

# Analysing the macroeconomic and structural implications of a rise in the superannuation guarantee rate

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# What do the banks think of superannuation?

*“One of the key causes of the expanding funding gap in the banking system has been the impact of government policies. In particular, the growth in household bank deposits has been impacted by government retirement income policy (compulsory superannuation), as well as the preferential tax treatment that has favoured superannuation, equities and property over bank deposits and fixed income products.”*

Section 4.13

Initial submission to the FSI by Westpac Banking Corporation (2014)

## **TODAYS FOCUS: Is there any substance to this claim?**

1. We study the impact of increasing the superannuation guarantee rate (SGR) using a new type of CGE mode called a financial CGE model:

$$SGR = \frac{\text{Super Contributions}}{\text{National Wage Bill}}.$$

- a) What is the impact on the nations commercial banks?
- b) What are the macroeconomic and structural impacts?
- c) What are the implications for macroeconomic stability?

# Outline for today

**Financial CGE models.** Their structure, key agents and linkages with traditional real-side CGE models.

**Simulation Design:** How do we simulate a rise in the SGR?

**Using financial data to study expected outcomes.** How might we expect such a policy to impact the Australian economy?

**FCGE model outcomes.** Some of the implications for the macro economy, for financial structure, and for macroeconomic stability are summarised.

Summary and question time.

# What is a financial CGE model?

# Our approach: what is a financial CGE model?

Consists of two integrated parts:

1. A traditional real-side CGE model.
  - Many industries producing many commodities, multiple final demanders.
2. A financial module, spanning multiple financial agents.

The financial agents use multiple financial instruments in their dual roles as:

- Liability agents:
  - Capital structure is set to facilitate purchases of physical capital/financial assets;
- Asset agents:
  - **Superannuation funds:** purchase financial assets on behalf of members in line with contributions;
  - **Commercial banks:** financial intermediaries who issue loan finance subject to regulator-imposed capital requirements.

# Financial agents & instruments

## Agents (s,d):

1. Government
2. Households
3. Industries
4. Foreigners
5. Commercial banks
6. Central bank
7. Non-bank financial intermediaries
8. Superannuation funds
9. Life insurance funds
10. Reproducible housing (RH)
11. Non-reproducible housing (NRH)

We require  
behavioural  
assumptions  
relating to (s,d)  
over (f)

Housing sector split in two –

- Reproducible housing: outer suburbs & units
- Non-reproducible housing: established inner city

## Financial instruments (f)

1. Bonds
2. Cash
3. Deposits and loans
4. Equity
5. Gold & special drawing rights

### STOCK(s,f,d)

Value of financial instrument (f), issued as a liability by agent (s), and held as an asset by agent (d)

*Also: ROR (s,f,d) FLOW (s,f,d)*

# Linking the financial and real economies

Various linkages exist between the financial module and the real-side CGE model:

- CAD financing requirement;
- PSBR financing requirement;
- Household savings;
- Financing of gross fixed capital formation by industry and housing sectors.

Multiple optimising agents with many financial sector / real economy links establishes a series of policy transmission channels:

- Interest rate channel: Interest-sensitive real expenditure can be affected by a rise in the cost of bank finance;
- Exchange rate channel: Offshore funding propensities can induce exchange rate movement;
- Asset price channel: ROE is a residual after the cost of debt, and banks are competitors for equity finance;
- Bank lending channel: Banks are more important for some sectors (e.g. housing construction) in some countries than in others.

# Simulation design



# Simulation design

We impart two shocks upon the VU-Nat model:

- **Intermediation effect:** The proportion of the national wage bill allocated to superannuation increases by *one percent*. Simulated in two parts:
  1. **Under passive monetary policy.**
  2. **Under active monetary policy.**
- **Savings effect:** The national savings rate increases in line with Connolly (2007), via a reduction in the average propensity to consume;

**Aggregate effect:** The impact of both shocks (with active monetary policy), representing the overall impact of an increase in the superannuation guarantee rate.

We consider the relative contributions of each effect using decomposition diagrams.

# Presenting our results

Investigation of the consequences of these policy shocks will take two forms:

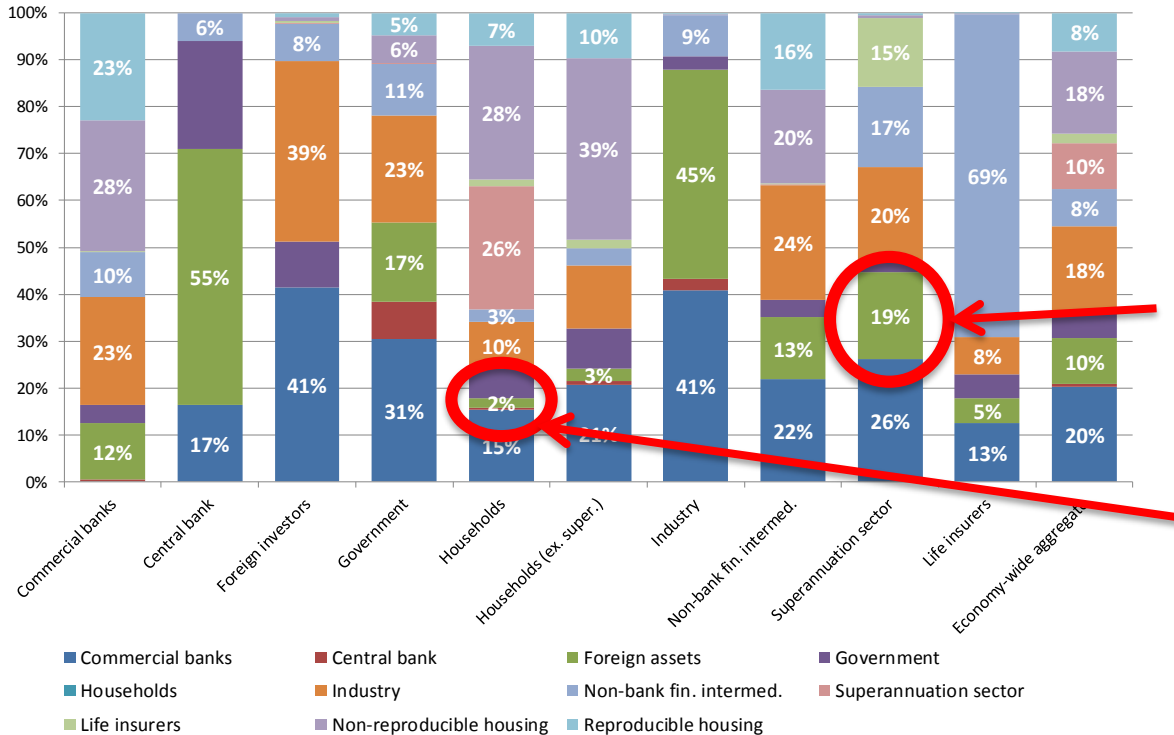
1. **Database analysis:** What can glean from an analysis of the financial stock database,  $STOCK(s,f,d)$ ?
2. **Financial CGE simulation output:** What additional insights can we garner from the financial CGE model?

**OUR APPROACH:** Do any structural shifts materialise due to intermediation, and persist when we account for the savings effect?

What might an expanded  
superannuation sector mean for the  
economy and the commercial banks?

# Expectation 1: An exchange rate effect

Portfolio weights by asset agent  
VU-Nat financial CGE model database

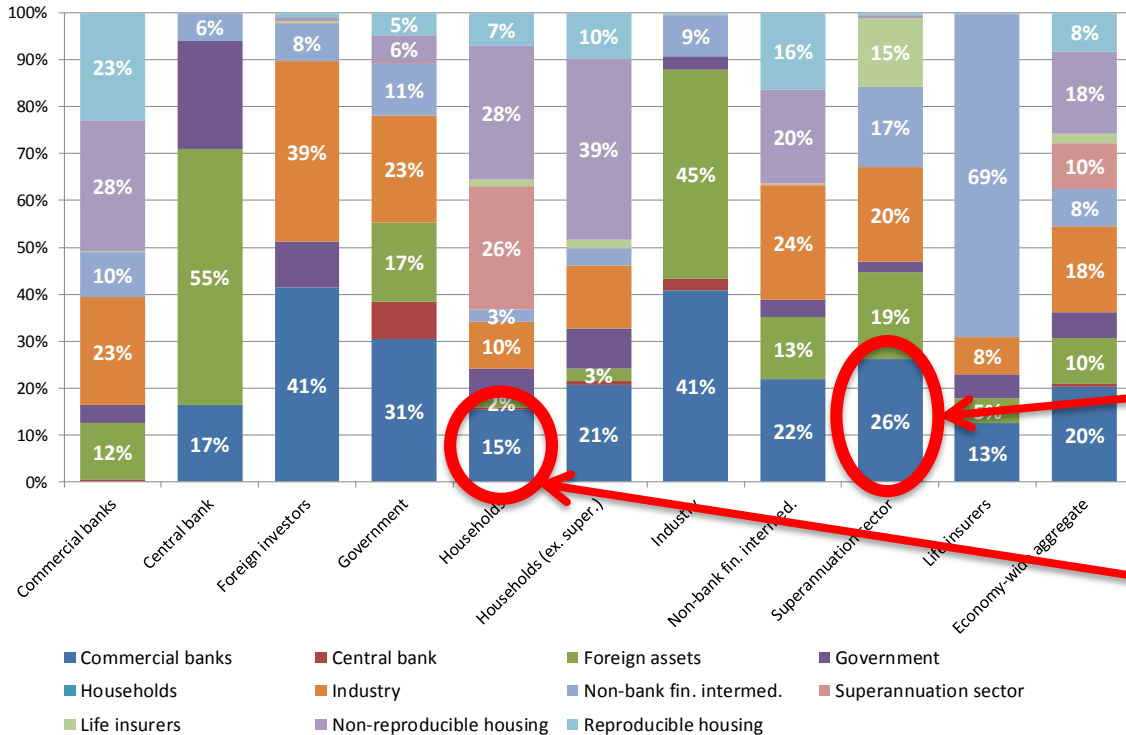


**Superannuation funds hold more foreign assets than households.**

- Superannuation funds invest 19% of their aggregate financial assets offshore.
- This greatly exceeds the corresponding share for households, who invest 2.1% of their savings offshore.

# Expectation 2: Intermediation and bank liability ownership

Portfolio weights by asset agent  
VU-Nat financial CGE model database

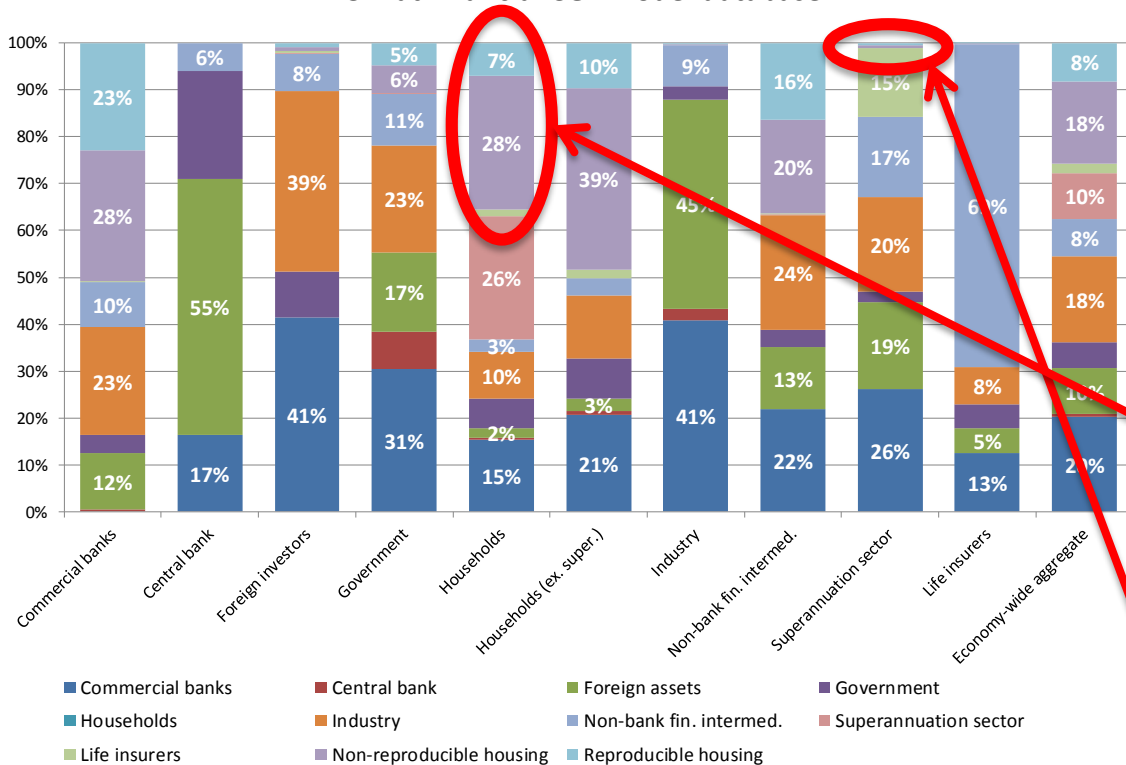


Households own a smaller proportion of bank liabilities as assets than superannuation funds do.

- Bank liabilities make up 26% of superannuation assets;
- Bank liabilities make up 15% of household assets.

# Expectation 3: Demand for finance from banks increases due to intermediation

Portfolio weights by asset agent  
VU-Nat financial CGE model database



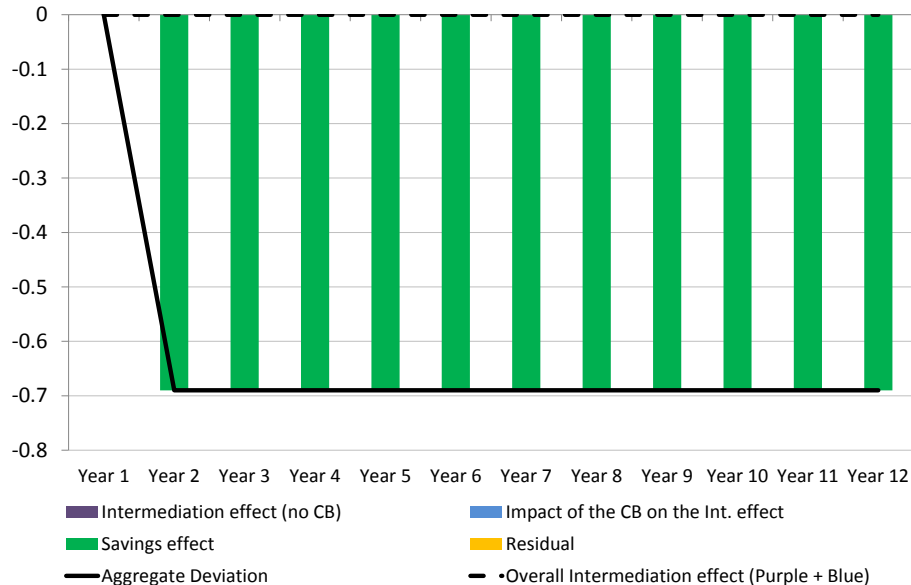
Households invest a larger proportion of their savings in housing equity than superannuation funds.

- Reproducible and non-reproducible housing equity liabilities make up 7% and 28% of non-superannuation financial assets held by households;
- The corresponding ownership shares for superannuation funds are negligibly small.

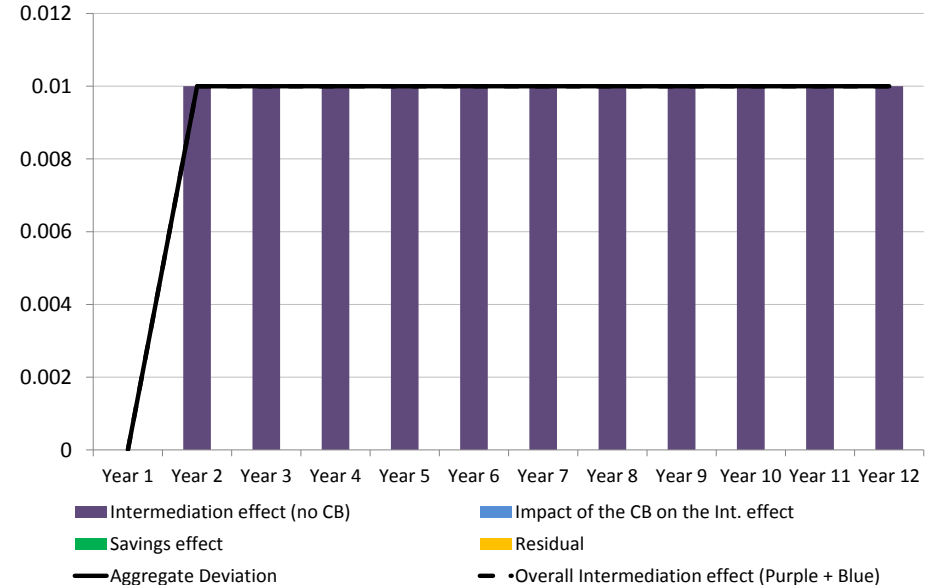
# A snapshot of the macro impacts and the role played by the central bank

# Shocks and decomposition diagrams

Average propensity to consume from income  
% deviation from baseline



Superannuation contributions relative to the wage bill  
% deviation from baseline



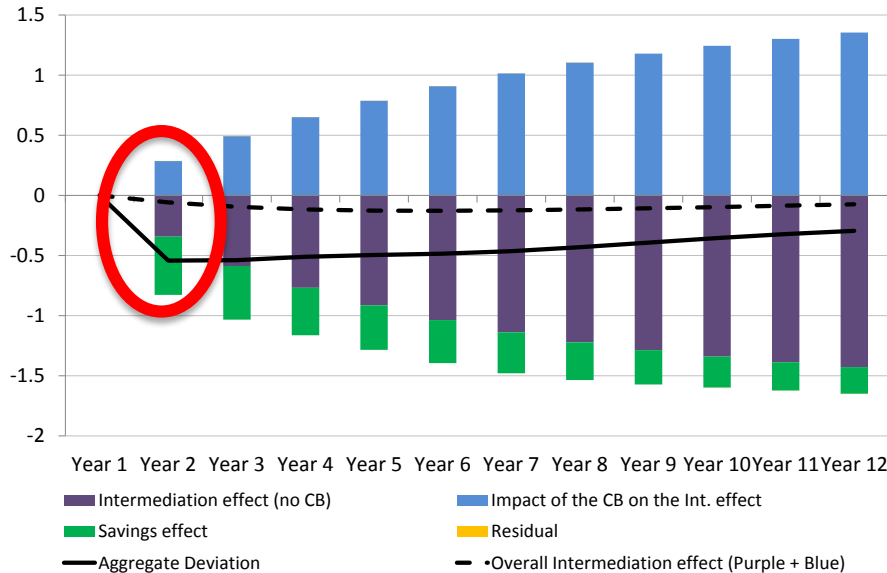
- **Green bars:** The *savings effect*;
- **Purple bars:** The intermedation effect, under passive monetary policy;
- **Blue bars (not shown):** The impact of active monetary policy under the intermedation effect.

**OUR FOCUS:** The short-run (Year 2) impact of intermedation (**purple** and **blue** bars).

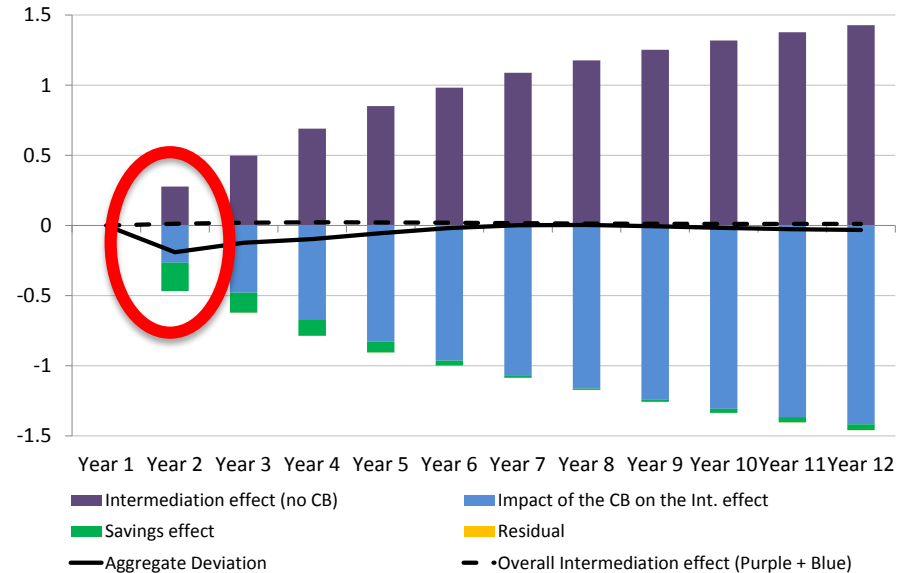


# Expectation 1: The exchange rate and inflation

Nominal exchange rate, % deviation from baseline



Consumption price level, % deviation from baseline

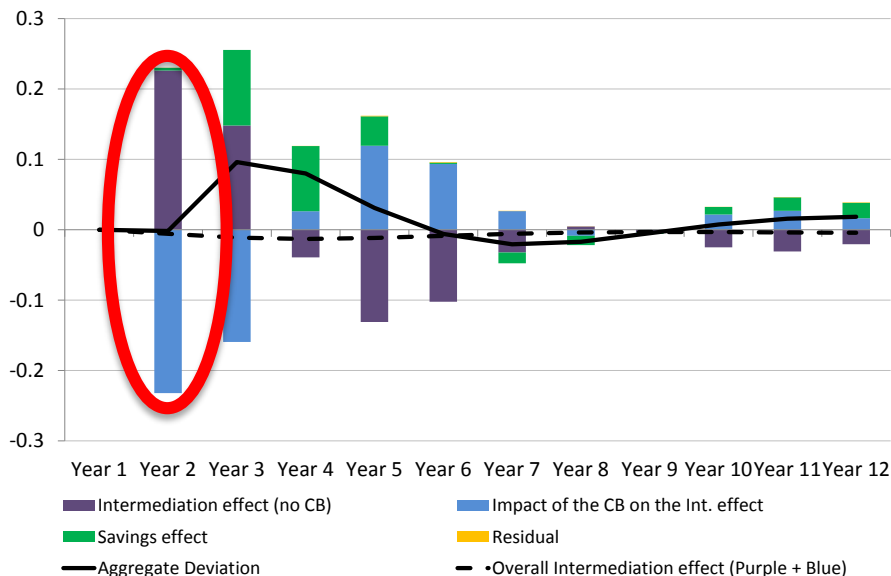


## Superannuation funds prefer to invest offshore relative to households.

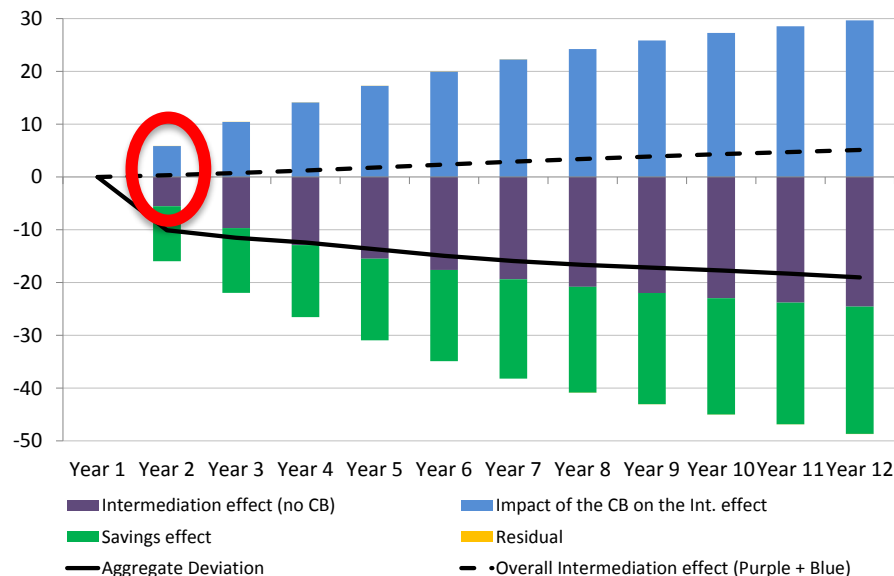
- **Intermediation (no CB):** This triggers a nominal depreciation of the exchange rate in line with *expectation one*. Imports become more expensive, raising the price level.
- **Impact of monetary contraction:** Nominal depreciation is nearly eliminated when we account for central bank behaviour.

# The impact of the central bank

Employment, % deviation from baseline



Cash rate, basis point deviation from baseline



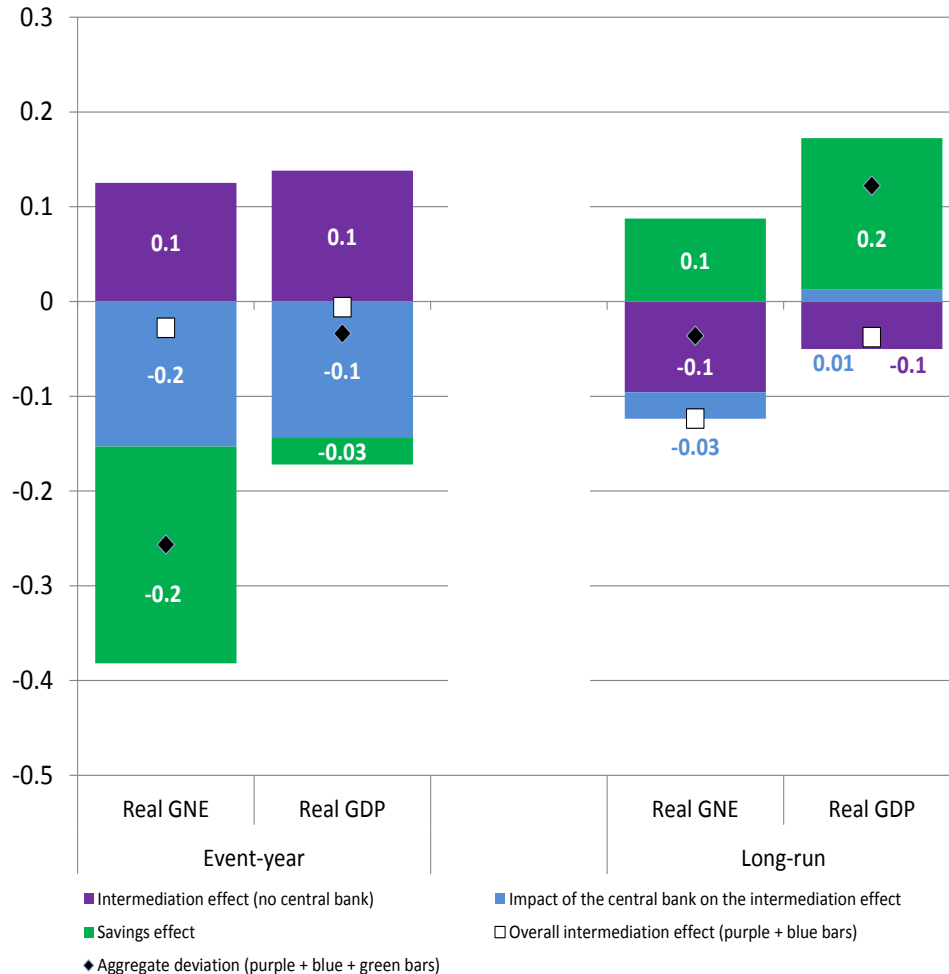
A rise in the domestic price level drives a short-run fall in the real producer wage.

- **Intermediation (no CB):** With nominal wages sticky and production prices elevated, the real producer wage falls and employment rises.
- **Impact of monetary contraction:** With both employment and inflation elevated, the central bank increases the domestic cash rate.

# Three structural impacts and implications for the commercial banks

# Reduction in foreign financing requirements

Event-year and long-run movement in real GNE relative to real GDP  
% deviation from baseline



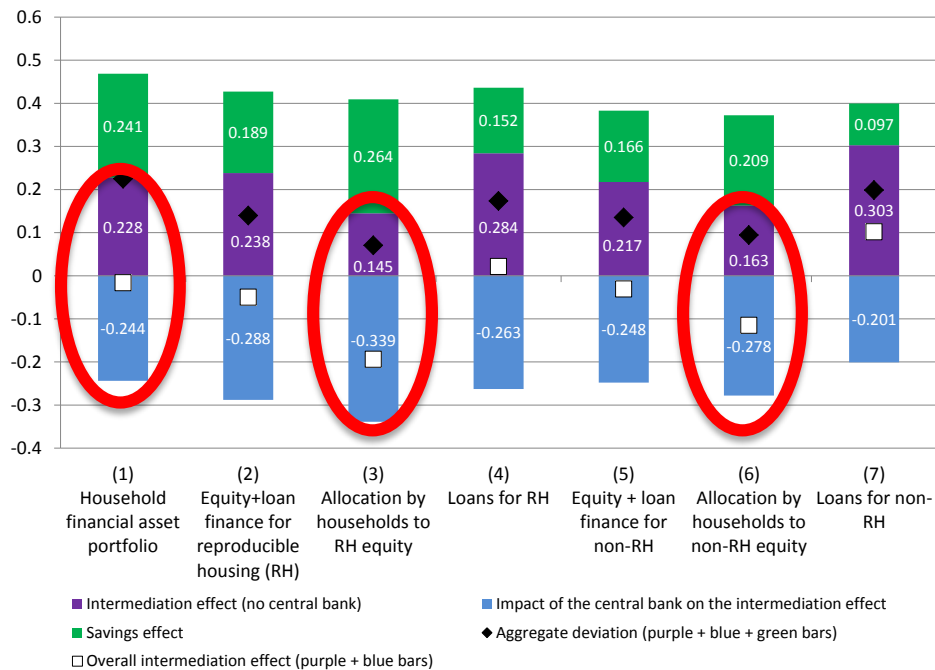
Real GNE falls relative to real GDP in the short-run due to both the savings and intermediation effects.

- **Intermediation effect** and **active monetary policy** (white squares): Real investment falls;
- **Savings effect**: Private consumption falls.

The balance of trade moves towards surplus, and this persists in the long-run.

# Equity finance for housing falls

Event-year response of various financial assets and liabilities  
% deviation from baseline



A net (*white square*) reduction in housing equity due to intermediation.

- **Intermediation (no CB):** Economy-wide inflation increases rentals and equity valuations, expanding household financial assets and housing equity supply.
- **Impact of monetary contraction:** Neutralising the inflationary impacts reduces the value of the households asset budget (excluding superannuation).

# Loan finance for housing expands

Event-year response of various financial assets and liabilities  
% deviation from baseline

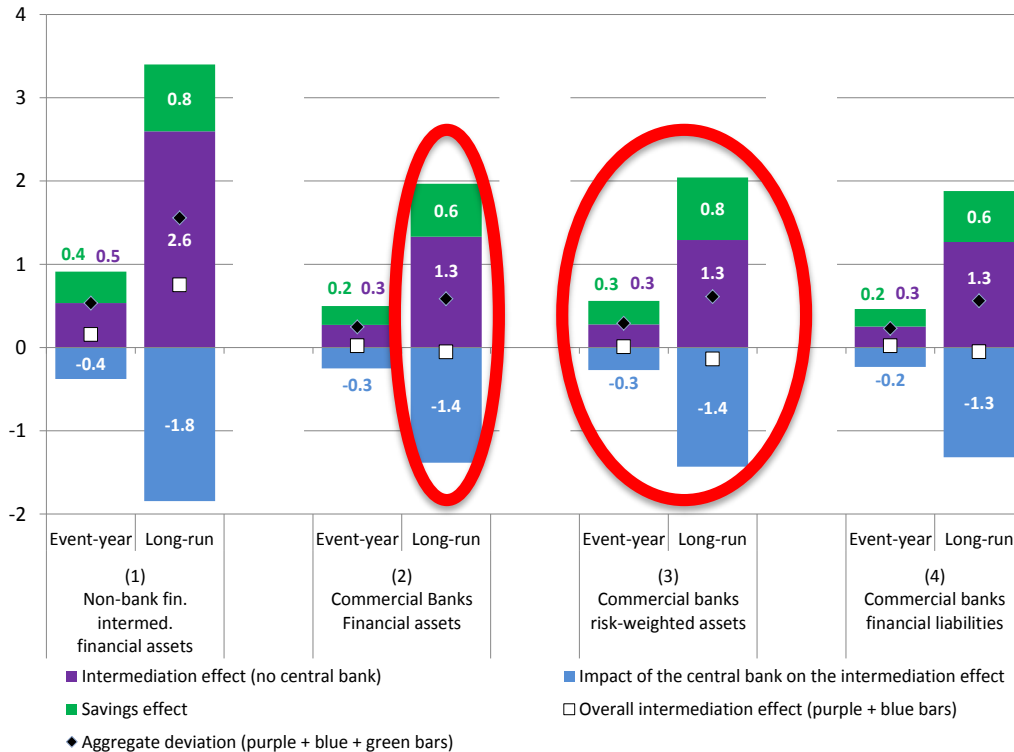


*A net expansion* in demand for commercial bank loan finance is observed due to increased intermediation.

- **Intermediation (no CB):** Strong expansion, due to elevated real dwelling investment and valuation effects;
- **Impact of monetary contraction:** Employment is depressed, driving down private consumption, capital rentals and real investment. The WACC also rises.

# What about the commercial banks?

Event-year and long-run movement in financial assets, risk-weighted assets and financial liabilities of the commercial bank, % deviation from baseline



- **Intermediation (no CB):** Commercial banks benefit from intermediation via increased demand for their loan finance (expanded risk-weighted assets);
- **Impact of monetary contraction:** Rise in the cash rate depresses demand for loans.
- **Long-run expansion depends on the savings effect.**

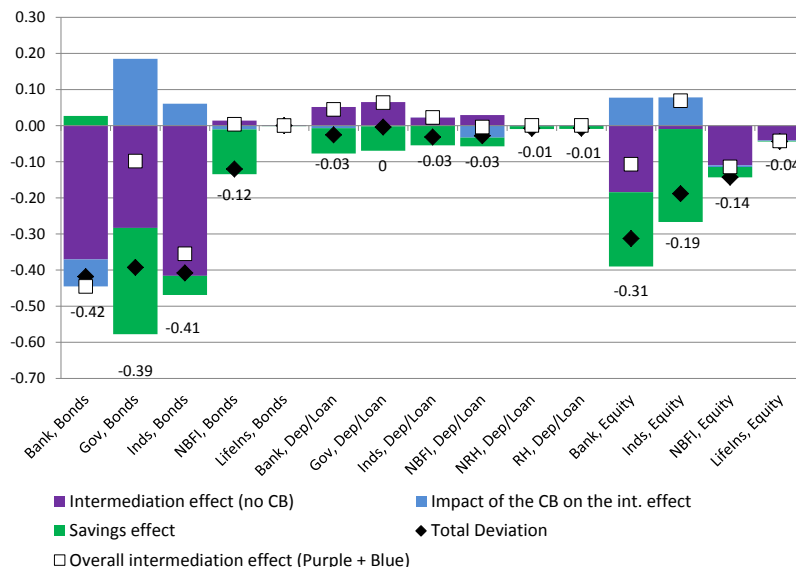
What do these structural shifts mean  
for macroeconomic stability?



# Macroeconomic stability: The Pros

## A reduced reliance on foreign financing

Change in foreign ownership shares for various Australian financial agent liabilities (by liability agent and instrument), % deviation from baseline



Do all agents benefit equally from this reduction in the foreign financing requirement?

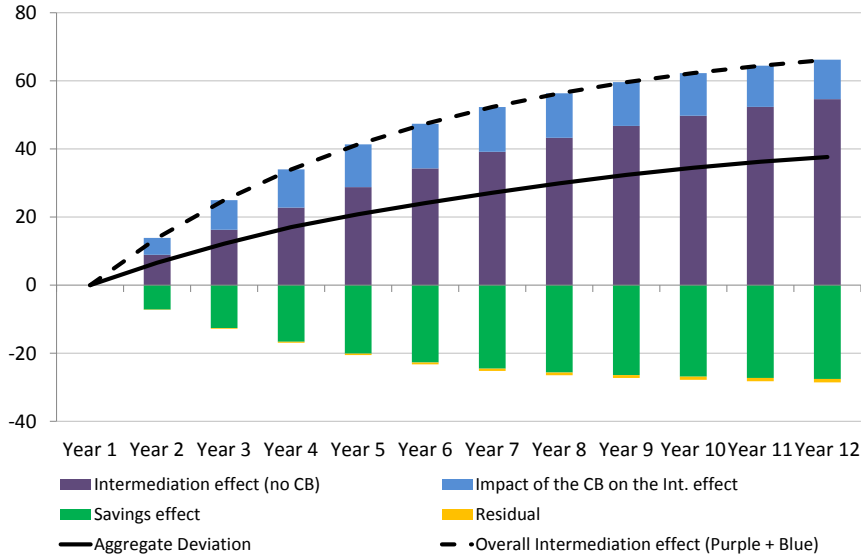
- *Intermediation effect and active monetary policy (white squares)*: some winners and losers, e.g., foreign ownership of bank bonds falls, but rises for bank deposits;
- **Savings effect**: a net reduction in foreign ownership of all financial liability agents, across all financial instruments.

D'Arcy and Ossolinski (2009): volatility of foreign capital flow into Australia increased during the GFC. **Exposure to such volatility is reduced.**

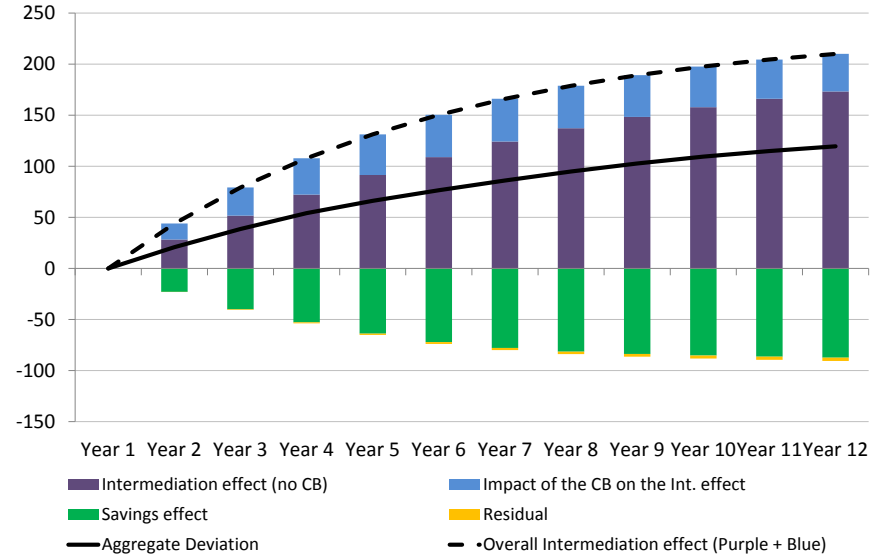
# Macroeconomic stability: The Cons

## Higher debt financing enhances exposure to income shocks

Debt-to-equity ratio for reproducible housing  
basis point deviation from baseline



Debt-to-equity ratio for non-reproducible housing  
basis point deviation from baseline



Higher debt-to-equity in the housing sector. Caused by the intermediation effect, *partially offset* by the savings effect.

- OECD (2012): Negative impact on stability via two channels:
  1. **Augmented exposure to income shocks:** Capacity to absorb an income shock is diminished.
  2. **Greater exposure to asset price movements:** Consumption volatility is promoted by an increased real debt burden.

# Summary and additional findings

- Presented a framework for considering the implications of financial reform, e.g., increase SG rate, on the structure of the macro economy and long-term macro stability.
- The outcome for the commercial banks is generally positive in the short- and long-run.
  - **Short-run:** Expand due to an increase in financial capital supply and loan demand.
  - **Long-run:** Expansion depends on an increase in the national savings rate.
- Discussed two structural shifts today. In all we identified three others:
  1. **Higher private-debt-to-income ratio.** *Persists when we account for the savings effect and points to diminished macroeconomic stability;*
  2. **Altered bank capital structure,** increasing corporate bond issuance. *Persists when we account for the savings effect, driving financial deepening;*
  3. **Expansion in financial intermediation.** *Persists when we account for the savings effect.*