



Slides for MacroVoices Interview: Where are we in the Cycle?

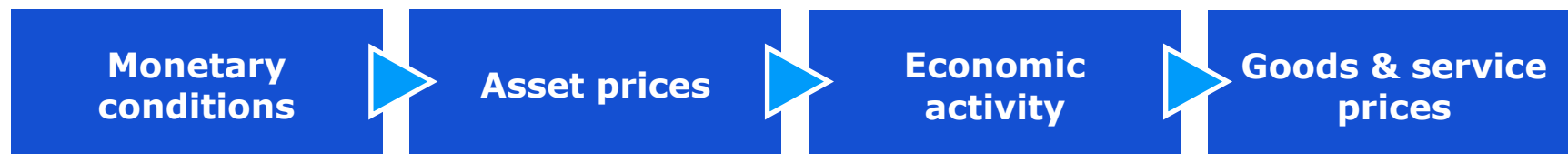
May 21, 2019

John Greenwood

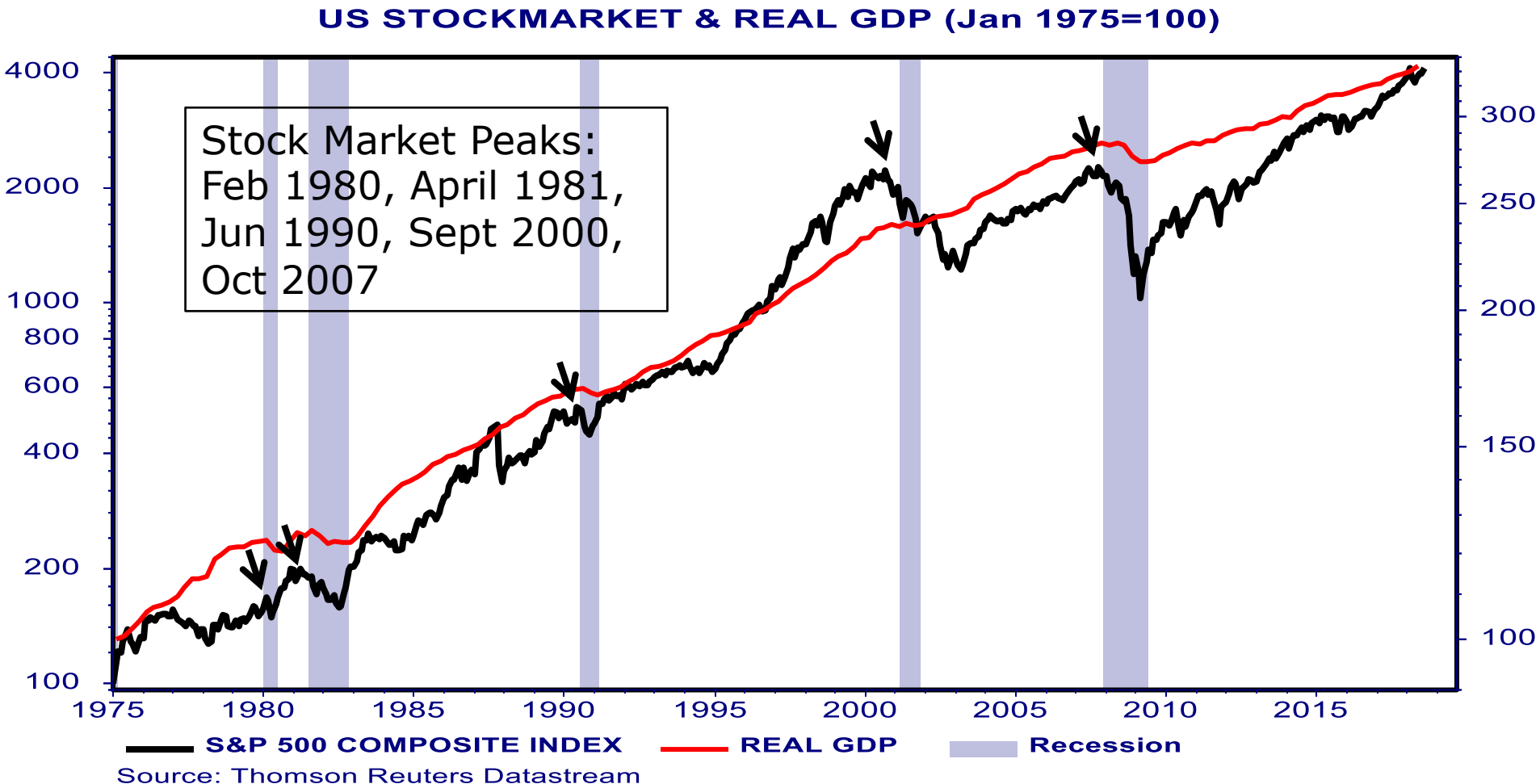
Chief Economist, Invesco Ltd



What is the Business Cycle?



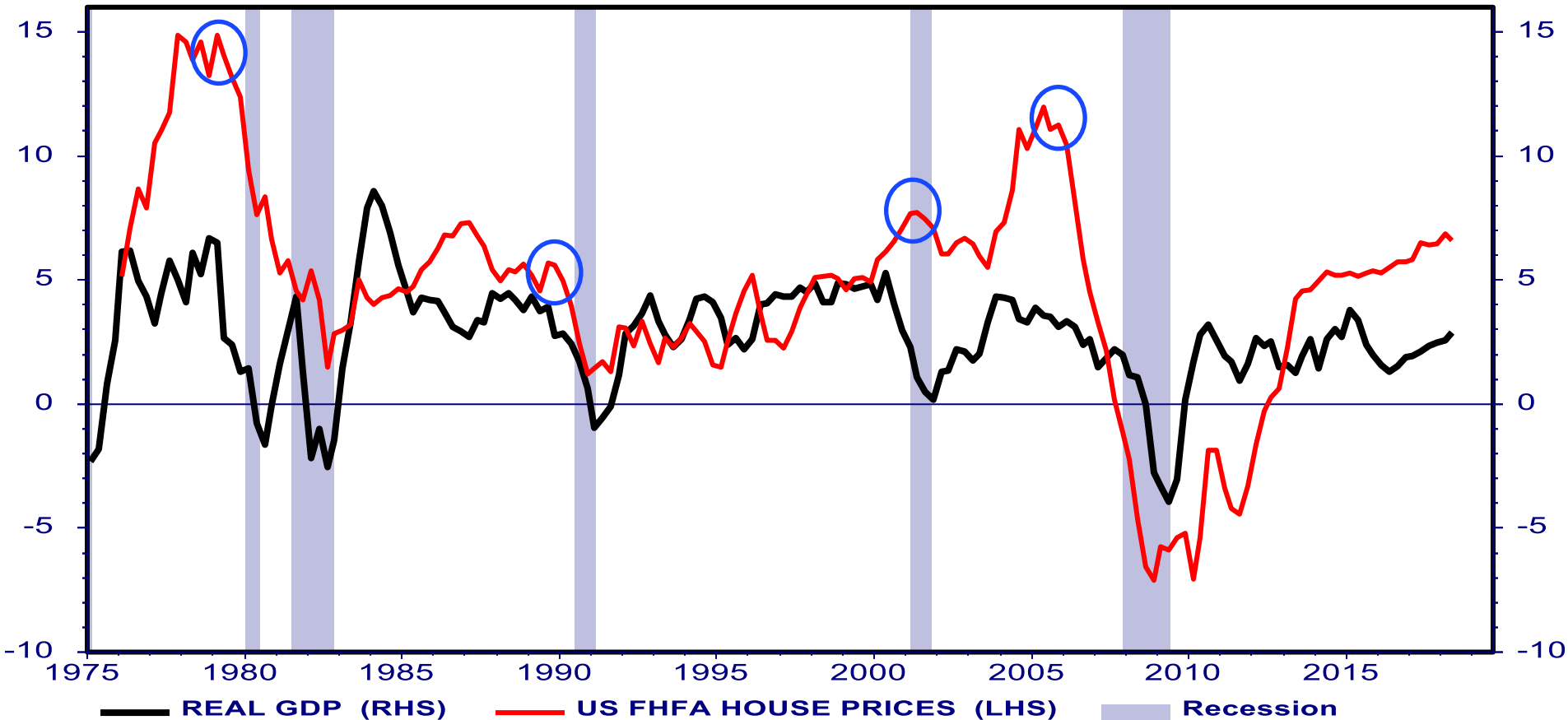
Stock Market Peaks have Preceded Economic Expansion Peaks



US House Price Peaks also Precede Business Cycle Peaks



US HOUSE PRICES AND REAL GDP (%YOY)

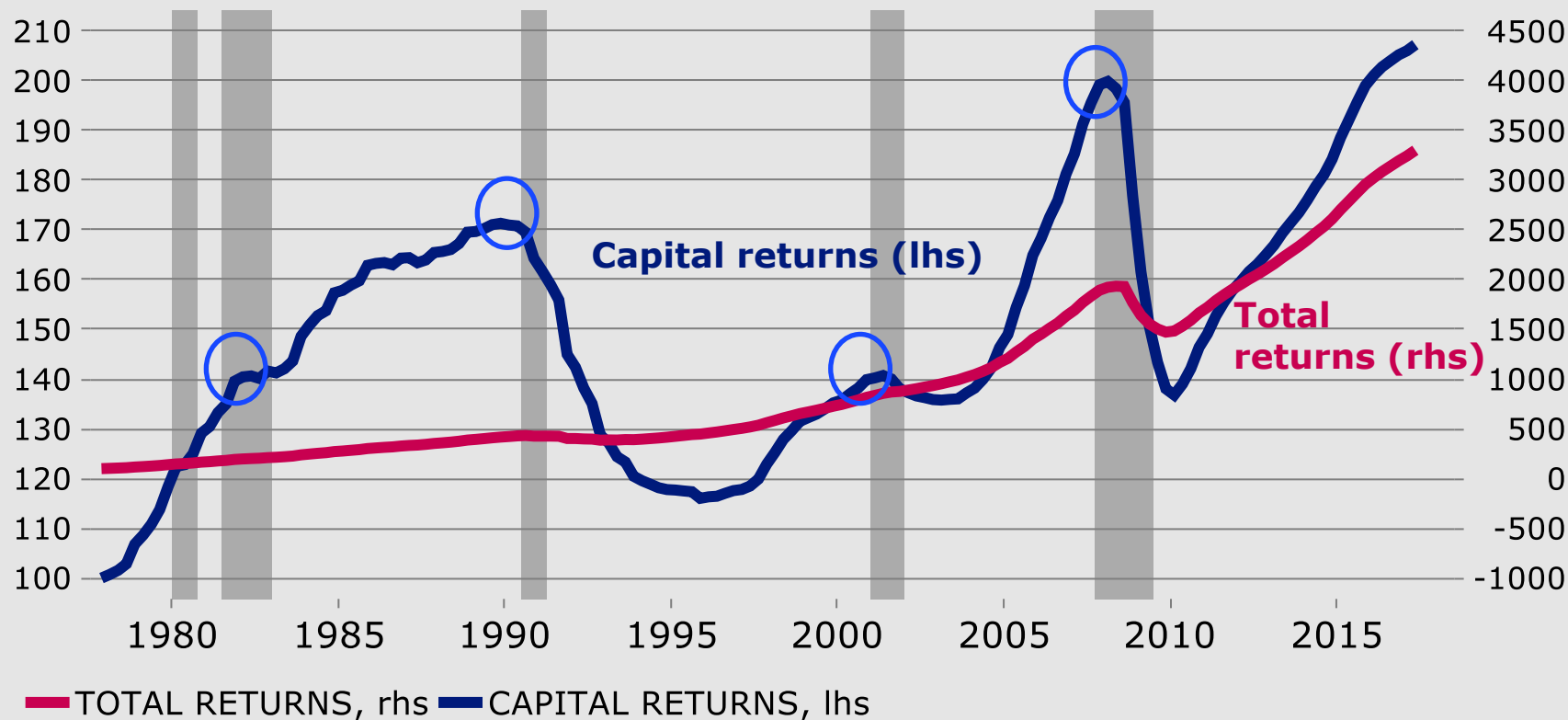


Source: Thomson Reuters Datastream

US Commercial Property Price Peaks also Generally Precede Recessions

US commercial property market indices & recessions

NCREIF

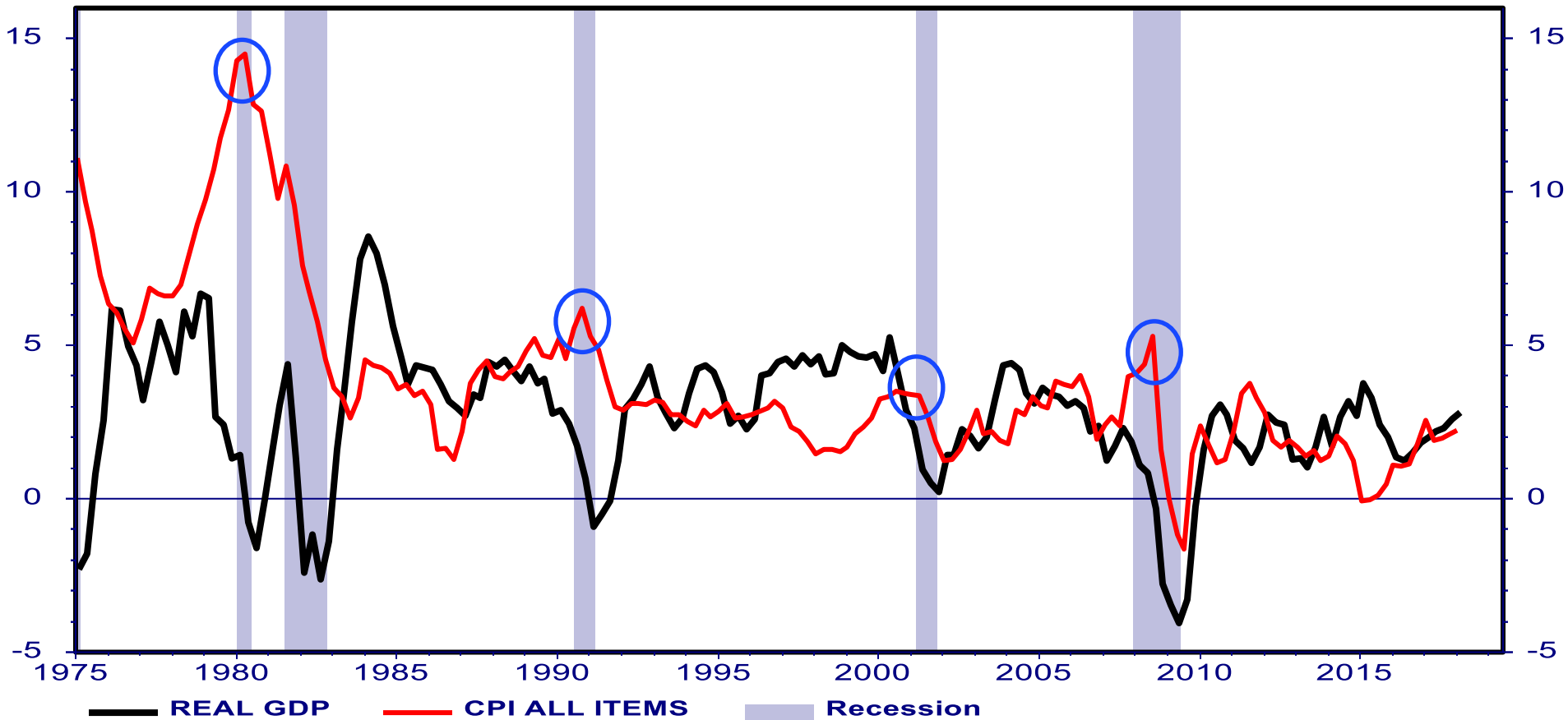


Source: Macrobond as at 14 June 2018.

Consumer Prices Lag Asset Prices and Real GDP, Giving Rise to “Stag-flation”



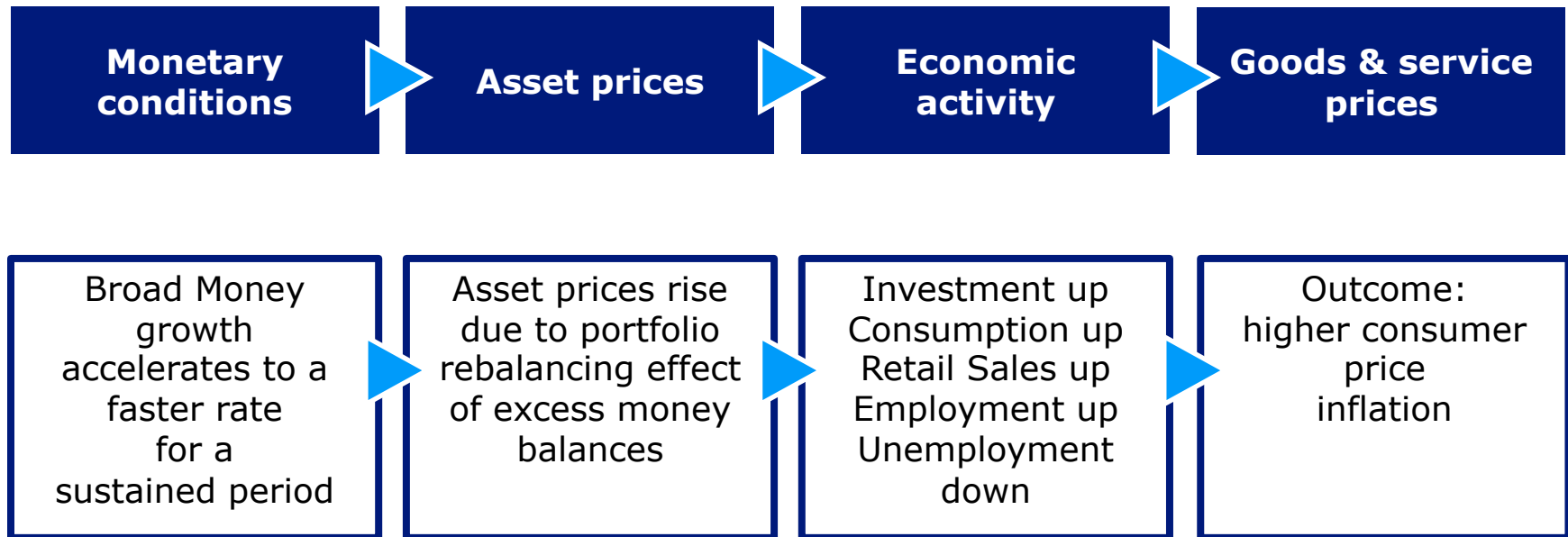
US: REAL GDP AND CPI INFLATION (%YOY)



Source: Thomson Reuters Datastream

The Business Cycle Transmission Mechanism

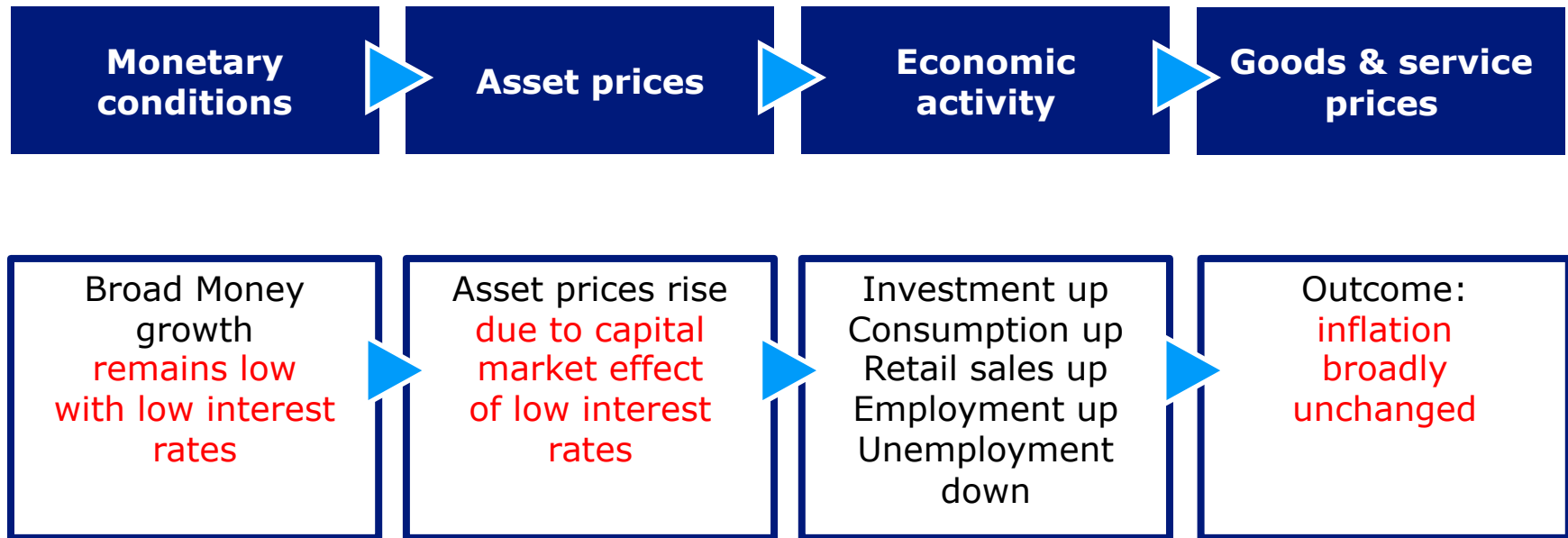
(Type 1: Rapid money growth – low interest rates initially, followed by rising rates later)



For illustrative purposes only.

The Business Cycle Transmission Mechanism

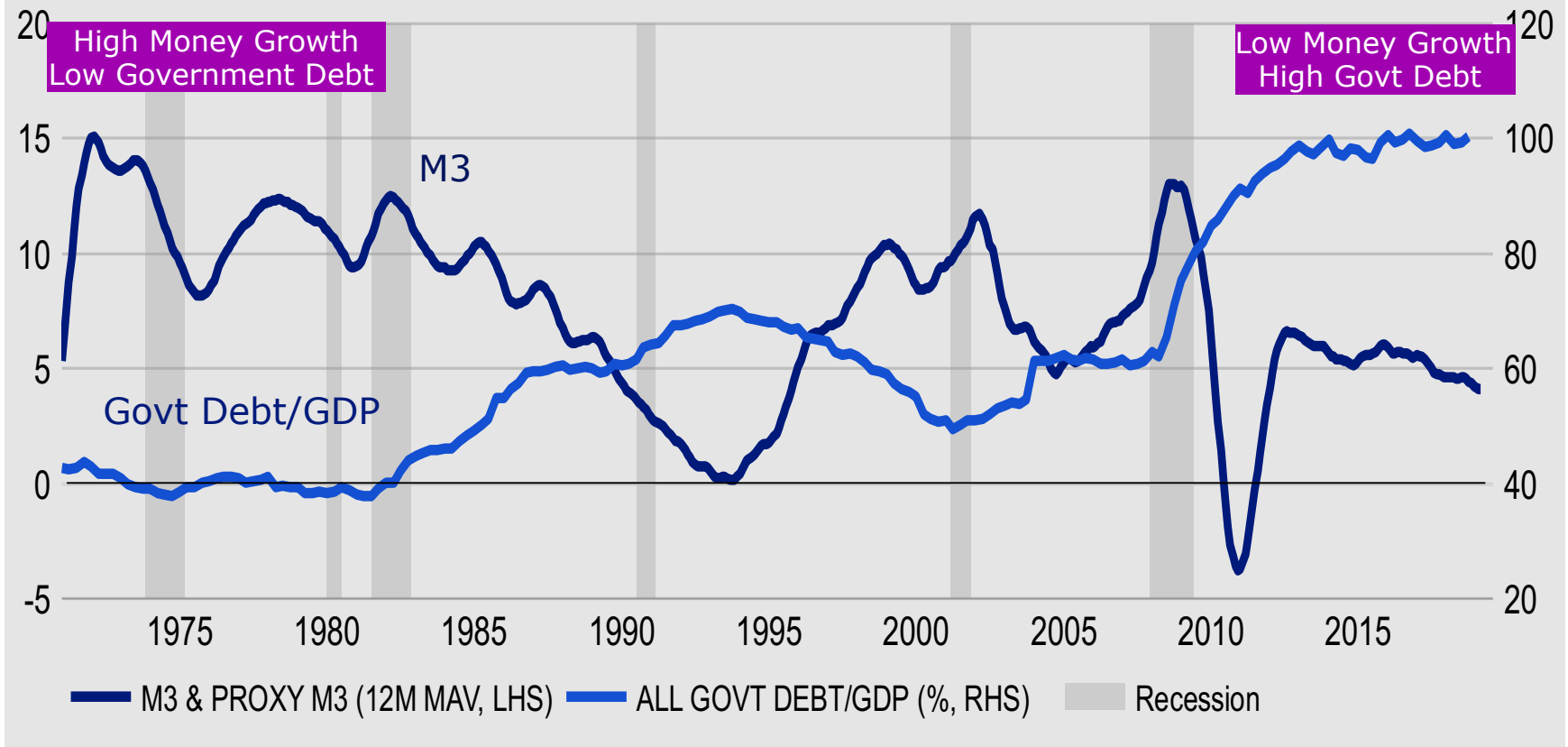
(Type 2: Low Money Growth – with interest rates remaining low)



For illustrative purposes only.

Is it debt or money growth that causes inflation?

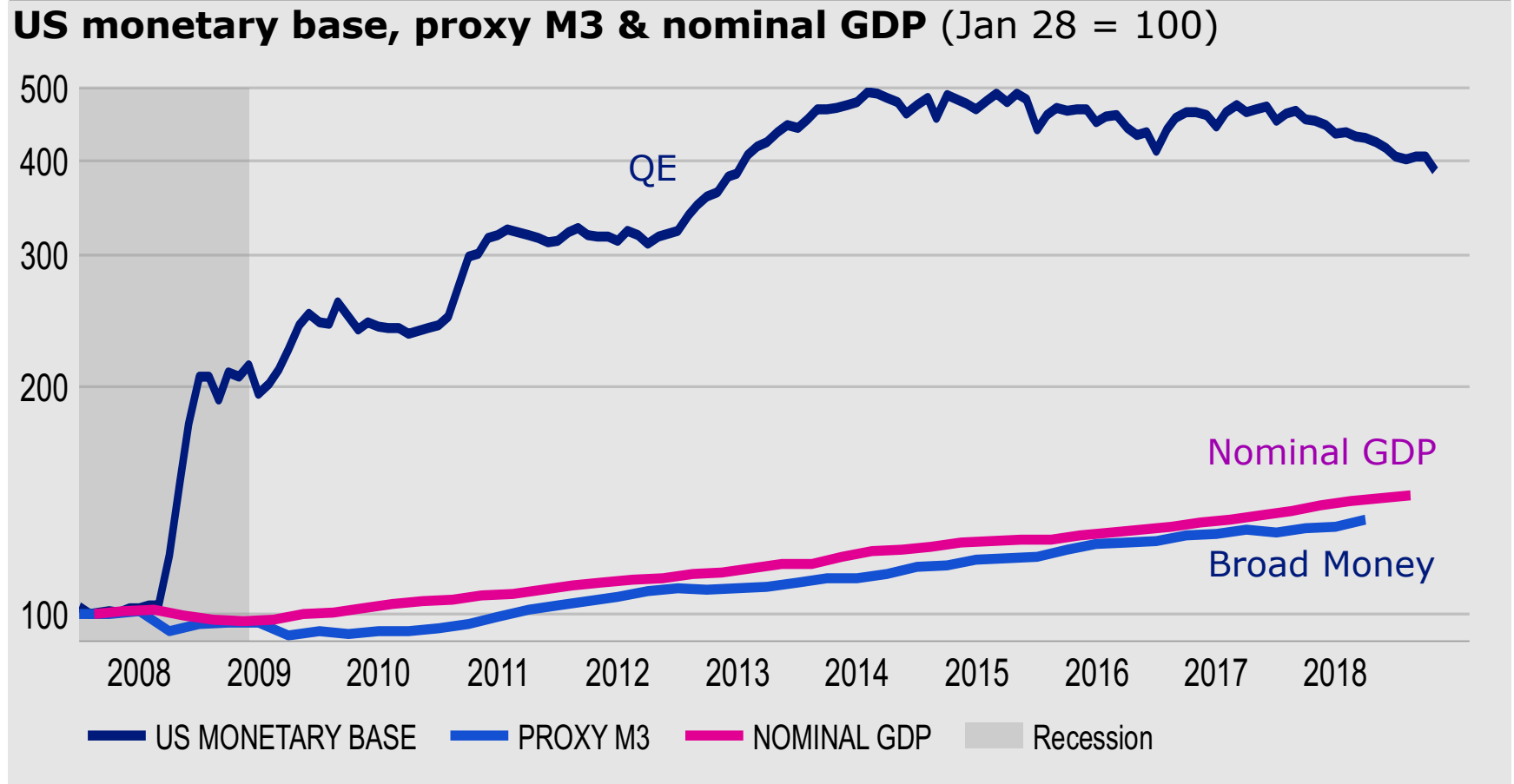
US: Growth of M3 and Govt Debt



Source: Datastream as at 30 April 2019.

Is it QE or broad money that drives spending?

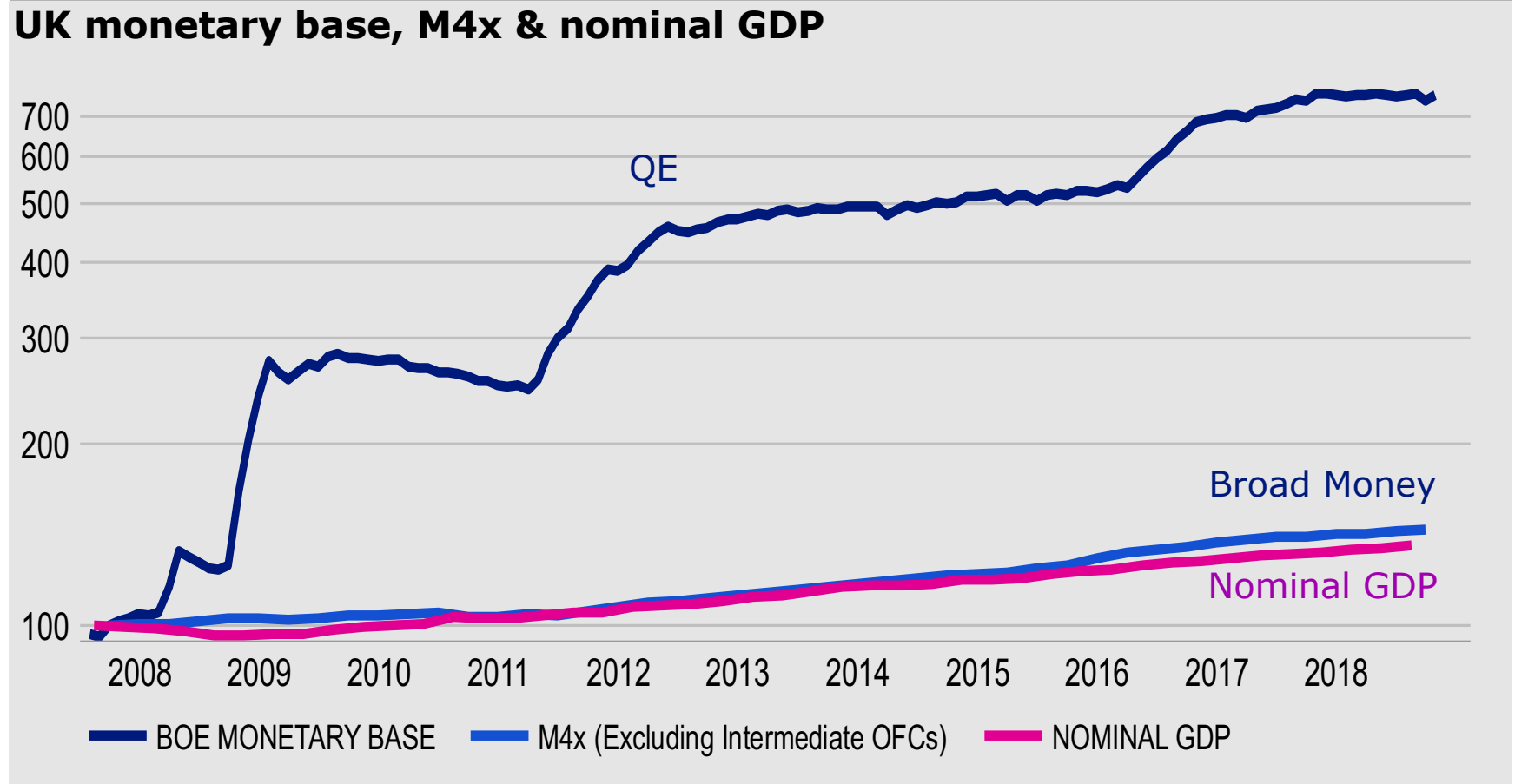
-- United States



Source: Datastream as at 15 May 2019.

Is it QE or broad money that drives spending?

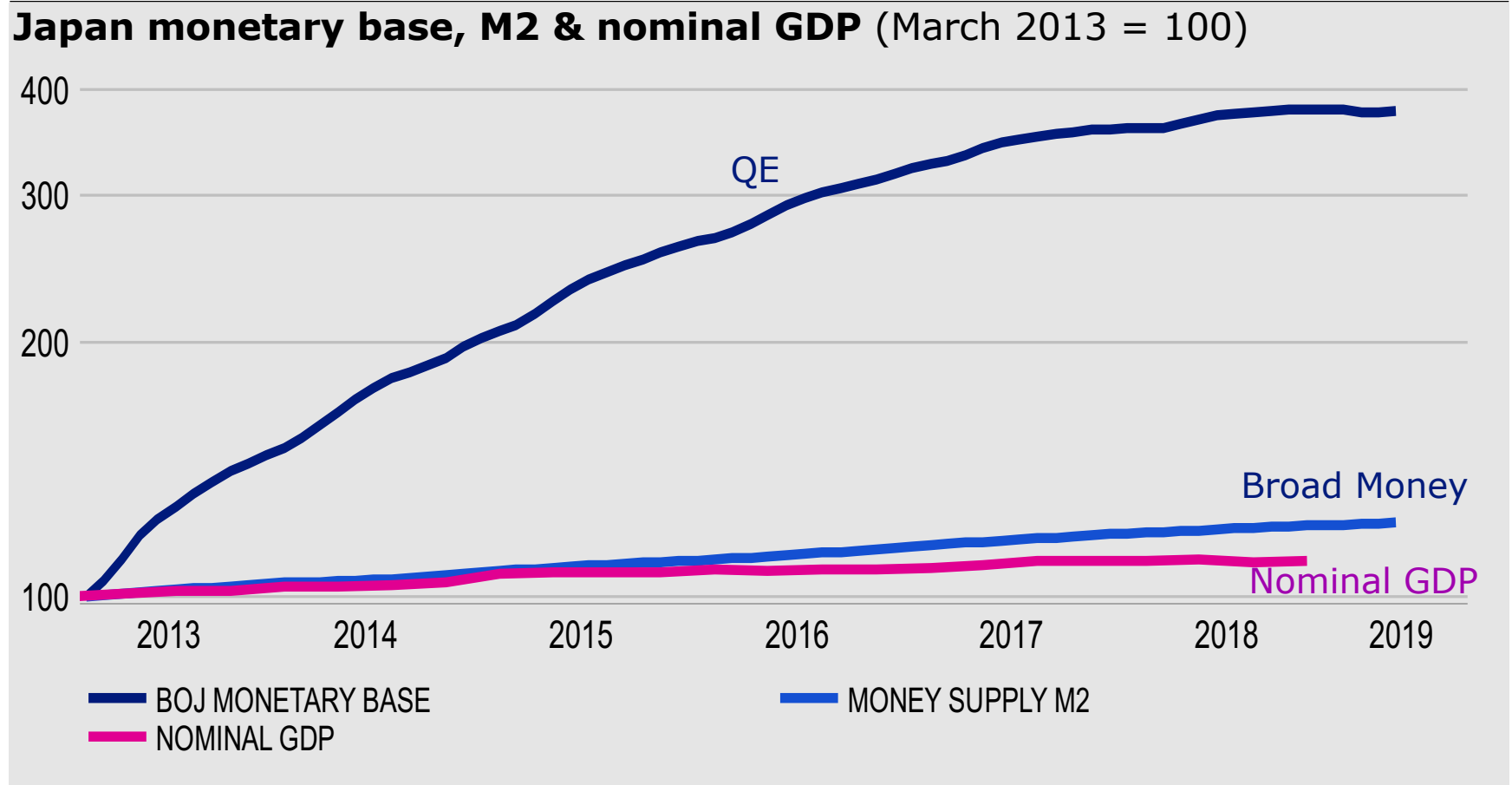
-- UK



Source: Datastream as at 15 May 2019.

Is it QE or broad money that drives spending?

-- Japan



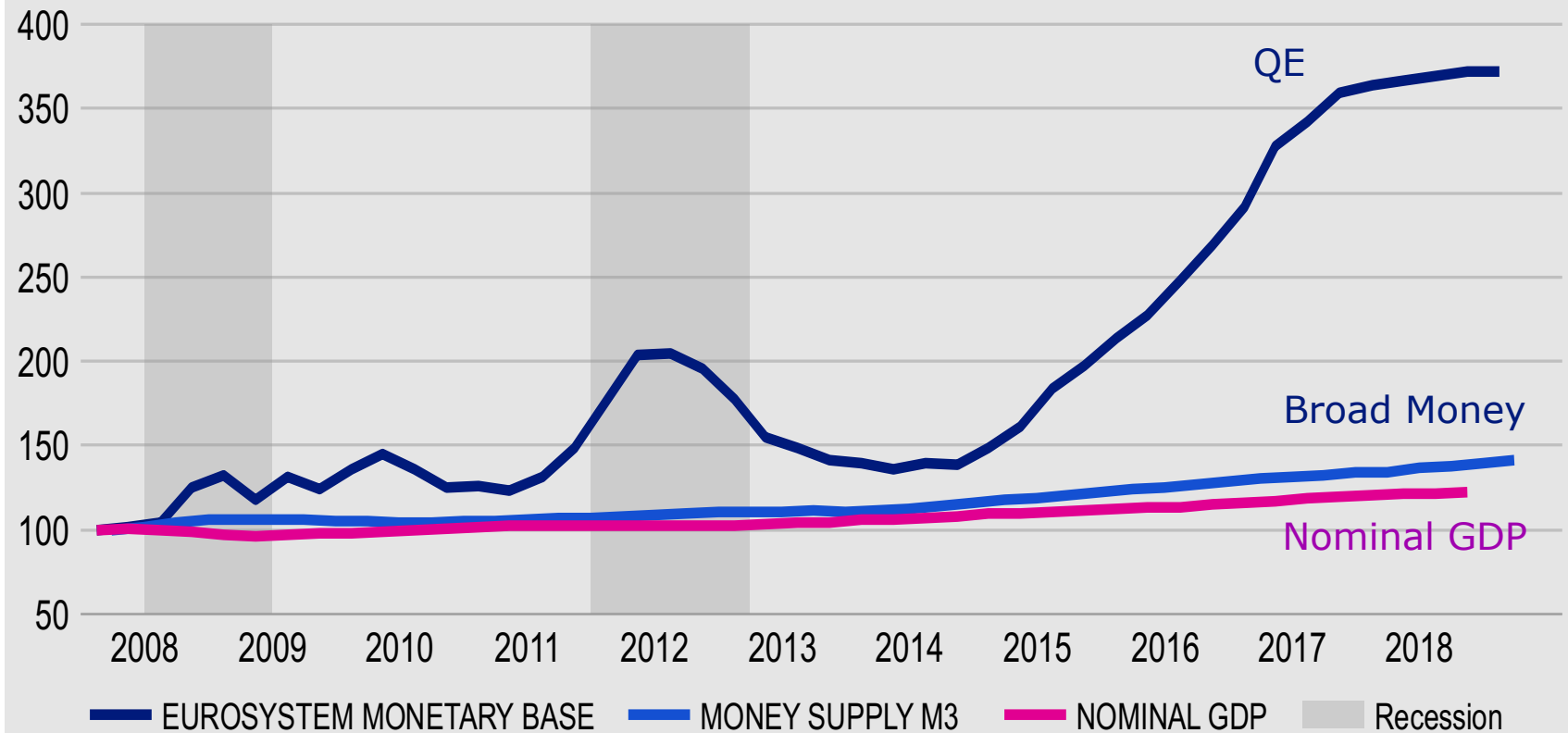
Source: Datastream as at 15 May 2019.

Is it QE or broad money that drives spending?

-- Eurozone



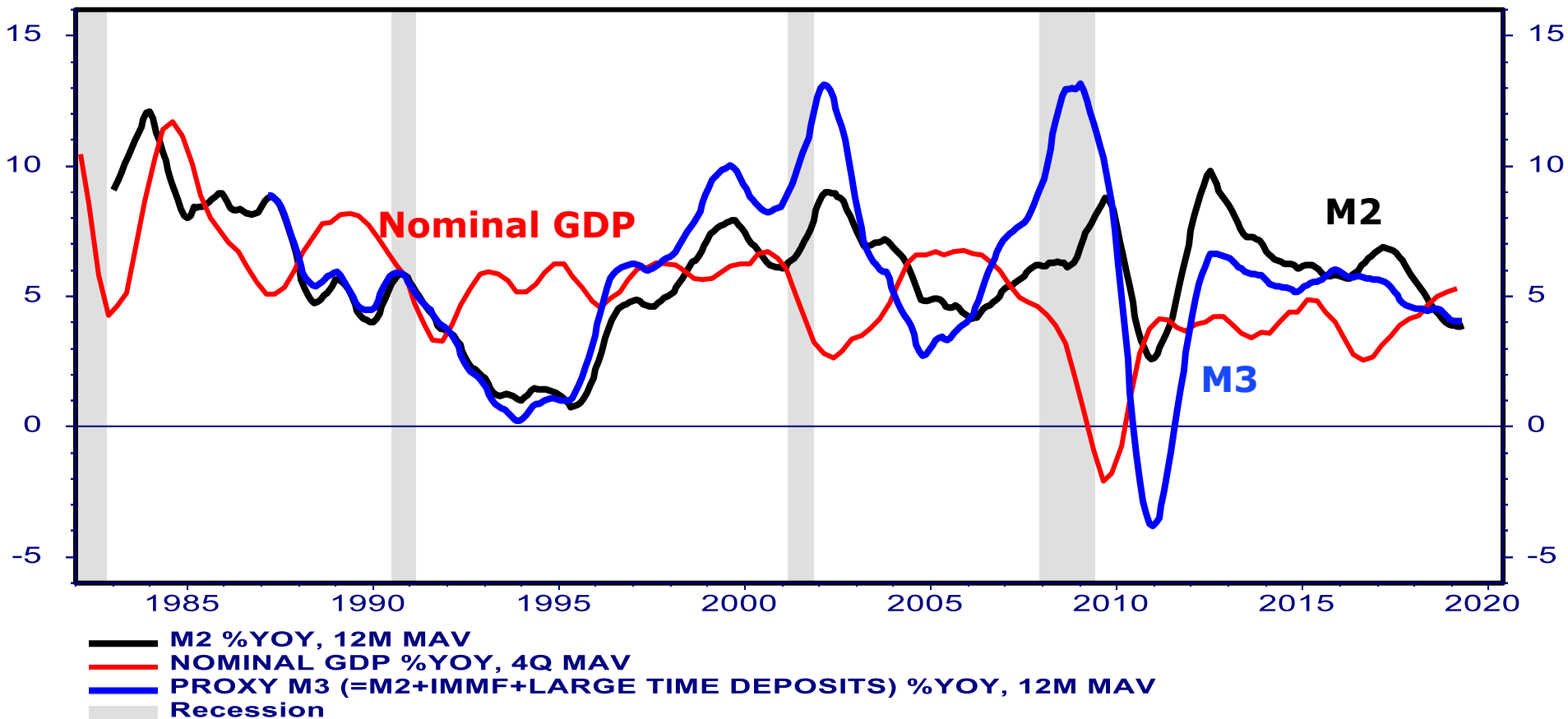
Eurozone monetary base, M3 & nominal GDP



Source: Datastream as at 15 May 2019.

US Money Growth has been low and -- broadly -- stable since 2012

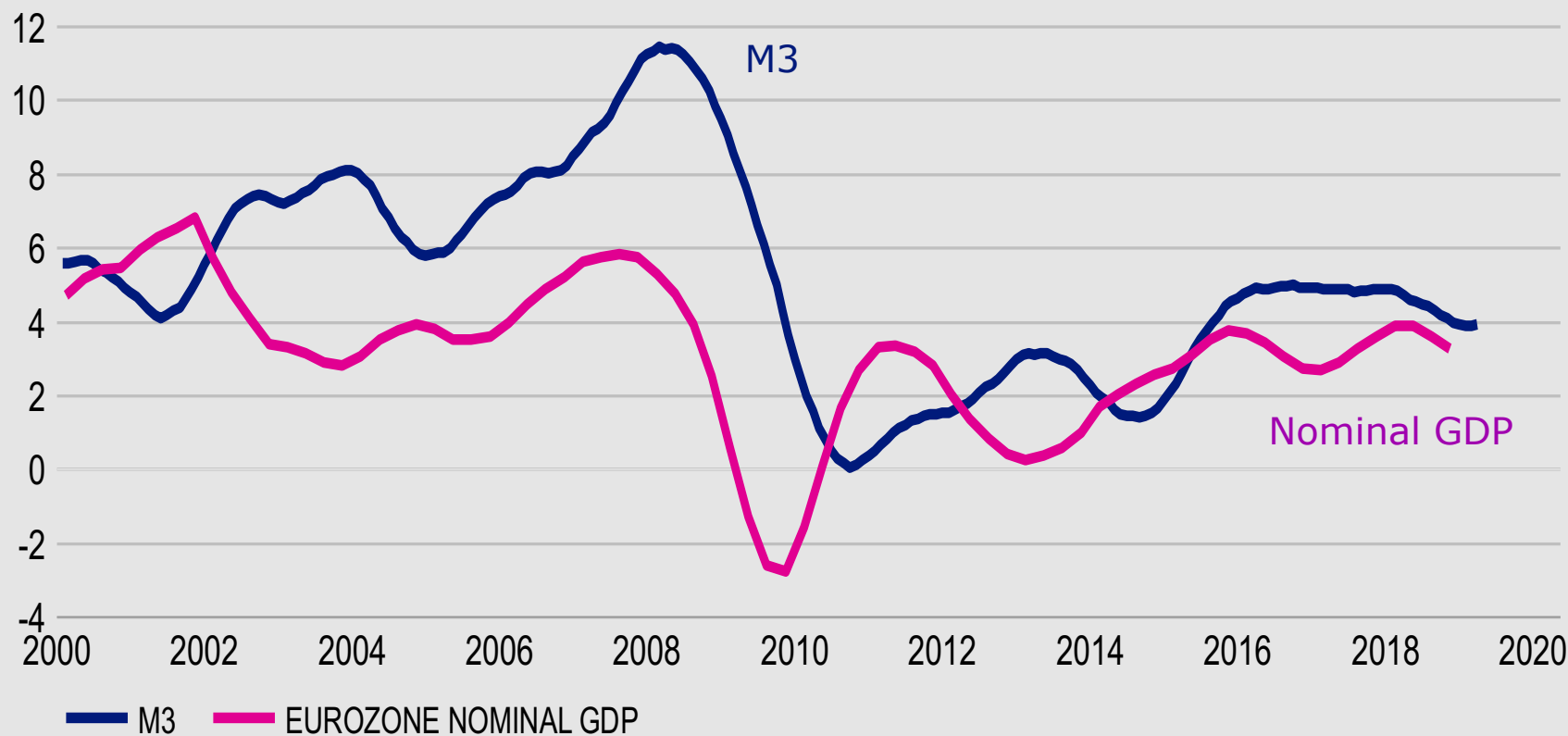
US NOMINAL GDP & BROAD MEASURES OF MONEY (%YOY)



Source: Thomson Reuters Datastream

Eurozone M3 growth still too low, holding down nominal spending on GDP

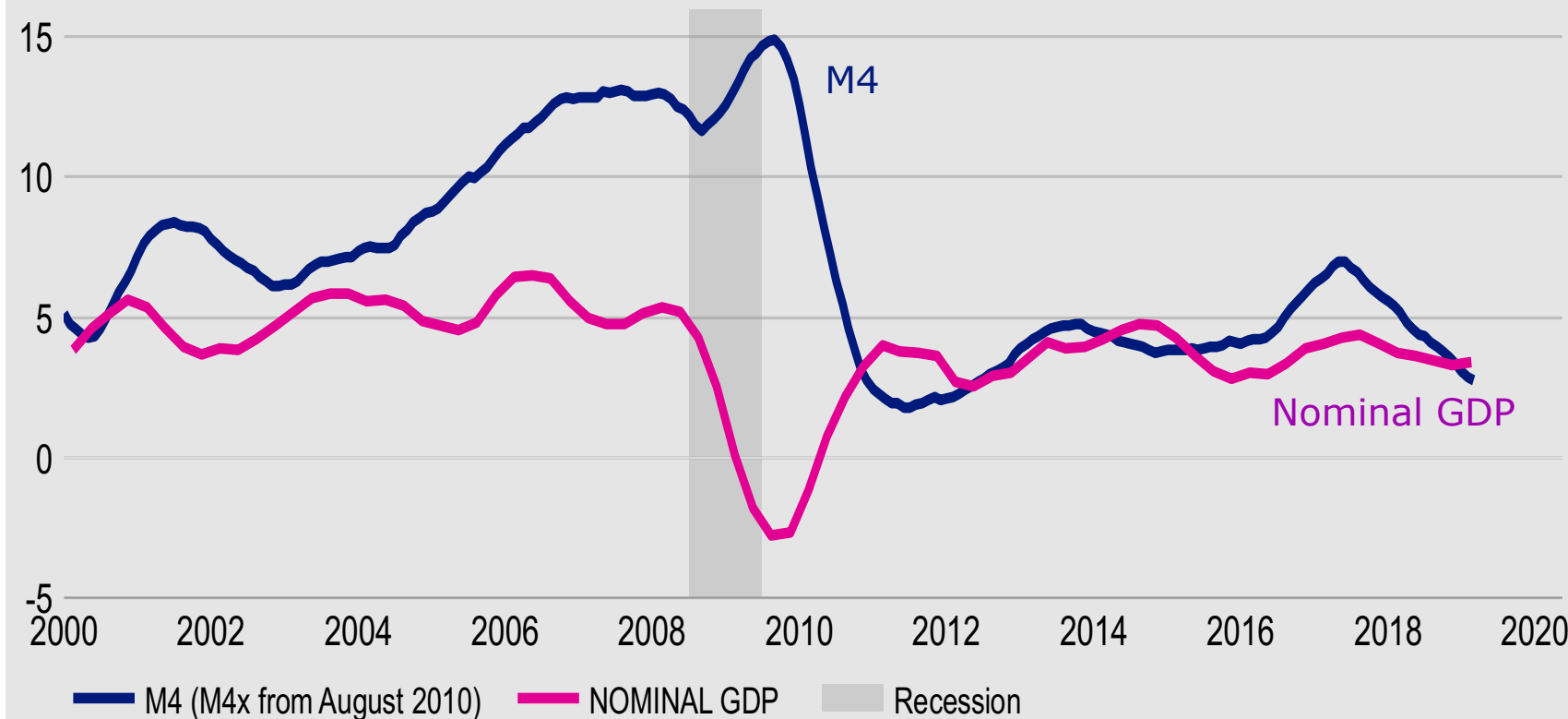
Eurozone M3 & Nominal GDP Growth (% yoy, 4q MAV)



Source: Datastream as at 15 May 2019 ■

UK Broad Money growth has slowed to 2-3%, implying inflation will fall below 2% target

UK Broad Money & Nominal GDP Growth (% yoy, 4q MAV)



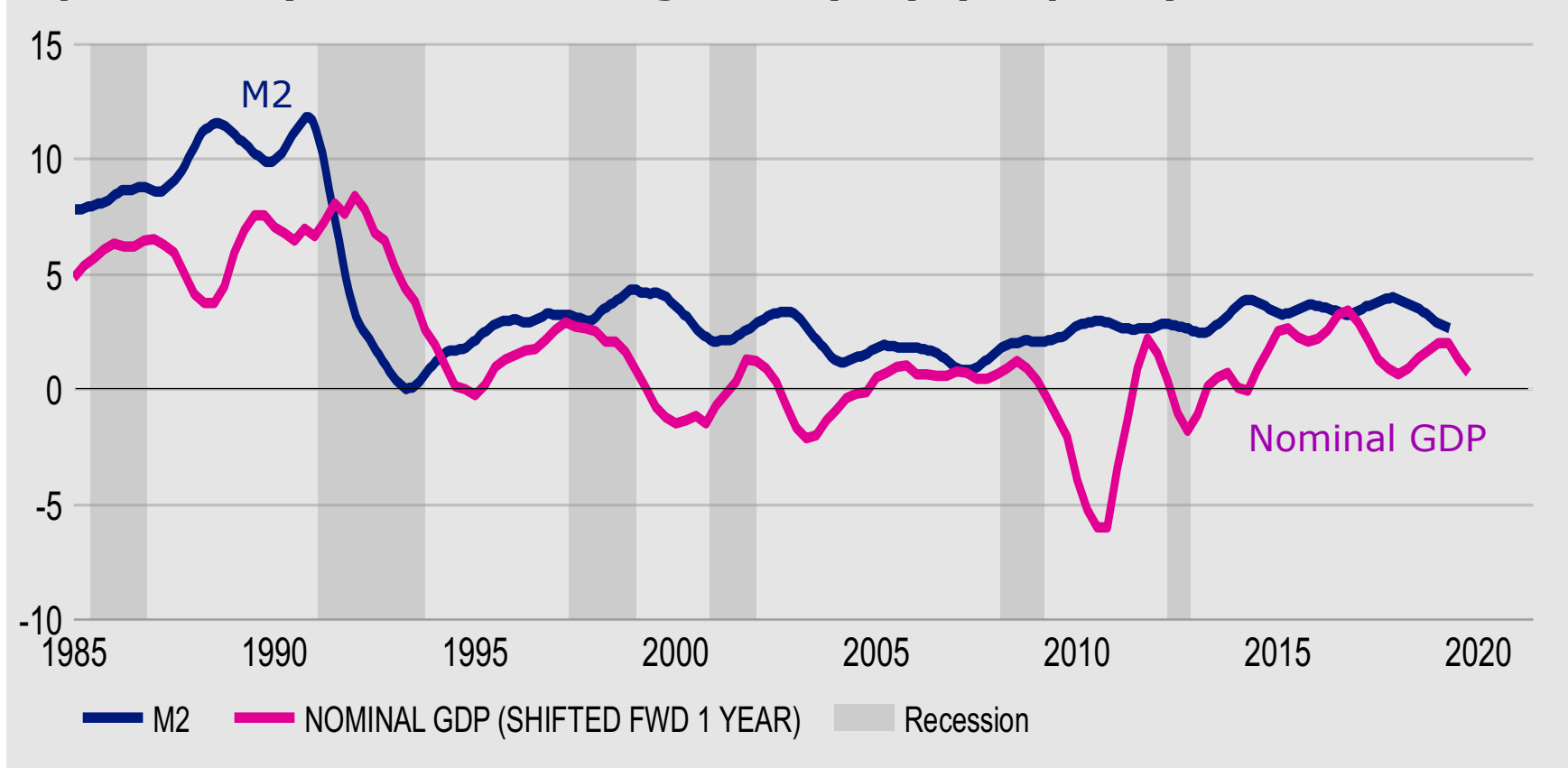
Source: Datastream as at 15 May 2019.

Bank of Japan: QQE Ineffective

Ever since the bubble burst in 1989-90, money growth (M2) has been too low



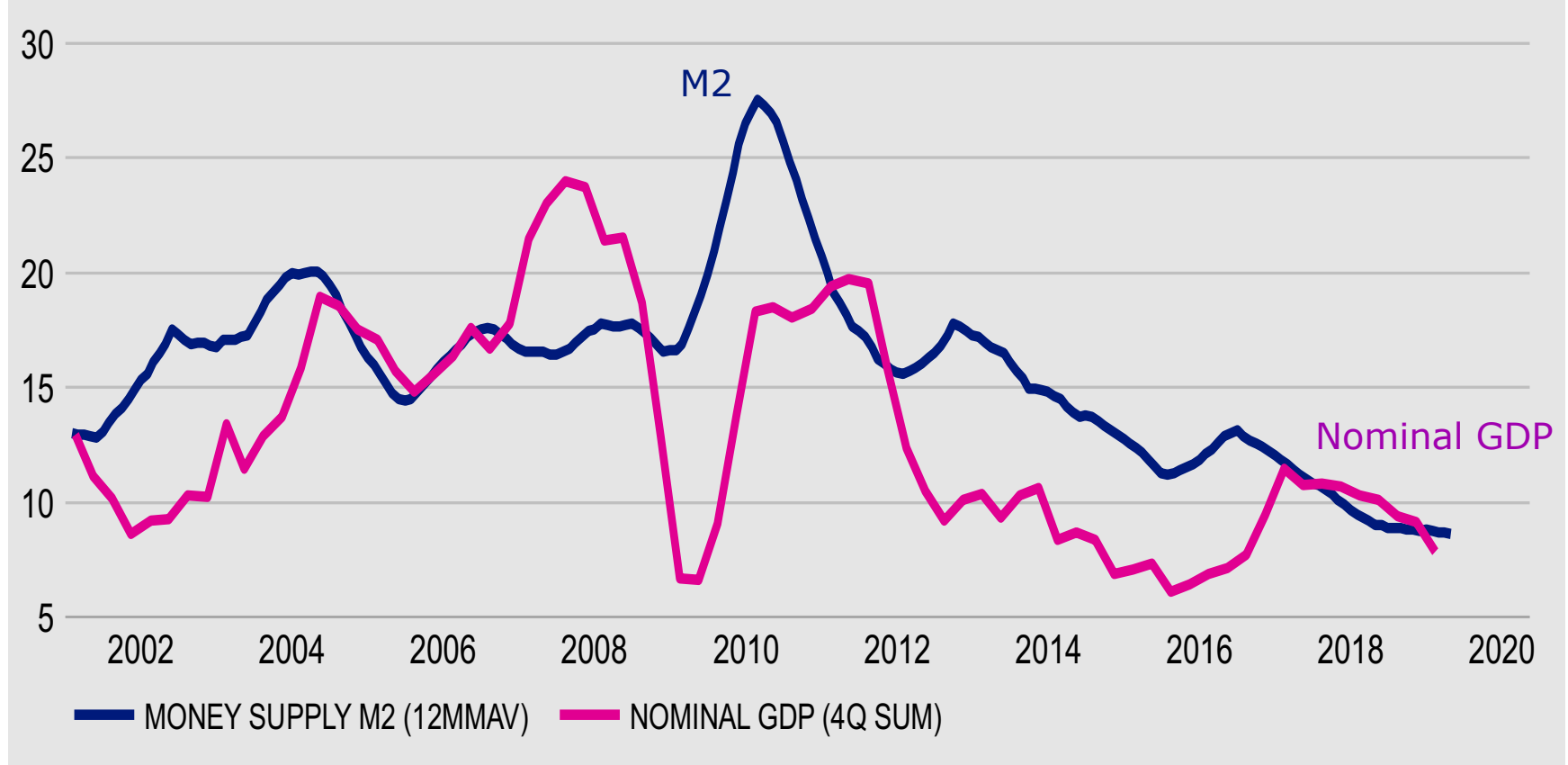
Japan: Money & nominal GDP growth (% yoy, 4q mav)



Source: Datastream as at 15 May 2019.

People's Bank of China: M2 Money growth rate too low

China: M2 & nominal GDP growth (% yoy, smoothed)



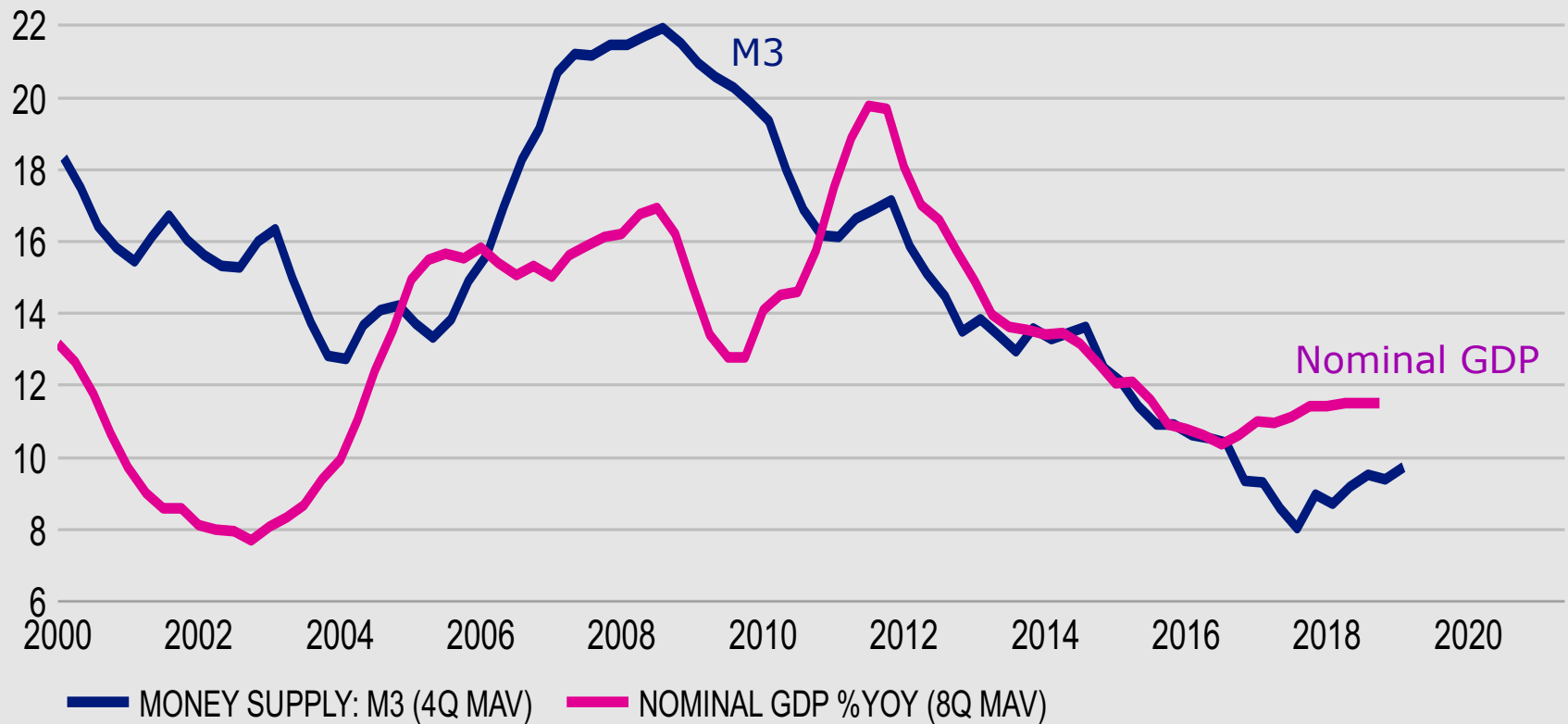
Source: Datastream as at 15 May 2019.

Reserve Bank of India:

Keeping a tight rein on M3 growth & nominal spending



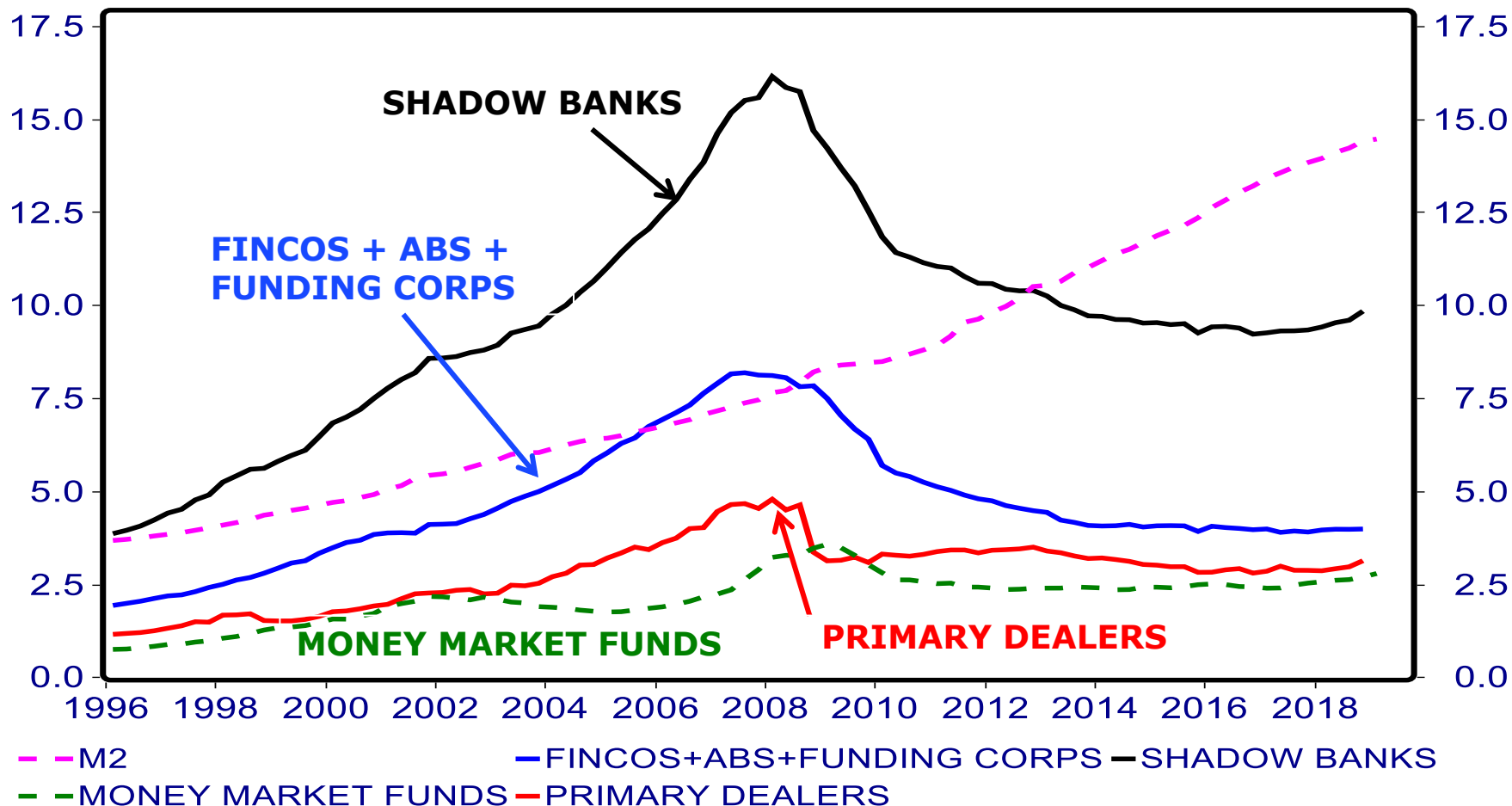
India: M3 & Nominal GDP (%yoy)



Source: Datastream as at 15 May 2019.

US Shadow Banks : Their Relation to the Banking System & M2

US: LIABILITIES OF SHADOW BANKS (US\$ TN)

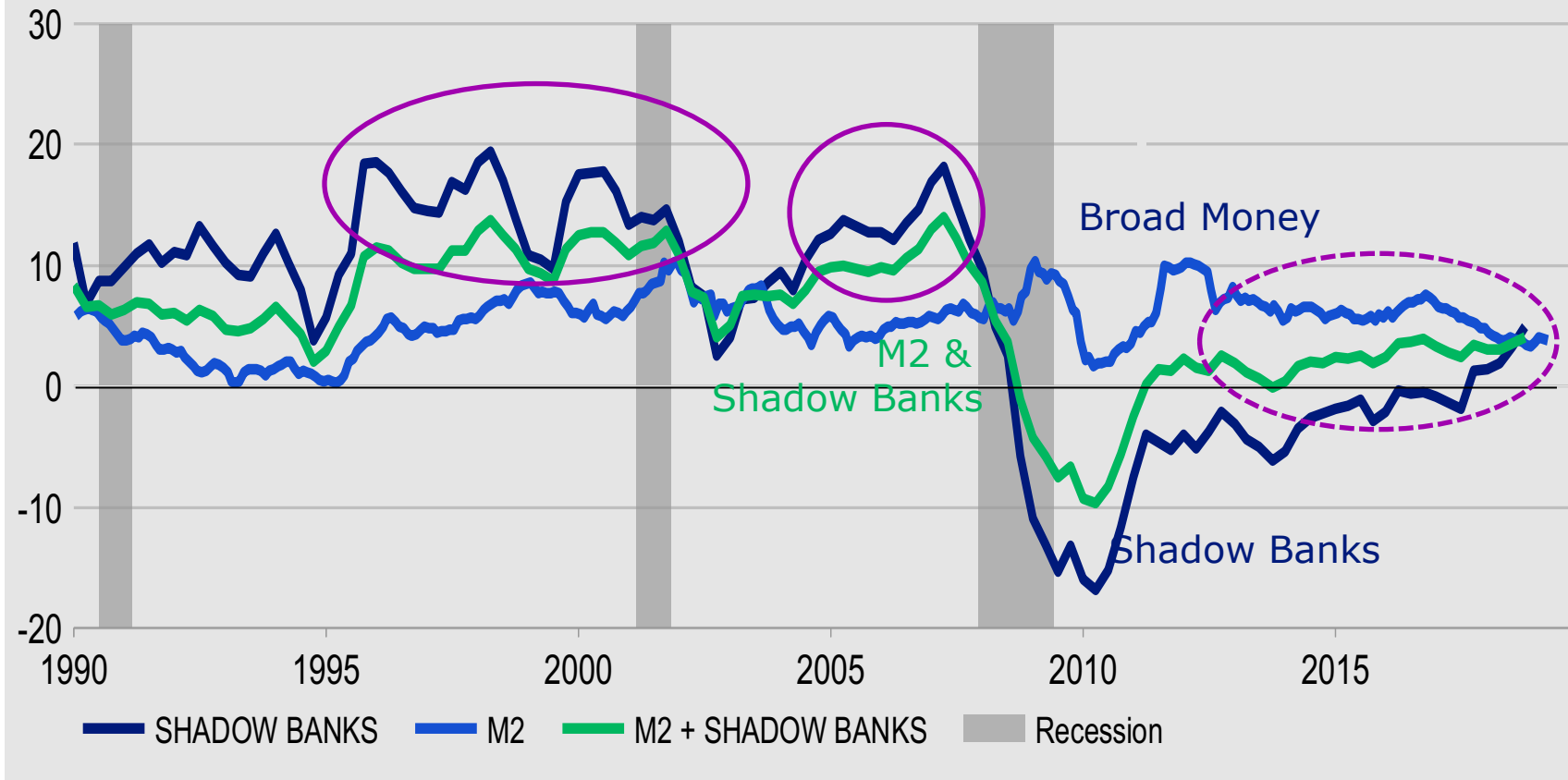


Source: Macrobond

Inflation is a monetary phenomenon

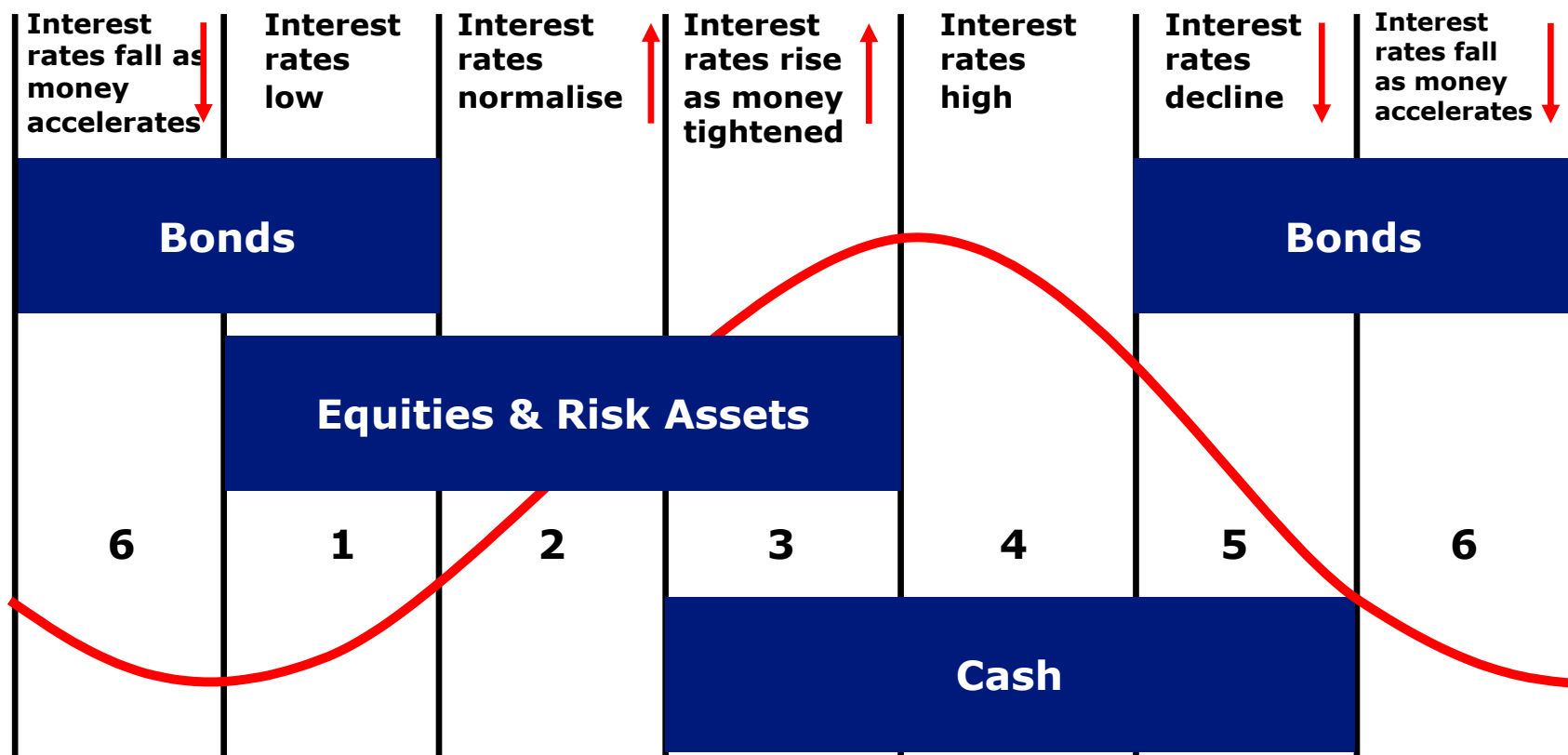
US money & credit growth remain subdued

US: Growth of shadow banks & M2 (% yoy)



Source: Datastream as at 15 May 2019.

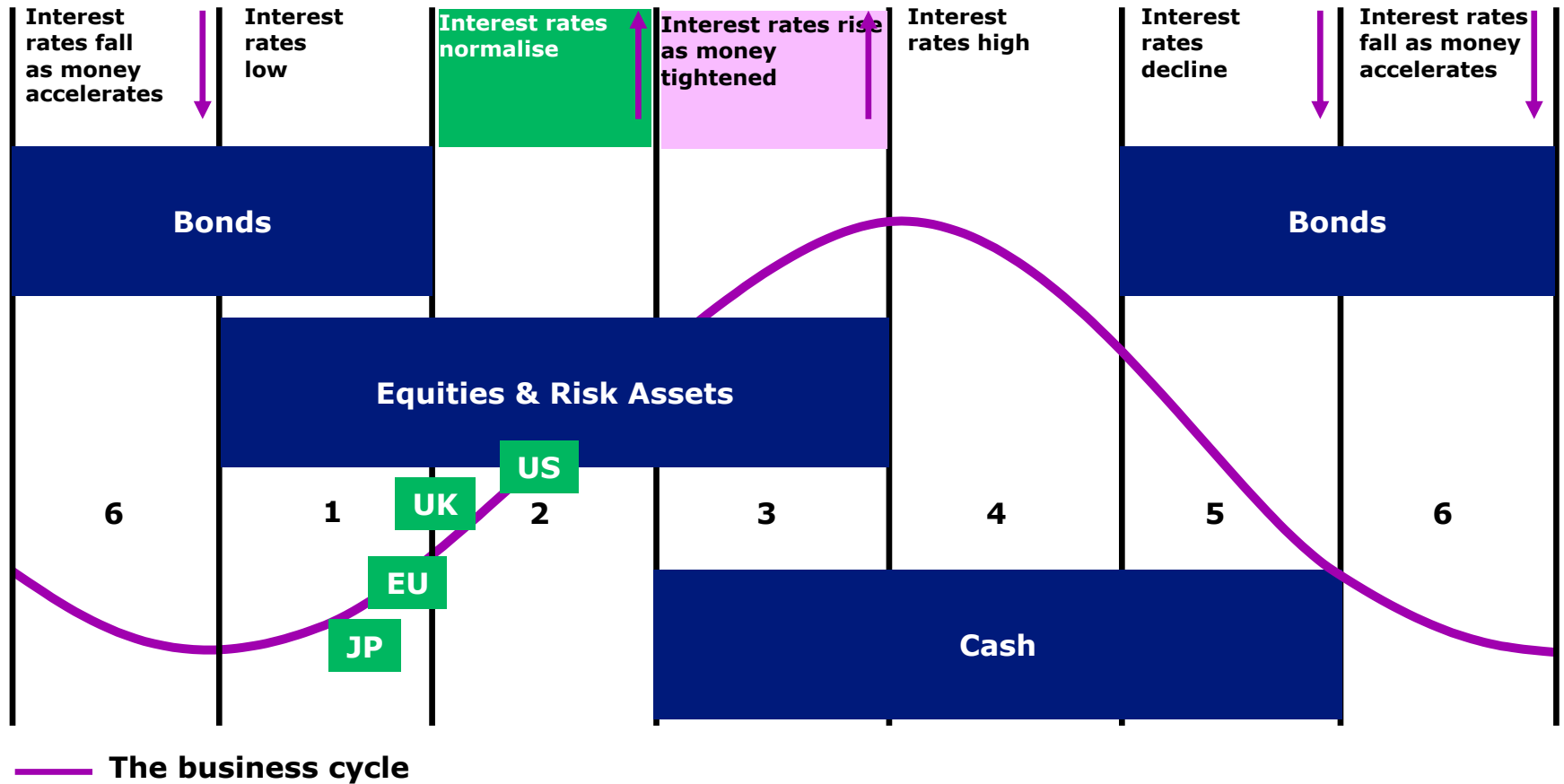
Asset Allocation Through the Business Cycle – Developed Economies



— The business cycle

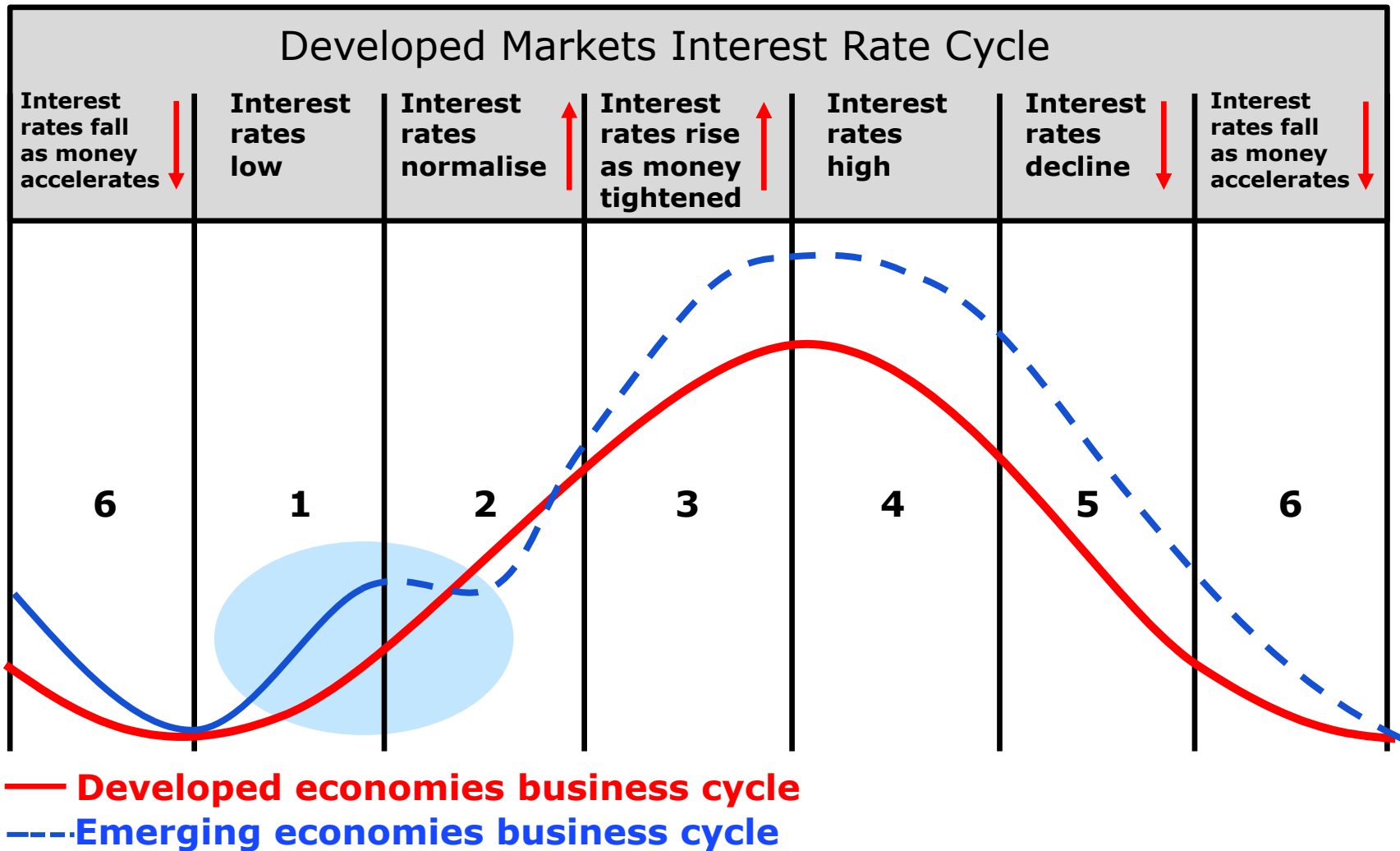
Source: Invesco. For illustrative purposes only.

Where are the developed economies in the business cycle?



Source: Invesco. For illustrative purposes only.

Combining Developed Markets' Business Cycle with EM Business Cycle

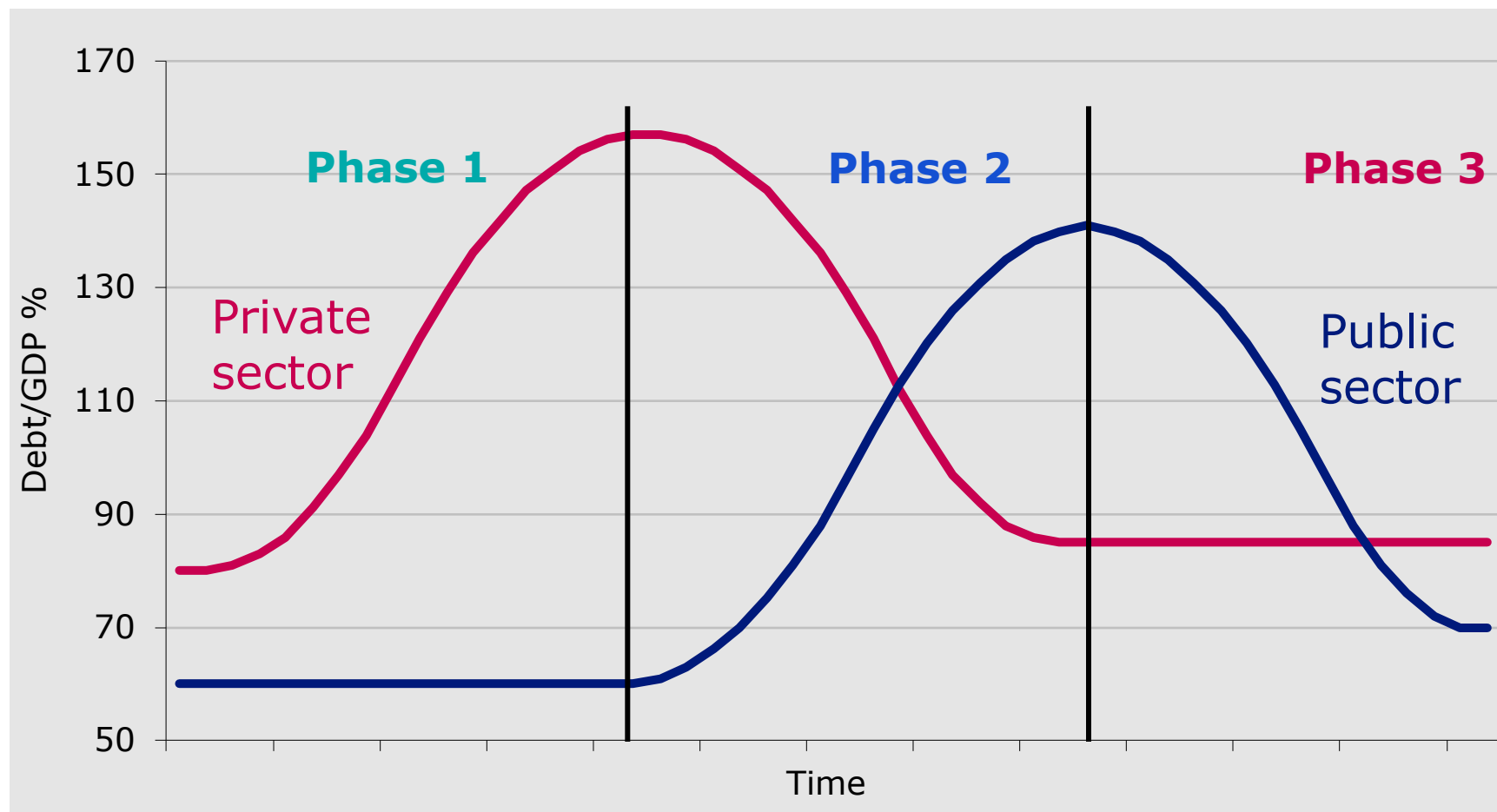


Source: Invesco. For illustrative purposes only.

Three phases of a debt crisis

2 overlapping bell curves –

Private and public sector debt ratios

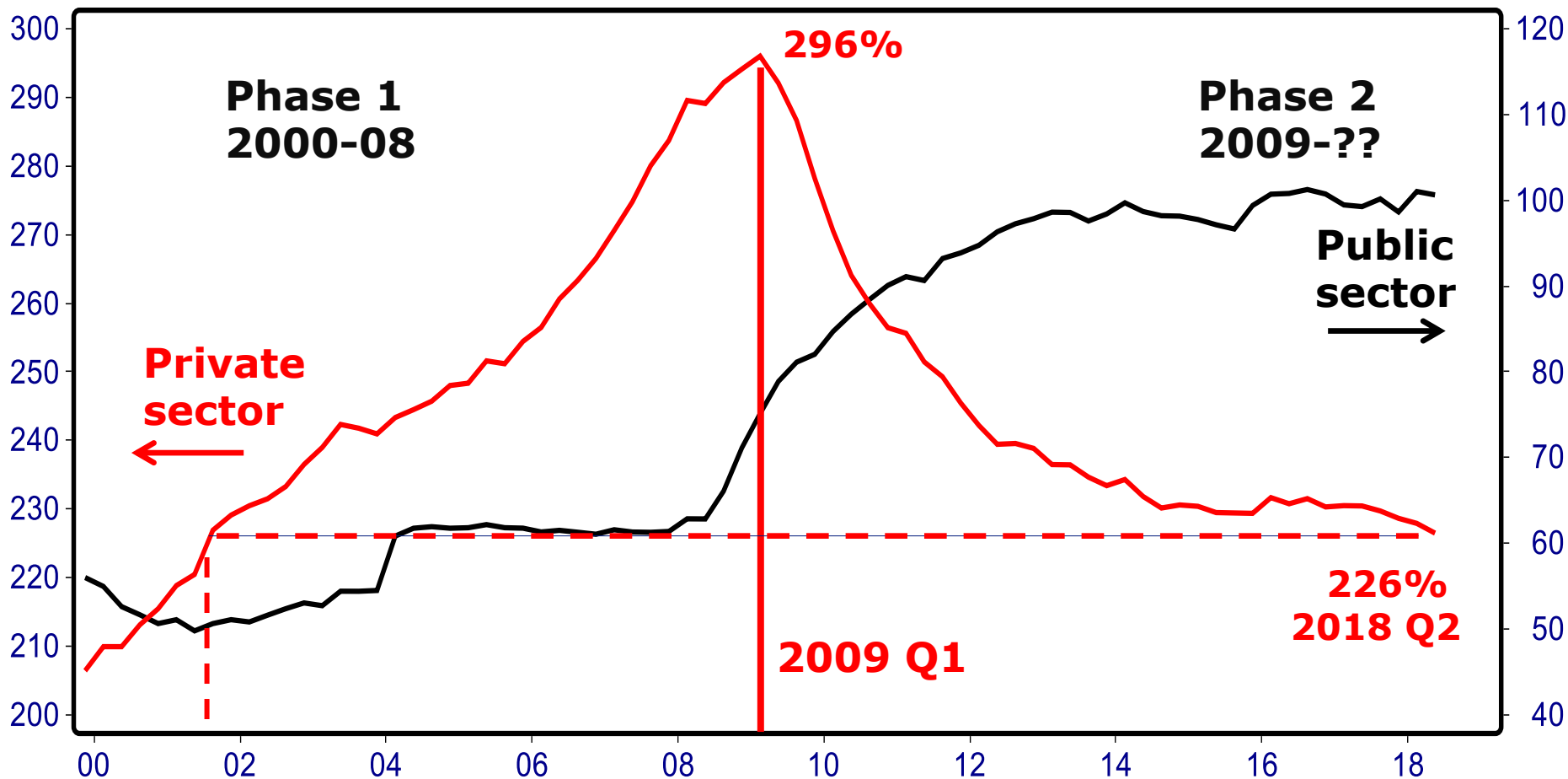


Source: Invesco for illustrative purposes only.

US Making Good Progress in Balance Sheet Repair: Debt-to-GDP Ratio Back to 2002 Level



US: RATIO OF PRIVATE & GOVERNMENT DEBT-TO-GDP(%)

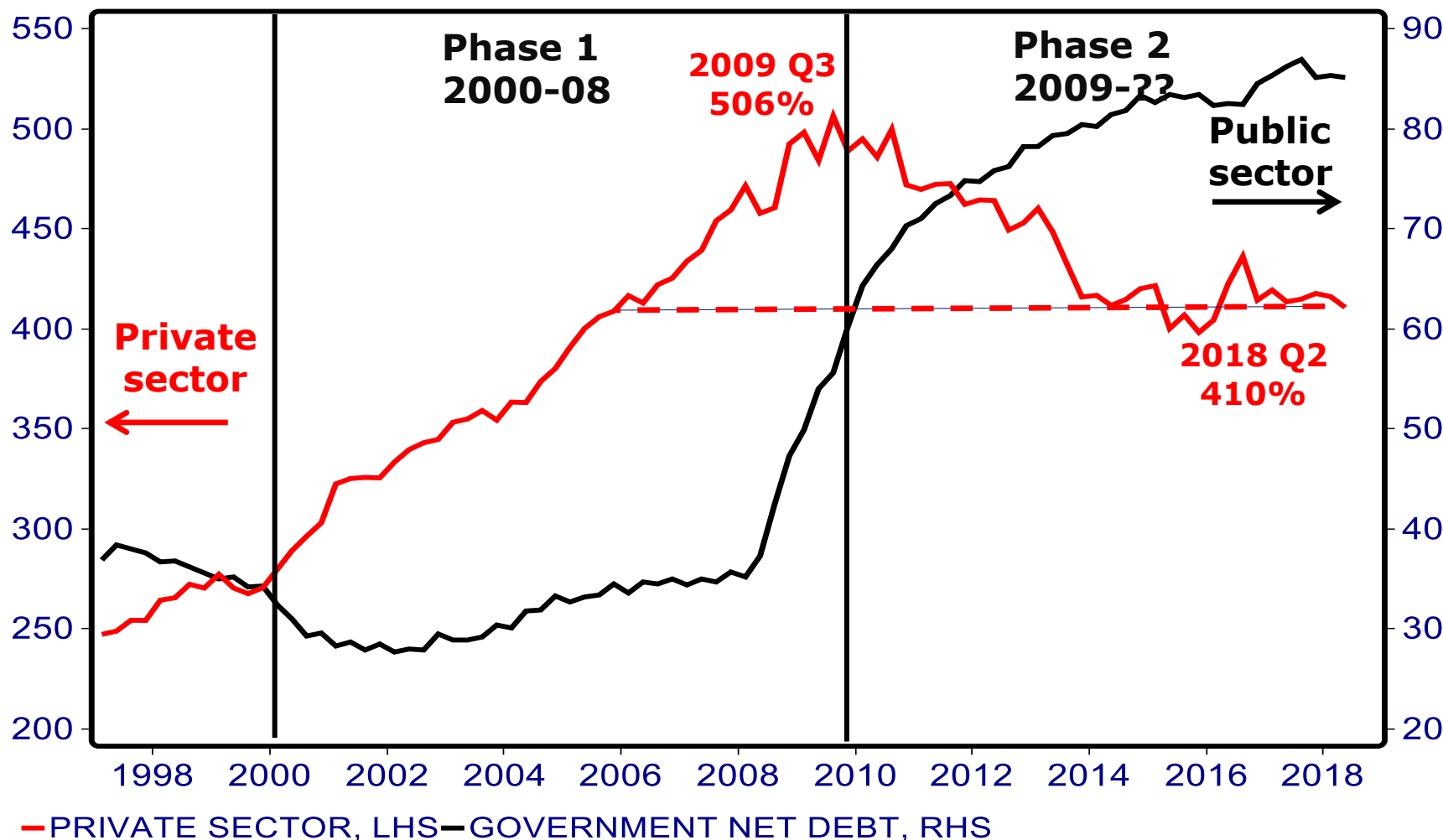


— PRIVATE SECTOR (HOUSEHOLD+ FIN+ NON-FIN BUSINESS), LHS — FEDERAL, STATE & LOCAL GOVT, RHS

Source: Macrobond

UK: Private Sector De-leveraged only Modestly

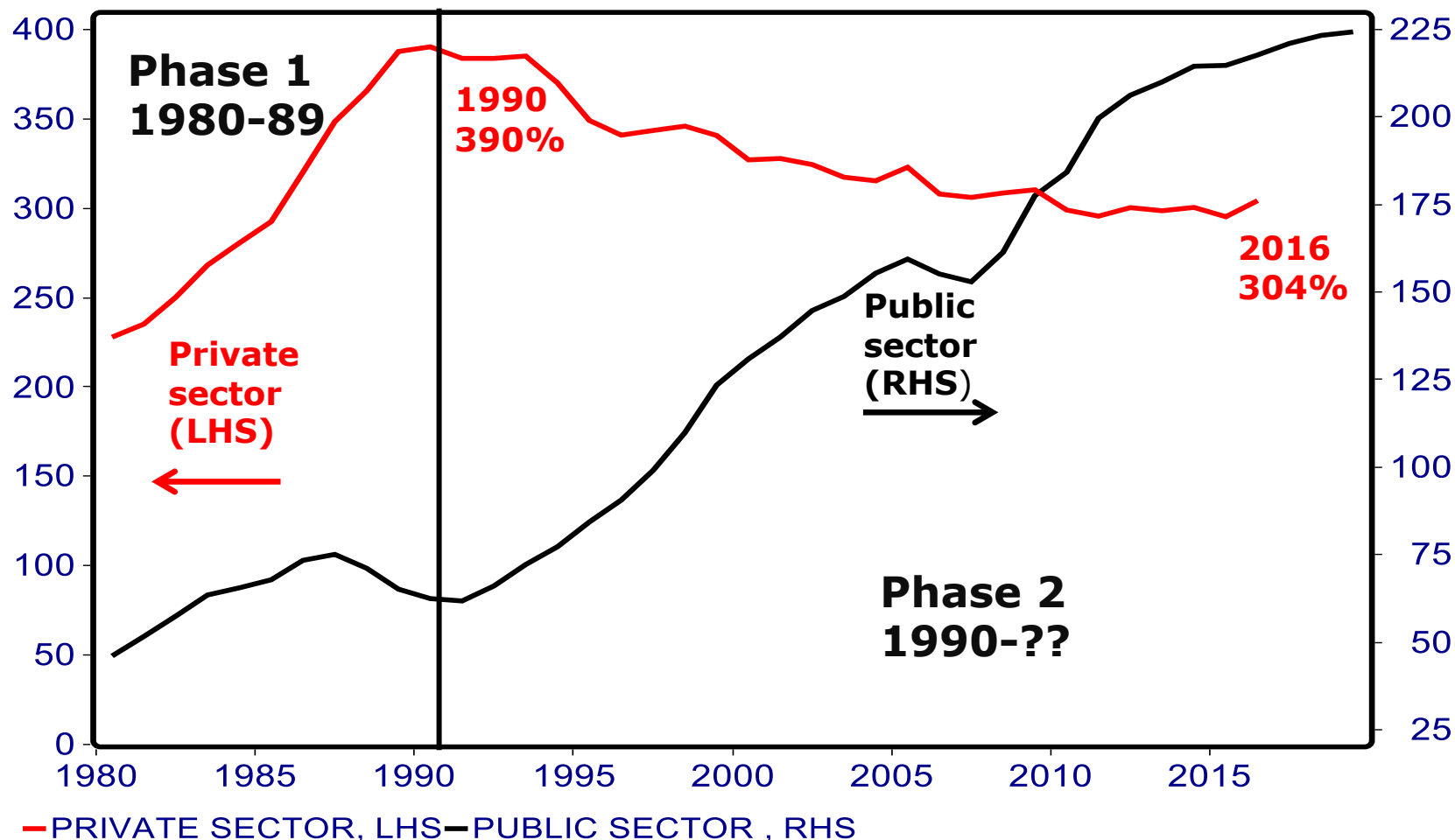
UK: DEBT OF ALL SECTORS AS % OF GDP



Source: Macrobond

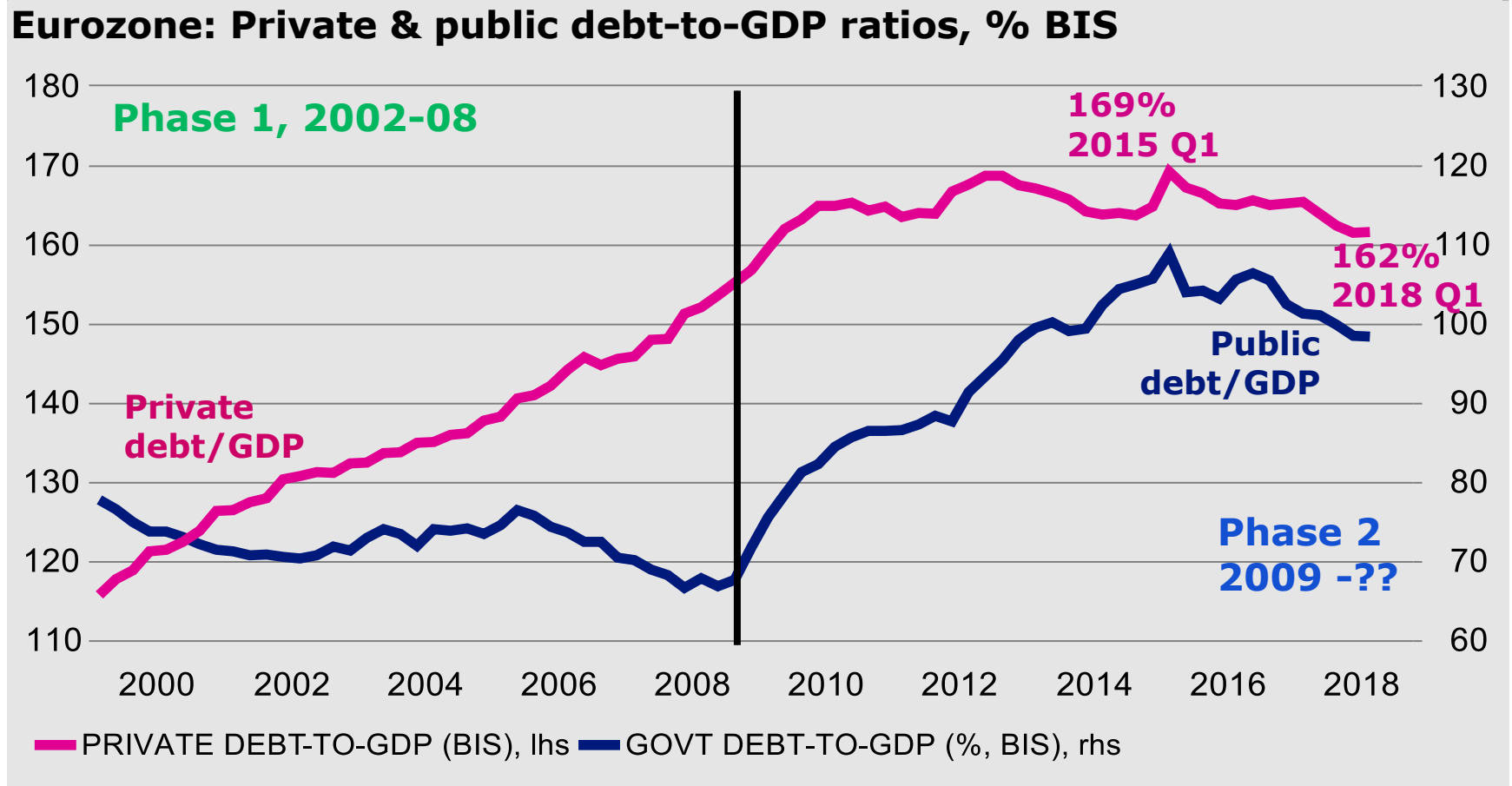
Japan: Private Sector deleveraging at very slow pace; public sector still leveraging up

JAPAN: PUBLIC & PRIVATE SECTOR DEBT AS % GDP (Annual)



Source: Macrobond

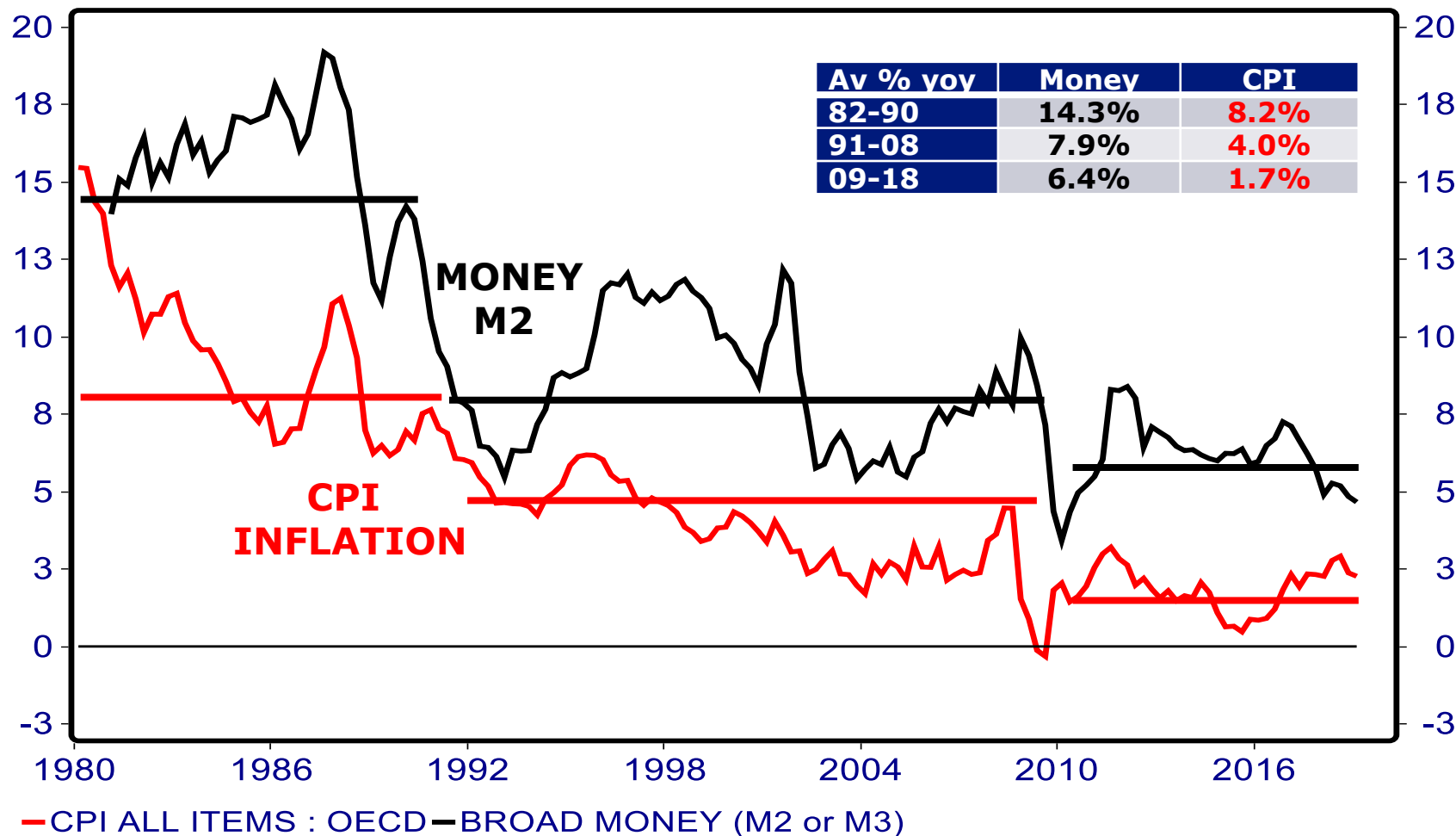
Eurozone – too little deleveraging



Source: Macrobond as at 1 October 2018.

Implications of Balance Sheet Repair: Slow Money & Credit Growth in OECD Economies

OECD MONEY GROWTH & INFLATION %YOY



Source: Macrobond