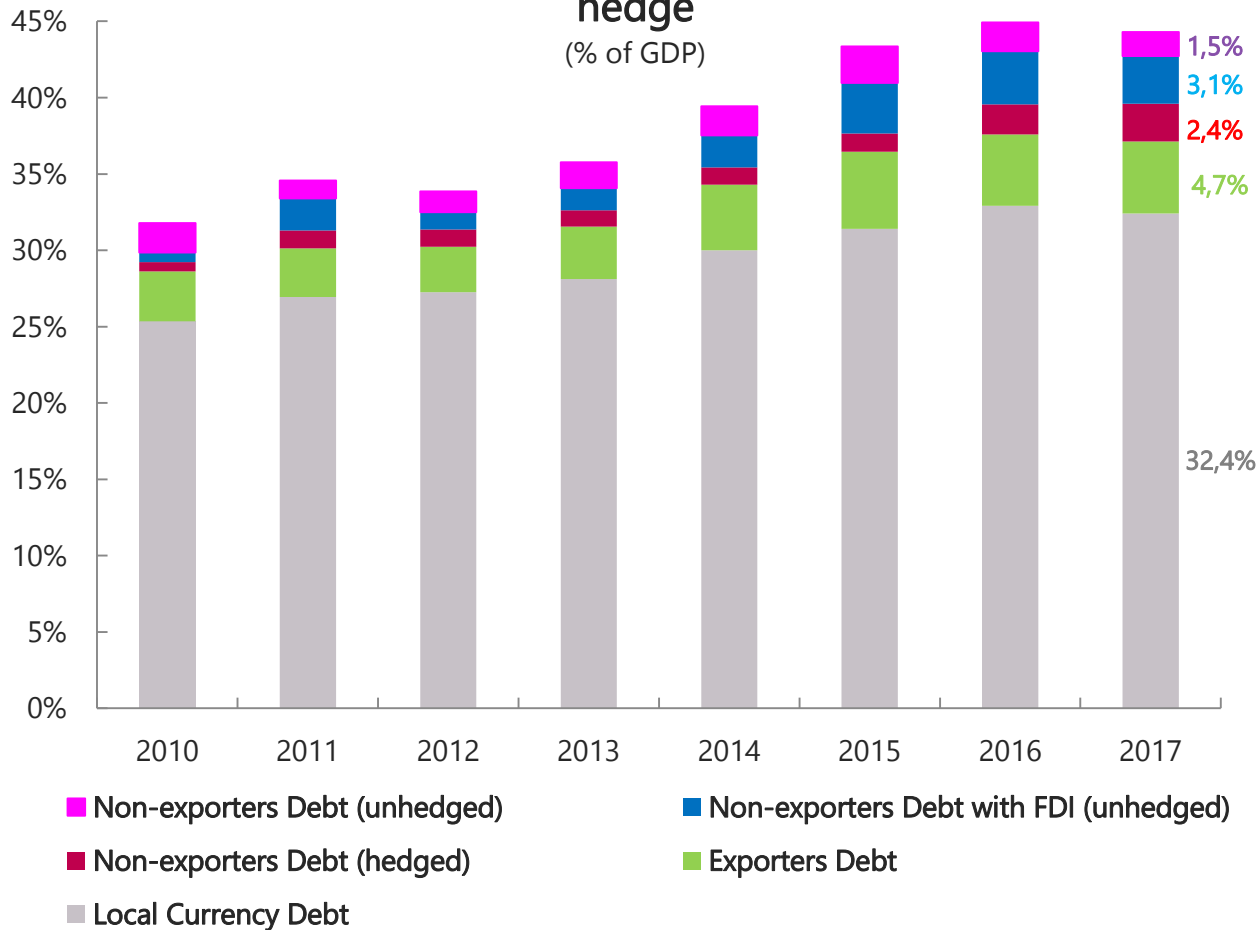
- As a first policy implication, depending on country circumstances, a **flexible exchange rate might help to cope with commodity price volatility**. In Colombia, the floating exchange rate regime has worked well as a shock absorber. However certain **preconditions** should be fulfilled...

Exchange Rate (left axis) vs Terms of Trade (right axis)



1. Limited currency mismatches. Currency mismatches remain low and contained in both the real and financial sector.

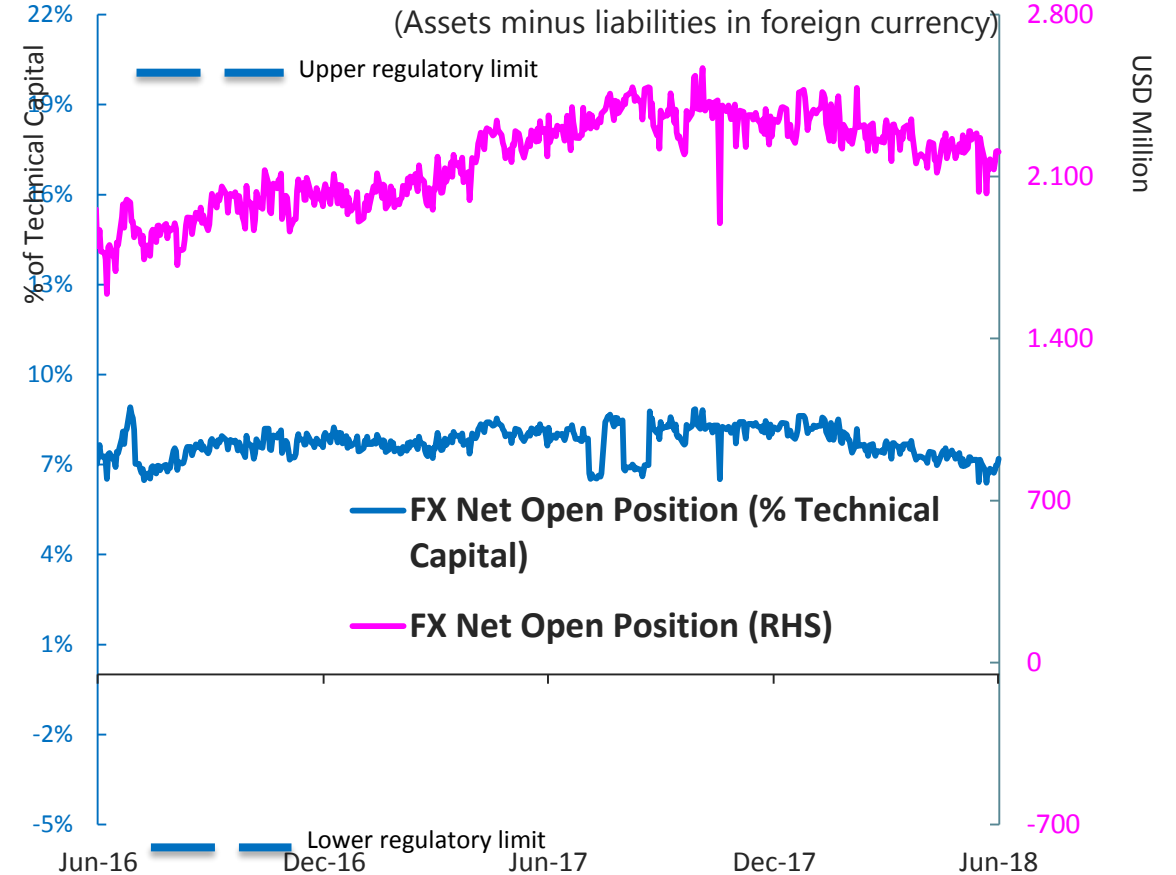
Debt of the Corporate Private Sector by currency and hedge (% of GDP)



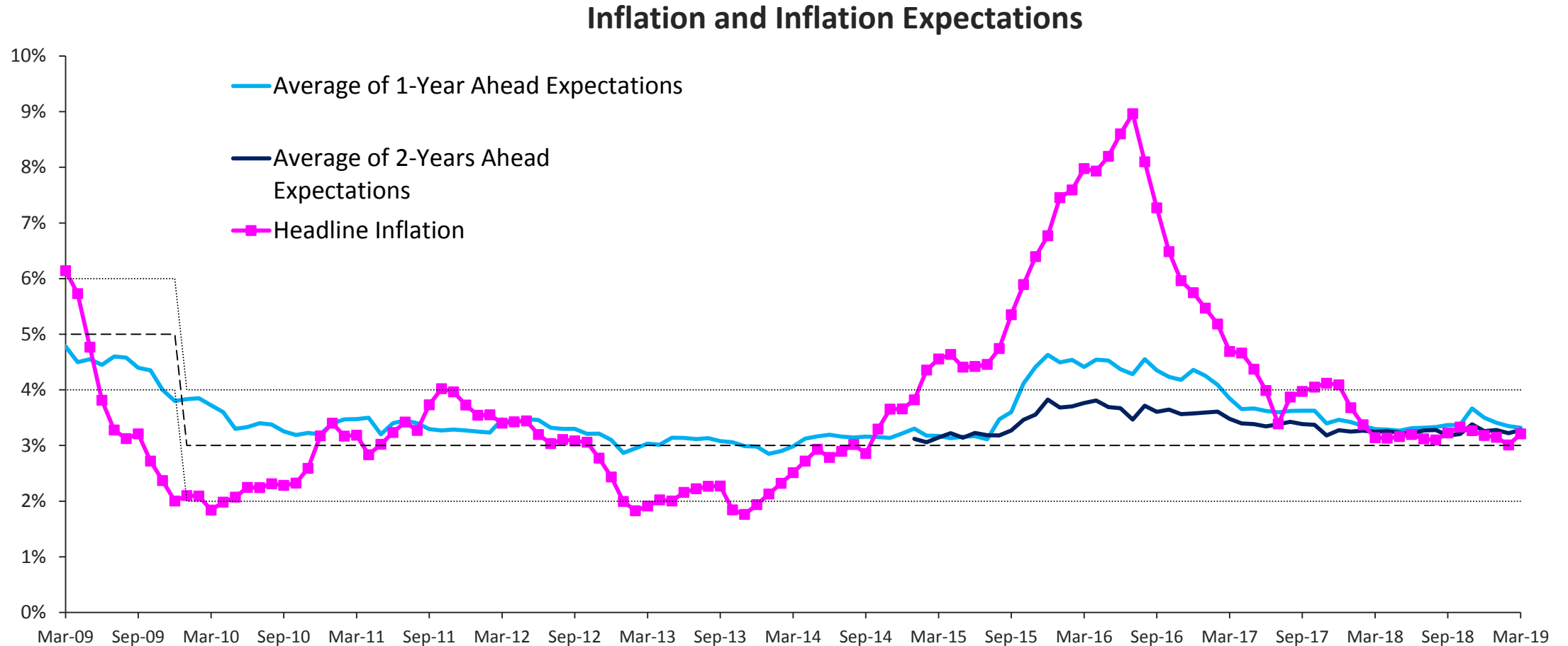
*FX Market intermediaries: Includes credit establishments and brokerage firms.

Source: Banco de la República.

FX Net Open Position of the Financial Sector

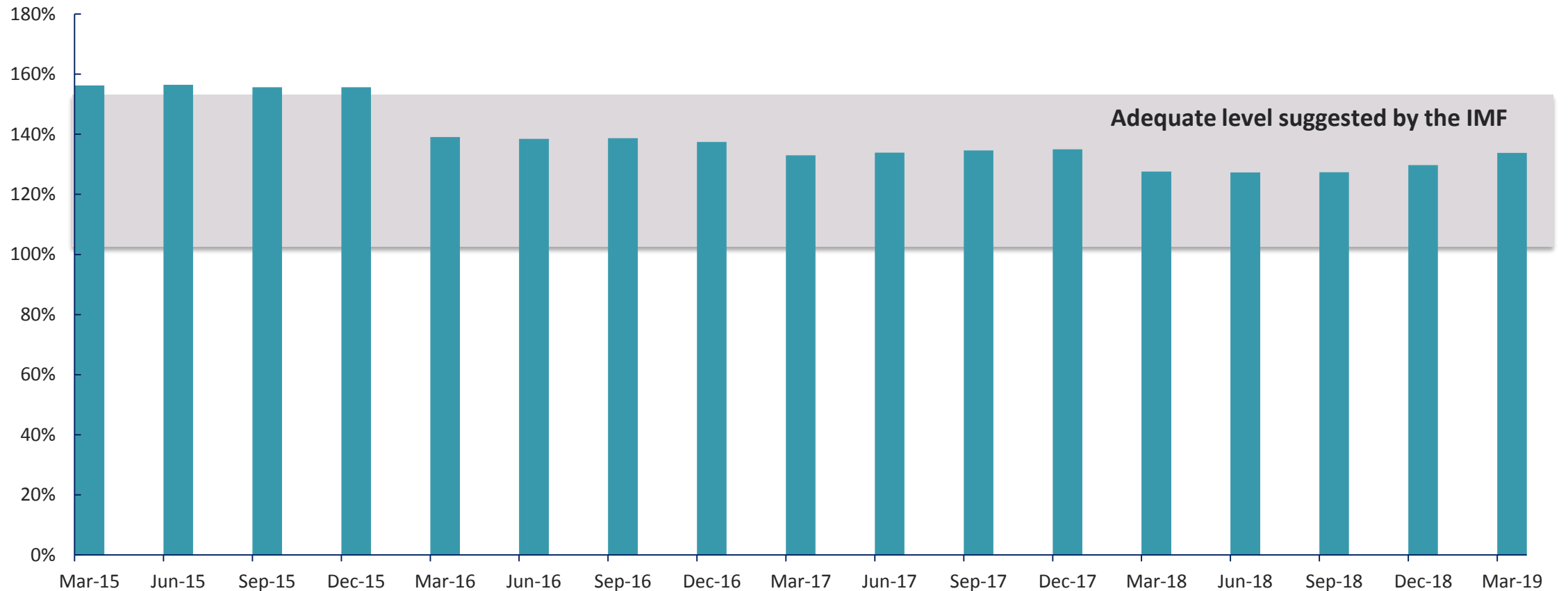


2. **A low pass-through**, which is supported by a credible inflation targeting regime. Despite the exchange rate depreciation in 2014, inflation expectations remained close to the 3% target...



3. **Sufficient external buffers.** A sufficient level of **external buffers** provides another safeguard against external shocks. The Flexible Credit Line (FCL) by the IMF has complemented the accumulation of international reserves...

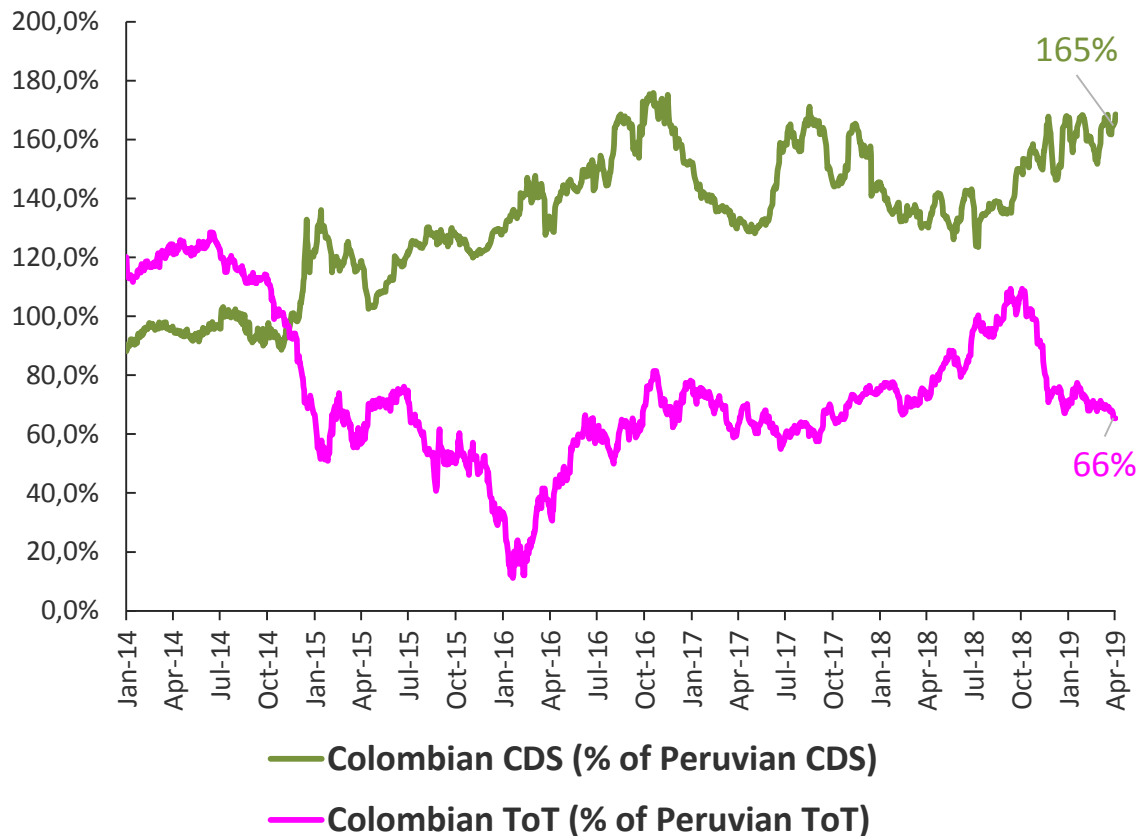
International Reserves - Percentage of IMF's ARA Metric



Source: IMF and Banco de la República. The ARA Metric is updated yearly, the reserves quarterly.

- A second policy implication is related to changes in **natural interest rates** stemming from persistent shocks to terms of trade with strong effects on the macroeconomy.
- **Risk premia** may shift persistently after a protracted terms of trade shock.

CDS and Terms of Trade



Debt of the Central Government
(% of GDP)

