

# What Drives Fiscal Multipliers? The Role of Private Debt and Wealth

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Keynes Tagung, Berlin, Februar 2013

# Agenda

## Issue

## Literature Review

## Theoretical Background

## Estimations

## Conclusions

## References

- 1 Issue
- 2 Literature Review
- 3 Theoretical Background
- 4 Estimations
- 5 Conclusions

## Motivation

- Methods to identify discretionary fiscal policy shocks may be incomplete and thus may lead to wrong identifications and biased results.
- For example: Cyclically Adjusted Primary Budget (CAPB) (Romer and Romer, 2010; Guajardo et al., 2011).
- Our hypothesis: Using the CAPB and other identification methods to estimate fiscal multipliers lead to downward biased multipliers due to the ignored influence of private debt and wealth.

## Question

Do fiscal multiplier estimations entail a significant omitted variable bias concerning credit and asset price cycles?

## Method

- Test the difference of multiplier estimations when controlling / not controlling for credit and asset cycles
- Dynamic OLS and VAR

## Data

- US quarterly 1950:1-2012:4 and subsamples
- Work in Progress: Expansion to OECD country panel.

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## Well-known problems when trying to estimate multiplier effects

### Endogeneity or Identification Problem

- Public budget driven by business cycle (Blanchard and Perotti, 2002)
  - Automatic stabilizers
  - Discretionary fiscal policy in response to business cycle
- Implementation lags and expectations (Ramey, 2011)

### Omitted Variable Bias

- International spillovers (Beetsma et al., 2006)
- Monetary policy regime (Woodford, 2011)
- Exchange rate regime (Corsetti et al., 2012)
- Public debt (Corsetti et al., 2012)

## Established methods to identify exogenous fiscal shocks

- Lagged or instrumented variables (Afonso et al., 2010)
- Cyclically adjusted primary balance (CAPB) (Alesina and Ardagna, 2010)
- SVAR methodology (Blanchard and Perotti, 2002)
- Natural experiments (Acconcia et al., 2011)
- Narrative/Action-based approach (Guajardo et al., 2011)

## What they probably forget

Asset price swings and credit cycles (Minsky, Keen, Fisher)

## Our reasoning

- Both an identification problem for some approaches...
- ...and an omitted variable bias for others



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## Figure : 1 True fiscal shock and true GDP response

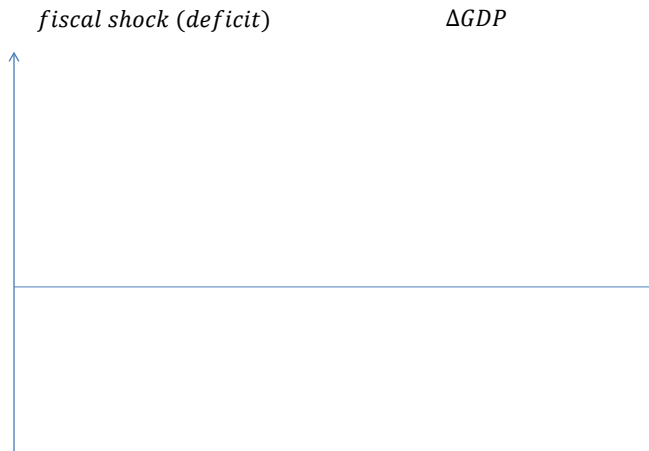


Figure : 2 Effects of asset / credit downswing

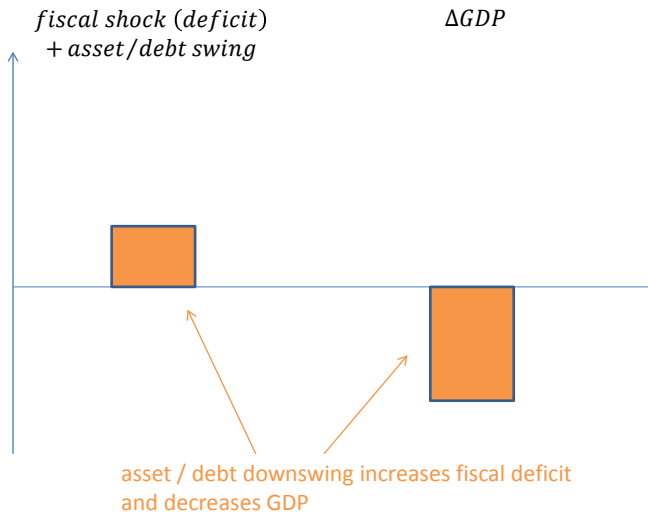
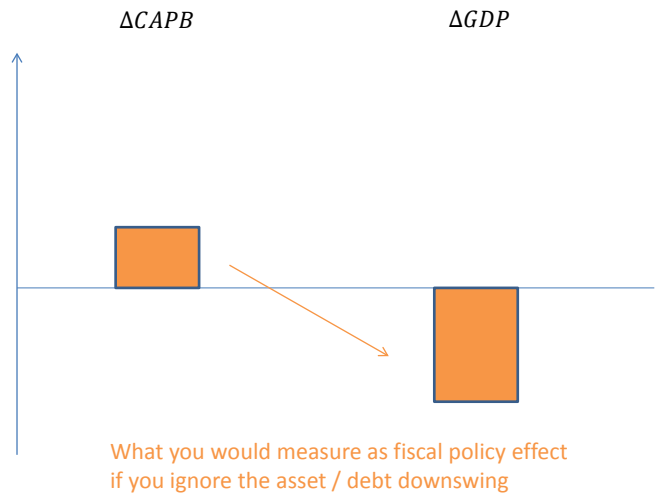


Figure : 3 Spurious fiscal shock and spurious GDP response



## Identification Problem – The CAPB example

- CAPB is cyclically adjusted for automatic stabilisers but not asset/credit swing adjusted
- CAPB changes thus not necessarily exogenous fiscal decisions
- They may reflect revenue changes due to higher/lower wealth or a credit boom/bust

## Omitted Variable Bias

- During a credit bust: private sector is debt deflating
- During an asset price crash: negative wealth + confidence effects
- GDP growth partly reflects private sector demand slowdown due to credit/asset bust

## Consequences

- Previous literature would be underestimating fiscal multipliers, especially in credit / asset crunch
- Austerity during credit / asset crunch would be more harmful than expected from this literature
- Controlling for credit / asset cycles may increase the measured influence of fiscal stimulus

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## Dynamic OLS model

$$y_t = \alpha + \sum_{i=1}^k \beta y_{t-i} + \sum_{i=0}^k \gamma fshock_{t-i} + \sum_{i=0}^k \delta ctrl_{t-i} + \varepsilon_t \quad (1)$$

- US quarterly 1950:1 - 2012:4
- $y$  = growth rate of GDP or Private Consumption
- $fshock = \Delta CAPB$
- $ctrl$  = growth rate of Dow Jones, S&P500, House Price Index, Household Debt



Figure : 4 CAPB shock – GDP response – DowJones – full sample

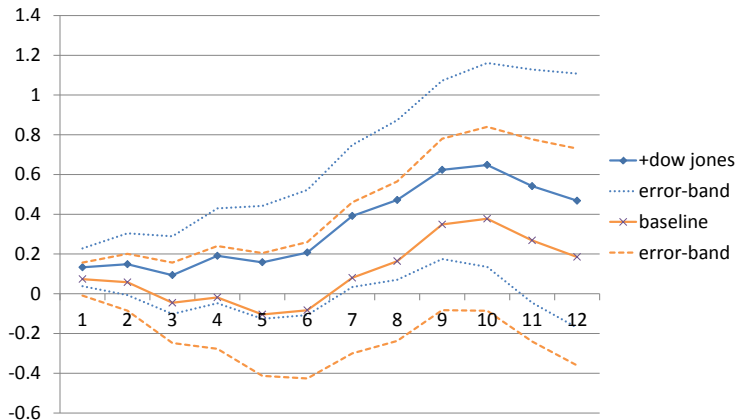


Figure : 5 CAPB shock – GDP response – S&amp;P500 – full sample

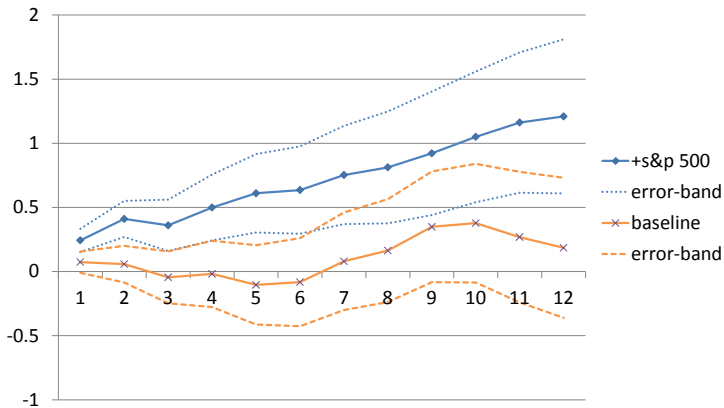


Figure : 6 CAPB shock – GDP response – DowJones – 1950-1981

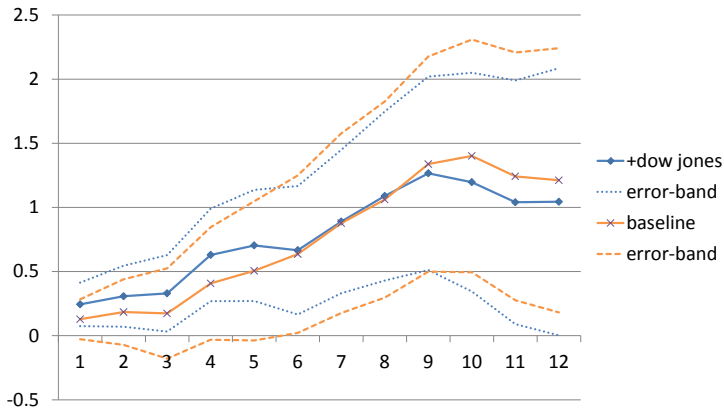


Figure : 7 CAPB shock – GDP response – S&amp;P500 – 1956-1981

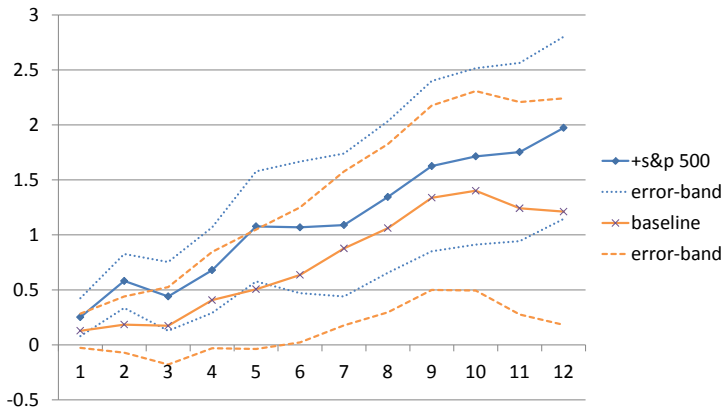


Figure : 8 CAPB shock – GDP response – DowJones – 1982-2012

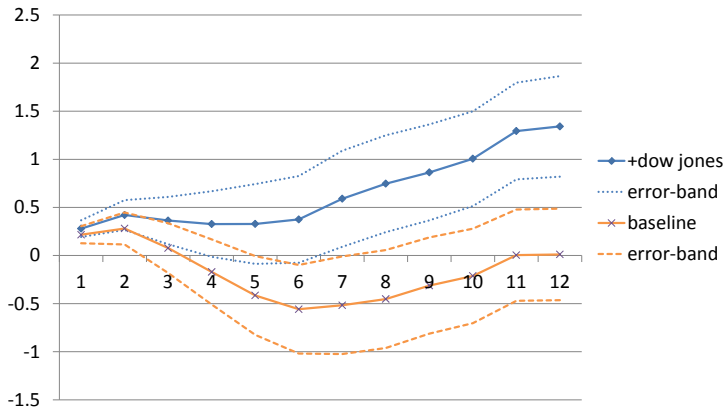
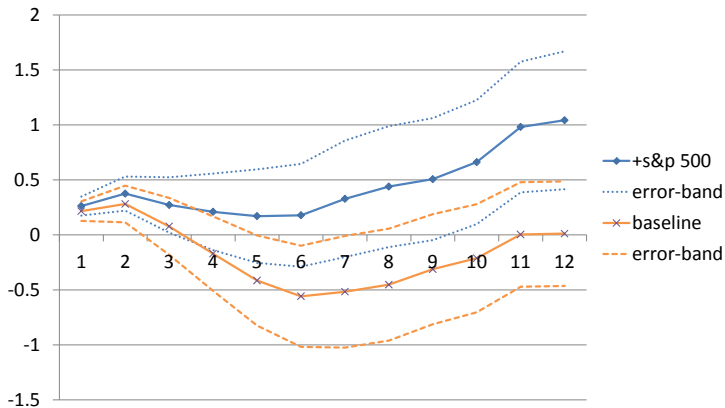


Figure : 9 CAPB shock – GDP response – S&amp;P500 – 1982-2012

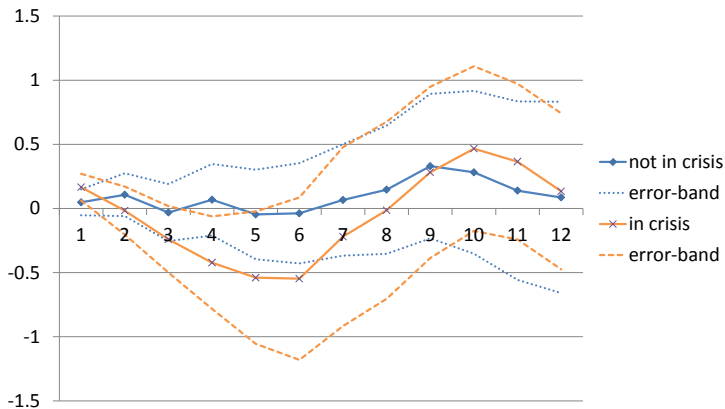


## Crisis Dummy Model

$$y_t = \sum_{i=1}^k \alpha y_{t-i} + \sum_{i=0}^k \beta fshock_{t-i} + \gamma d_t + \sum_{i=0}^k \delta d_t \cdot fshock_{t-i} + \varepsilon_t \quad (2)$$

- US quarterly 1950:1 - 2010:4
- $y$  = growth rate of GDP or Private Consumption
- $fshock = \Delta CAPB$
- $d$  = Reinhart and Rogoff financial crisis dummy

Figure : 10 CAPB shock – GDP response – CrisisDummy – full sample





## SVAR model specification

$$\mathbf{A}z_t = \sum_{i=1}^4 \mathbf{B}_i z_{t-i} \quad (3)$$

$$z_t = [g_t \quad (ctrl)_t \quad y_t \quad c_t \quad lr_t \quad xr_t] \quad (4)$$

- US quarterly 1983:1 - 2007:4
- $g$  = Gov't Consumption
- $ctrl$  = Dow Jones, S&P500, House Price Index, Household Debt
- $y$  = GDP
- $c$  = Private Consumption
- $lr$  = Long run real interest rate
- $xr$  = real exchange rate

Figure : 11 Gov't Cons shock – Baseline

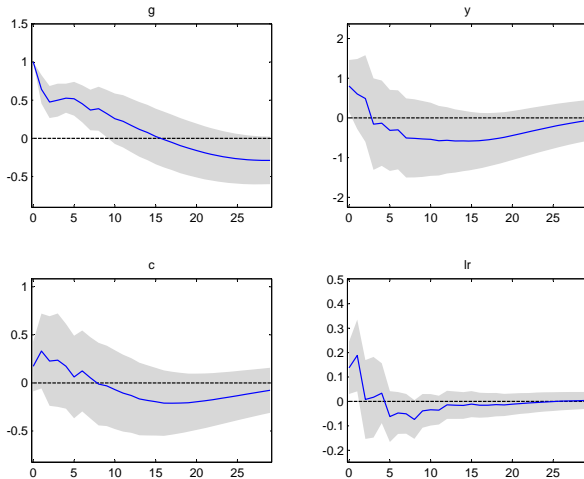


Figure : 12 Gov't Cons shock – Control: DowJones

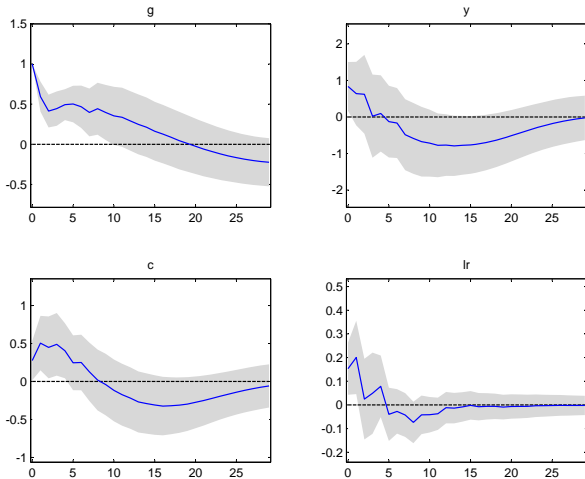
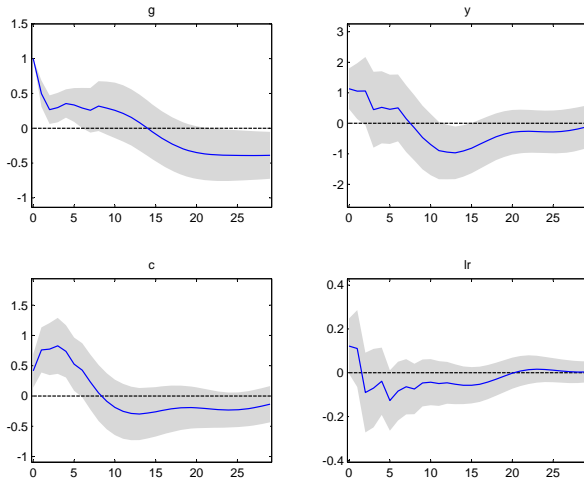


Figure : 13 Gov't Cons shock – Control: DowJones + HH-Debt



## Overview on Results

### Dynamic OLS – CAPB

- CAPB multipliers sensitive to financial crisis dummy
- CAPB multipliers sensitive to inclusion of stock market swings
- More pronounced and significant since 1982 (larger swings)
- Results insignificant when controlling for Household Debt

### SVAR identification

- Results less clear cut when comparing scenarios
- However, higher multipliers with control, and significantly different from zero

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## Preliminary Conclusions

- Estimating multipliers with CAPB identification is downward biased
- SVAR identification more robust (?)

## Open questions / ideas

- Include an Asset Price Gap concept (Bornhorst et al., 2011)
- Test moving averages of control variables to better capture persistence
- Panel data approach for debt variables
- Test further identification methods for similar problems
- ...



Fiscal Multipliers

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Issue

Literature Review

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Background

Estimations

Conclusions

References

# Thank You

## Contact:

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