A DSGE model to assess the post crisis regulation of universal banks

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Outline

1 Introduction

2 The Model

3 Main Findings

4 Conclusion

Introduction

- The last financial crisis has led to a multiplication of new regulations
  - Volcker rule
  - Liikanen proposal
  - Basel III new requirements
    - ↪ Reinforcement of the capital requirement
    - ↪ Introduction of liquidity requirements
- The calibration of liquidity requirements still under discussion (NSFR)

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Main Conclusion

- The liquidity regulation has a persistent effect through private consumption dynamics
- The Liquidity Coverage Ratio may induce banks to substitute sovereign bonds to business loans
- Implementing simultaneously liquidity and solvency regulations has compounded effects
- A more progressive implementation of the regulatory changes affects the mix between deleveraging and increasing profit margins in favour of the latter strategy

Related Literature

- Plenty of papers on macro-prudential regulations.
- Little evidence on liquidity requirements impacts ...
- ... using simplified definition of the liquidity constraints

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  - "*Macroeconomic propagation under different regulatory regimes*" (M. Darracq Pariès, C. Kok Sorensen, D. Rodriguez-Palenzuel, IJCB (2011))
  - "*Credit and banking in a DSGE model of the euro area*" (Gerali, A. and al, JMCB, 2010)
  - De Nicolo, Gamba and Luchetta (2014) ; Covas and Driscoll (2014) ; Adrian and Boyarchenko (2013)
- Little evidence on liquidity requirements impacts ...
- ... using simplified definition of the liquidity constraints

Related Literature

- Plenty of papers on macro-prudential regulations.
- Little evidence on liquidity requirements impacts.
  - Economic benefits and costs of stronger Capital and Liquidity regulations (Macroeconomic Assessment Group, 2010)
  - The long-term costs of the new macro-prudential rules using 13 models (Angelini et al., 2011)
- ... using simplified definition of the liquidity constraints

Related Literature

- Plenty of papers on macro-prudential regulations.
- Little evidence on liquidity requirements impacts ...
- But they all "adopt very simple definitions ... for the bank liquidity, **that are quite distant from the complex measures introduced by the new rules**". Angelini et al. (2011)

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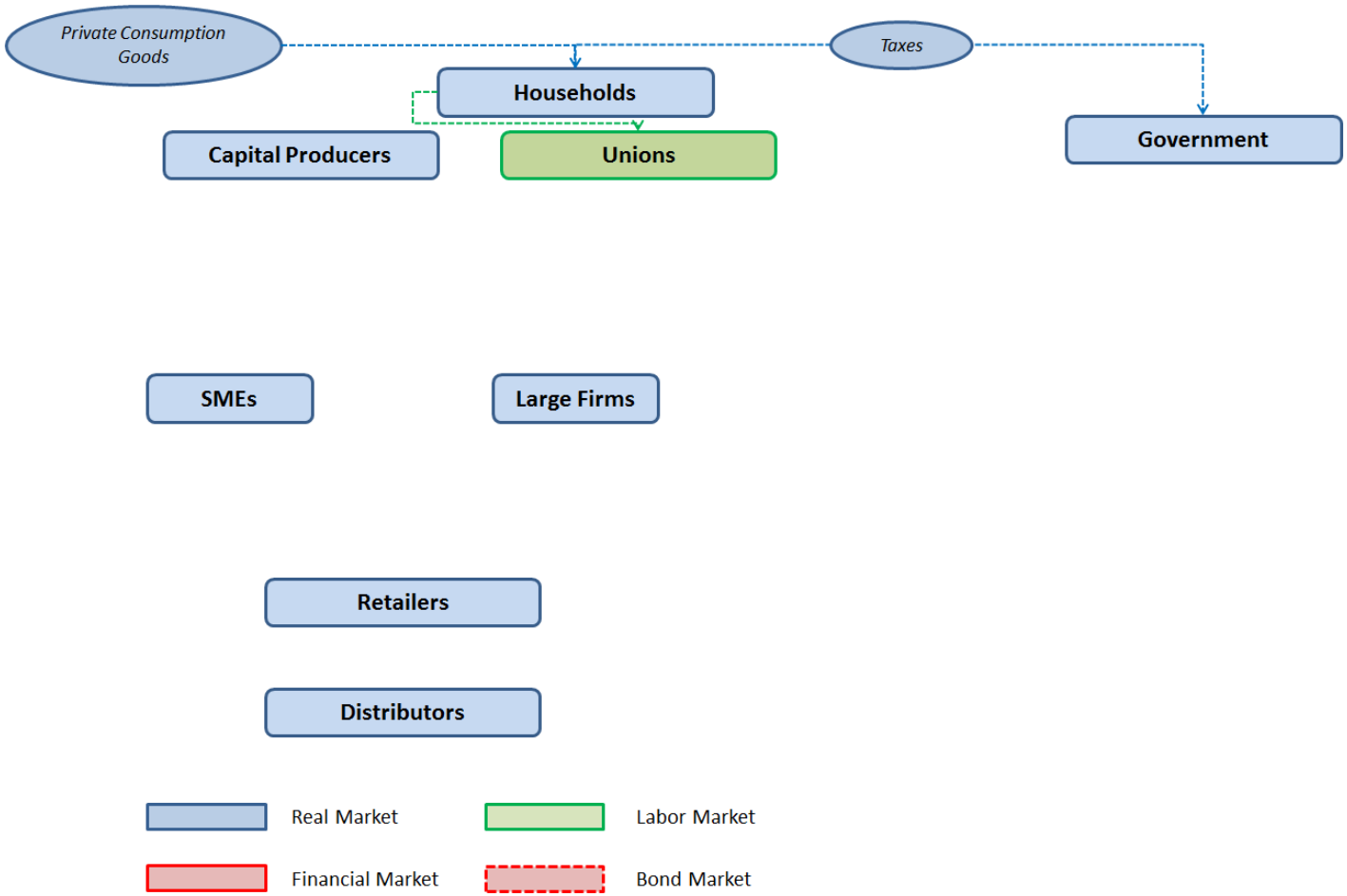
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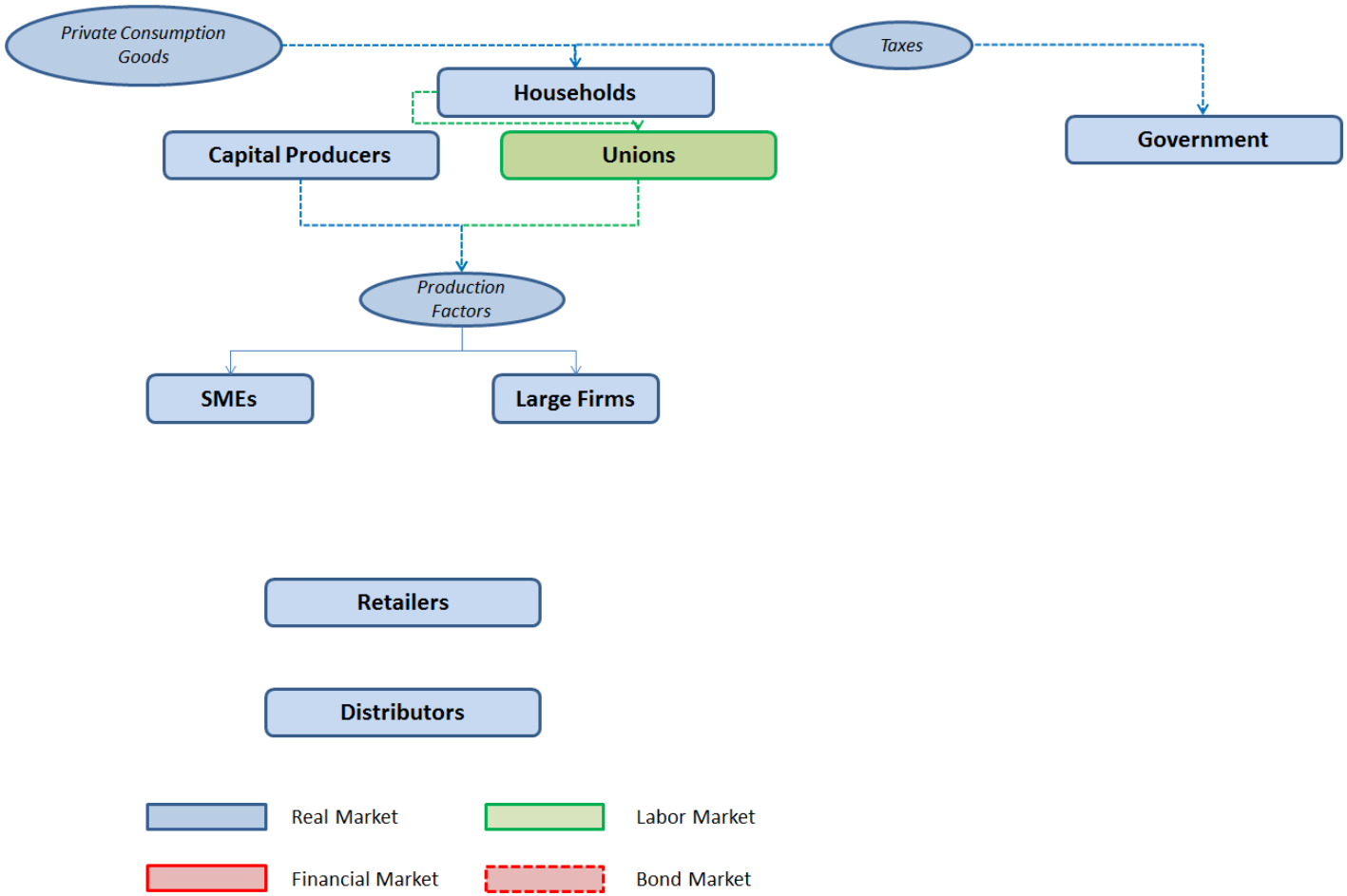
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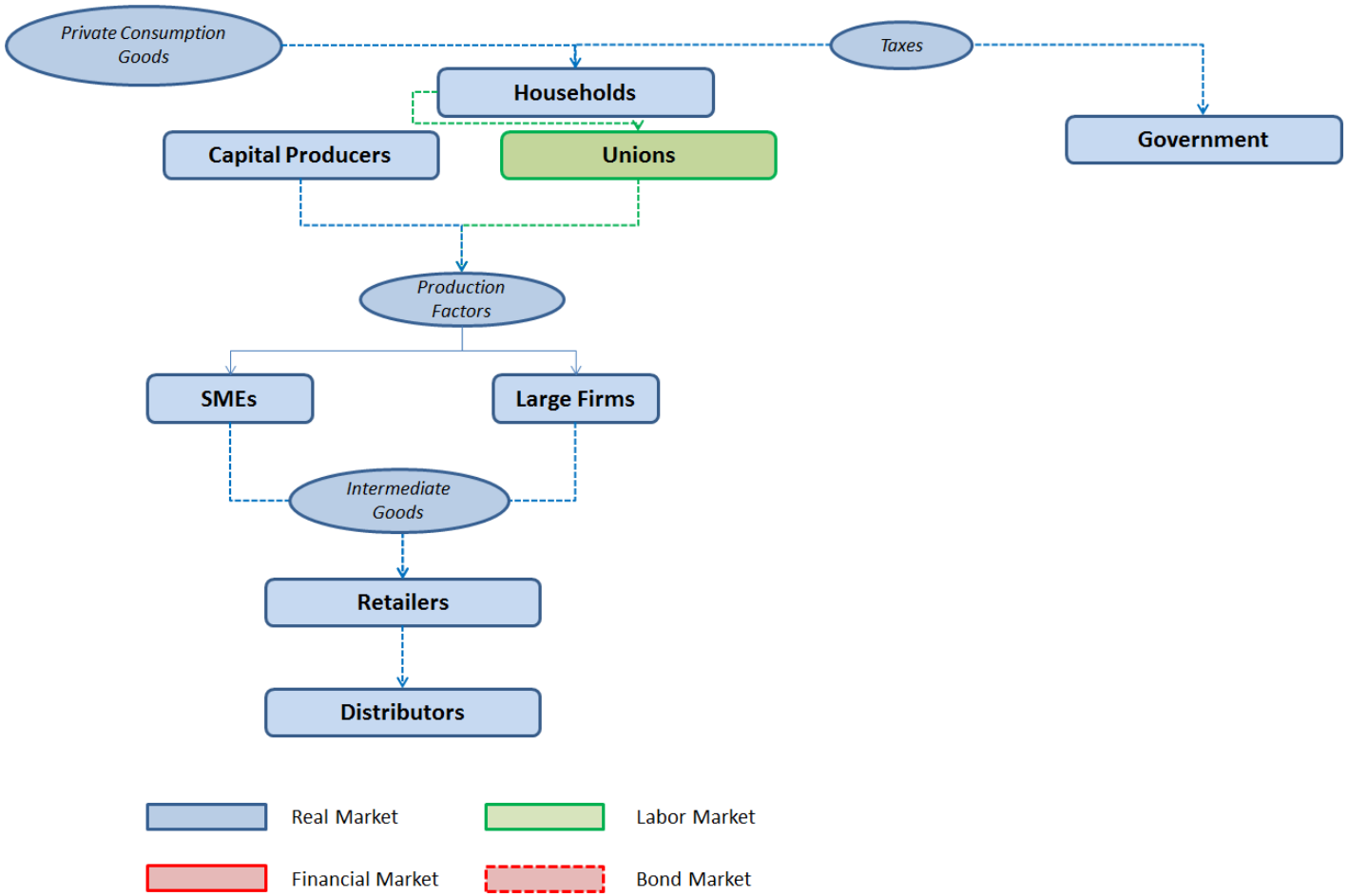
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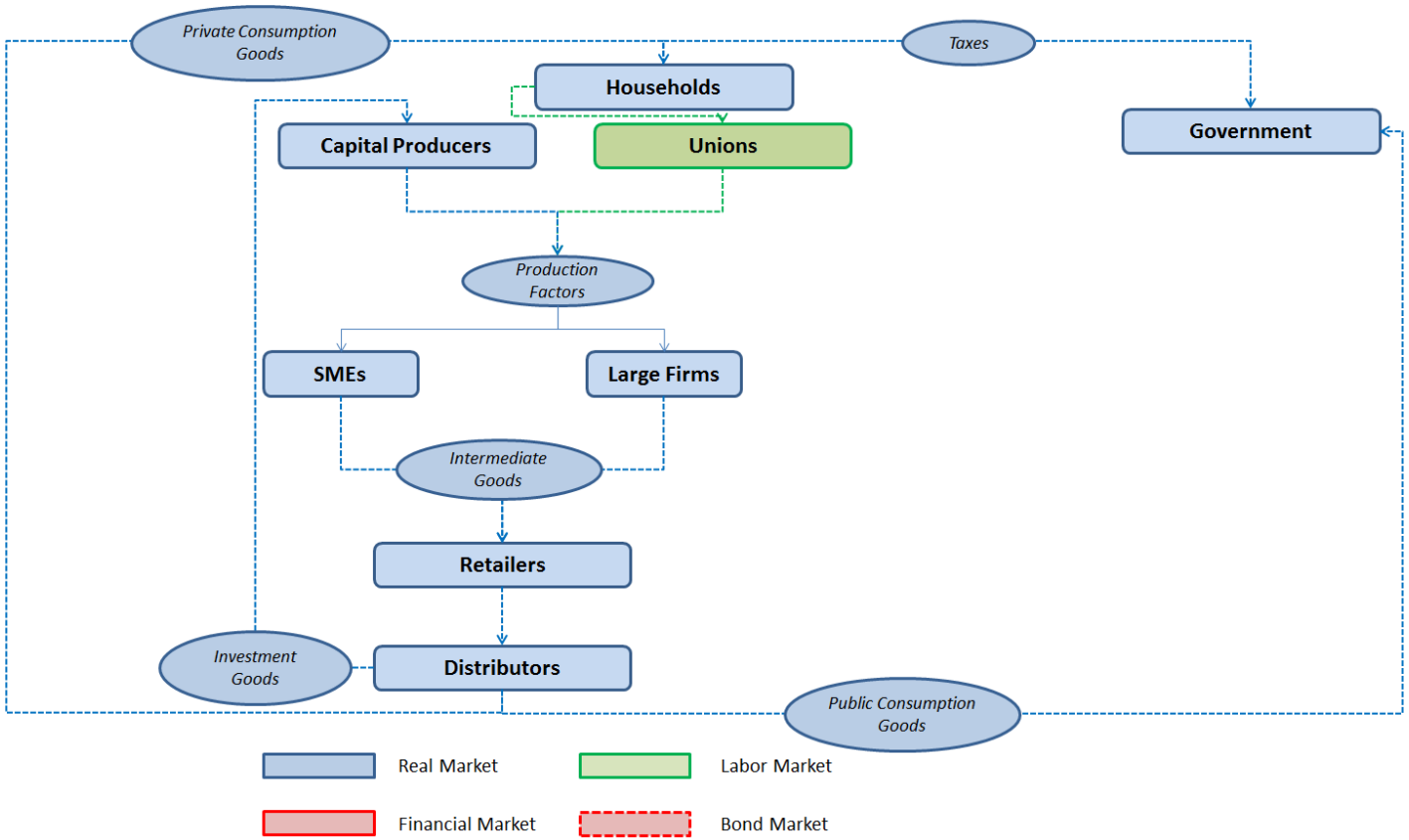
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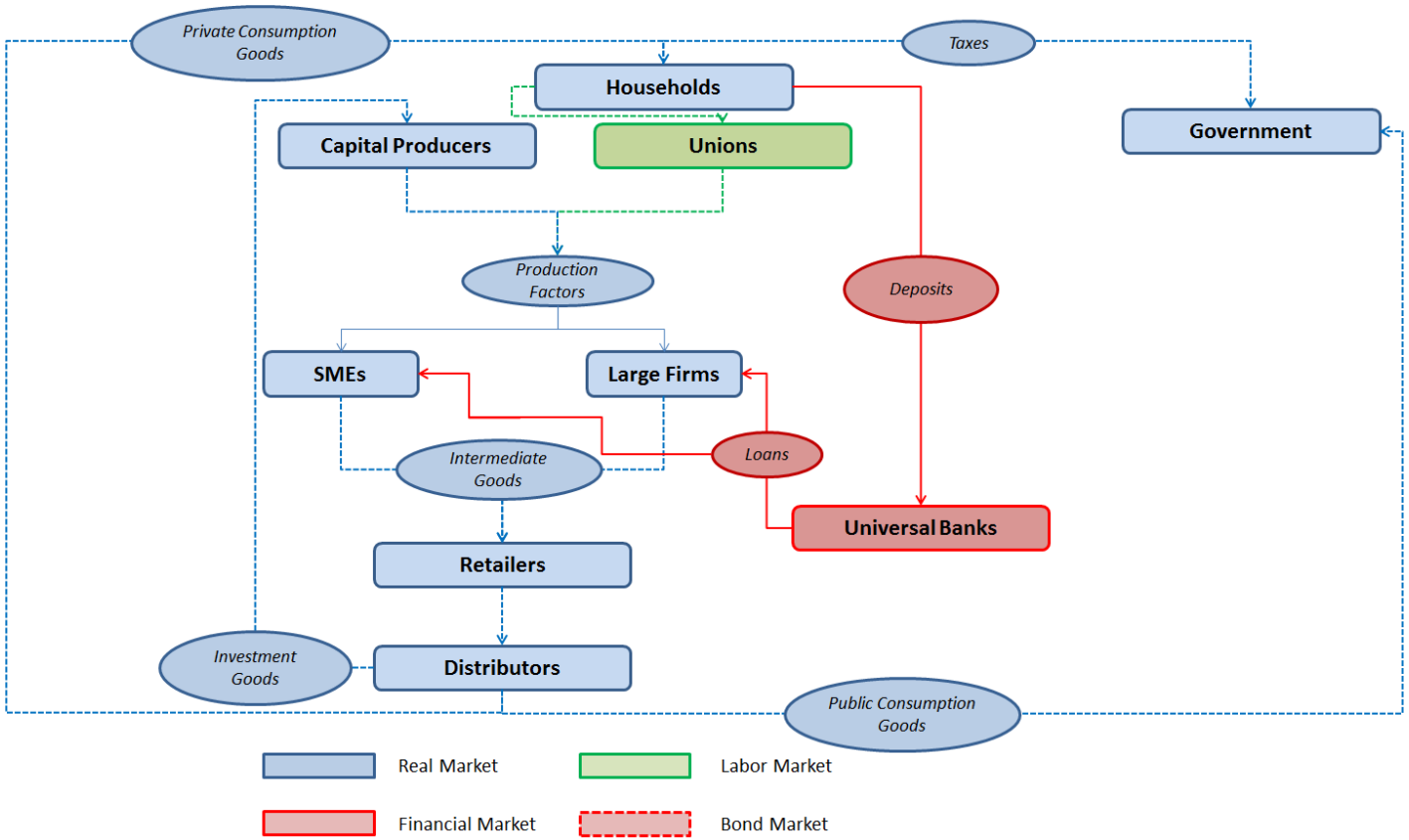
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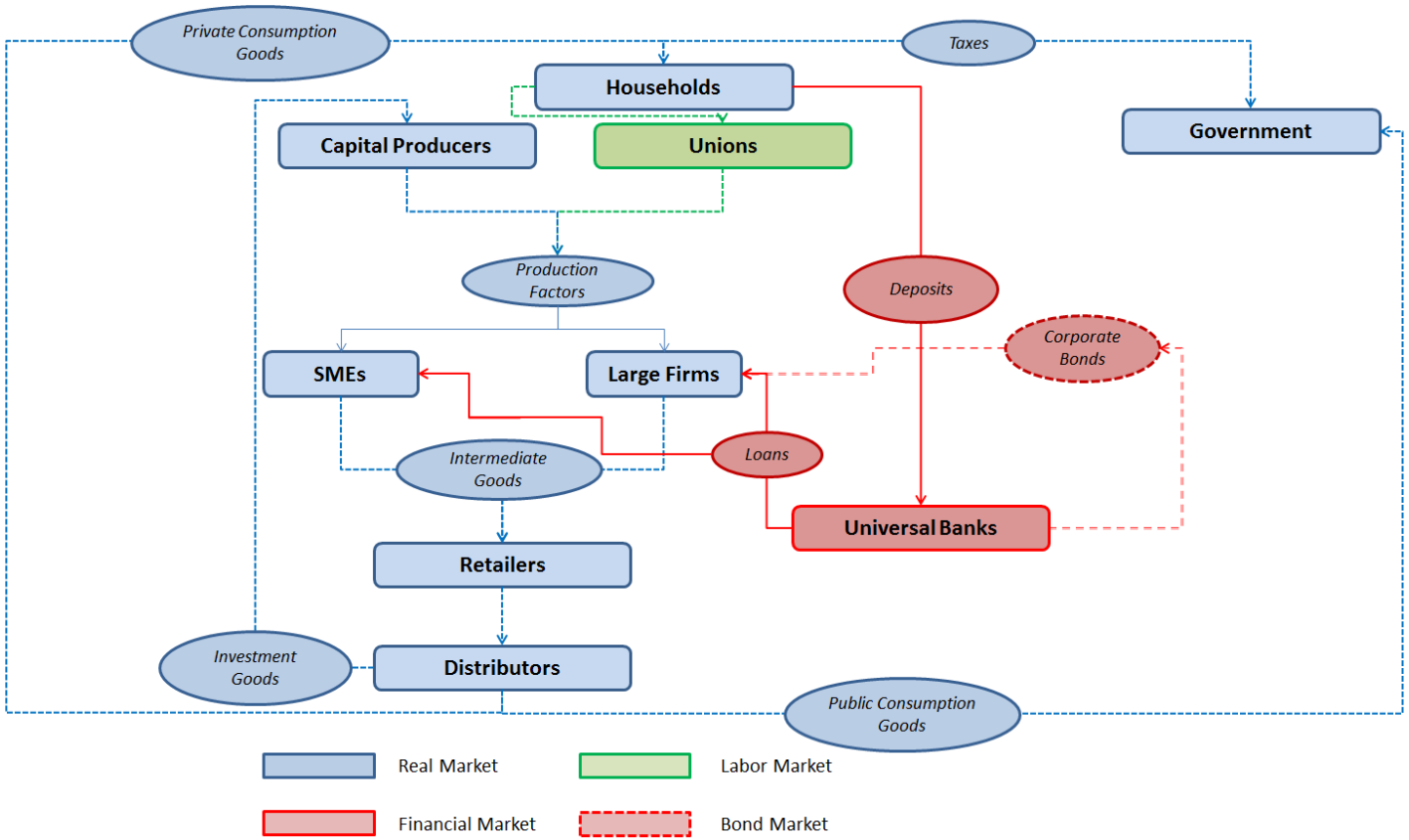
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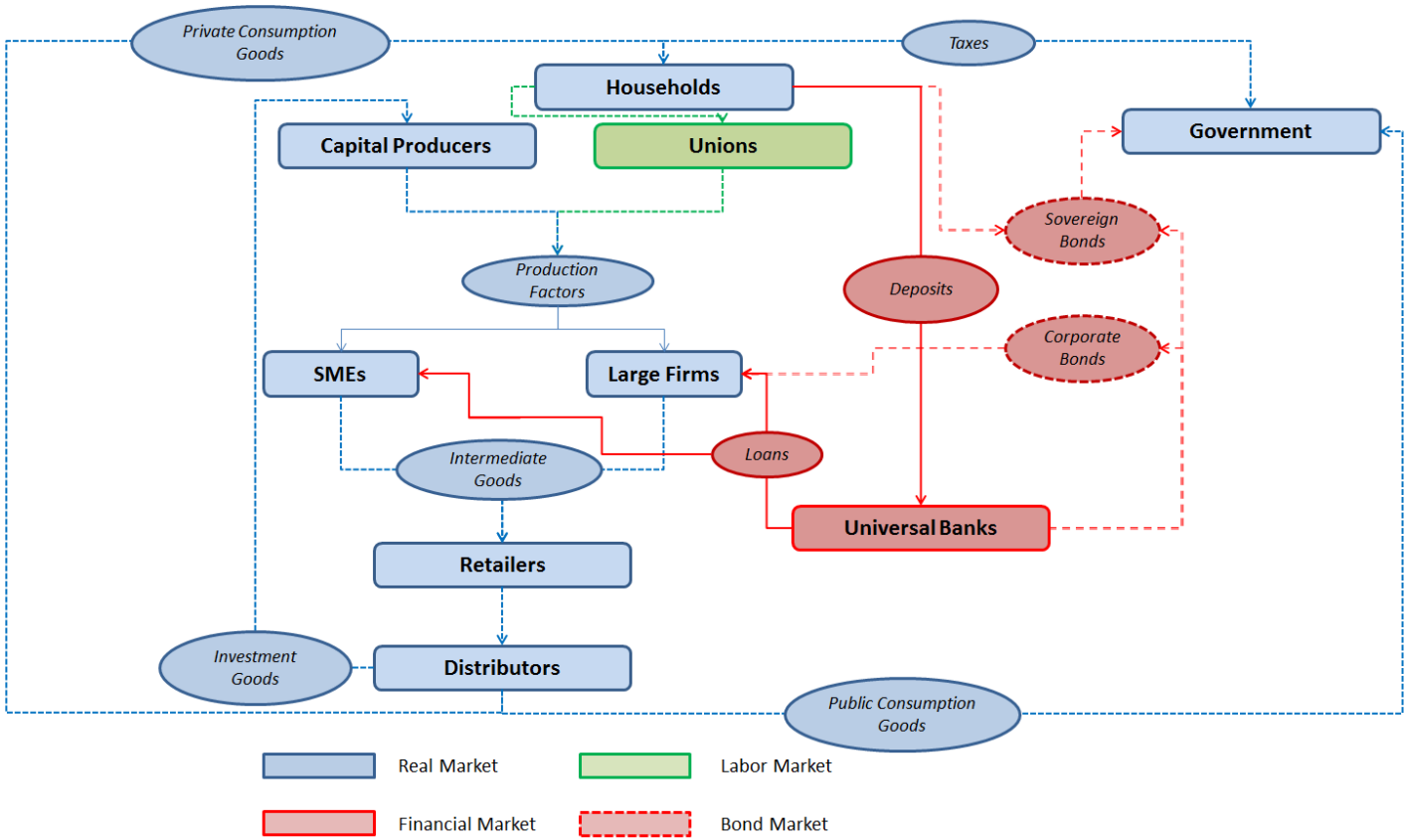
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The Model

- A large calibrated DSGE model extended with
  - Heterogeneity among producers
  - A bond market à la Gilchrist et al. (2010)
  - Multi-period assets framework as in Benes and Lees (2010)

- Calibrated using euro area data

The Model

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  - Heterogeneity among producers Making distinction between corporate firms and SMEs
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  - Heterogeneity among producers
  - A bond market à la Gilchrist, Sim and Zakrajsek (2010)
    Idiosyncratic shock hitting the firms' production able to make firms' managers to default
    $\Longrightarrow$ A presence of a risk premia over riskless assets yield rate
  - Multi-period assets framework as in Benes and Lees (2010)
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  - Heterogeneity among producers
  - A bond market à la Gilchrist et al. (2010)
  - Multi-period assets framework as in Benes and Lees (2010) geometric repayments of principal and interests scheme leading to
    - simple recursive equations
    - simple way to calibrate the average maturity of an asset

$$BLCR_t^n = \frac{\mu^{NT^g} ST_t^{T^g,n} + \mu^{NT^s} ST_t^{T^s,n}}{\underbrace{\mu^D SD_t^n + \mu^{JD} J_t^D + \mu^{IB} (1+R_t) IB_t^n}_{\text{potential cash outflows}} - \underbrace{\left(\mu^{L^p} J^{L^P,n} + \mu^{L^g} J^{L^G,n} + \mu^{T^g} J^{T^G,n} + \mu^{T^s} J^{T^S,n}\right)}_{\text{cash inflows}}}$$

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  - Using mainly Gerali et al.(2010) estimation

The Model

Modelling the banking sector :

1. A continuum of banks
2. In monopolistic competition
3. A simplified balance sheet :
   (a) Asset side: Loans to SMEs + loans to corporate + bonds to corporate + Bonds to sovereigns
   (b) Liability side : equity + deposit + interbank funds
4. Banks maximize cash flow net of adjustment cost of interest rates, intermediation cost and cost of deviation from target (regulation)
5. Regulation includes solvency and liquidity (LCR) constraints

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The Main Findings

- Negative impact on output

  Through mainly

  - Consumption (LCR) due to a second order effect of the constraint
  - Investment (Capital ratio) due to a sharp deleveraging process triggered by the constraint

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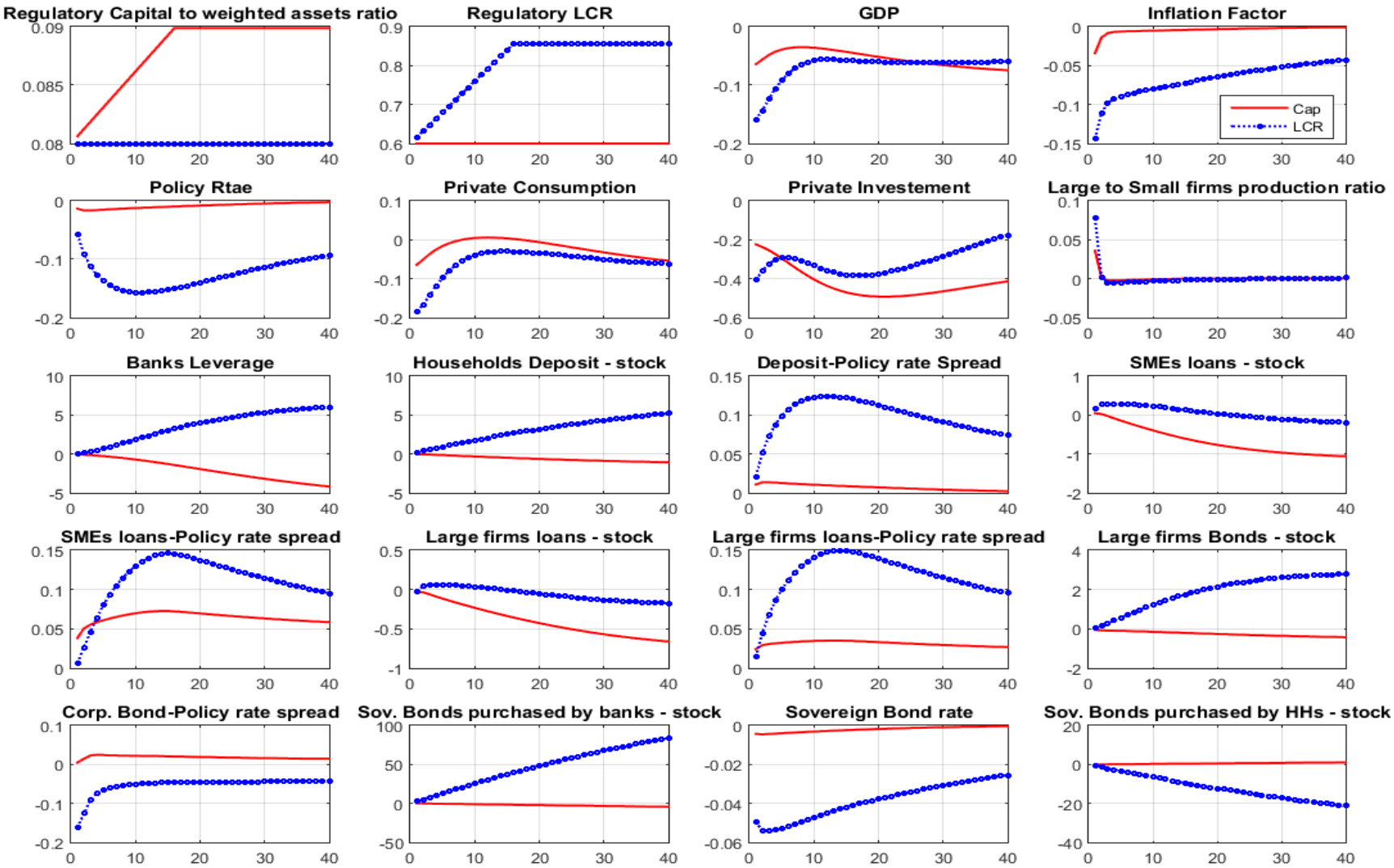
1- Capital or liquidity requirements



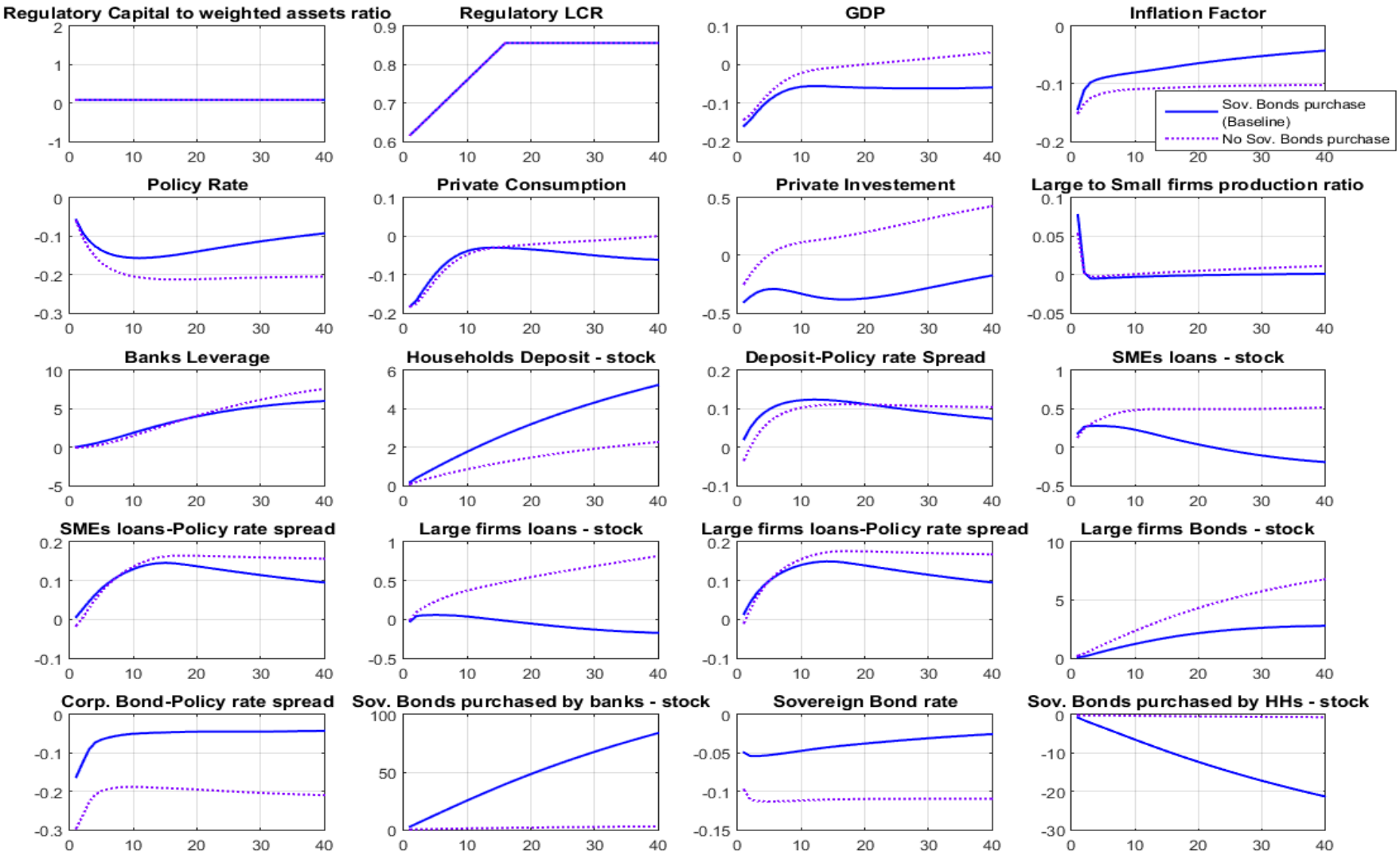
Main Findings

- Negative impact on output

  Through mainly
  - Consumption (LCR)
  - Investment (Capital ratio)

- The LCR and the accumulation of sovereign bonds
  - Crowding out effect of business investment

2- Channel of sovereign purchases



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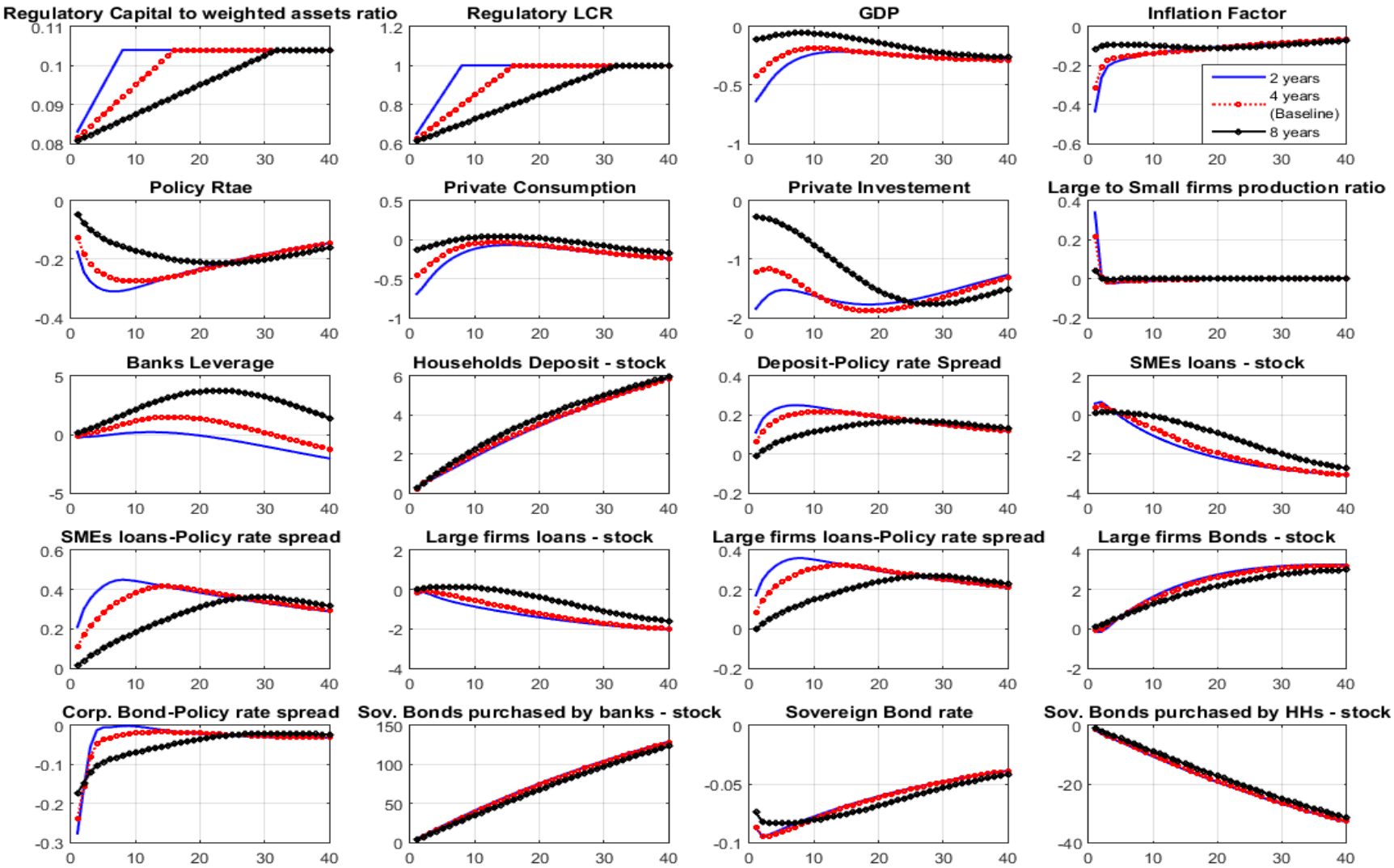
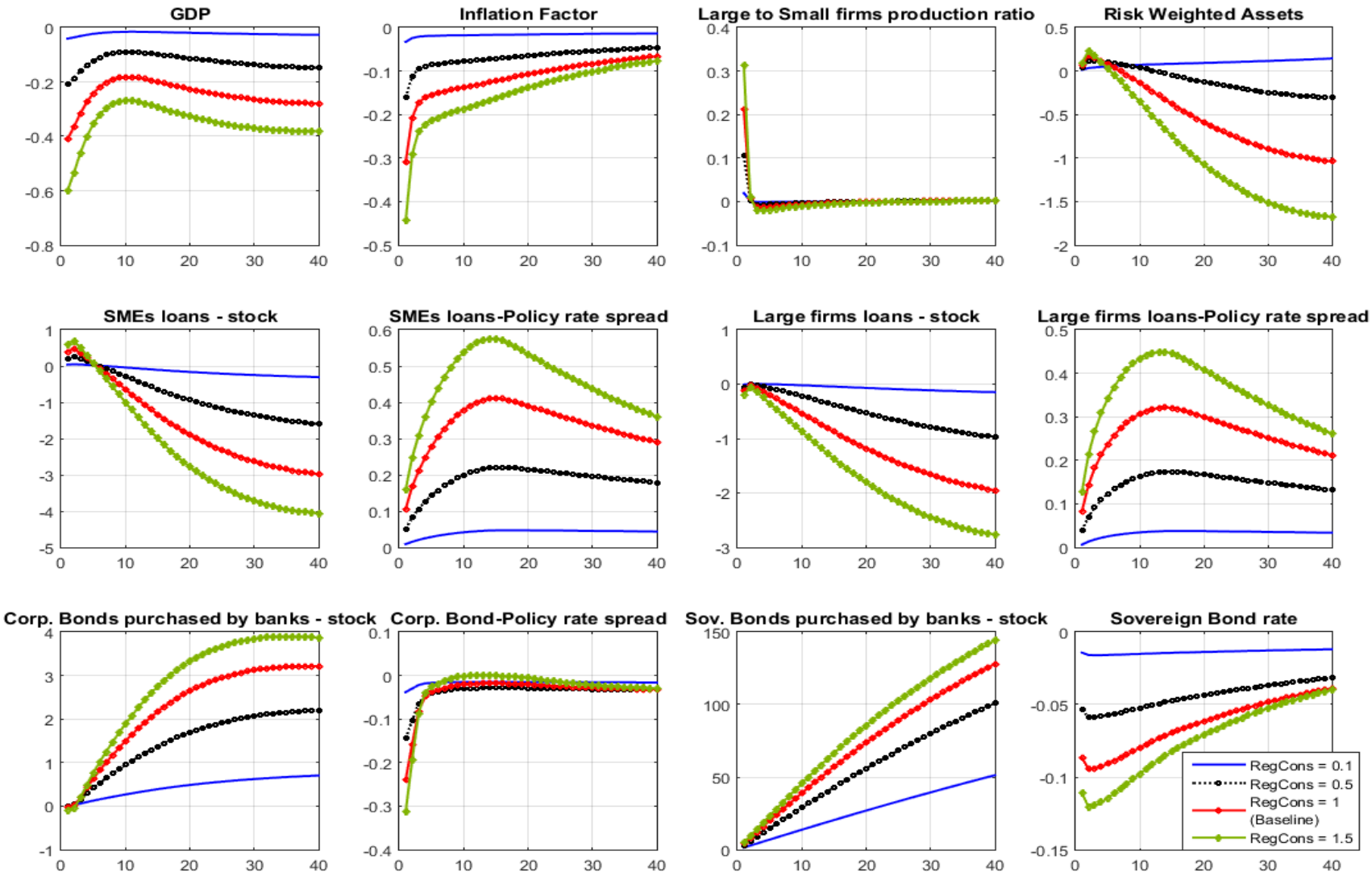
- Local regulators retain some margin to influence the regulatory constraints effects

3- Impact of phaising in



4- Impact of regulatory constraint



Main Findings

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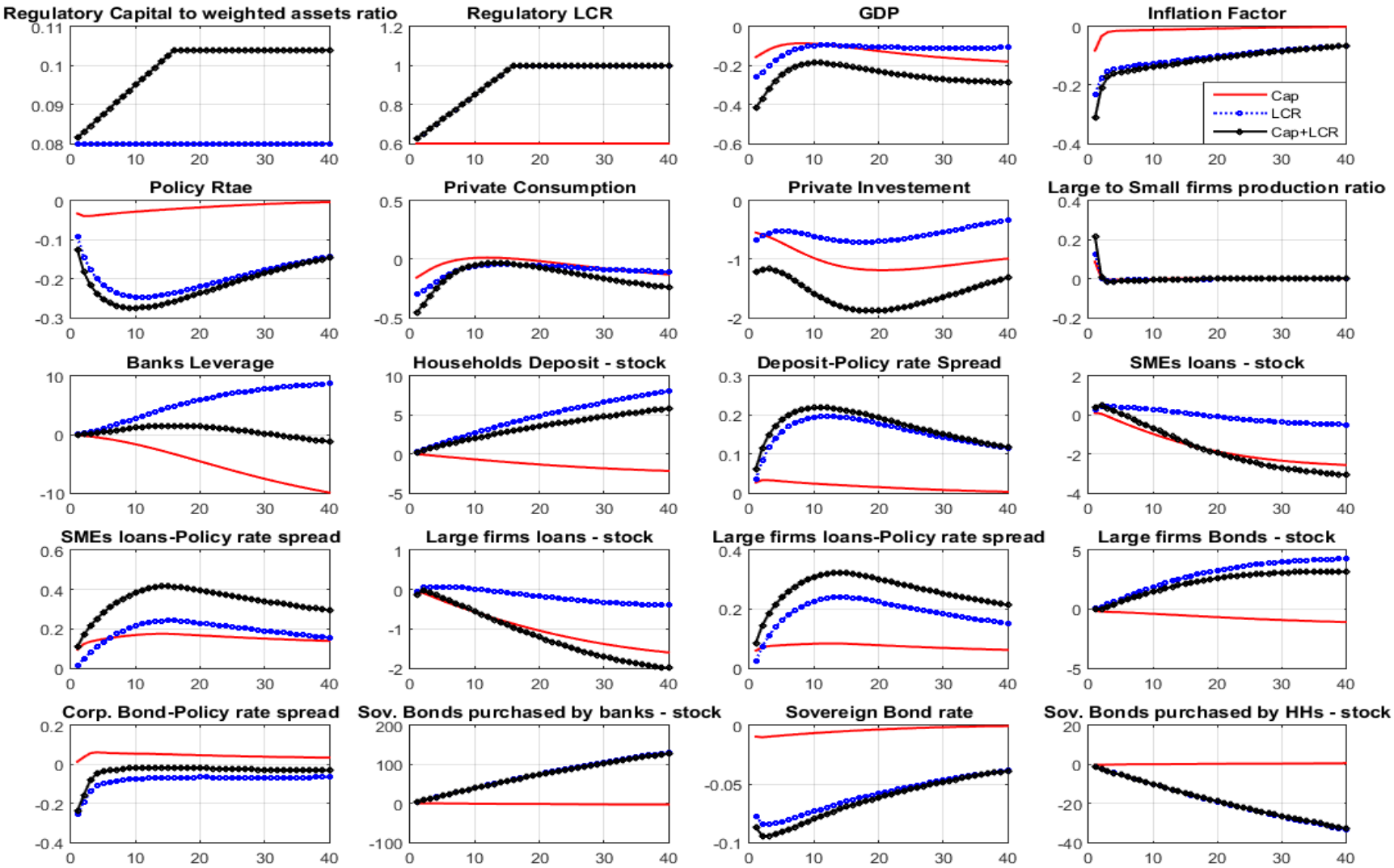
- Local regulators retain some margin to influence the regulatory constraints effects

- No positive externalities between the two constraints

5- Joint effect of capital and liquidity requirements



Conclusion

- Simulation results, within a richer model, are similar to Covas and Driscoll (2014)

Impact of capital and liquidity requirements from various macro models

Paper	Increase in capital and liquidity requirement	Loan growth	GDP growth
de Nicolo and Luchetta (2014) Partial equilibrium	Leverage ratio at 4% and LCR at 50%	-26%	
Covas and Driscol (2014) DSGE	LCR (of 100%) on top of 6% capital requirements	-3%	-0.3% from one steady state to another
de Bandt and Chahad (2015) DSGE	LCR from 60% to 85% in 4 years	-3% for SMEs, -2% for large corporates	-0.15% first year; -0,08% after 4 years

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- The new Basel III regulatory constraints comes with a medium term dampening in output
- likely increasing the discrepancies between small and large firms
- with a leading role of the channel of accumulation of sovereign bonds
- that may be impeded with a long (or loose) implementation process

Thank you for your attention