RESERVE BANK OF AUSTRALIA

# Does monetary policy affect non-mining business investment in Australia: evidence from BLADE

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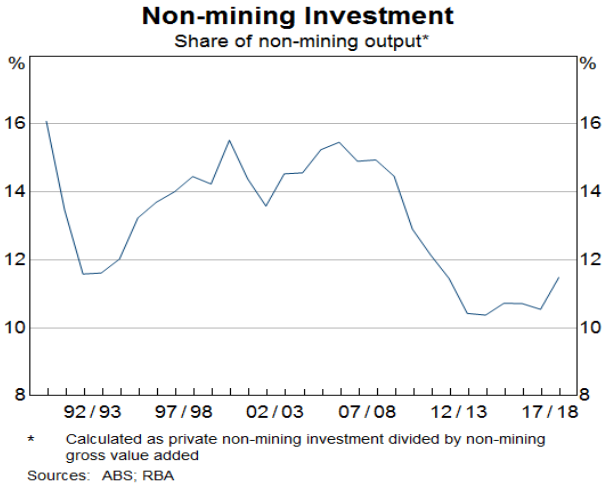
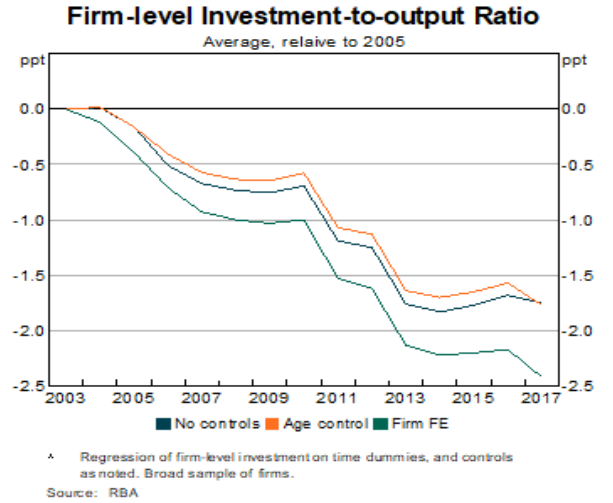
# Disclaimer

- The results of these studies are based, in part, on ABR data supplied by the Registrar to the ABS under *A New Tax System (Australian Business Number) Act 1999* and tax data supplied by the ATO to the ABS under the *Taxation Administration Act 1953*. These require that such data are only used for the purpose of carrying out functions of the ABS. No individual information collected under the *Census and Statistics Act 1905* is provided back to the Registrar or ATO for administrative or regulatory purposes. Any discussion of data limitations or weaknesses is in the context of using the data for statistical purposes, and is not related to the ability of the data to support the ABR or ATO's core operational requirements. Legislative requirements to ensure privacy and secrecy of this data have been followed. Only people authorised under the *Australian Bureau of Statistics Act 1975* have been allowed to view data about any particular firm in conducting these analyses. In accordance with the *Census and Statistics Act 1905*, results have been confidentialised to ensure that they are not likely to enable identification of a particular person or organisation.

# Motivation

- Investment in Australia has been weak since the end of the mining boom.
- Low rates – low investment puzzle
- Is MP less effective?
- The micro-drivers of investment can help to explain why this has occurred.
- No microdata studies on monetary policy and investment in Australia.



# Research question

How does monetary policy influence investment at aggregated and disaggregated levels? What about the effect of given shock over time?

Does splitting the estimates into size, age, industries/sectors change the result or offer extra insight into the role the monetary policy plays in investment?

How does the credit channel (financially constrained firms) modify the link between monetary policy and investment?

# Literature

Durante, Ferrando and Vermeulen (2022) analysed how monetary policy shocks have heterogeneous effects on the investment decisions of European firms.

Cloyne et al (2018) analyse the relationship in the US and the UK and highlights the role of firm finance and financial frictions in amplifying the effects of mon pol on investment.

Jeenas 2019 evaluates the role of firms' balance sheet liquidity in the transmission of monetary policy to investment. Finding: in response to contractionary monetary policy shocks, both firms with higher leverage or with fewer liquid assets reduce investment relative to others.

Ottonello and Winberry (2020) find that firms with low default risk—those with low debt burdens and high "distance to default"— are the most responsive to monetary shocks.

Similar investigation of the link between the user cost of capital and investment using microdata has been undertaken in Australia (La Cava (2005)) and New Zealand (Nolan and Nolan (2020)).

Survey evidence in Australia suggests that the hurdle rates on investment can be 'sticky' and not responsive to monetary policy (Lane and Rosewall 2015; Edwards and Lane 2021)

# Monetary policy



In theory expansionary MP should stimulate investment:

- Lowers costs of investment
- Frees up cash flows
- Stimulates demand



Low investment despite declining interest rates has led some to speculate that MP might be less effective:

- Firms might have sticky hurdle rates – based on surveys
- Fewer young, responsive firms
- Lowering rates might lower competition (Liu, Mian and Sufi 2022)

# Monetary policy

- Hard to assess relationship due to endogeneity
  - CB raises rates when expect strong investment/demand, can look like higher rates stimulate investment

- Need to find ‘random’ changes in MP, driven by ‘non-economic’ factors
  - Beckers (2020) shock measure – deviations from what private agents would expect the RBA to do.

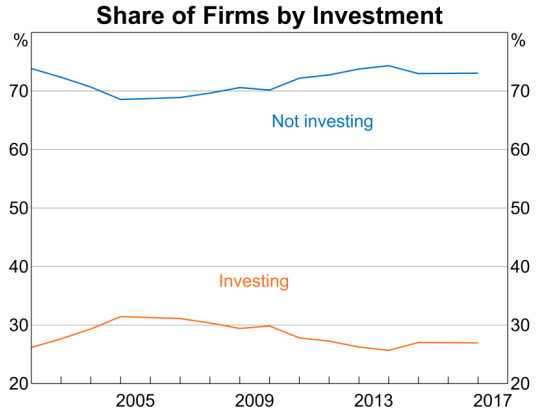
- Trace out response firm-level investment following these shocks
  - Use BAS data on investment and look at effects for different firms.

# Data

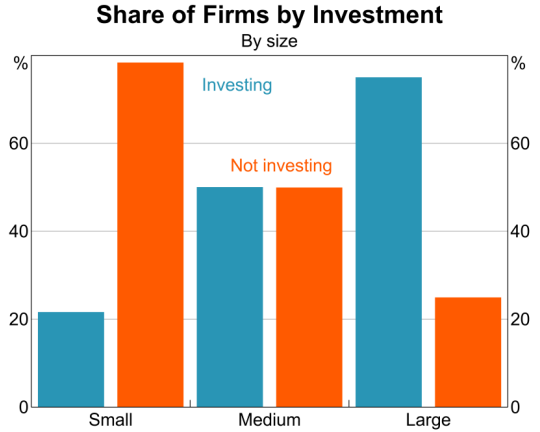
## BLADE microdata for disaggregated results

| | | | |
|---|---|---|---|
| BAS: Business Activity Statements data investment and revenue (quarterly data from 2002-2017 – data collection changed post-2017) | PAYG: Detail on headcount/FTE | Frame/Indicative data item: Firmographic info | Birthdate |

## *Dropped industries: public sector, finance, health, education, agriculture and mining




Sources: ABS (BLADE); RBA.




Source: ABS (BLADE).

# Methodology

- Baseline model for Local Projections approach by Jorda (2005)

$$I_{i,t+h} = \beta_h shock_t + \alpha_h I_{i,t-1} + \sum_{j=0}^{1} \gamma_h X_{t-j} + v_{i,t+h}$$

**Controls include:**

current and lagged firm-level revenue growth, national GDP and CPI growth, as well as industry and firm size and the lag of the monetary policy shock

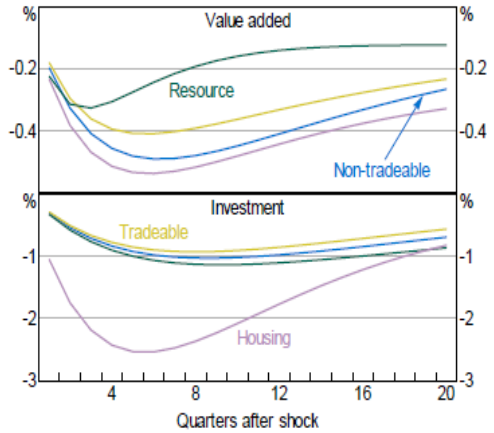
**Sub-groups:**

Age, size, firms in financially dependent industries, industry leaders

# Investment response from the models

- Gibbs, Hambur and Nodari (2018) show the responses of sectoral investment to a monetary policy shock from the DSGE model.
- Peak effect is around 1%

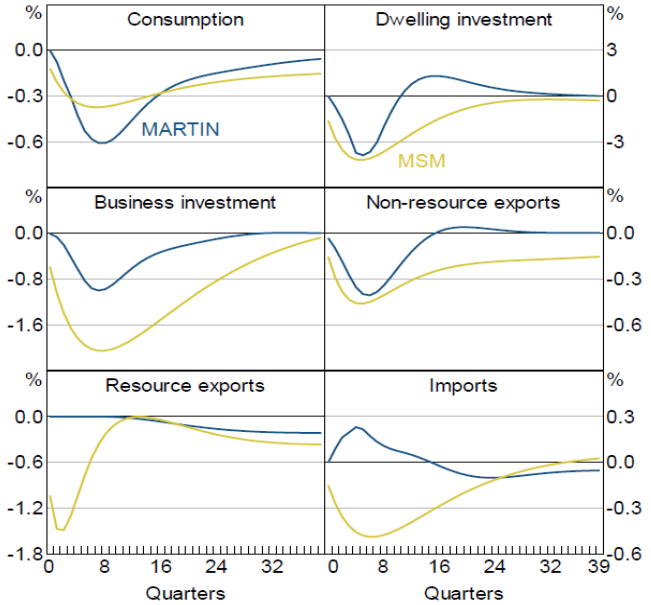
**Figure 10: Sectoral Output and Investment Response to a Monetary Policy Shock**
Deviation from baseline




Note: 100 basis point increase in cash rate

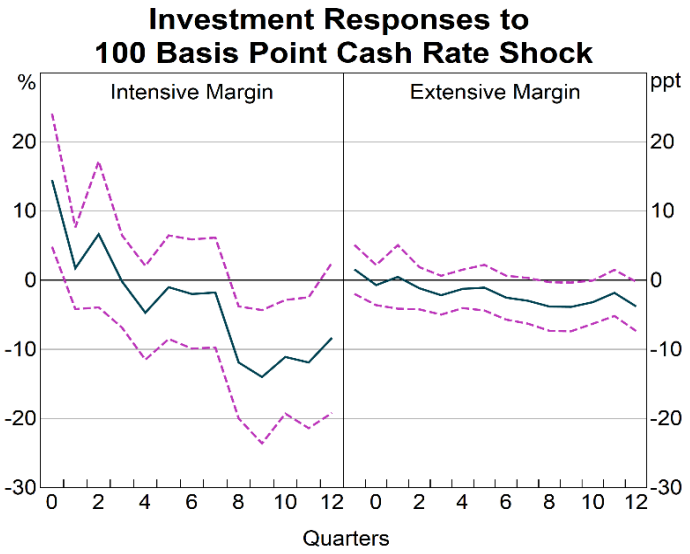
- Ballantyne et al 2019 show the responses of business investment from MARTIN (~0.9%)

**Figure 13: Monetary Policy Shock**
Expenditure components

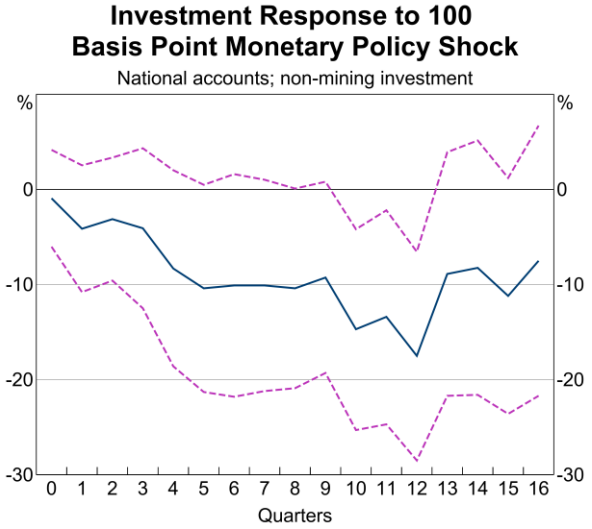


# Investment and shock measures

- Monetary policy does impact investment substantially
- Lag of around 2 years
- Intensive margin is twice as important as extensive

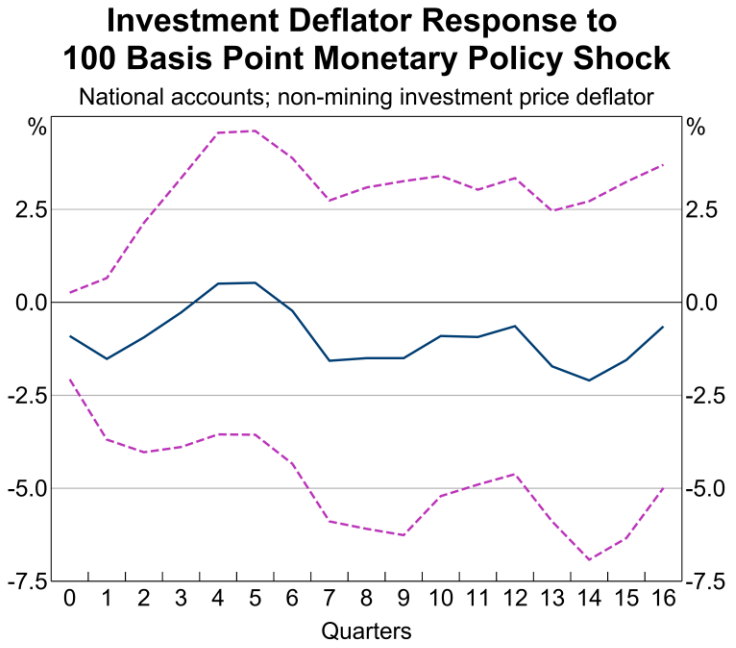



* Dash line represents 95% confidence interval
Sources: ABS (BLADE); RBA




* Dash line represents 95 per cent confidence interval
Sources: ABS; RBA.

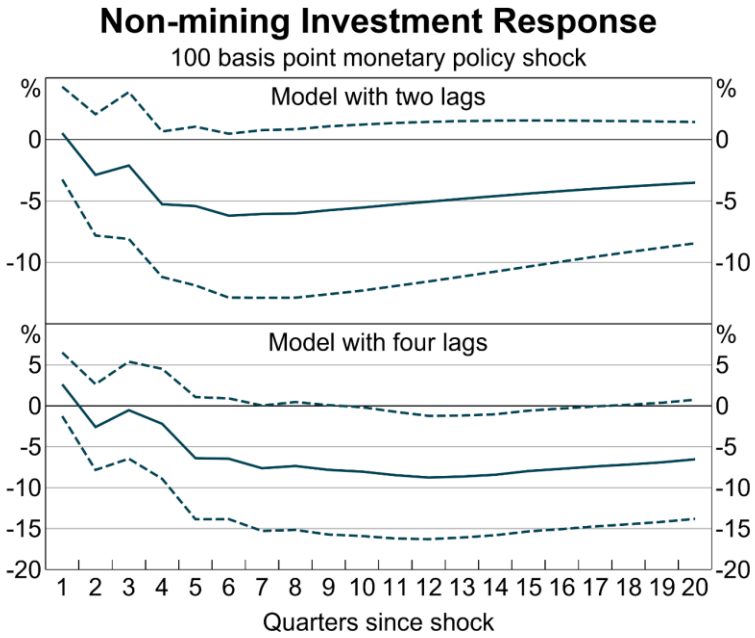
# With non-mining investment price deflator




* Dash line represents 95 per cent confidence interval

Sources: ABS; RBA.

# VAR results




* Small VAR with (log) real trade-weighted index, (log) consumption, (log) non-miing business investment, (log) dwelling investment and cash rate

Source: Authors' calculations.

# By size and age

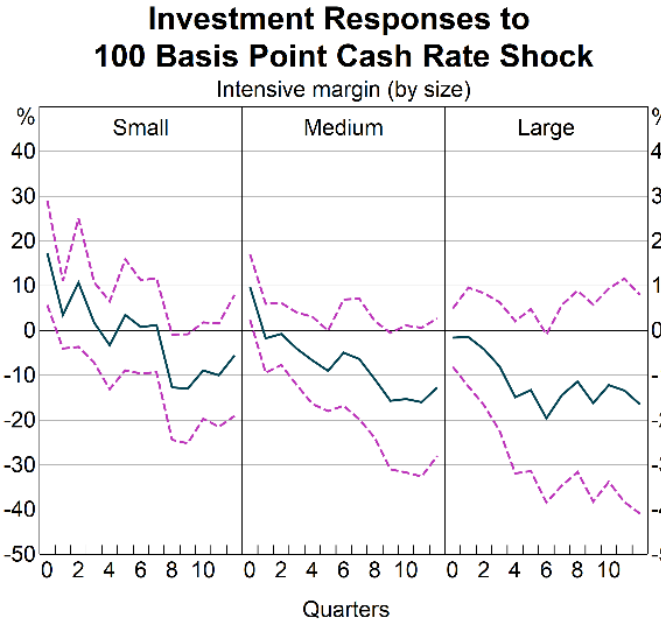
It is important due to:

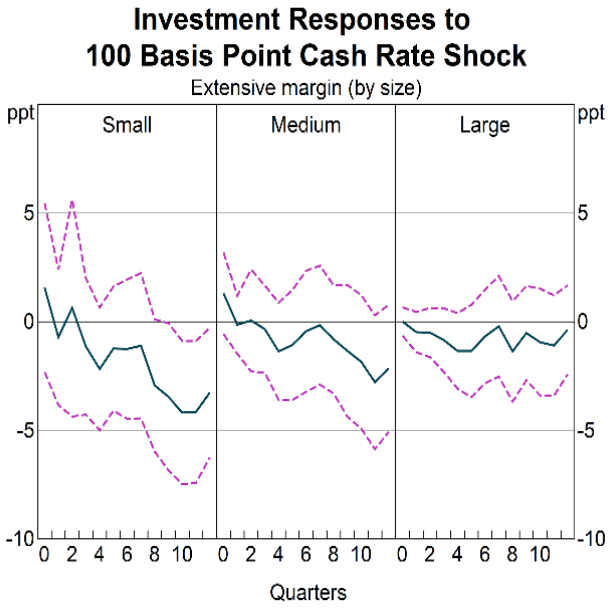
transmission of monetary policy (the role of credit constraints)

declining firms entry and exit

# By size

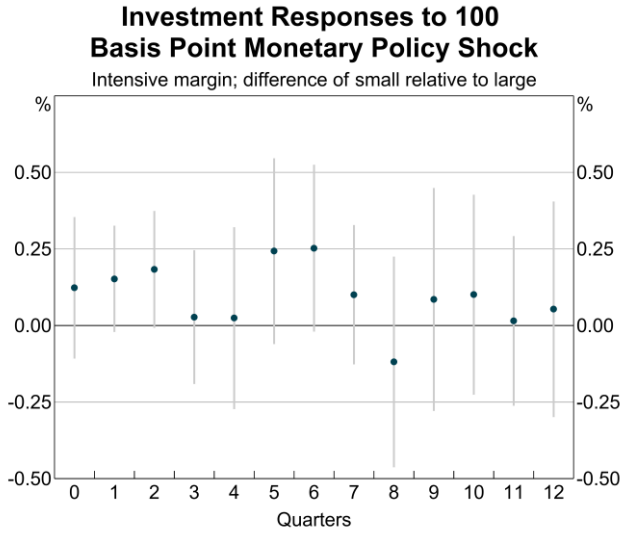
- No substantial difference across firm sizes
- The extensive margin plays a slightly more important role for small firms



# Intensive margin

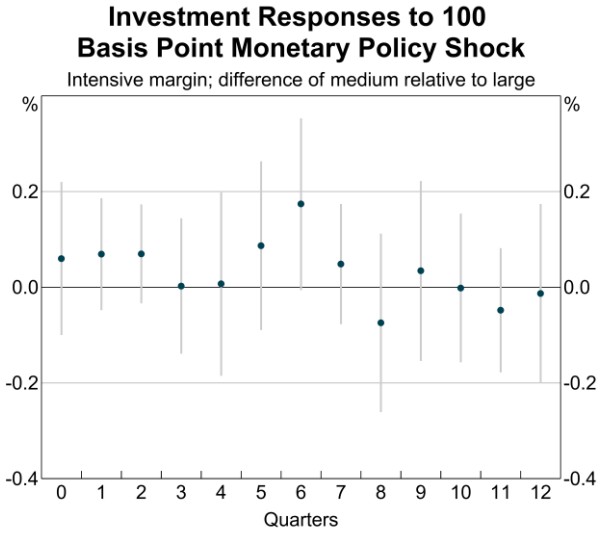
## Small vs Large




* The dots represent the point estimates of the differences in impulse reponses. Bars indicate 95 per cent confidence interval

Source: ABS (BLADE).

## Medium vs Large

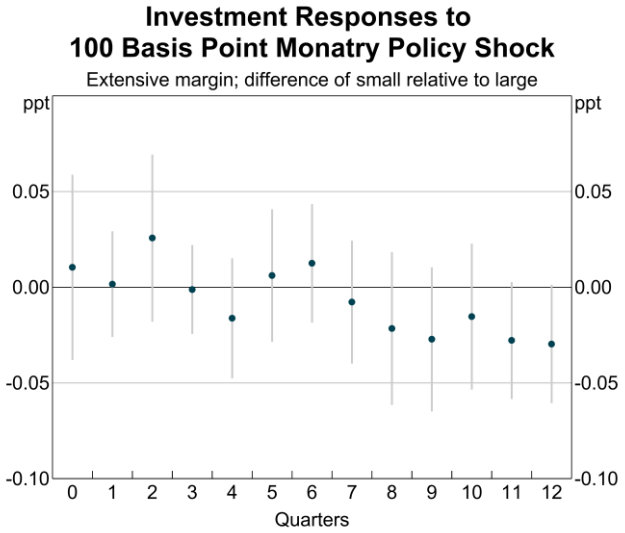



* The dots represent the point estimates of the differences in impulse reponses. Bars indicate 95 per cent confidence interval

Source: ABS (BLADE).

# Extensive margin

## Small vs Large

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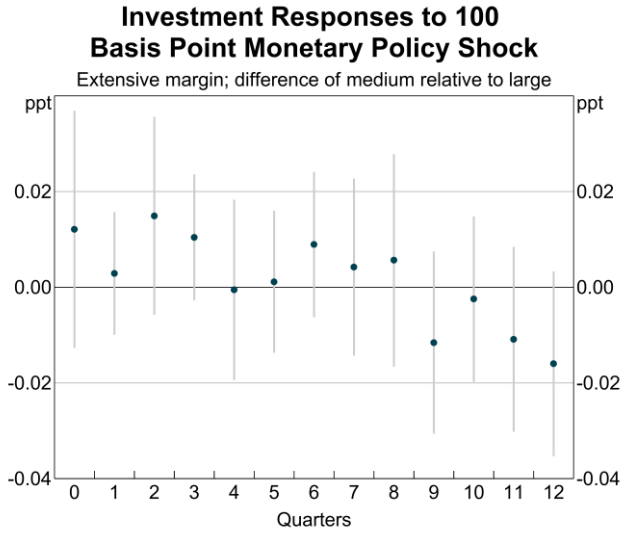
Source: ABS (BLADE).

## Medium vs Large

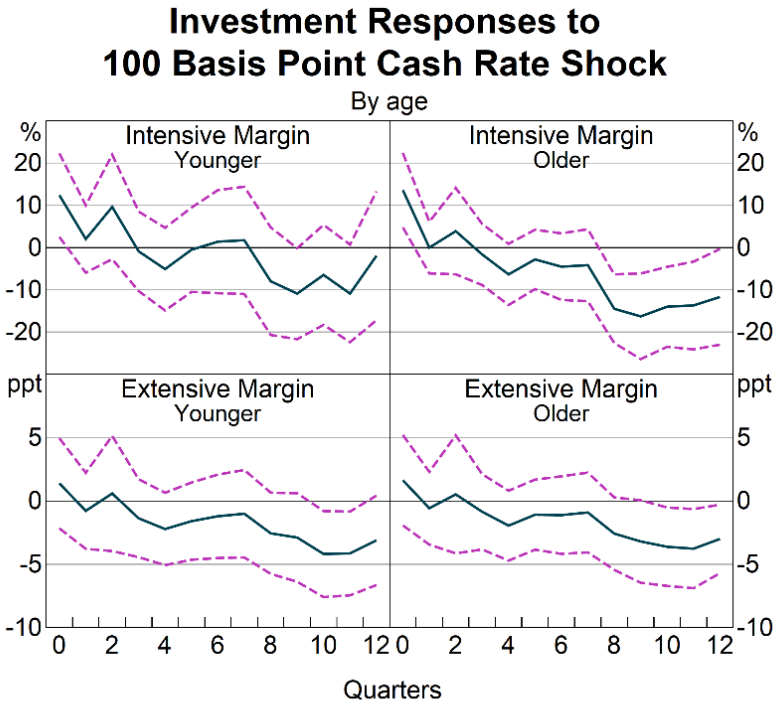



* The dots represent the point estimates of the differences in impulse reponses. Bars indicate 95 per cent confidence interval

Source: ABS (BLADE).

# By age

- Effects similar across firm ages.
- Ageing firm population should not weigh on effectiveness of MP




* Dash line represents 95% confidence interval

Sources: ABS (BLADE); RBA

# By industry leaders

It is important due to :

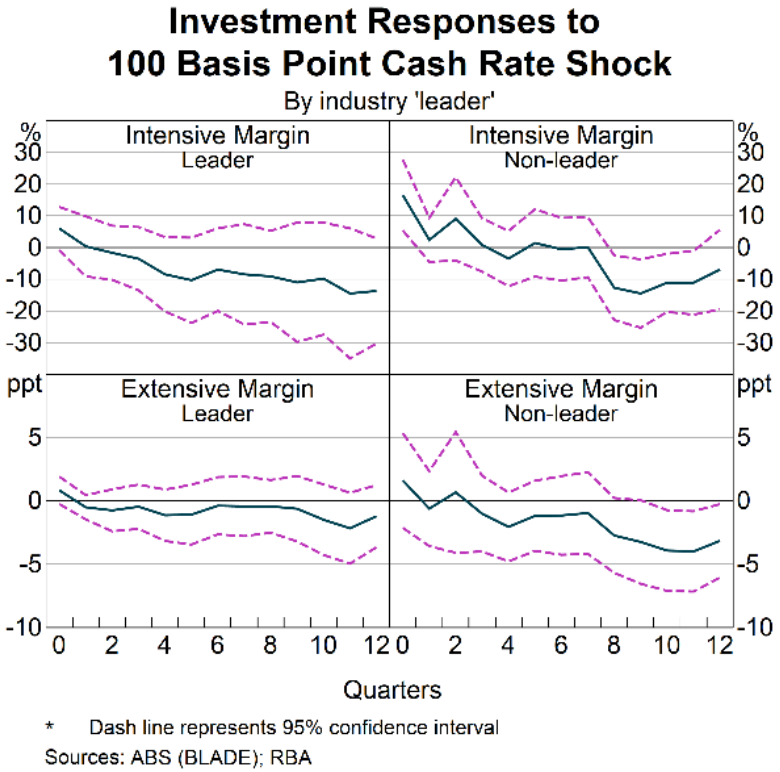
standard size splits may have issues if there is an industry variation in size and effect

overseas US work showing that expansionary MP disproportionately helps leaders. So falling rates over recent periods could theoretically help explain declining competition

# By leaders

- If anything, smaller effect on leader firms.
- Top 5 per cent of industry in size

- Declining rates don’t benefit leaders and decrease competition



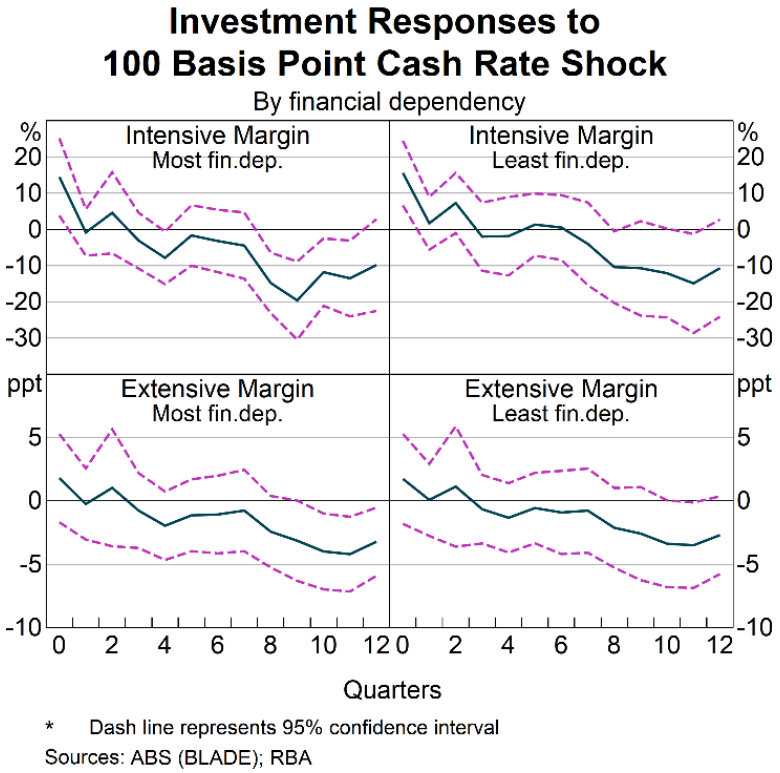
# By financial conditions

Constraints often thought to be importance channel. To look at it we look at firms that may be generally more exposed to external financing.

We do this based of industry-level metrics

# By financing conditions

- More dependent on external finance firms' investment appears slightly more responsive to monetary policy shocks.



# Conclusion

A 100 bps contractionary monetary policy shock leads to a decline in investment both at the intensive and extensive margin.

No evidence of MP effectiveness change over time as results in fewer young/changes firm composition within industries

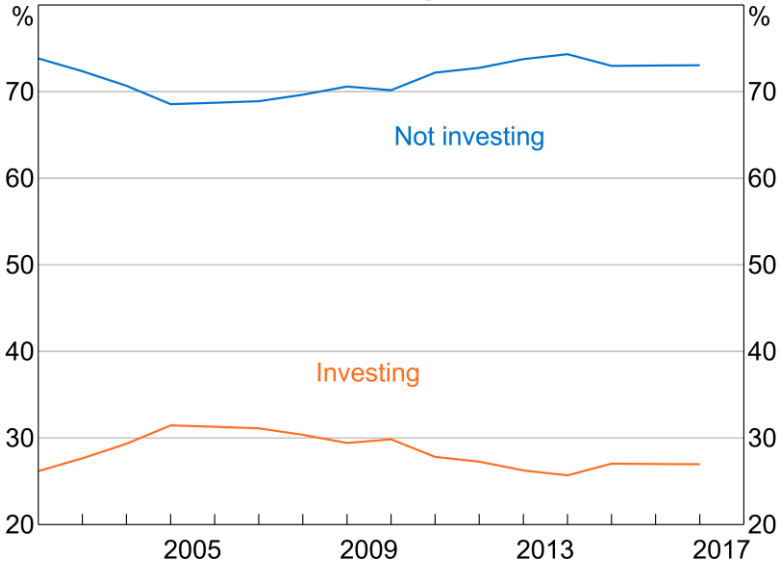
Declining rates don’t benefit leader firms and decrease competition, suggests surveys of large, sophisticated ones may not representative of responsiveness of other firms

Firms dependent on external finance are more responsive to monetary policy shocks

# Questions

# Spares

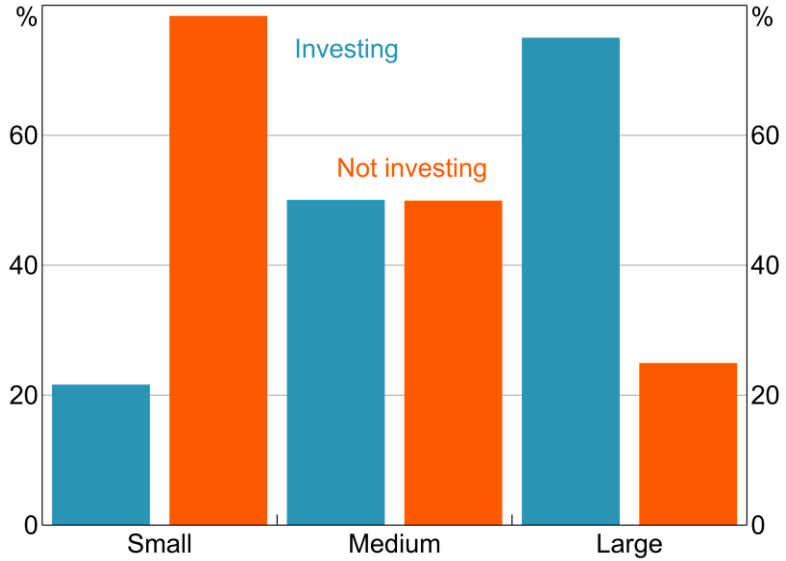
## Share of Firms by Investment




Sources: ABS (BLADE); RBA.

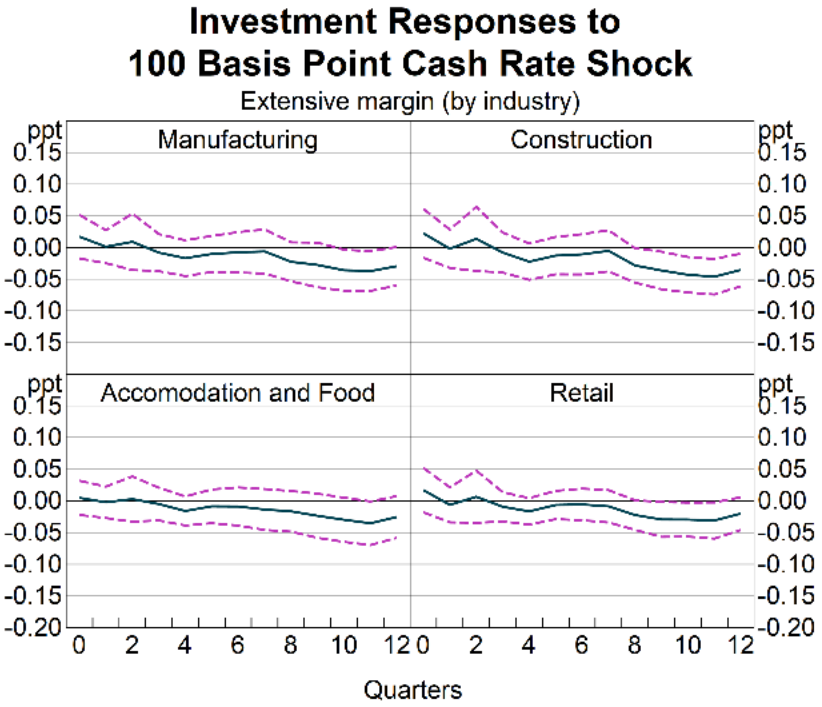
## Share of Firms by Investment

By size




Source: ABS (BLADE).

# By industry

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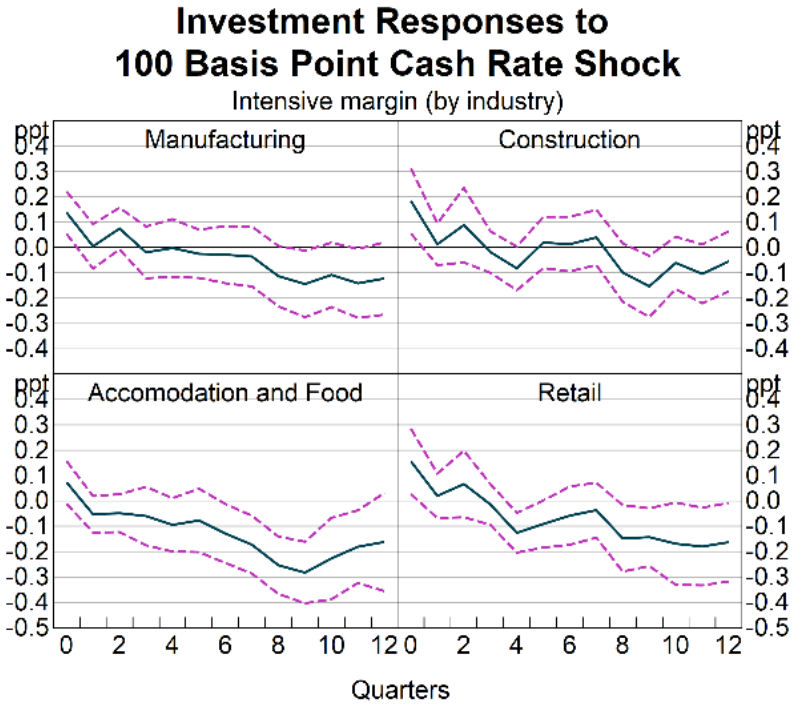
Sources: ABS (BLADE); RBA

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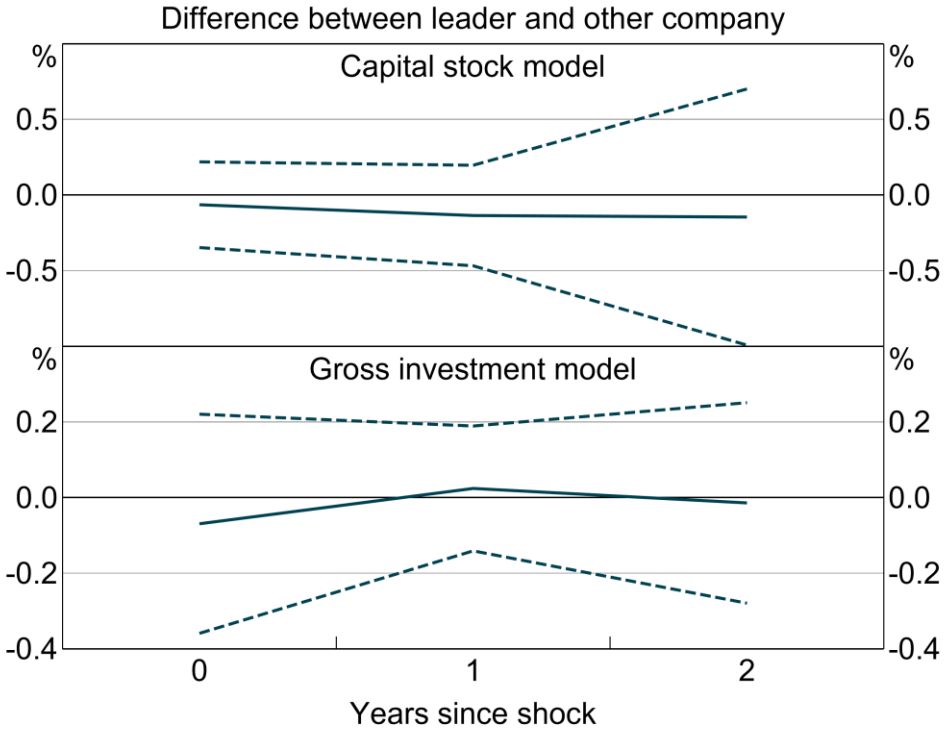
Sources: ABS (BLADE); RBA

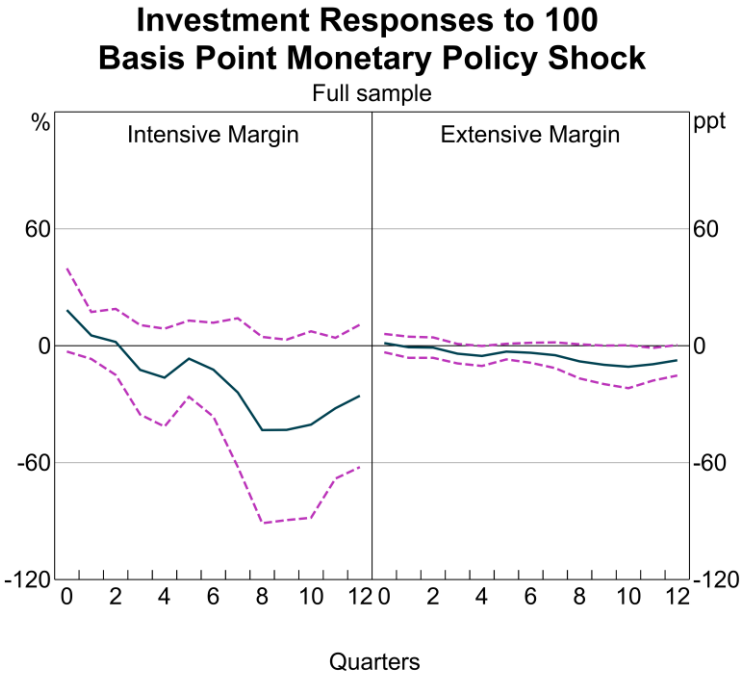
# Investment Response to 100 Basis Point Monetary Policy Shock




* Model with no growth controls, but with industry*year fixed effects. Dotted lines show 95 per cent confidence itnernval calcuated based of a t-n degree of freedom t-distirbution, where t is number of years and n number of coefficients

Sources: Authors' calculations; Morningstar.

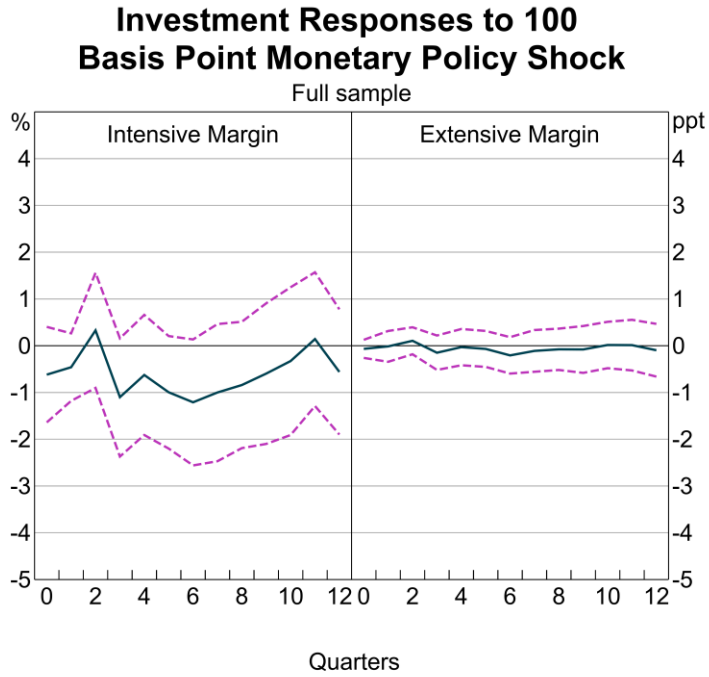
# IV and Hambur shock




* Dash line represents 95 per cent confidence interval

** Monetary policy shock is instrumented via cash rate

Sources: ABS (BLADE); RBA.




* Dash line represents 95 per cent confidence interval

** Monetary policy shock is defined as in Hambur (2023)

Sources: ABS (BLADE); RBA.