Cyclical Macroeconomic Policy, Financial Regulation, and Economic Growth - Aghion and Kharroubi

Discussion
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AGHION AND KHARROUBI'S STORY

- Key in the story is credit and liquidity constraint which binds in bad times for some sectors and discourage investment affecting long-term growth

Implications:

- Monetary, fiscal and regulatory policy need to take account of the business cycle to sustain investment in those sectors during downturns

- Volatility is bad for growth

RELEVANT RELATED EMPIRICAL LITERATURE

- Micro: study on the effect of credit constraint on investment
- Macro: effect of counter-cyclical monetary and fiscal policy and transmission mechanism
- Macro-finance: cyclical effect of financial regulation

What is new here is the interaction effect between policy and borrowing/credit constraint suggesting asymmetries in the way fiscal, monetary policy and regulatory policy work to affect investment/innovation

LARGE EMPIRICAL LITERATURE HAS LOOKED AT CREDIT CONSTRAINTS OVER THE BUSINESS CYCLE

- Gertler and Gilchrist (1994), find that growth in sales, inventories, and bank debt of small manufacturing firms is more sensitive to monetary policy shocks than that of larger firms.

- Fazzari, Hubbard, and Peterson 1988, Gertler and Hubbard 1988, Hoshi, Kashyap, and Scharfstein 1991, Whited 1992, Kashyap, Lamont, and Stein 1994 .... impact of credit constraints on investment spending

- Several panel studies-firm level: size of firm matters and structure of financing. Eg: italian firms obtain a significant share of their financing from debt, but use virtually no debt to finance R&D. Because Italian firms typically do not receive external equity, the obvious source of innovation financing is internal cash flow. Cash flow plays an important role in explaining capital investment in small firms, not large

SIMILAR STORIES THAN AK BUT POINT TO FIRM LEVEL AS RELEVANT DIMENSION

MACRO AND MACRO-FINANCE (1)
WHAT DO WE KNOW OF TRANSMISSION MECHANISM AND SIZE OF EFFECTS?

Can use time series literature to see whether results are reasonable and quantitatively important

Fiscal policy

- Effect of fiscal shocks on real variables larger than that of monetary shocks

- Empirical evidence (VAR and narrative) points to a large effect of tax cut on investment but the effect of corporate tax rate is smaller than that of personal tax (Romer and Romer, Mertens and Ravn, ….)

      This suggests that transmission is either through government expenditure or via households (demand) not AK's channel

MACRO AND MACRO-FINANCE (2)
WHAT DO WE KNOW OF TRANSMISSION MECHANISM AND SIZE OF EFFECTS?

- *Monetary policy: credit channel and liquidity channel*

- Huge empirical literature …. How large is the credit channel? *Evidence is not robust*

- *Regulatory policy: capital-asset ratios and cyclicality of credit*

- Not clear what are the costs for banks to use more equity capital (and relatively less debt) to finance the assets and therefore the likely impact of higher capital ratios on lending

- Trade-off between cost of holding capital and benefits of having a balance sheet structure that makes banks less likely to come near to insolvency in crises

AK's APPROACH TO THE EMPIRICS

Sophisticated and rough at the same time

 -- Rough on the macro side and possibly at odd with the time series literature on some aspects

 -- On the micro-side firms level might be more relevant

 -- Sophisticated in studying the interaction between industry characteristics and macro/regulation

Results appear to be strong but some econometric problems ....

ECONOMETRICS
Difference in difference

$$Dy(jk) = \text{fixed effects} + \gamma[IC(jk) \times POL(k)] + \ldots + \varepsilon(jk)$$

J: industry

K: country

IC: industry characteristics

POL: policy (macro or regulation)

We are interested in γ:

H0: $\gamma < 0$: *a larger degree of anticyclical policy tends to raise industry's VA growth disproportionally for "vulnerable" industries*

KEY: use US as benchmark → proxy IC(jk) by IC(j,us)

SOME ECONOMETRIC PROBLEMS
Problem 1

1. The assumption IC(jk)=IC(j,us) is okay only if IC is common to all industries
2. What if not? Then λ≠0 in

$$IC(jk) = IC(j) + \delta(jk)$$
$$\text{res of key eqn:} \quad \varepsilon(jk) = \lambda * \delta(jk) + \text{iid noise}$$

The degree of borrowing constraint affects industry's VA growth only through the interaction effect with policy only if λ=0

If, for example, financial market characteristics which are country specific matter for industry's VA growth, λ≠0

3. What happens in that case?

- Correlation between regressor and residual leading to inconsistency
- OLS γ is biased – the bias depends on the covariance between unobserved industry characteristics in country k and the US
- OLS γ can be different than zero even if true γ is zero when US industry characteristics are more closely related to industry in some countries than in others

DIRECTION OF THE BIAS?

- The sign of the bias depends on the characteristics of the difference of US industry characteristics and those of other countries ....

- Interesting case:

US industry characteristics are more closely related to those of Australia than to those of Greece ...

In that case you can have OLS $\gamma \neq 0$ even if true $\gamma = 0$ (see Ciccone and Papaioannou, 2010)

IS THIS POINT LIKELY TO BE RELEVANT?
A look at the data on industry characteristics

Q1: how common are the US industry characteristics to those of other countries?

Q2: is the commonality heterogeneous across countries?

Liquidity constraint: heterogeneity across country for same industry

Labor cost / gross operating surplus
(Industry: Food products, beverages and tobacco)

Legend: ■ 2010
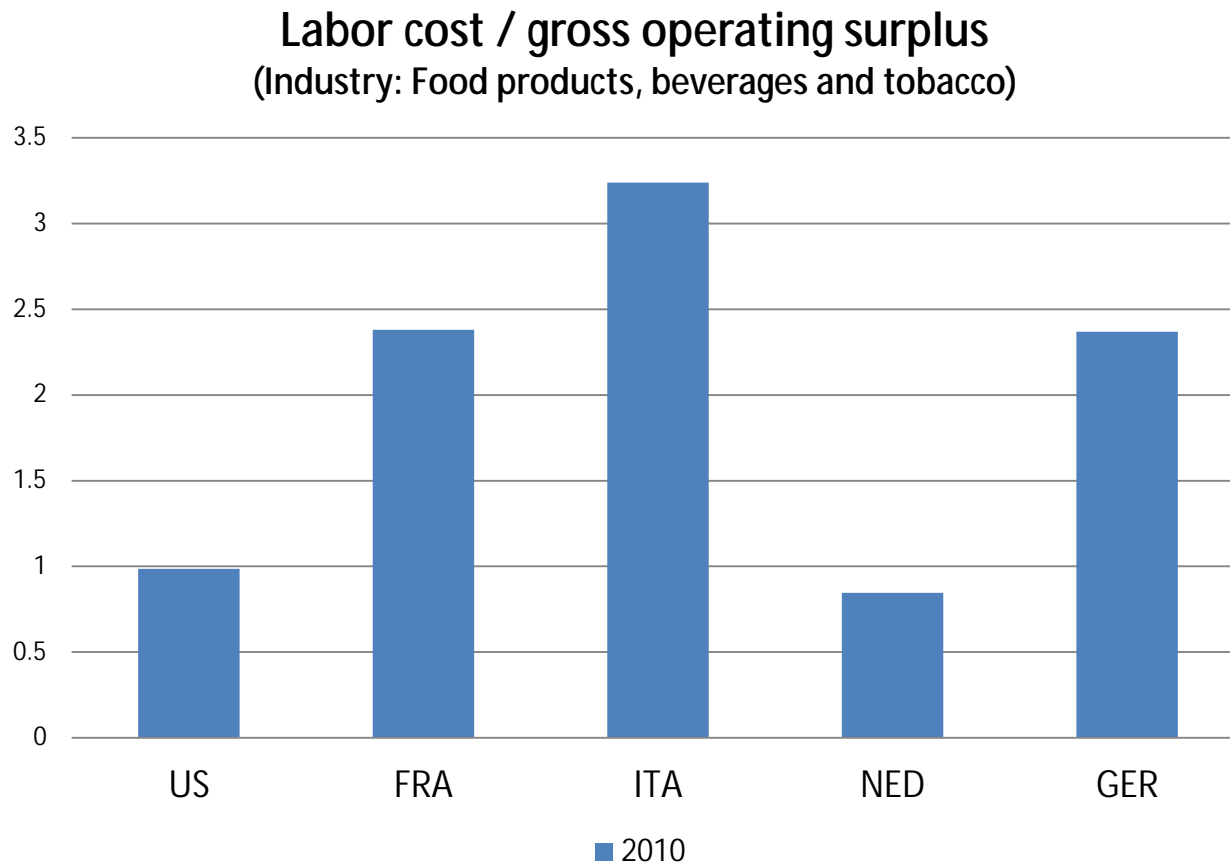
US cannot be used as benchmark!

Correlation with US, 1991-2010

Labor cost / gross operating surplus
(Industry: Food products, beverages and tobacco)

SWE	ITA
0.43	-0.10
NED	FRA
0.04	-0.26

IS THE GLOBAL COMPONENT IN INDUSTRY'S VALUE ADDED GROWTH LARGER THAN THE COUNTRY SPECIFIC COMPONENT COMMON TO ALL INDUSTRIES?

Value added (annual growth rate) - variance explained by 1st principal component			

Across industries * (country component)		Across countries ** (global industry component)	
France	62.9	Food	48.5
Italy	64.5	Textile	44.6
US	37.2	Chemicals	34.1
Japan	49.7	Metals	45.1

*   Panel of 10 manufacturing industries, 1981-2005
** Panel of 12 OECD countries, 1981-2005

SOME ECONOMETRIC PROBLEMS
Problem 2

- Are we really measuring degree of anti-cyclicality in step 1? Fiscal equation:

$$Def(t) = a + b \text{ output gap}(t) + u(t)$$

where u(t) is shock to public expenditure

We can also have:

$$\text{output gap}(t) = m + k \, def(t) + v(t)$$

where v(t) is output shock

b good measure of cyclicality only if k=0 or var(u)=0

If not:

Two countries with same b and k (same cyclicality of fiscal policy) but subject to different shocks have different correlation between gap and gov expenditure and therefore different estimates of b

In AK's sample euro area countries maybe in the case b<0 and k>0
But σ(u) > σ(v) (fiscal shocks dominating GDP shocks) and therefore est b >0

OTHER ECONOMETRIC PROBLEMS

❑ Cyclicality is estimated regressor!

❑ Degree of cyclicality of policy may capture country's characteristics:

• market versus bank based financial market-relevant for interaction between bank capital and monetary policy

• institutions: bad institutions and procyclical fiscal policy (literature) – look at results for Greece for example!

• Phillips curve tradeoff

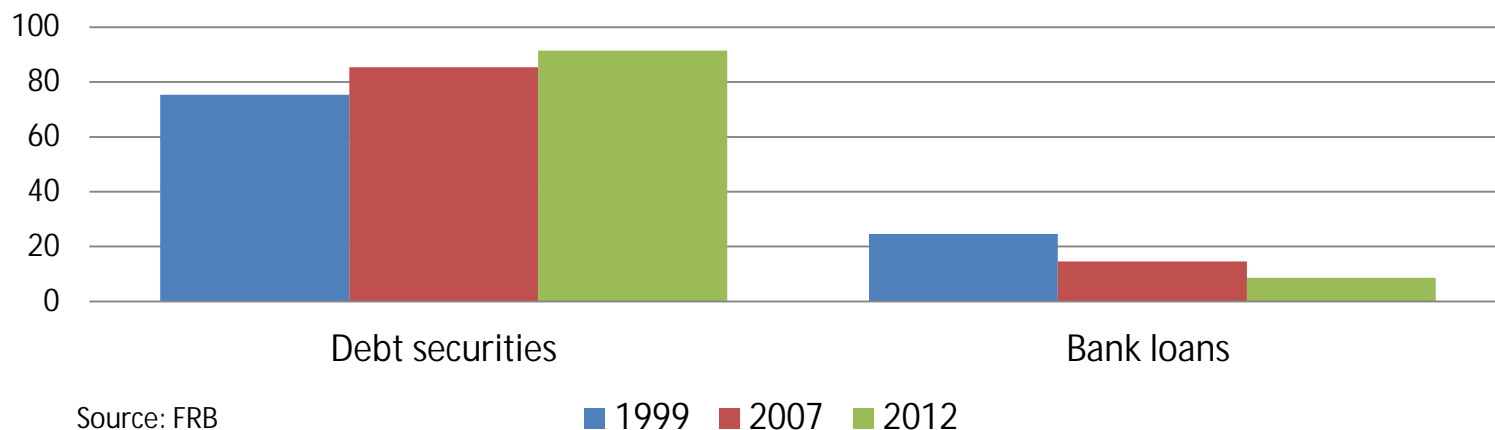❑ But also only six years of quarterly data with no recession in the sample for most countries

DIFFERENCES IN CHARACTERISTICS OF FINACIAL MARKETS EXPLAIN DIFFERENCES IN CYCLICALITY OF MONETARY POLICY

Euro area - relative weight of loans from credit institutions and securities

Securities

Credit institutions loans

■ 1999 ■ 2007 ■ 2012
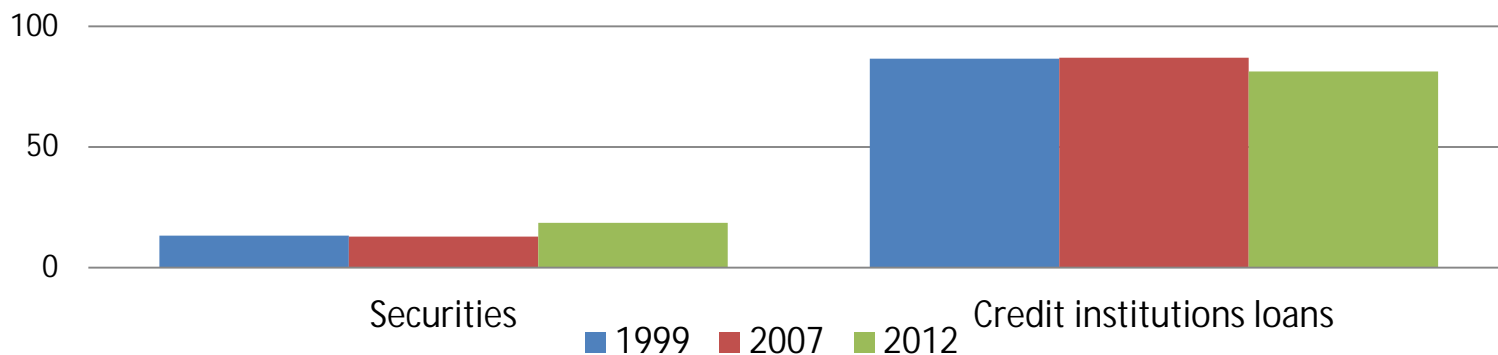
Source: ECB

US - Relative weight of bank loans and debt securities

Debt securities

Bank loans

Source: FRB

■ 1999 ■ 2007 ■ 2012

HOWEVER ....

- There is something in the story
- But more has to be done to make it convincing
- Perhaps complementary approaches
- Can we learn anything using recent recession as case study?

CASE STUDY: THE TALE OF TWO CRISES IN THE EURO AREA

GDP growth, QoQ

Source: OECD

United States
Euro area (17 countries)

NBER recessions dates
CEPR recessions dates
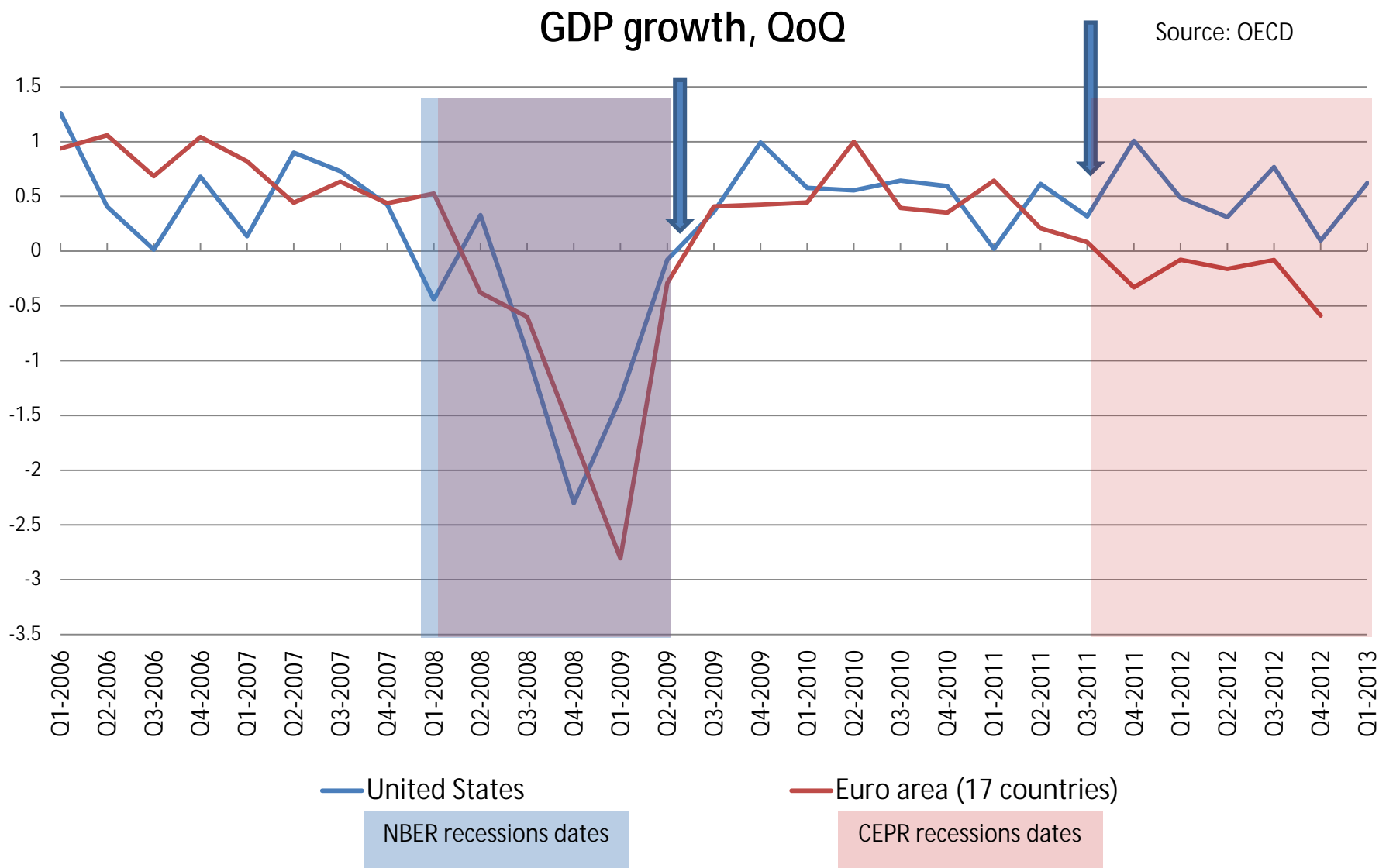
ECB LIQUIDITY PROVISION AND LOANS TO CORPORATE

Loan flows (6m MA) and industrial production

NFC

Industrial production (right)

Source: ECB

Longer-term refinancing operations
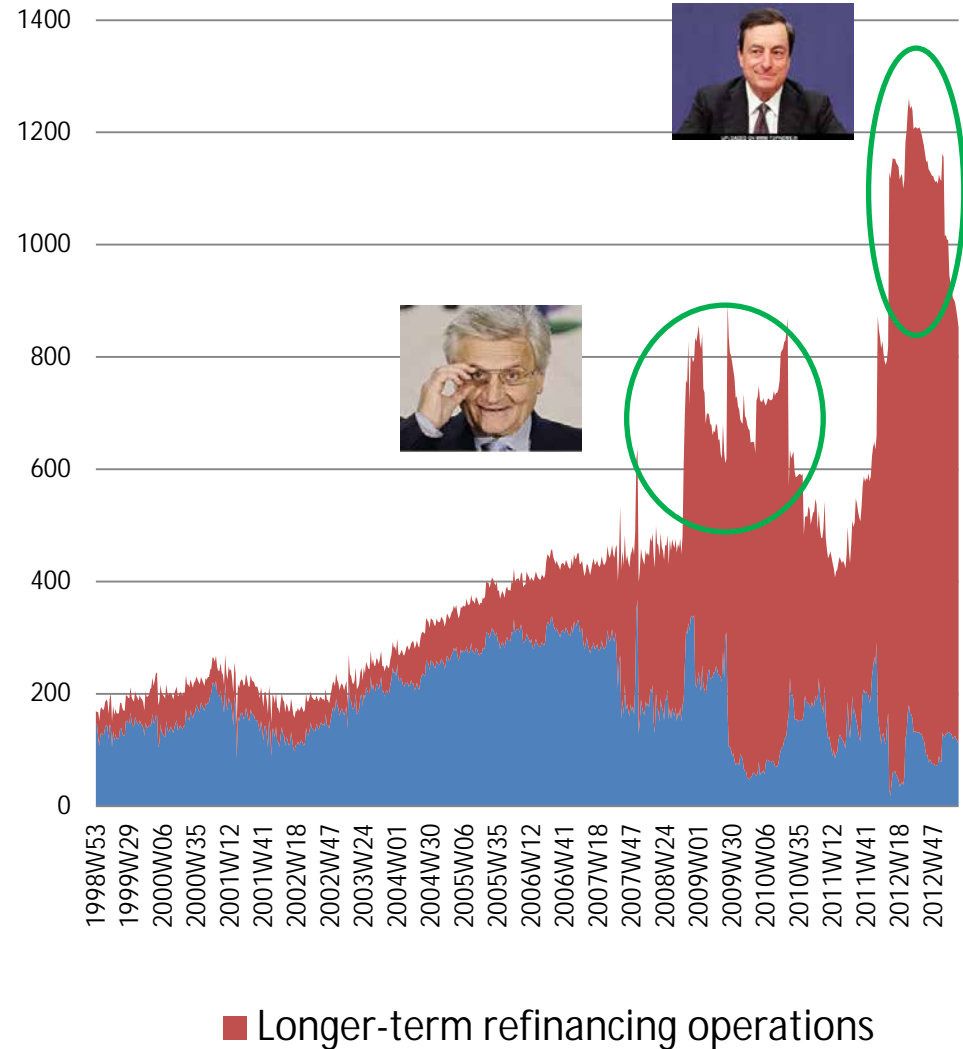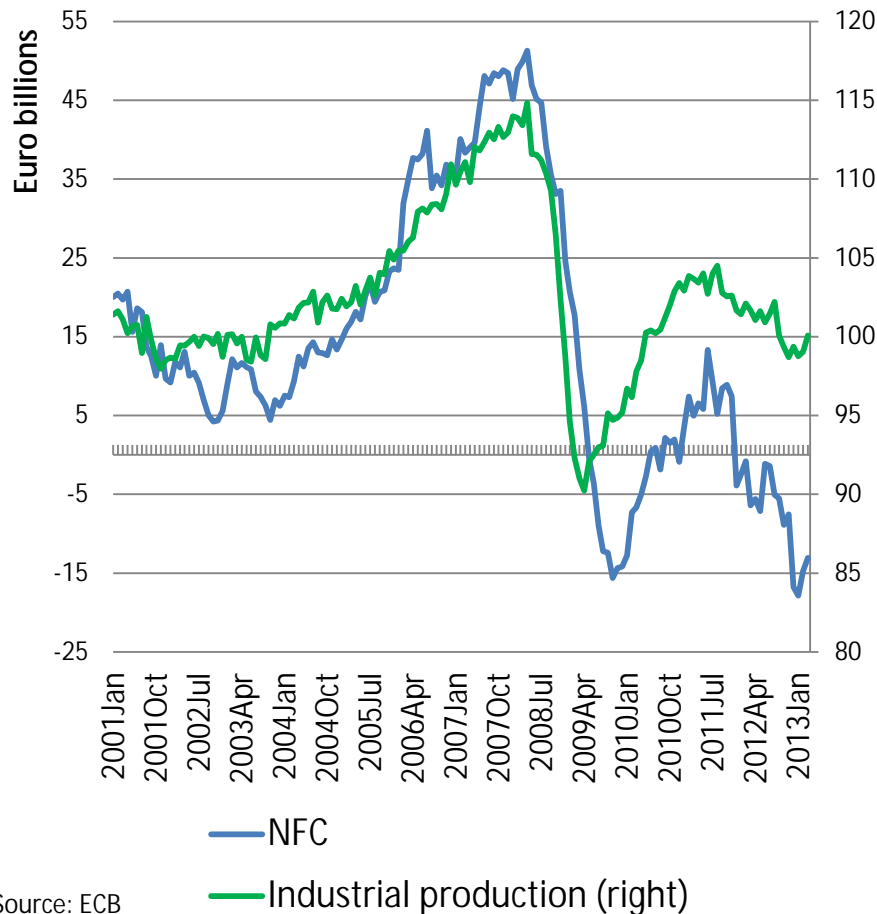
CASE STUDY: THE TWO RECENT EURO AREA RECESSIONS

2008-09 crisis:

- ample central bank liquidity

- euribor in line with historical Taylor rule

- loans move as in historical correlation with business cycle

- ECB bank lending survey points to demand as significant factor
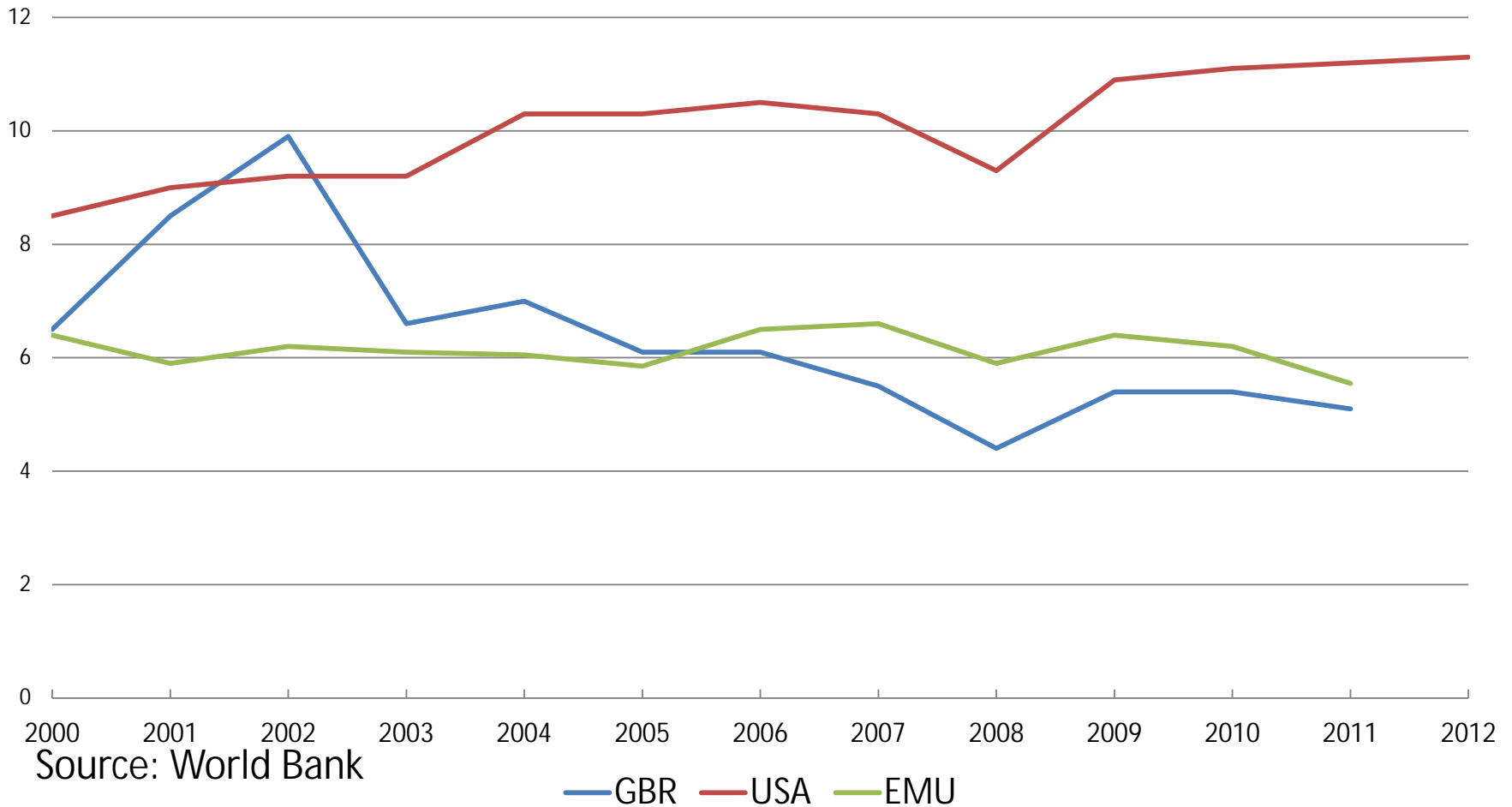
- Banks capital ratios don't adjust

QUITE DIFFERENT NARRATIVE THAN AK's

ECB BANK LENDING SURVEY 2008-09:
FACTORS CONTRIBUTING TO TIGHTENING OF CREDIT STANDARDS
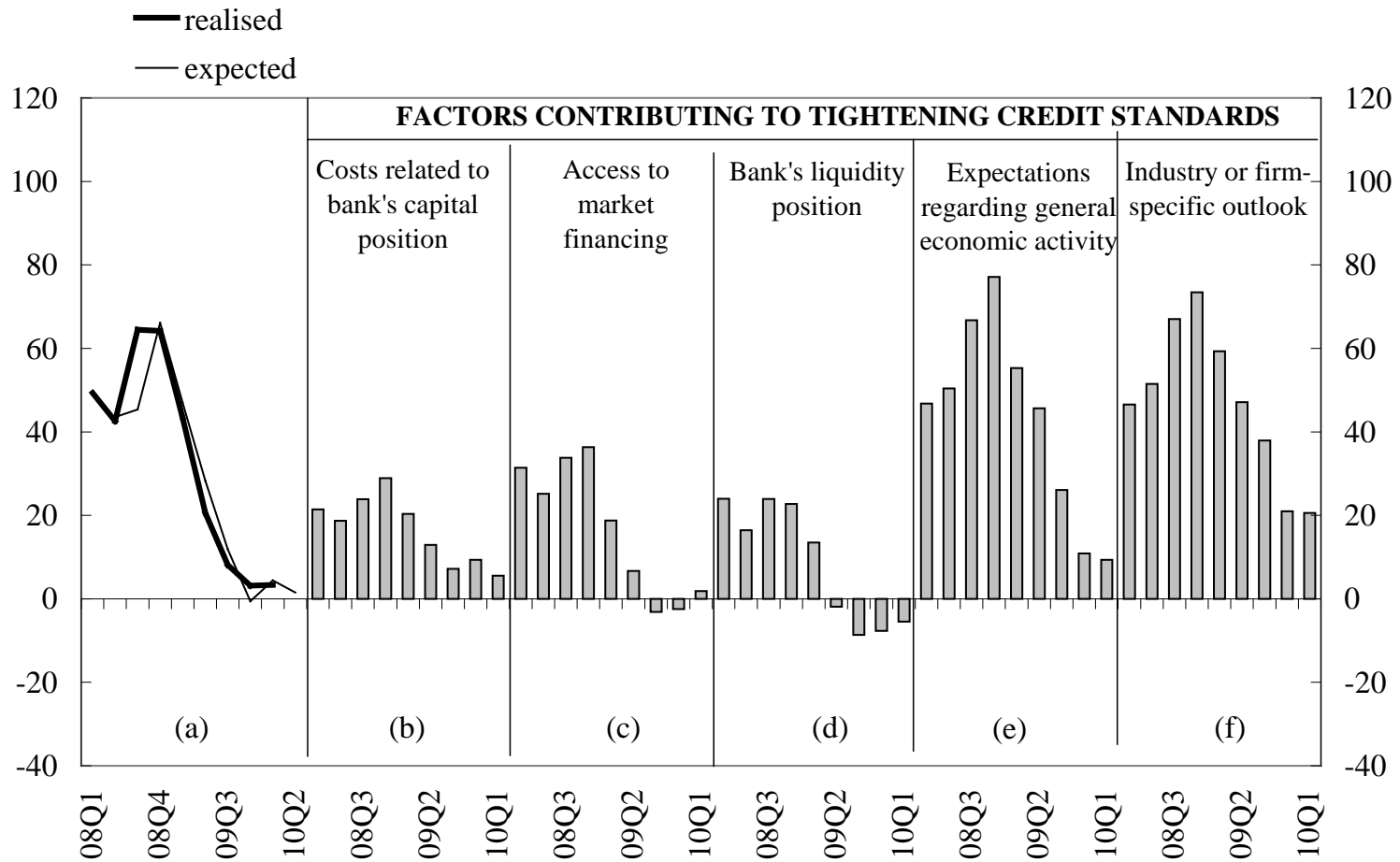
BANKS' CAPITAL RATIOS CONSTANT IN THE EA UNLIKE IN THE US, IN THE EA SOLVENCY PROBLEMS WAS NOT ADDRESSED AFTER LEHMAN

Bank capital to assets ratio (%)

Source: World Bank

GBR — USA — EMU

CASE STUDY: THE TWO RECENT EURO AREA RECESSIONS

2011-12 crisis:

- more liquidity and at longer horizon
- but loans weaker than historically [chart] – now a crunch?
- Some evidence that supply of loans is problem for small-medium firms
- Banking survey continue to point to demand but also capital and assess to market financing

NARRATIVE IS MORE SIMILAR TO AK's STORY NOW

However anti-cyclical liquidity provision did not work ....

Not because of enforcing higher capital ratios but for the opposite reason: solvency issues not addressed

- K/A for banks constant but size of financial sector shrinks (both K and A)
- Contrast with US: bank recapitalization at an early stage ... strong loans and recovery [charts]

Interaction with fiscal policy also relevant

ECB BANK LENDING SURVEY 2011-2012: FACTORS CONTRIBUTING TO TIGHTENING OF CREDIT STANDARDS
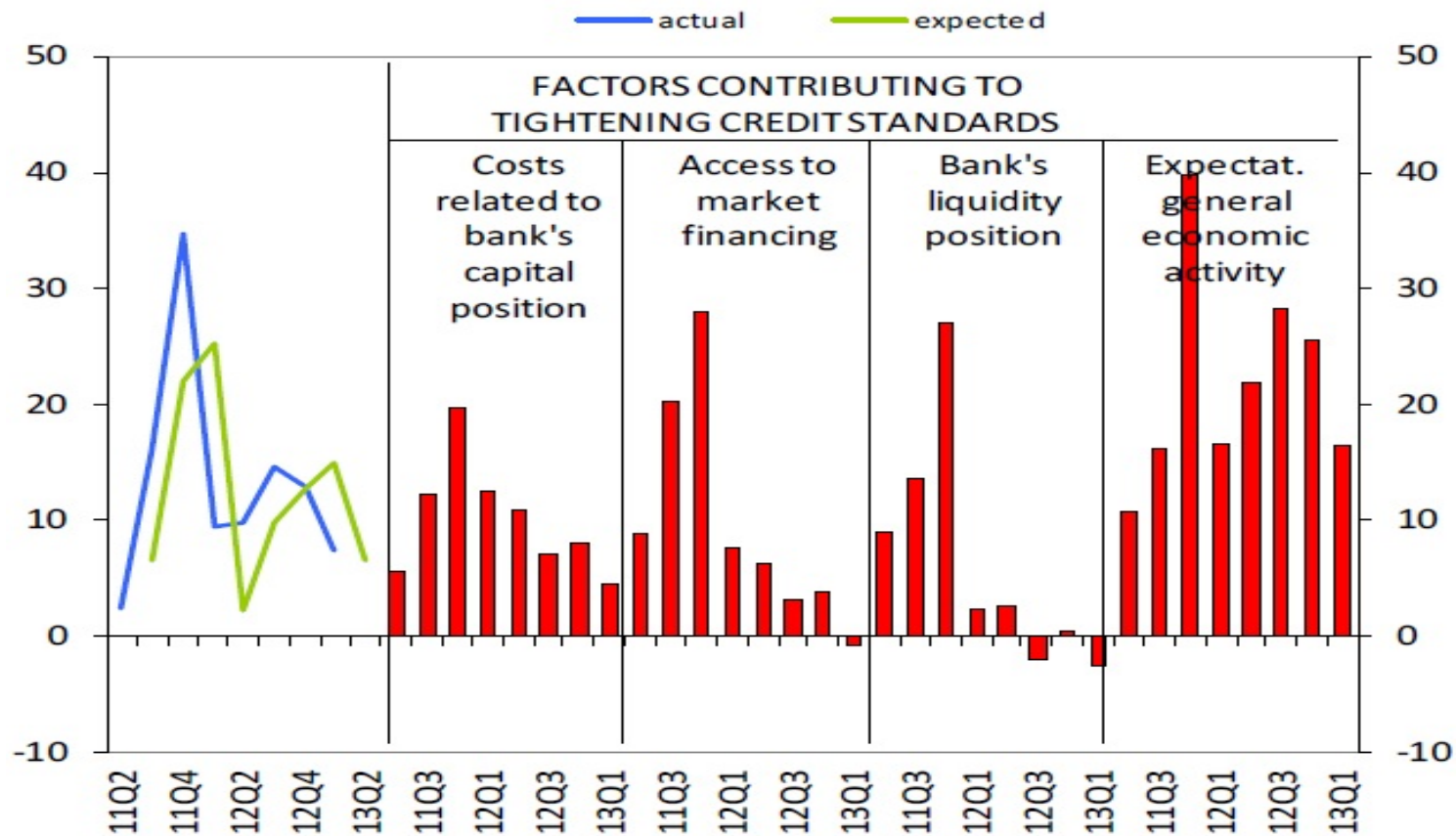
TO CONCLUDE

- Creative paper

- Room for fertilization between this approach and macro literature

- Recession are informative case studies but point to more complex interaction between policies than that suggested in the paper