The Global Economy and Central Banks' Policies

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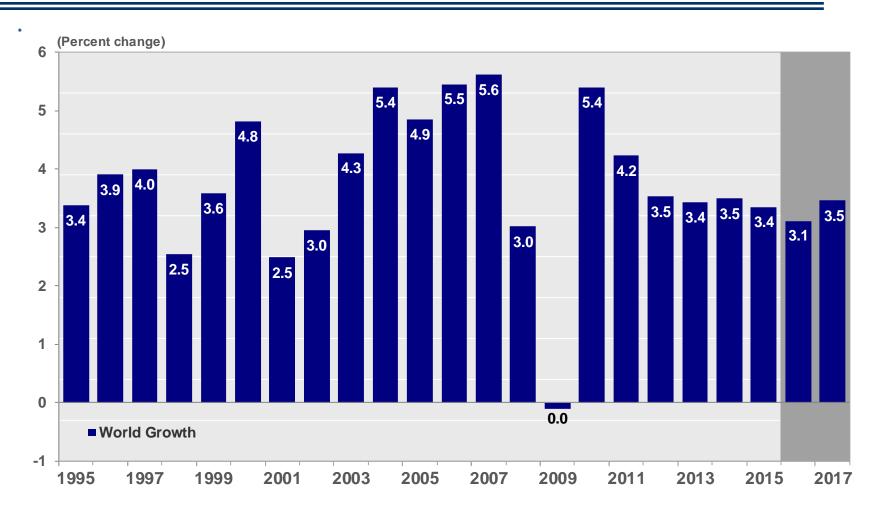
The 17th Annual Herzliya Conference IDC Herzliya Campus, Israel June 20-22, 2017

Central Banking & the Global Economy

- Growth in the Global Economy
- Trade in the Global Economy
- Monetary Policy
- Normalization

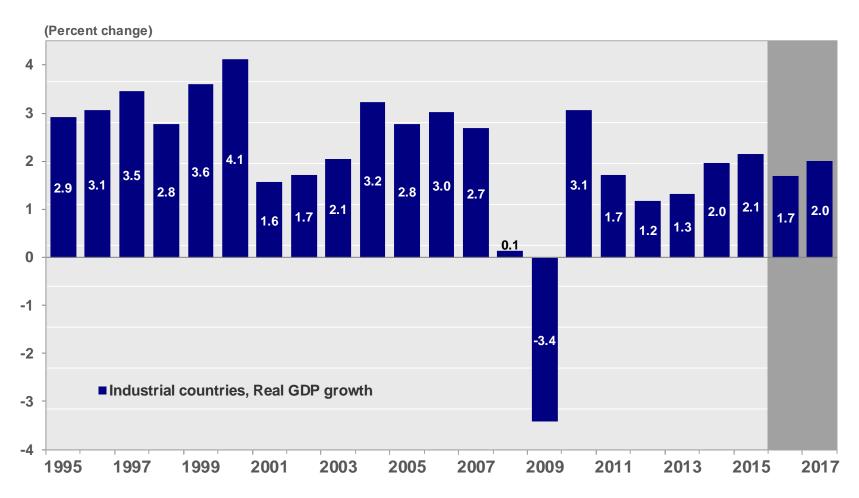
ECONOMIC GROWTH

Global GDP Growth



Source: IMF, last update Apr 18 2017, WEO (2016, & 2017 Forecast)

Industrial Countries, GDP Growth



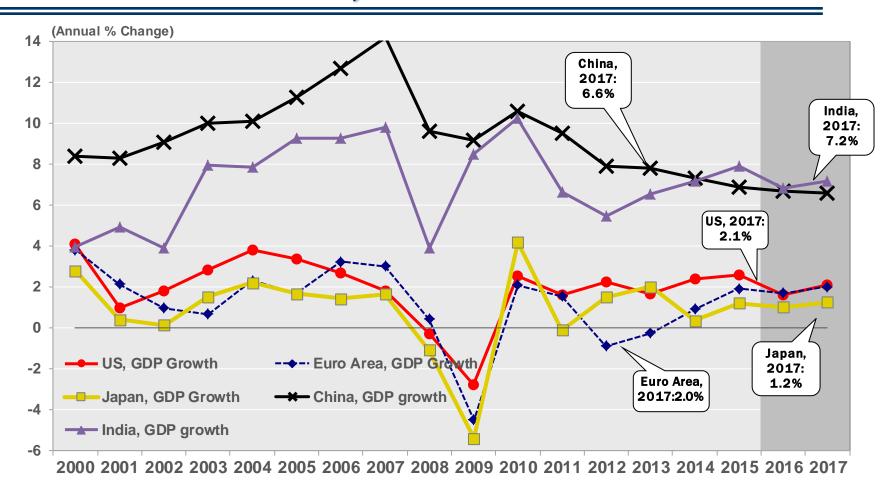
Source: IMF, last update Apr 18 2017, WEO (2016 & 2017 Forecast)

Real GDP Growth, World Economy

GDP Growth (Avg Annual Growth Rate, Constant Prices)				
Country	2009	2010	2016	2017
World	-0.1	5.4	3.1	3.5
Industrial Countries	-3.4	3.1	1.7	2.0
Developing Countries	2.9	7.4	4.1	4.5

Source: IMF, last update Apr 18 2017, WEO (2016 & 2017 Forecast)

Real GDP Growth, Select Countries

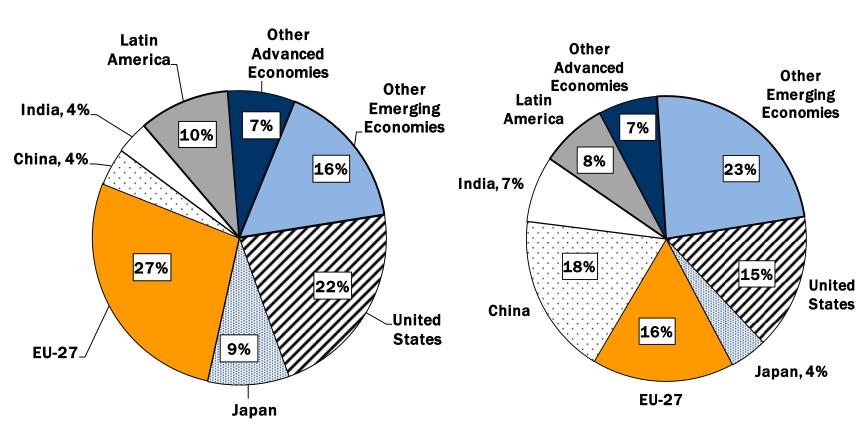


Source: IMF, last update Apr 18 2017, WEO (2016 & 2017 forecast); For US and Euro area, 2016 & 2017 are JPM forecast, last update June 2, 2017.

Global GDP Shares



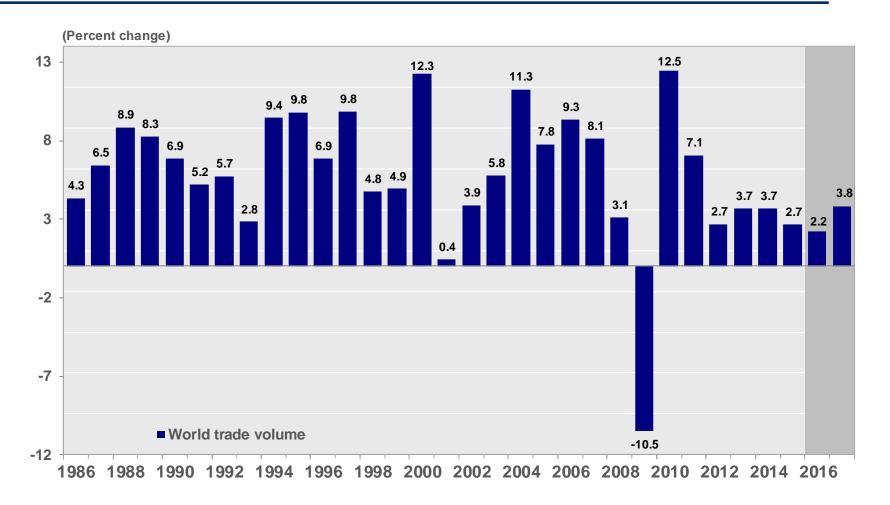
2017 IMF Forecast



Source: IMF, WEO Database, last update Apr 18 2017, WEO

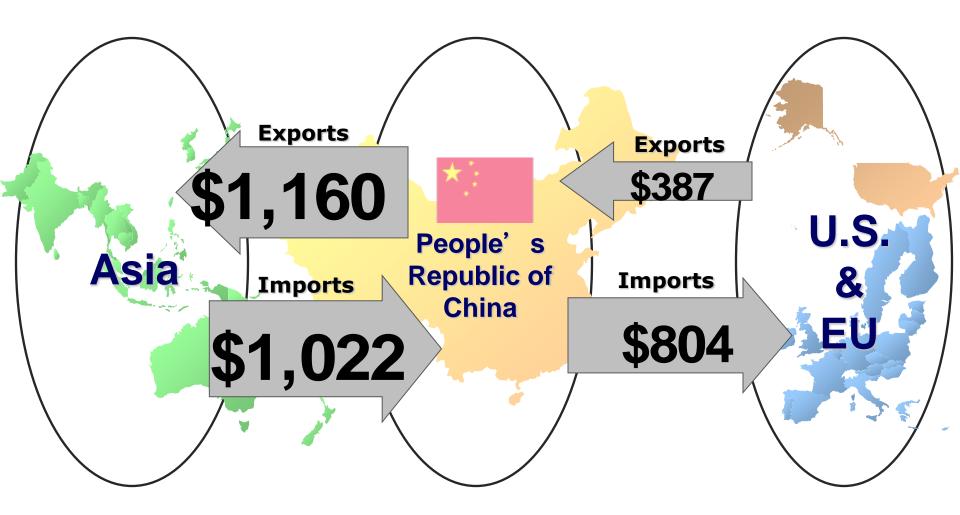
INTERNATIONAL TRADE

World Trade Volume



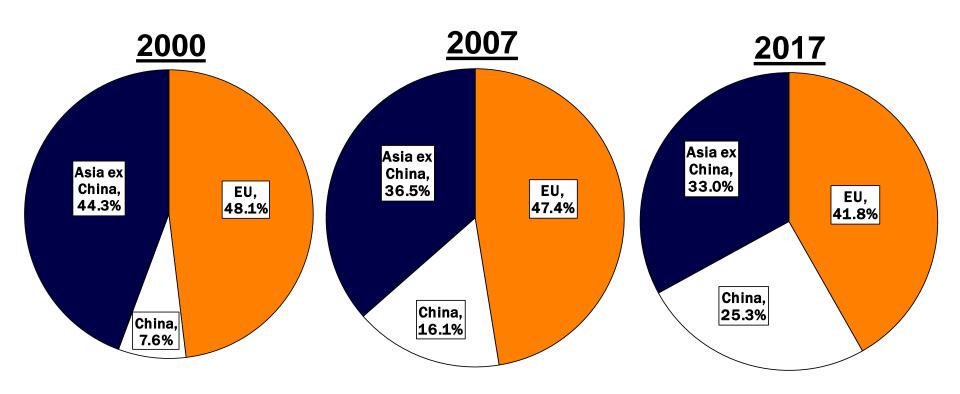
Source: IMF, av. Annual growth rates, last update Apr 18 2017, WEO (2016, & 2017 forecast).

China's Role in Global Trade (bill. Usd)



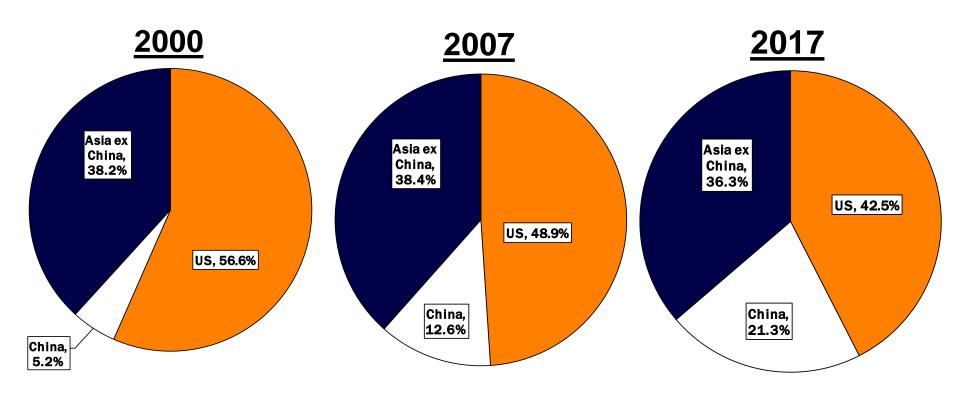
Source: National Bureau of Statistics of China, 12-months through April 2017

U.S. Exports by Destination



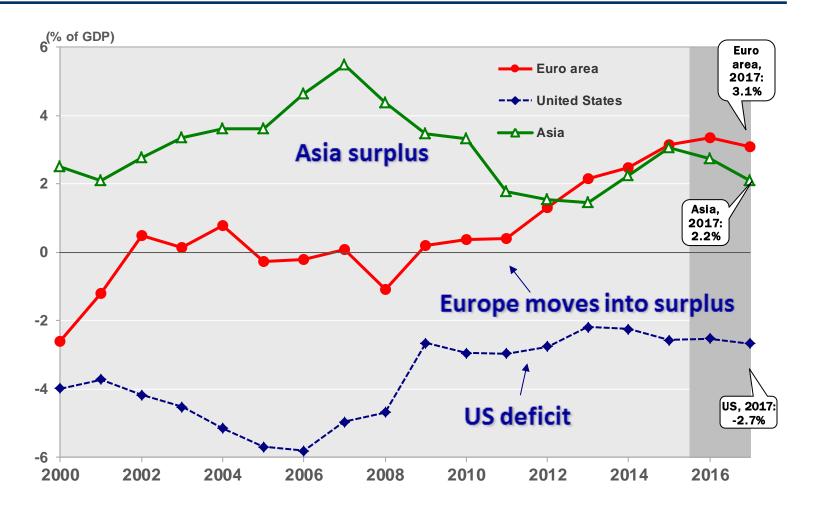
Source: US Department of Commerce, Last Observation: Feb 2017

European Union Exports by Destination



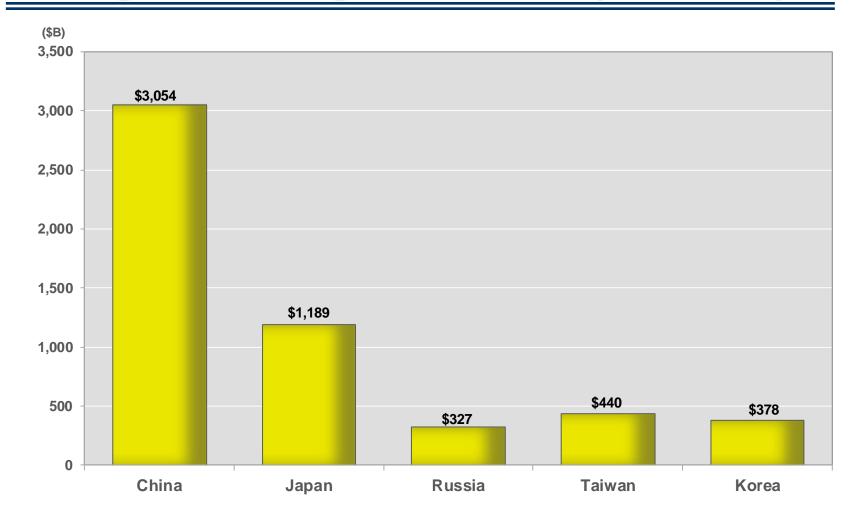
Source: Eurostat, Last Observation: Feb 2017

Current Account of Balance of Payments



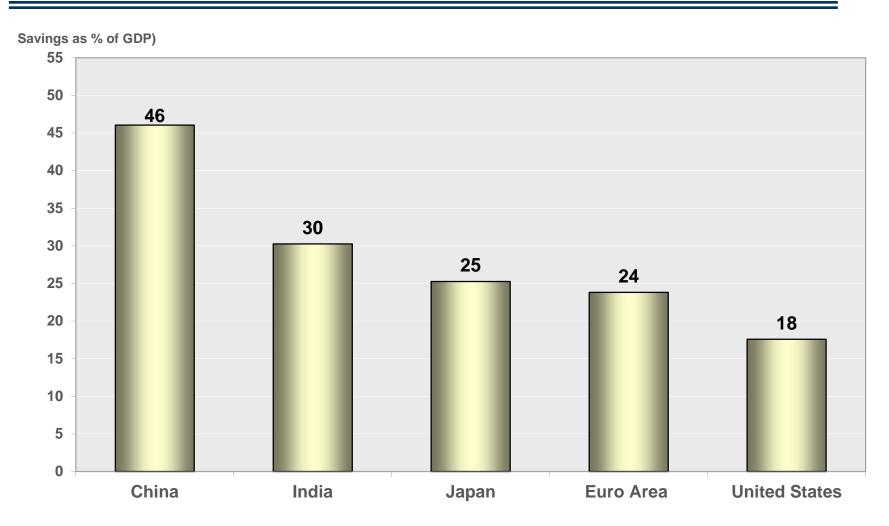
Source: IMF, last update Oct 08 2016, WEO (2016, & 2017 forecast)

Foreign Exchange Reserves (Bill. Usd)



Source: Nat'l Statistical Institutes, Foreign-Exchange Reserves ex. Gold, Last Observation: 5/17

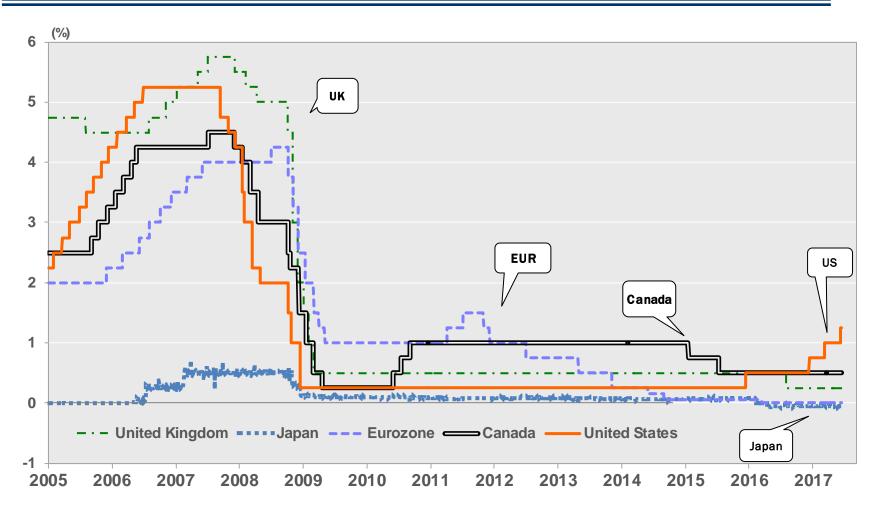
Gross National Savings as a % of GDP, 2016



Source: IMF World Economic Outlook; last update Oct 08, 2016

MONETARY POLICY

Central Bank Policy Interest Rate



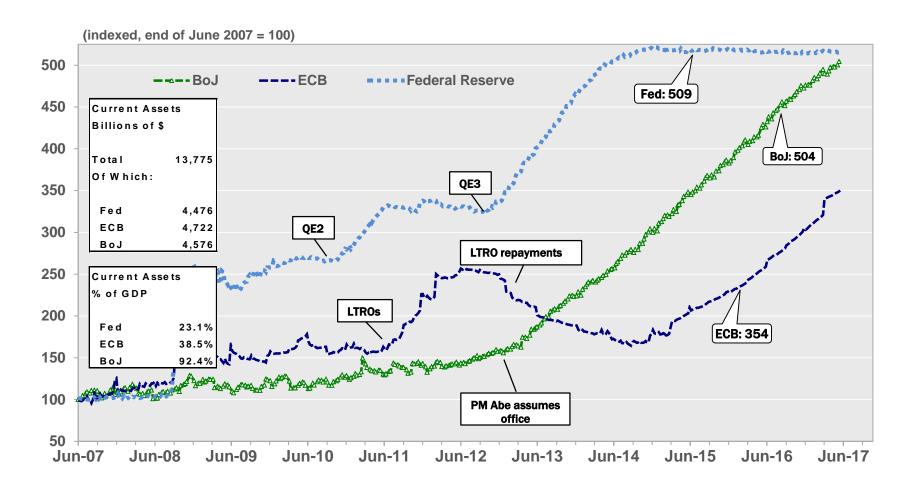
Source: Bloomberg Market Data, Last observation: 16 Jun, 2017

Global Policy Rates: Developed Markets



Source: JPMorgan Chase, National Statistical Institutes, Last Observation: Nominal - April 2017; Real - April 2017

Total Assets of Key Central Banks (indexed levels)

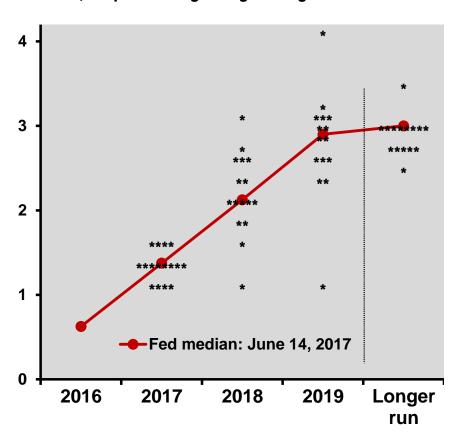


Source: Bloomberg; Last Observation: Fed: Jun 14, 2017; ECB: Jun 9, 2017; BoJ: Jun 10, 2017.

Fed Dot Plot, June 2017 vs. September 2016

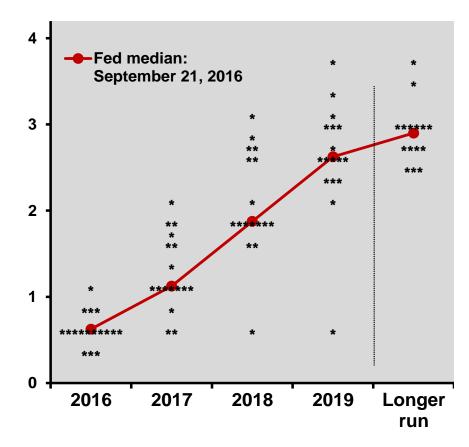
Fed Dot Plot, June 2017

*Percent, midpoint of target range or target level



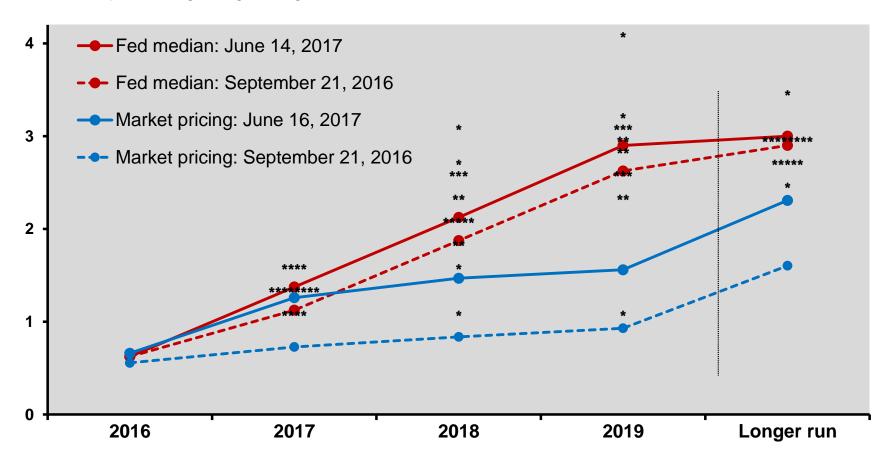
Fed Dot Plot, September 2016

*Percent, midpoint of target range or target level



Fed Dot Plot June 14, 2017 FOMC meeting

Percent, midpoint of target range or target level



Note: Market expectations are derived from USD 1-month overnight-indexed-swap (OIS) forward rates Source: Federal Reserve and Bloomberg

FEDERAL RESERVE's Forward Guidance

"In determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee will assess realized and expected economic conditions relative to its objectives of maximum employment and 2 percent inflation...In light of the current shortfall of inflation from 2 percent, the Committee will carefully monitor actual and expected progress toward its inflation goal. The Committee expects that economic conditions will evolve in a manner that will warrant only gradual increases in the federal funds rate; the federal funds rate is likely to remain, for some time, below levels that are expected to prevail in the longer run."

FOMC statement, February 1, 2017

"Inflation on a 12-month basis is expected to remain somewhat below 2 percent in the near term but to stabilize around the Committee's 2 percent objective over the medium term. Near-term risks to the economic outlook appear roughly balanced, but the Committee is monitoring inflation developments closely...In view of realized and expected labor market conditions and inflation, the Committee decided to raise the target range for the federal funds rate to 1 to 1-1/4 percent...The Committee expects that economic conditions will evolve in a manner that will warrant gradual increases in the federal funds rate...However, the actual path of the federal funds rate will depend on the economic outlook as informed by incoming data."

FOMC statement, June 14, 2017

Bank of England's Forward Guidance

"The MPC sets policy to achieve the 2% inflation target...The fall in sterling is likely to push up on CPI inflation in the near term, hastening its return to the 2% target and probably causing it to rise above the target in the latter part of the MPC's forecast period, before the exchange rate effect dissipates thereafter...These developments present a trade-off for the MPC between delivering inflation at the target and stabilising activity around potential...in tolerating a temporary period of above-target inflation, the Committee expects the eventual return of inflation to the target to be more sustainable."

-Inflation Report August 2016, released August 4, 2016

"The Bank of England's Monetary Policy Committee (MPC) sets monetary policy to meet the 2% inflation, and in a way that helps to sustain growth and employment...CPI inflation has risen above the MPC's 2% target as the depreciation of sterling has begun to feed through to consumer prices...the MPC's remit specifies that, in such exceptional circumstances, the Committee must balance any trade-off between the speed at which it intends to return inflation sustainably to the target and the support that monetary policy provides to jobs and activity....Monetary policy can respond, in either direction, to changes to the economic outlook as they unfold to ensure a sustainable return of inflation to the 2% target."

-Minutes of the MPC meeting May 11, 2017

ECB's and BoJ's Forward Guidance

ECB

"...Our monetary policy measures have continued to preserve the very favourable financing conditions that are necessary to secure a sustained convergence of inflation rates towards levels below, but close to, 2% over the medium term....the economic expansion has yet to translate into stronger inflation dynamics...Therefore, a very substantial degree of monetary accommodation is still needed for underlying inflation pressures to build up and support headline inflation in the medium term...if financial conditions become inconsistent with further progress towards a sustained adjustment in the path of inflation, we stand ready to increase our asset purchase programme in terms of size and/or duration"

-ECB President Mario Draghi, Introductory statement, June 8, 2017

<u>BOJ</u>

"The Bank will continue with "Quantitative and Qualitative Monetary Easing (QQE) with Yield Curve Control," aiming to achieve the price stability target of 2 percent, as long as it is necessary for maintaining that target in a stable manner...The Bank will make policy adjustments as appropriate, taking account of developments in economic activity and prices as well as financial conditions, with a view to maintaining the momentum toward achieving the price stability target"

-Statement of Monetary Policy, March 16, 2017

NORMALIZATION

Cost of Delayed Normalization

Normalization Criteria

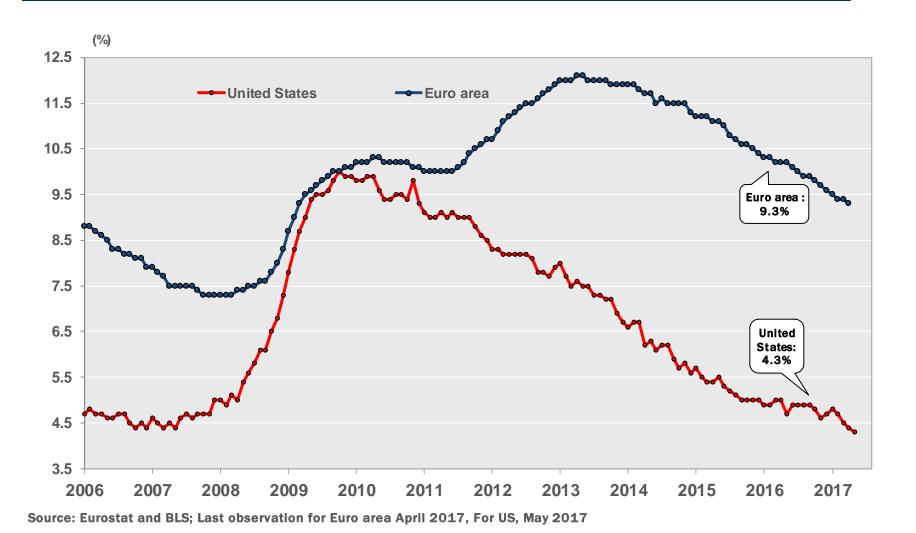
Cost of Delayed Normalization--I

- Chase After Yield Raises Risk
- Inflates Stock prices (Bubbles)
- Encourages Stock buybacks
- Discourages Real Investment
- Disconnects Financial/Real Sectors
- Encourages Increased Leverage
- Endangers Financial Stability

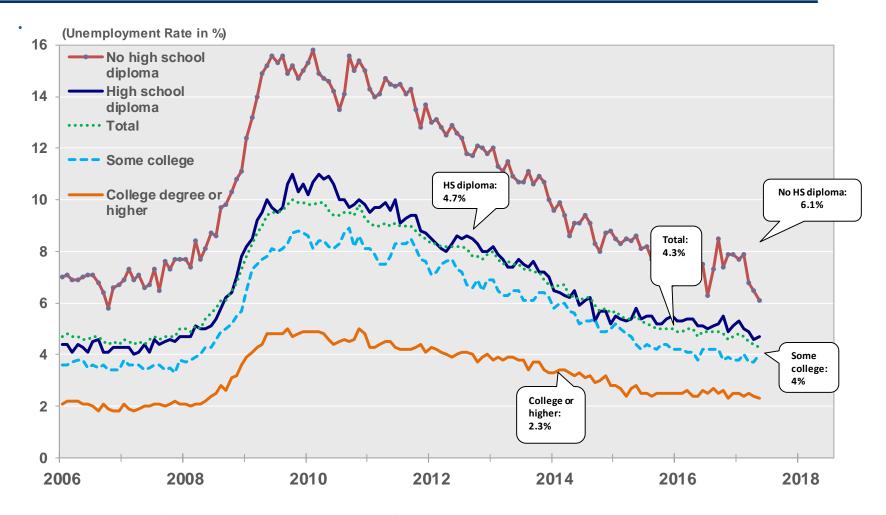
Cost of Delayed Normalization--II

- Weakens the Transmission and Effectiveness of Monetary Policy
- Stimulates Investment in Interest-Sensitive Low-Productivity Sectors
- Postpones Fiscal/Structural Policies
- Reduces Productivity and Growth

Unemployment Rate: US and Euro Area

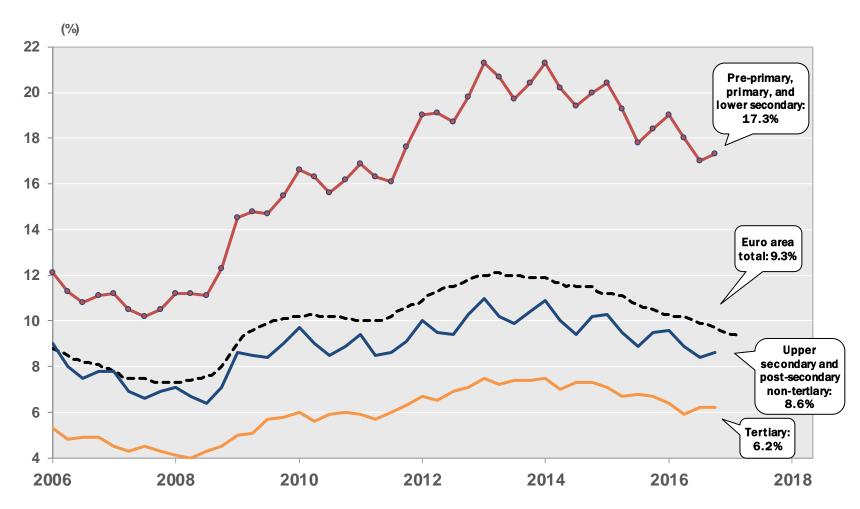


U.S. Unemployment, by Level of Education



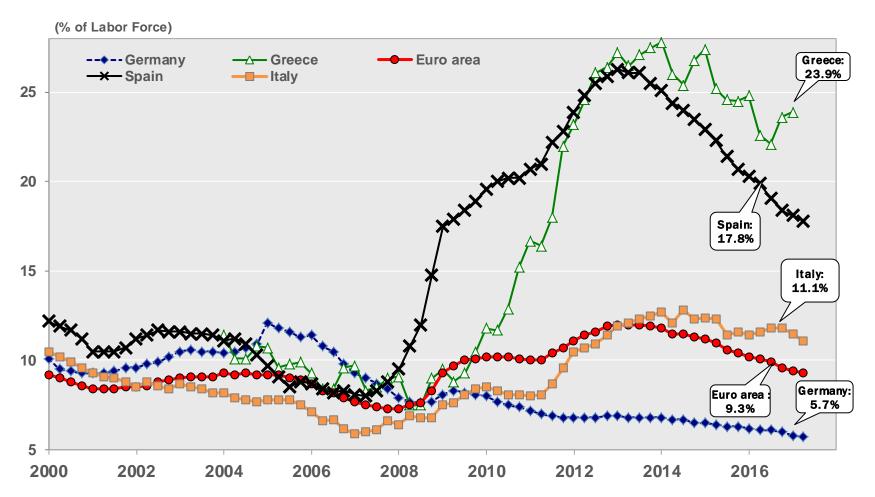
Source: Bureau of Labor Statistics, Last Observation: May 2017

Euro Area Unemployment by Level of Education



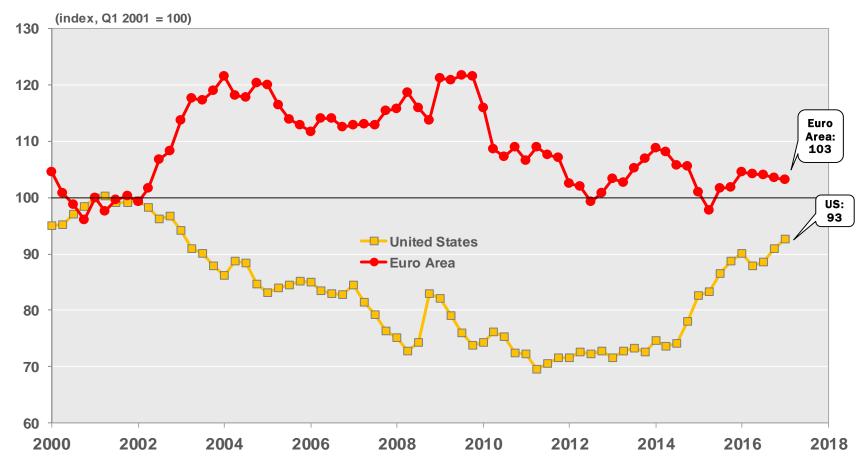
Source: Eurostat, Last observation Q4 2016

Unemployment Rate: Euro Area Countries



Source: Eurostat, Last Observation: Germany (5/17); Italy, Spain, Euro area (4/17); Greece (2/17)

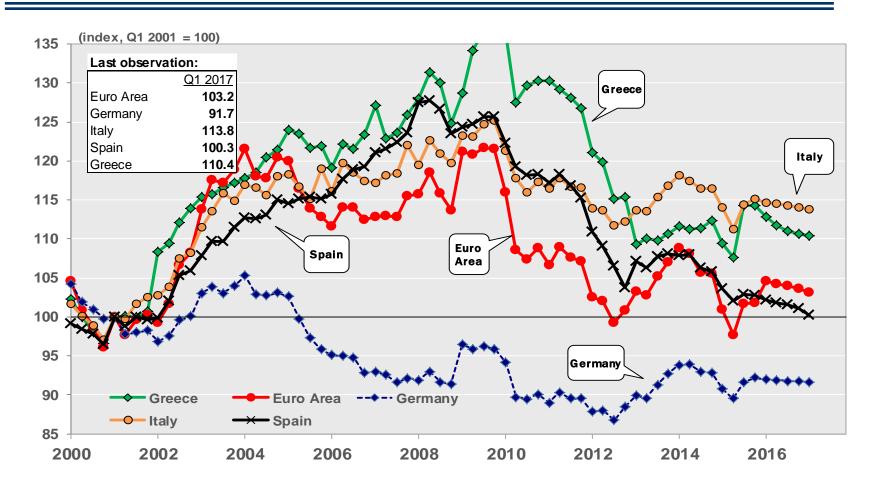
Relative Unit Labor Cost: U.S. & Euro area



Note: Relative unit labor cost is a weighted average of changes in unit labor costs (converted to USD terms) relative to trading partners, with weights derived from manufactured goods exports.

Source: OECD, Last observation: Q1 2017

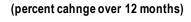
Relative Unit Labor Cost, Total Economy

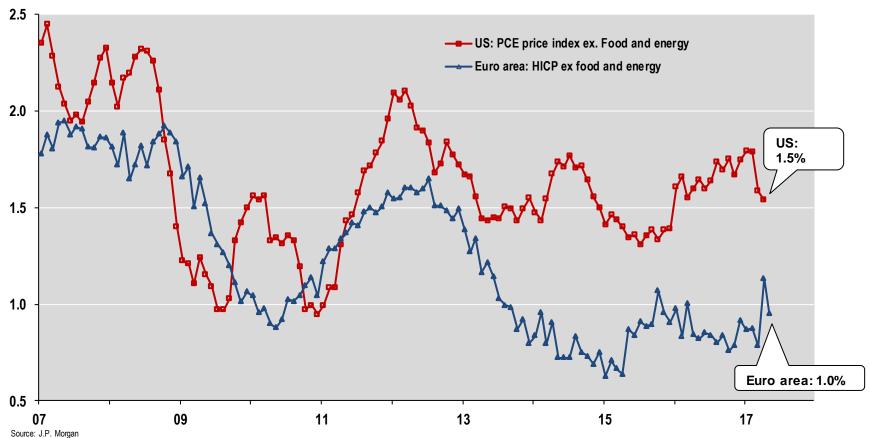


Note: Relative unit labor cost is a weighted average of changes in unit labor costs (converted to USD terms) relative to trading partners, with weights derived from manufactured goods exports.

Source: OECD, Last observation: Q1 2017

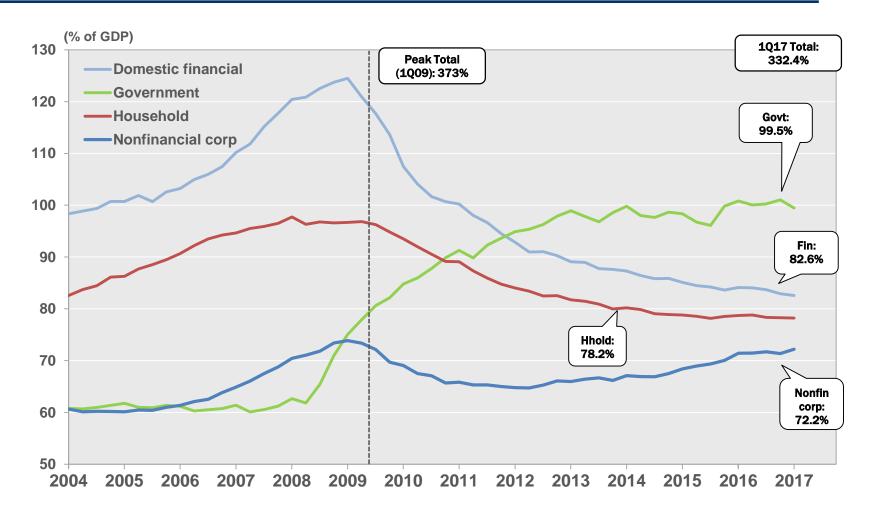
Inflation: U.S. and Euro Area





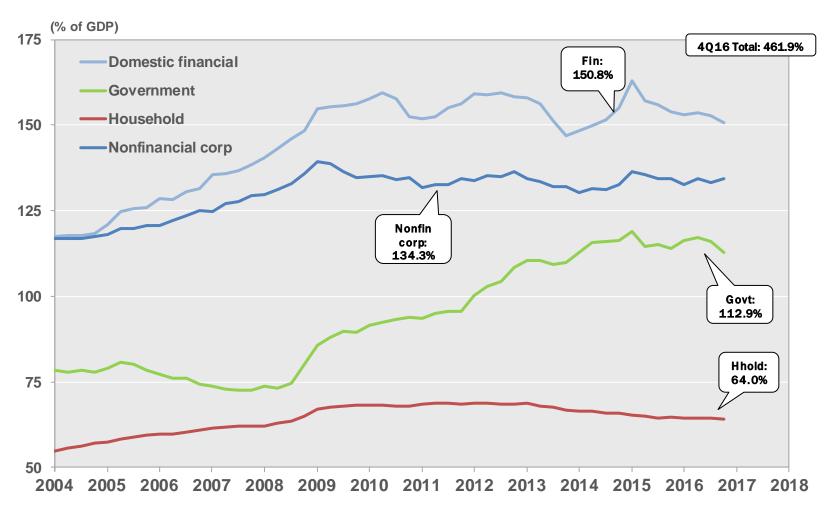
Source: Bureau of Economic Analysis, ECB. Last observation US: March 2017, Euro area: April 2017

US: Gross Debt Outstanding by Sector



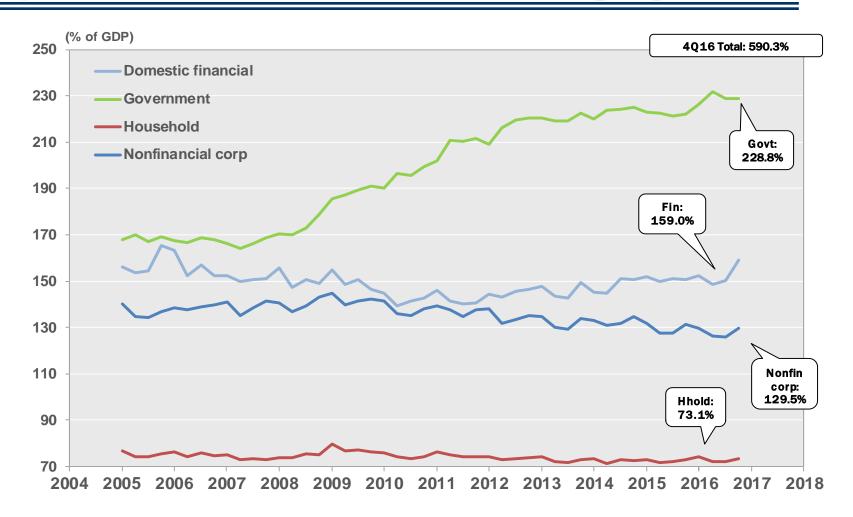
Source: Haver analytics; last observation Q1 2017.

Euro Area: Gross Debt Outstanding by Sector



Source: Eurostat; last observation Q4 2016.

Japan: Gross Debt Outstanding by Sector



Source: Haver analytics; last observation Q4 2016.

THANK YOU