DIW BERLIN

Quo vadis Europe?

On Oil Prices, Exchange Rates and Asset Prices

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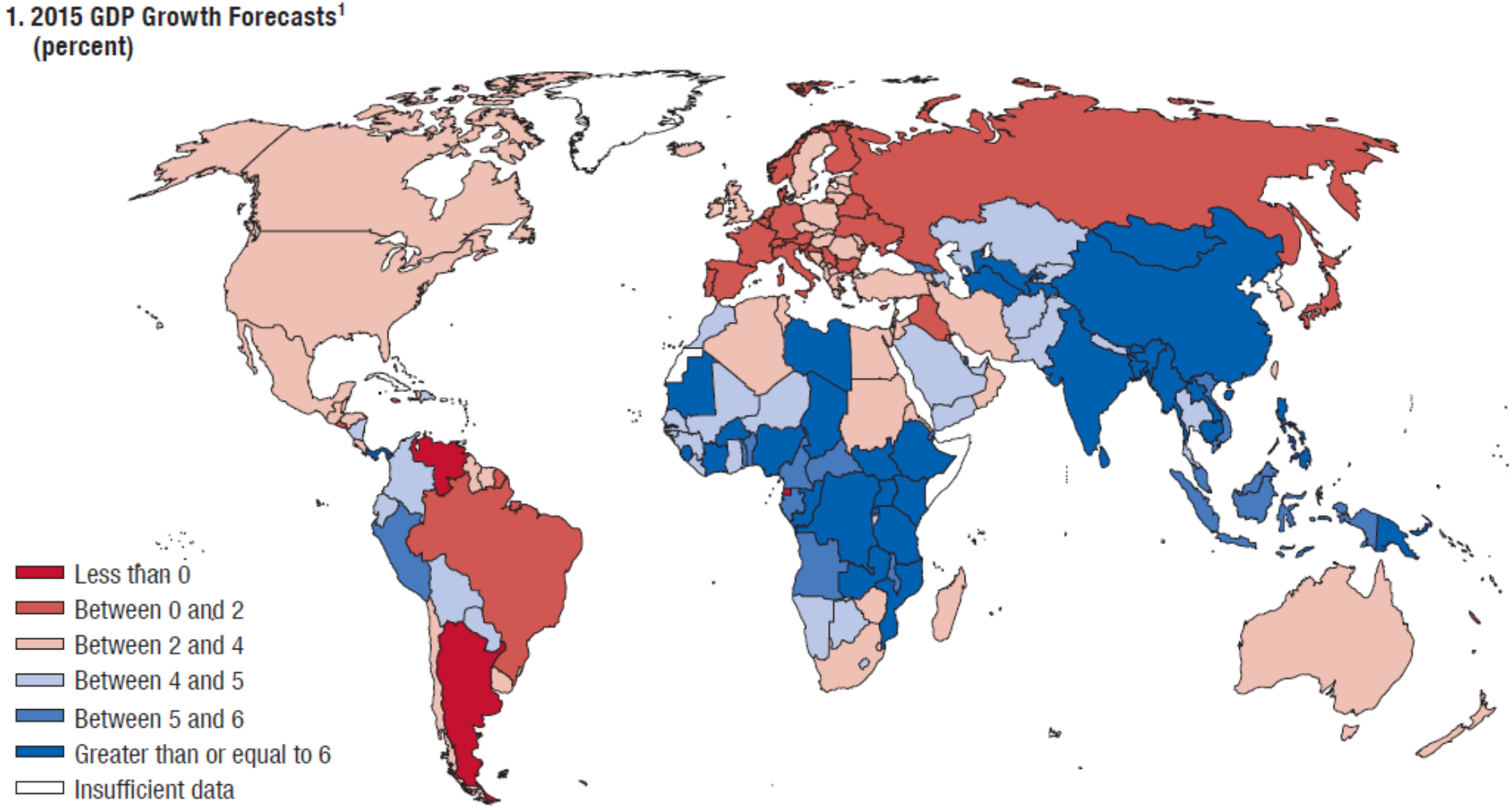
and Humboldt –University Berlin

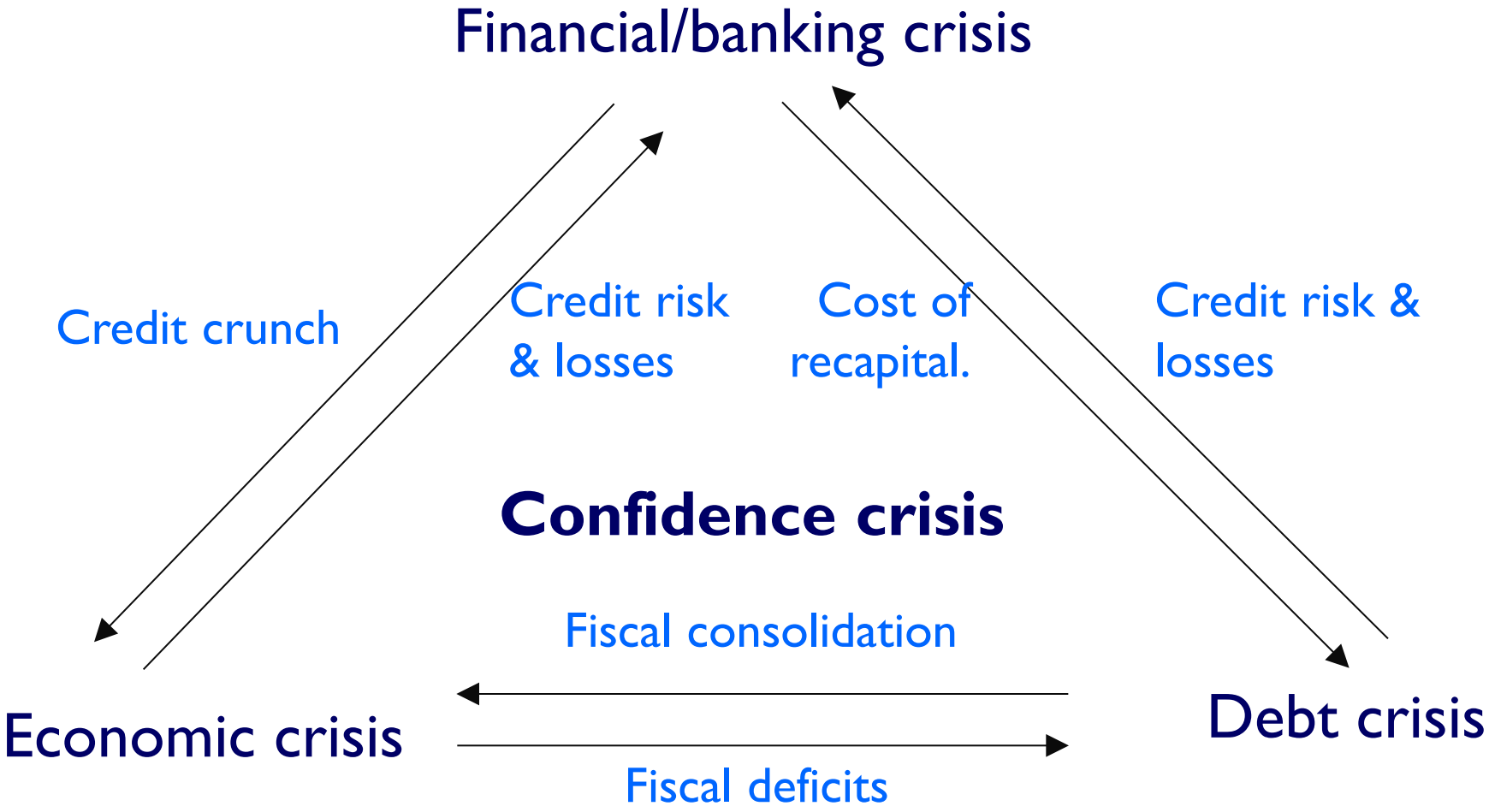
Oslo, 1 September 2015

Europe as the weakest link



Source: IMF, WEO October 2014

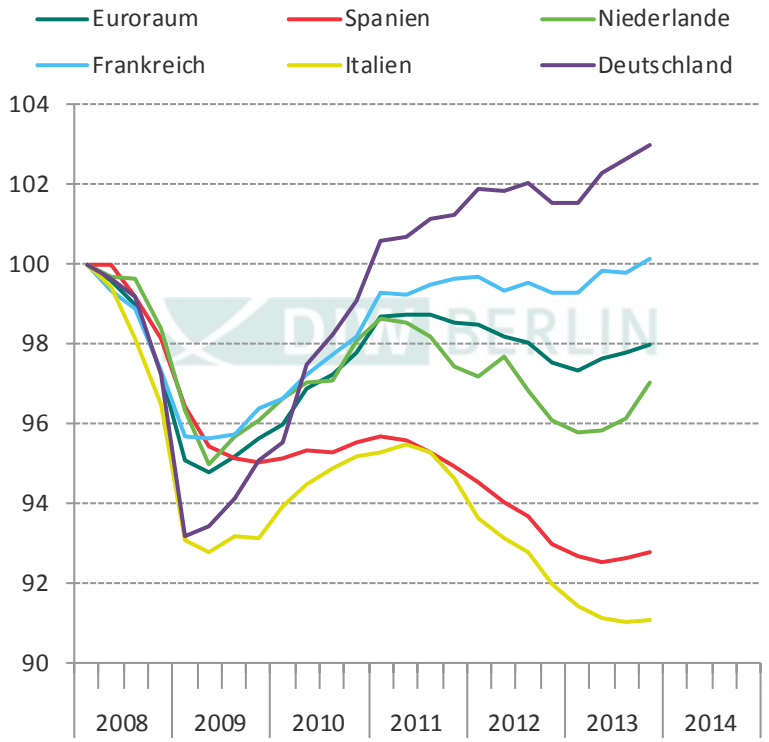
The crisis trap



Secular stagnation? Growth as key challenge

Reales BIP in Europa

(Index, Q1 2008 = 100)



Quelle: Eurostat.
Letzte Beobachtung: Q4 2013.

EA7g

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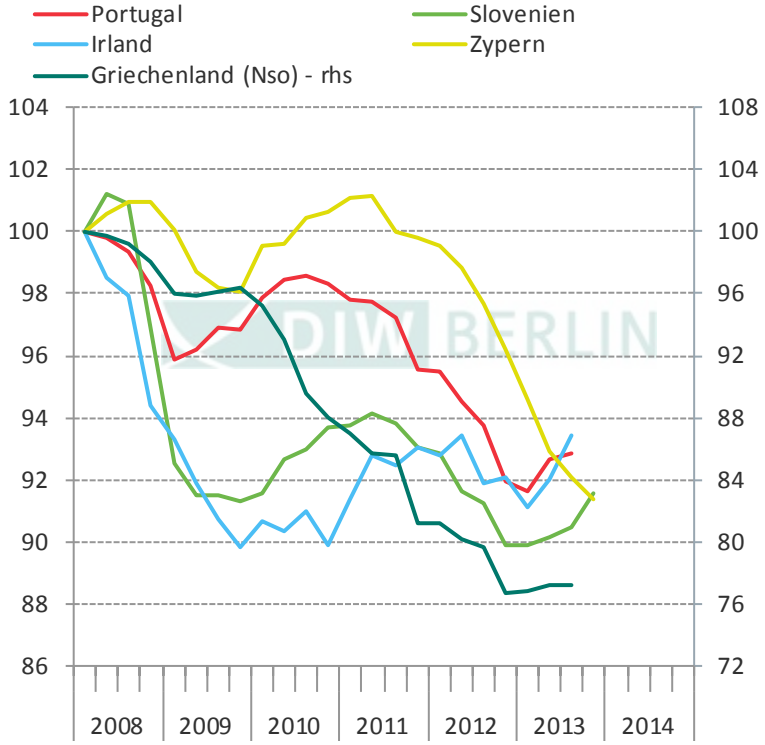

Quelle: Eurostat.
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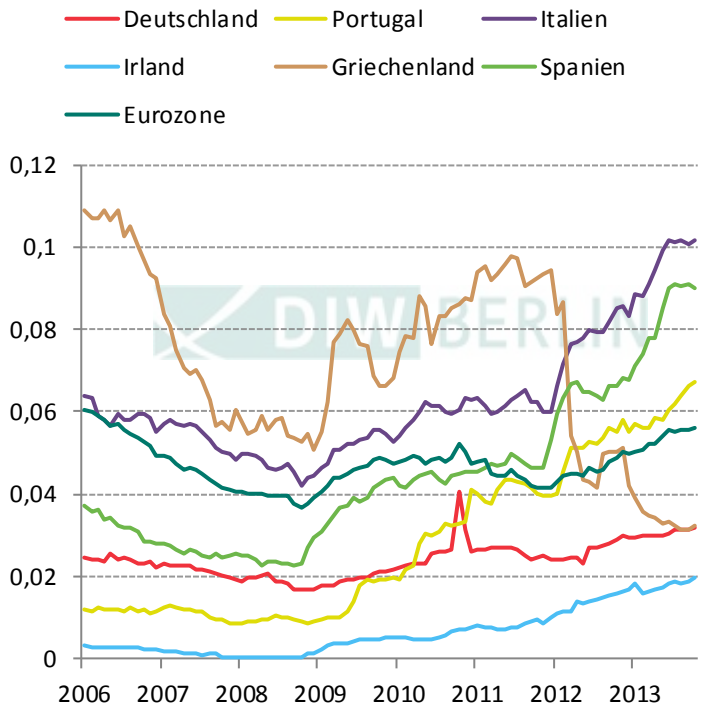
Link banks – sovereigns

Staatsanleihen des Heimatlandes

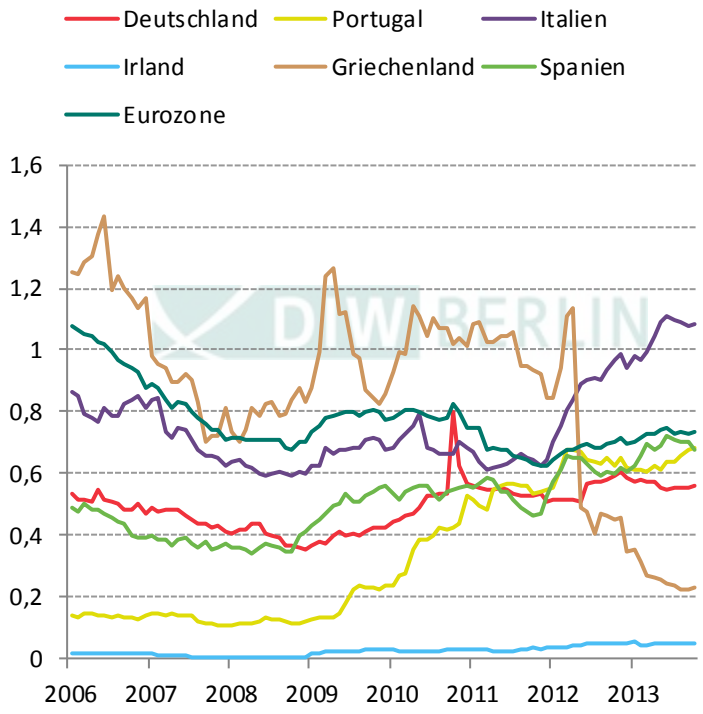
(% der Bilanzsumme der Banken)



Quelle: Europäische Zentralbank.
Letzte Beobachtung: Oktober 2013.

Staatsanleihen des Heimatlandes

(% des Eigenkapitals der Banken)



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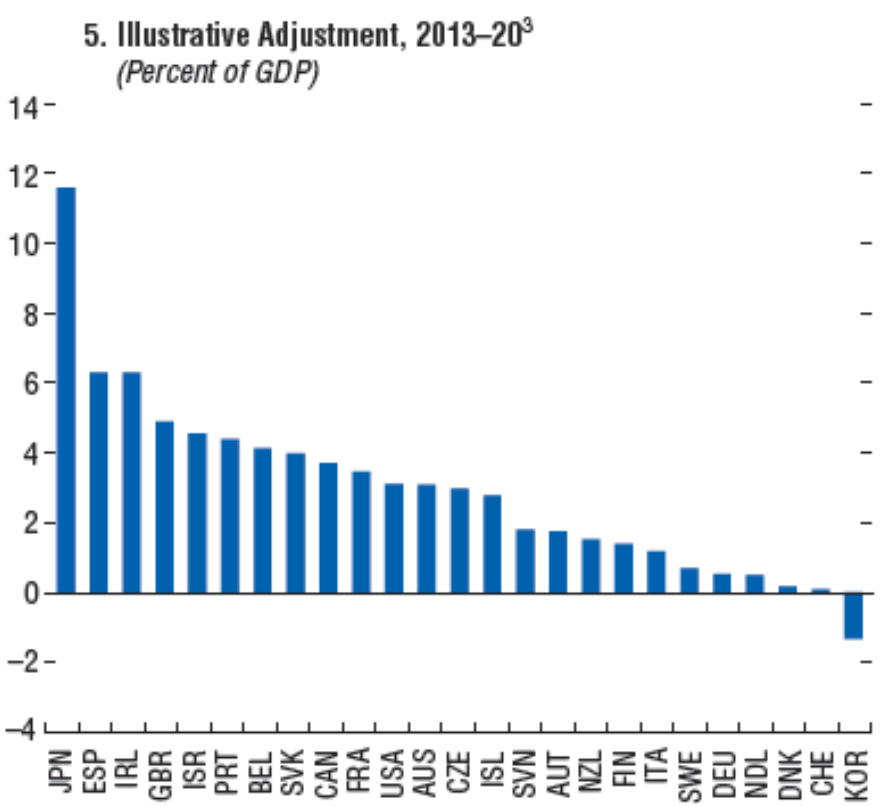
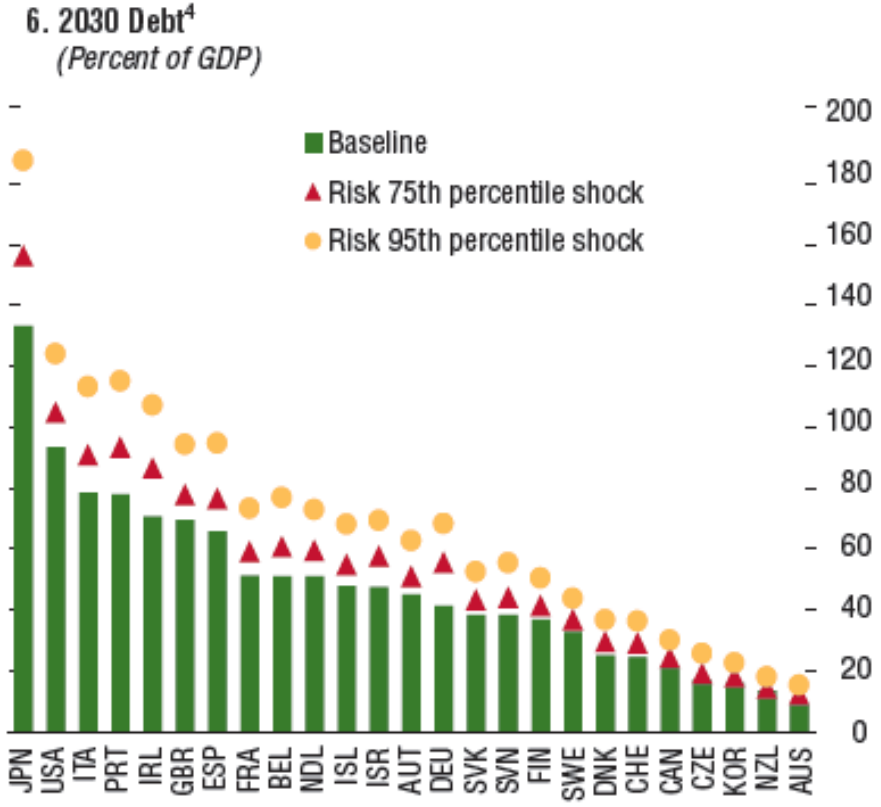
Massive sovereign debt overhang





Sources: European Commission (2013); IMF, Public Finances in Modern History database; and IMF staff estimates and projections.

Note: For country-specific details, see "Data and Conventions" in the Methodological and Statistical Appendix.

[1] For European countries, deviations refer to the differences between the 2011 and 2013 Stability and Convergence Plans. For the United States, deviations refer to differences in the 2011 and 2013 federal budgets. For Spain, the cyclically adjusted balance includes financial sector support.

[2] Cyclical adjustments to revenue and expenditure assume elasticities of 1 and 0, respectively.

[3] Required adjustment of structural primary balance to achieve structural balance targets. Structural balance targets are country specific and based on medium-term budgetary objectives.

[4] Gross general government debt, except in the cases of Australia, Canada, Japan, and New Zealand, for which net debt ratios are used. Shocks are based on the distribution of revisions to the five-year-ahead potential GDP growth between the November 2010 *World Economic Outlook* and the April 2013 *World Economic Outlook*.

Trade-off limited probability – high cost

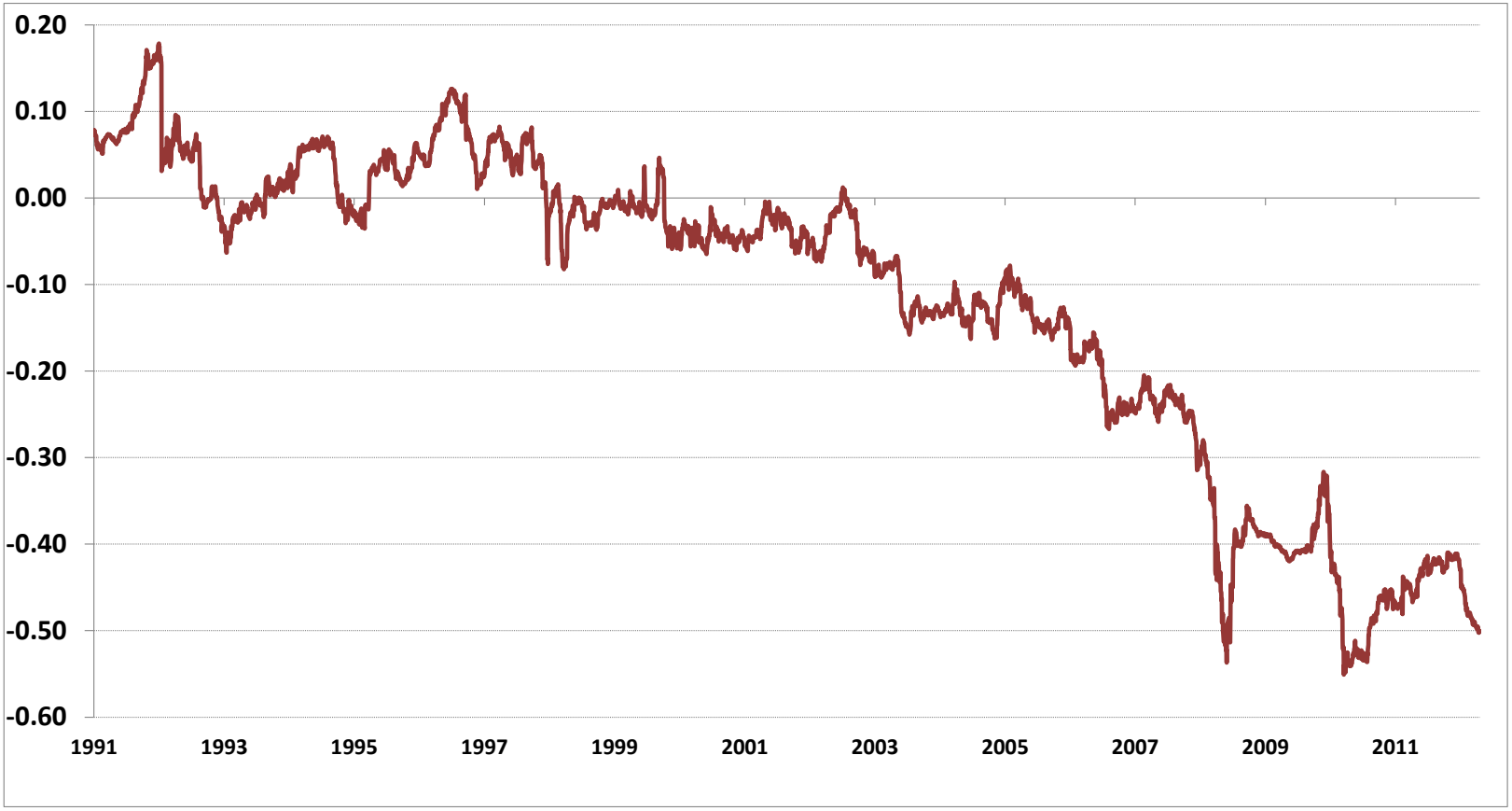
Risk	Probability (medium-term)	Cost
1. Secular stagnation and deflation	High	High
2. Political crisis	Medium	High
3. Bank default	Medium	High
4. Sovereign debt crisis	Low	High
5. Emerging market slow-down	Low	Medium
6. Geopolitical conflict	Low	Medium
7. Slow reforms	Medium	Medium

Three scenarios for Europe

- **Scenario 1: End of crisis & recovery -- 20%**
  - Reforms work, banks heal, debt falls → unemployment declines, wages and growth accelerate
- **Scenario 2: Recession & deepening of crisis -- 30%**
  - High uncertainty, low trust in policy-makers
  - Many potential triggers: Russian crisis, Grexit, sovereign debt crisis Italy, political crisis Spain etc.
- **Scenario 3: Stagnation and deflation -- 50%**
  - Reforms insufficient, high uncertainty; Zombie banks, high debt and unemployment; deflation, low growth → Japan in 1990s

PART II : oil and exchange rates

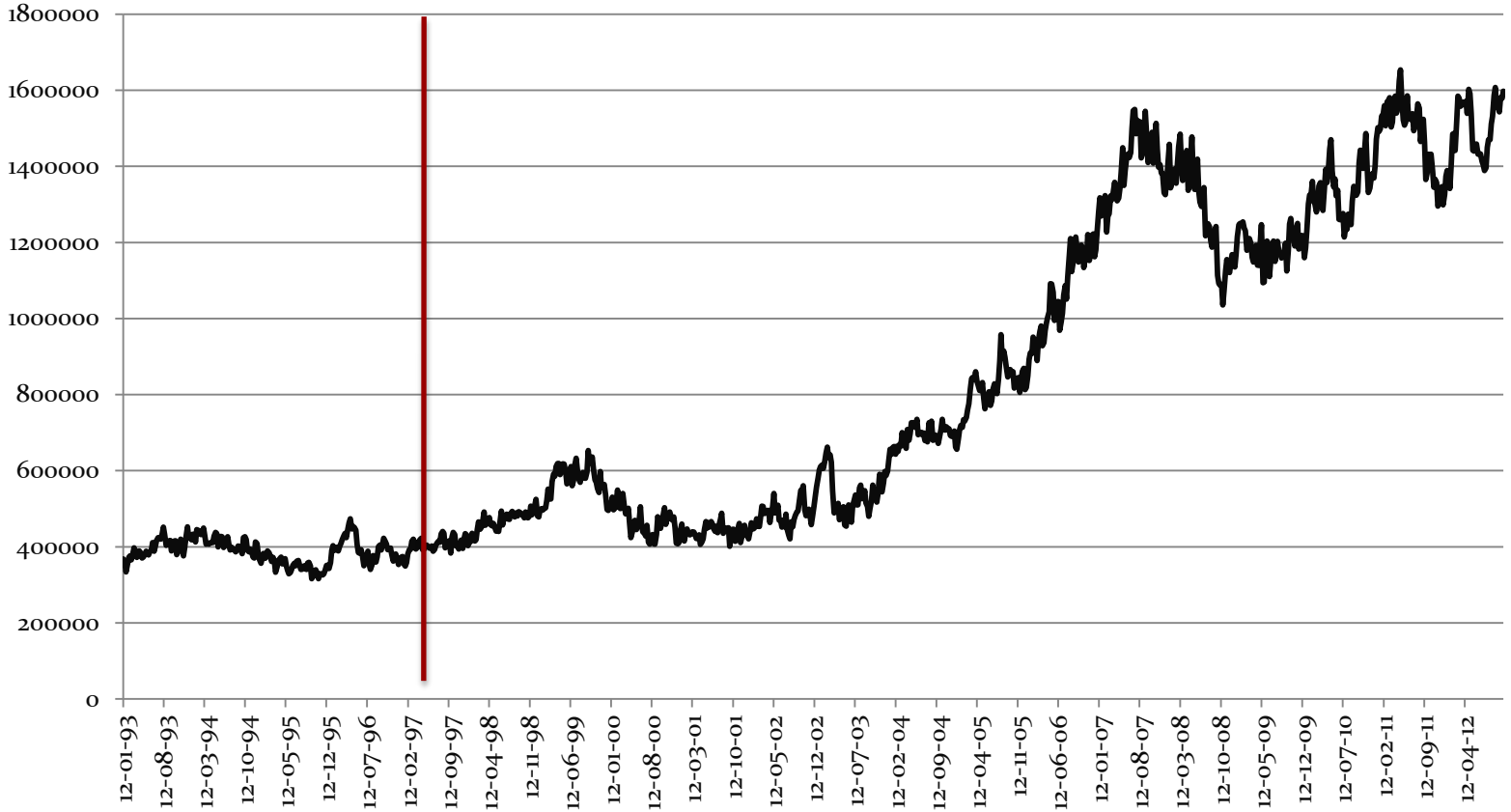
18-month rolling correlation exchange rate and oil prices



Notes: rolling 18-month correlation between first difference of US dollar effective exchange rate and WTI crude oil prices over the period 1 January 1991 – 15 October 2012.

More generally, …

Financialisation of oil: open interest in oil futures markets



More generally, …

- Takes a financial market perspective in understanding oil prices (daily data) ; does oil behave as a financial asset?

- Analyses the multi-directional link between oil prices and other asset prices (exchange rates, bond yields, stock returns)

Do oil prices react to other asset prices?

YES

- Explains why the link with some assets has intensified over time:

Related to increased use of oil as a financial asset?

YES, partly

Literature: focus on individual asset prices

	Oil prices	Exchange rate	Monetary policy	Equity markets	Risk, risk aversion and uncertainty
Oil prices	*	**Supply** Yousefi and Wirjanto (2003,2005) **Demand** De Schryder and Peersman (2012) **Financial markets** (financialization)	**Real interest rates** Frankel (2008)	**Demand** Kilian and Park (2009)	**Oil price volatility** Van Robays (2012)
Exchange rate	**Trade balance** Kilian et al. (2009), Ferrero et al. (2012) **Wealth effects** Krugman (1983)	*	**Expectations** (Engle et al. 2007) **UIP, delayed overshooting** (Scholl and Uhlig 2009)	**Demand, expectations**	**Flight-to-safety** Fratzscher (2009)

Model specification

Structural VAR model

$$A\,Y_t = c + \Pi(L)\,Y_t + \Psi(L)\,z_t + \varepsilon_t$$

Endogenous variables:

1. WTI Oil prices
2. USD effective exchange rates
3. US Stock prices: demand (Kilian and Park 2009)
4. US Interest rates: monetary policy (Engle et al 2007, Frankel 2008)
5. VIX: risk and uncertainty (Fratzscher 2009, Van Robays 2012)
6. NYMEX Open interest: financialisation (Sockin and Xiong 2012)

Interpretation of the structural shocks

Identification through heteroskedasticity

Outline of method:

If the data allow us to define distinct volatility regimes

$$u_{t,i} \sim iid(0, \Omega_i)\,, \qquad i = 1, \ldots, s$$

we get more moment conditions

$$\Omega_i = A^{-1} \Sigma_i A^{-1\prime}, \qquad i = 1, \ldots, s$$

This enables us to estimate the parameters of A without restrictions.

Two maintained assumptions:

- Orthogonality of structural shocks
- Contemporaneous impact matrix is stable (cfr. GARCH models)

Empirical results: OVERALL EFFECTS

Oil prices and exchange rates

- 10% increase in oil leads to 0.25% USD depreciation
- 1% USD depreciation leads to 0.81% increase in oil prices

⇨ **causality runs in both directions!**

	STRUCTURAL SHOCKS						
ENDOGENOUS VARIABLES		Oil price	Exchange rate	Stock returns	Interest rate	VIX	Open interest
	Oil price	0.966***	-0.813**	0.724**	2.923*	-0.530***	0.578*
	Exchange rate	-0.025***	1.022***	-0.120**	0.608	0.096***	-0.056
	Stock returns	-0.019	-0.025	0.974***	-3.824	-0.577***	0.009
	Interest rates	-0.005*	-0.008	0.045*	0.713***	0.010	-0.010
	VIX	0.046	0.117	-0.504*	0.127	1.213***	0.036
	Open interest	-0.007	0.042	-0.000	-0.253	-0.009	0.997***

***, ** and * denote significance at the 1%, 5% and 10% levels.

Empirical results: OVERALL EFFECTS

Oil prices, exchange rates and other asset prices

- Stock market shocks

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Empirical results: OVERALL EFFECTS

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- Risk and risk aversion shocks (VIX), monetary policy

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- Shocks open interest NYMEX (financialisation)

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Empirical results: OVERALL EFFECTS

Almost all shocks could drive the negative correlation!

Opposite effect on oil and exchange rates

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In sum:

Oil prices reacts to other asset prices:

hints at role of oil prices as financial asset

Shocks to stock returns and risk explain non-negligible part of daily oil price variability, in particular in high volatility periods

What explains the strengthening of the link between oil prices and asset prices over time?

Empirical results: HISTORICAL DECOMP.

EXAMPLE: What explains the correlation between oil and exchange rates over time?

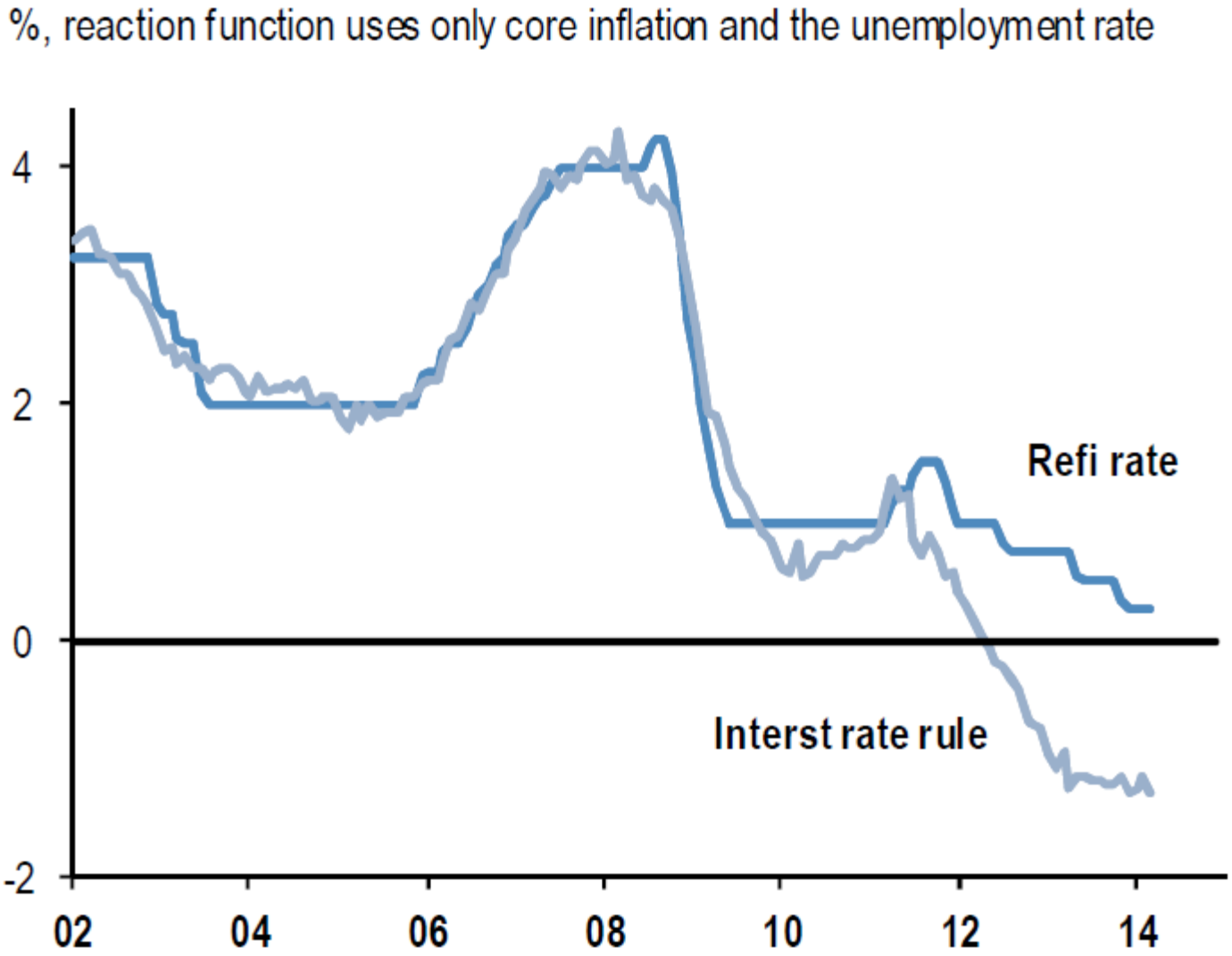
⇨ Generate implied correlations based on historical contributions of each shock and compare with observed correlation

FINDINGS: explain both dynamics and strengthening

- Dynamics in correlation: oil shocks and exchange rate shocks
- Changes in correlation over time: risk shocks and financialisation …
- and esp. MONETARY POLICY SHOCKS IN RECENT YEARS (SINCE 2011)

Part III **Role ECB monetary policy**

Actual versus Taylor-rule implied policy rates

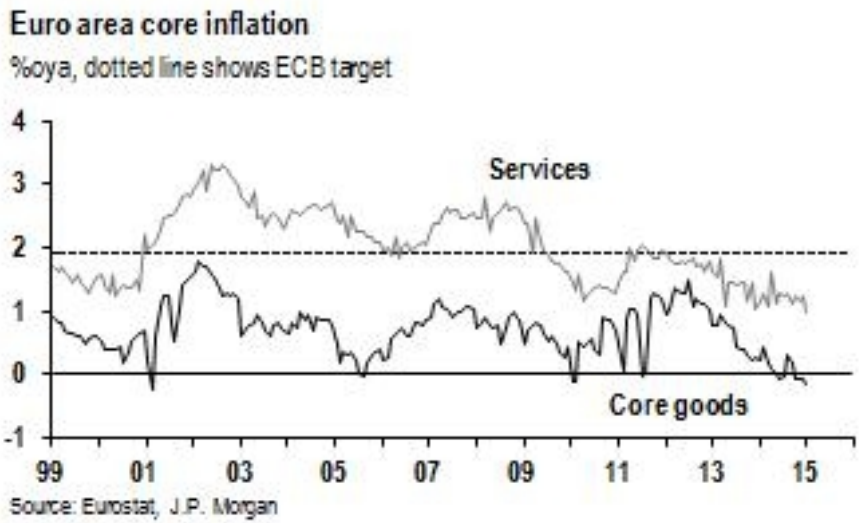


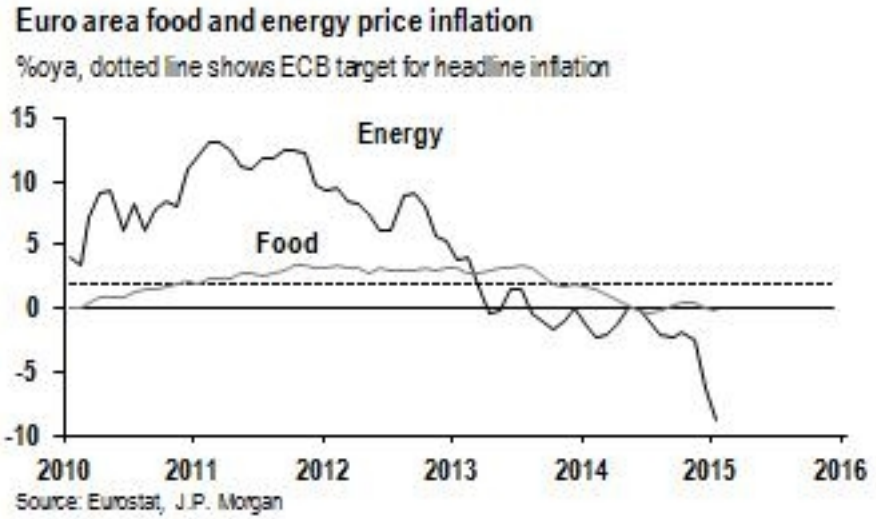
Source: Eurostat, ECB, JP Morgan.

1. Price stability mandate

1. "There is no deflation." – *wrong*
   - Price stability is not inflation rate of 0.0%, deflation reality
2. "The cost of deflation is negligible." – *wrong*
   - Real channel, Fisherian debt deflation, credibility of central bank
3. "Deflation reflects necessary relative price adjustment." – *confusing*
   - Not required for adjustment, structural reforms
4. "ECB policy will lead to high inflation in long-run." – *unproven and unlikely*
   - Credit matters, ECB an act quickly

Deflation already reality

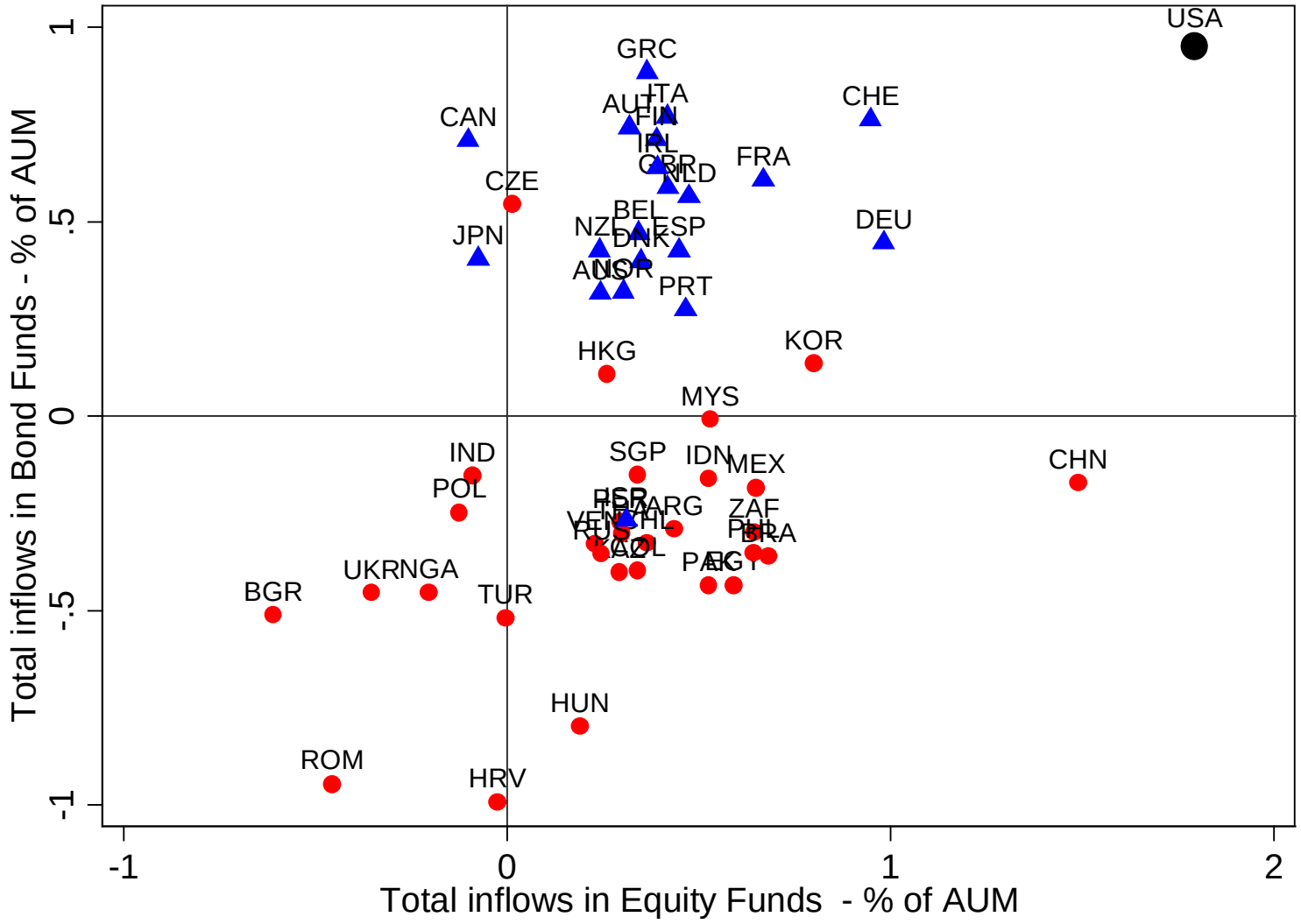




2. Financial stability risks (& other costs)

1. "ECB QE will be ineffective." – *uncertain and unlikely*
   - Asset price reaction since Aug 2014; loans? confidence, inflation expectations?
2. "ECB policy may cause bubbles." – *correct*
   - Sovereign debt (e.g. IT), equity, real estate – Task for supervisors
3. "ECB policy hurts financial institutions." – *partly correct*
   - Profitability, excessive risk-taking vs. consolidation desirable?
4. "Small savers pay high price for ECB policy." – *correct*
   - Esp. in Germany: limited wealth accumulation, raises inequality
5. "ECB policy has adverse external effects." – *mostly wrong*
   - currency war etc. vs. real recovery and stability

Impact of QE I AN on bond & equity flows



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Global effects of Fed policy controversial

"This crisis started in the developed world, … it will not be overcome through quantitative easing policies that have triggered … a monetary tsunami, have led to a currency war and have introduced new and perverse forms of protectionism in the world."

President Rousseff of Brazil (2012, FT 29 March 2012)

3. Impact on economic policy

1. "ECB policy prevents structural and fiscal reforms." – *possible, but exaggerated*
   - What are "correct" structural and fiscal policies? Who decides?
2. "ECB policy is economic policy." – *wrong*
   - GER Const. Court: purchase of sovereign debt is illegal
3. "ECB mutualises risks." – *partly correct, but inevitable*
   - All monetary policy mutualises risks, ECB QE leaves risks with NCBs
4. "ECB QE is not GER interest." – *narrow correct, overall wrong*
   - Would GER have grown by 1.6% in 2014 if EZ had shrunk e.g. by 5%?
5. "Bundesbank has too little weight in ECB." – *depends on perspective*
   - Need to convince with good arguments – all in same boat!

Implications for investors

- Good for equities, real estate
- Bad for oil prices (?)
- Risk of mispricing – e.g. sovereign debt
- Moral hazard for banks and governments
- Business model of banks
- Huge distributional effects – savers vs. debtors
- FX markets – what will happen to international role of euro? What if Grexit?

Summary

- Euro area lagging behind, large risks
- Deflationary spiral and stagnation possibility – 50% <?>
- ECB QE could function as for Fed in QE1 or QE2
  - Push capital into EMEs, esp. Eastern Europe
  - Put downward pressure on euro, upward pressure on others
  - Caution not to expect too much from euro depreciation
  - Counteract partially Fed tightening
- Some evidence of mispricing in markets, e.g. sov. bonds
- Risk substantial from euro area volatility