

Credit channel of monetary transmission and housing market in South Africa

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This paper

- Are housing loan volumes driven primarily by changes in the demand for credit or does the bank supply of mortgages have a significant impact?
- Does availability of bank mortgages affect demand for housing?

Credit channel of monetary transmission: Bernanke and Blinder (1988, 1992), Bernanke et al. (1995), Gertler and Gilchrist (1993)

- Downturns are exacerbated by credit-dependent households and firms unable to borrow at the desired levels, because:
 - 1 borrowers' credit-worthiness declines, when their net worth falls - **balance sheet channel** (BSC)
 - 2 banks' balance sheets and risk attitude are affected, such that they reduce their loan supply - **bank lending channel** (BLC)

Results

Evidence supporting the presence of **broad credit channel** of MP tightening before and after the GFC with changes in its transmission

Bank lending channel is operative after the GFC:

- reduced availability of bank supply of housing loans
- household demand for houses is affected by bank credit supply significantly

No space for **balance sheet channel** after the GFC:

- household balance sheet variables don't respond significantly to MP contractions

Reduced importance of **credit channel** after the GFC:

- variation in availability of credit variables is driven by changes in policy rate less after the GFC than before that

Credit channel

Motivation:

- ① design of efficient policies to support credit issuance
- ② macro models capturing relevant formulation of financial sector and MP TM;

operative credit channel/significant impact on consumer sector

- a way to resolve the violation of the PIH by the presence of credit market imperfections/borrowing restrictions

- Zeldes (1989), Deaton (1991), Ludvigson (1996), Jappelli et al. (1996)

Credit channel: existing evidence for SA

- broad credit channel over 2000Q1-2012Q2 with LBVAR in Gumata et al. (2013)
 - ▶ structural break over the GFC is not controlled for
- BVAR and TVP-VAR for big vs small banks over 2002M1-2014M7 in Loate and Viegi (2015)
 - ▶ supports existence of the bank lending channel, bank size matters
 - ▶ housing loans are not analysed
- structural model estimated, size as a bank-specific variable in Mishi and Tsegaye (2012)
 - ▶ identical demand for loans assumption irrespective of bank characteristics
 - ▶ no role for balance sheet of borrowers
- VECM approach for a small model over 1987Q1-2004Q4 in Ludi and Ground (2006)
 - ▶ changes in loan volumes are demand-driven, supply factors insignificant
- MP effectiveness analysis with FAVAR model over 1985M2-2007M11 in Kabundi and Ngwenya (2011)
 - ▶ short-lived effects of policy shocks on financial variables

Credit channel: identification challenge

To disentangle demand- from supply-driven changes in credit

- in aggregate data the presence and absence of bank lending channel are observationally equivalent

We address this challenge following Kashyap et al. (1993), Ludvigson (1998), Iacoviello et al. (2008):

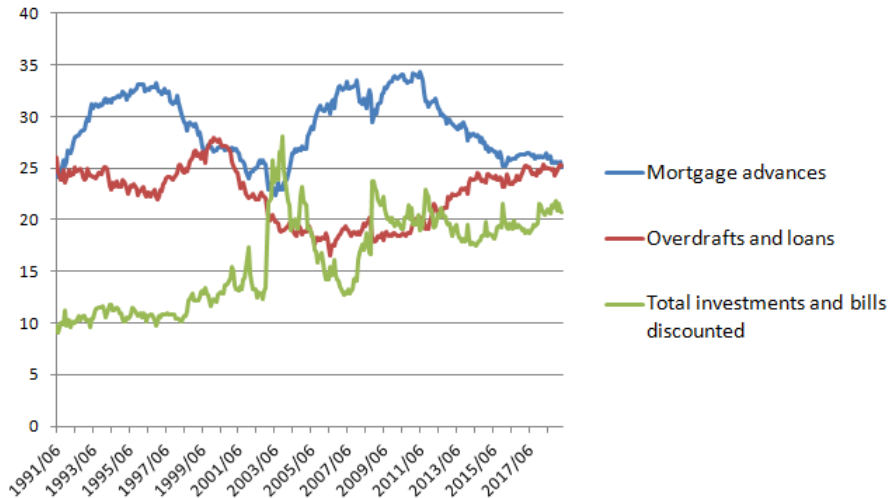
- employ MIX variable: composition of housing loans between bank and nonbank sources of finance
- assumption: demand changes in the same proportion for these alternative sources of funding
- different funding structure:
 - ▶ banks - retail deposits
 - ▶ non-banks - wholesale instruments
- MP tightening drains funding for banks, but not for non-banks
- variation in MIX after a policy shock provides identification of bank credit supply movements
- if exogenous changes in MIX have an effect on spending \rightarrow bank lending channel is operative

Empirical methodology

- Large Bayesian vector autoregression - Banbura et al. (2010)
- A metric to measure the stance of monetary policy/unanticipated policy - innovations in SARB repurchase rate
- Employ IRFs of VAR models to evaluate whether:
 - ① monetary policy shocks influence bank loan supply variables and the composition of housing loans/MIX
 - ② unanticipated changes in MIX affect demand for houses
- Use FEVD to assess the relative importance of policy shocks before and after the GFC

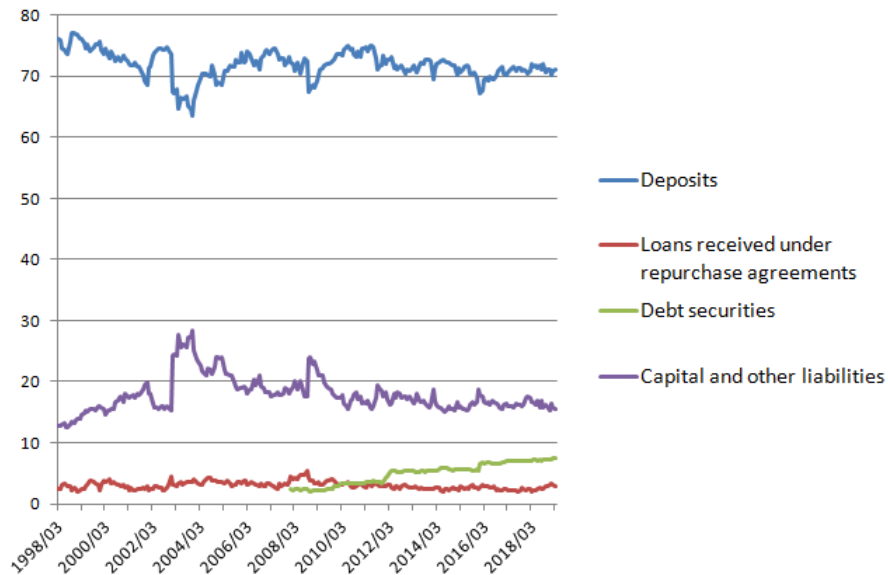
Bank balance sheets

Assets on banks' balance sheets, % of total assets



Bank balance sheets

Liabilities on banks' balance sheets, % of total liabilities



Housing loans in SA: institutional background

- Bank model

- ▶ heavy dependence of households on bank housing loans NCR
- ▶ reliance of banks on reservable retail deposits - 70% of total liabilities and equity
- ▶ high concentration in banking system (the share of big 4 banks is 83.4%), use of wholesale funding: bank bonds - 7.4% of liabilities (big banks: 5.36-10.05%)

- High degree of standardisation: bonded market

- Significant degree of securitisation

Expect balance sheet channel to be pronounced in the housing market:

- housing demand is linked to h/h balance sheets directly: down-payment requirements, up-front transaction costs (Bernanke et al., 1995)

Loan types

SARB Classif

NCR Classif

Institutional background: finance companies

- obtain funds in forms of loans, debentures and notes with the objective of lending or investing funds in the form of mortgage loans, hire-purchase and leasing finance
- the only 'non-bank credit lender' in view of SARB

Examples: SA Home Loans (80% of the nonbank credit supply, according to Lightstone Property), Eskom Finance Company, Sanlam Personal Loans, Atlas Finance, Homechoice, etc.

SA Home Loans funding (Standard Bank is a key shareholder) - securitisation:

- launches Residential MBS term funding structures
- special Purpose Vehicles buy the securitised loan pools

Data

Monthly data series used over 2000M1-2019M3:

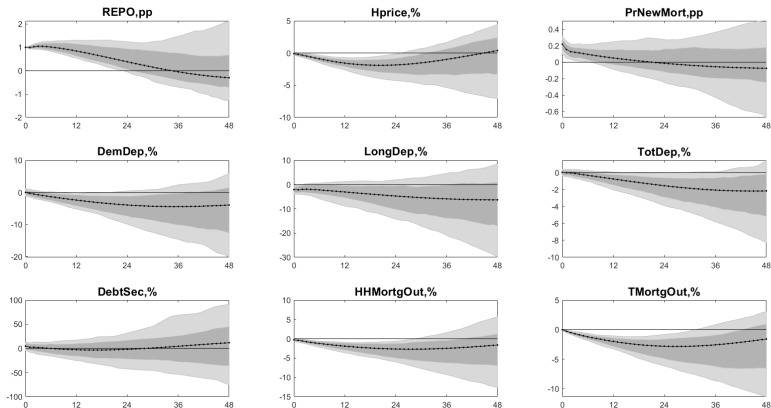
- slow-moving variables:
 - ▶ CPI, coincident indicator, manufacturing production, retail trade index, IMF commodities price index, buildings completed,
- SARB repurchase rate
- fast-moving variables:
 - ▶ house price index (StBank)
 - ▶ aggregate data on bank balance sheet variables from BA900 reports - real values deflated with CPI
 - ▶ spread of the rate on new home mortgage loans with interbank 3 months rate
 - ▶ JSE index, real exchange rate, yield on 10 years govt bonds

Structural break found over the GFC with Chow tests (sample-split, break-point and forecast tests) – two subsamples are considered:

- 2000M1-2008M8
- 2010M1-2019M3

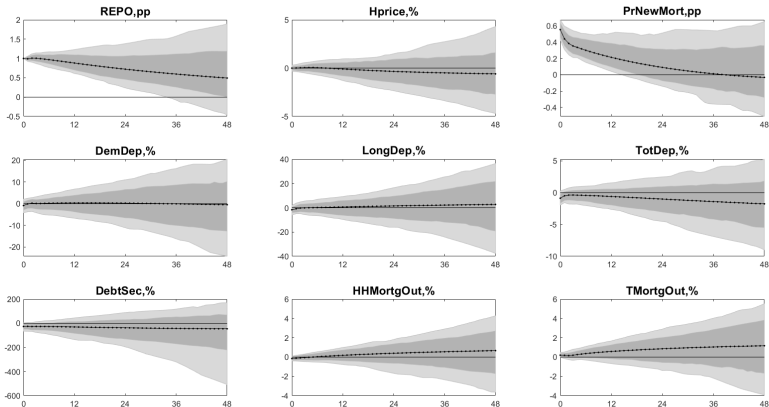
Results: broad credit channel

IRFs to a monetary policy shock, 2000M1-2008M8



Results: broad credit channel

IRFs to a monetary policy shock, 2010M1-2019M3



Results

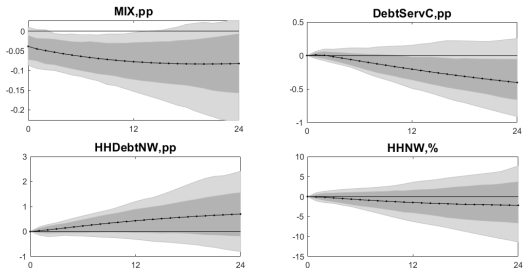
- 2000M1-2008M8 sample - evidence consistent with credit channel following monetary policy tightening:
 - ▶ reduction in demand deposits - no substitution with wholesale funding/debt securities
 - ▶ increase in spread charged on housing loans
 - ▶ decrease of the volume of household mortgages outstanding
- 2010M1-2019M03 sample
 - ▶ no significant change in demand deposits
 - ▶ increase of spread charged on housing loans
 - ▶ no significant change in household mortgage volume

Then include quarterly frequency data on households' balance sheets and analyse the model implications over 2010Q1-2019Q1

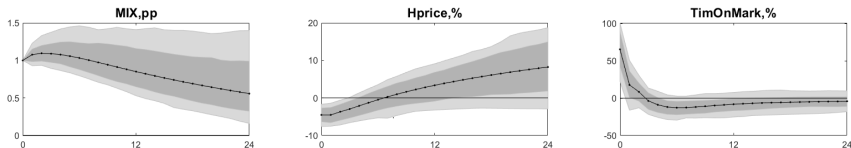
- debt to net wealth ratio
- real net wealth value
- debt service cost as a share of disposable income

Results: bank lending channel

IRFs to 1 pp contractionary monetary policy shock, 2010Q1-2019Q1

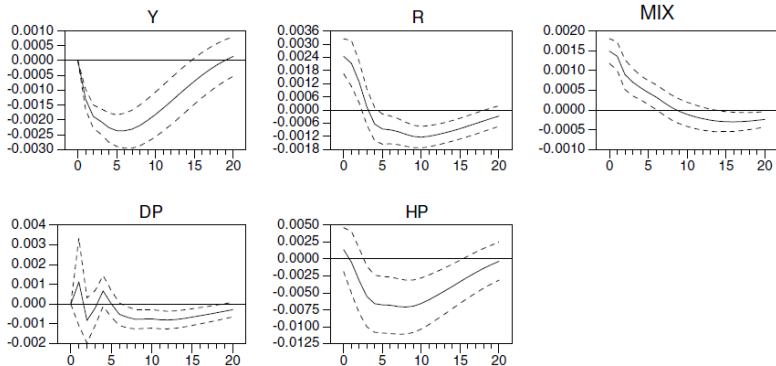


IRFs to 1 pp positive shock to MIX, 2010Q1-2019Q1



Results: bank lending channel in the UK

IRFs to 1 S.E. contractionary monetary policy shock, 1978Q1-1999Q4



Source: Iacoviello and Minetti (2008)

Results: balance sheet channel

BVAR, variance decomposition at 10 qt horizon:

Household mortgages outstanding	2000Q1-2008Q2	2010Q1-2019Q1
Repo	13.24	3.06
NW of h/h	18.56	5.86
Bank total deposits	10.69	5.21
CPI	19.33	32.84
CommPr	6.42	7.16
Repo to NW of h/h	16.25	1.35
Repo to Bank total deposits	3.83	0.59
Household mortgages issuance		
Repo	35.83	1.68
NW of h/h	9.46	9.82
Bank total deposits	4.83	0.08
CPI	15.55	14.78
CommPr	9.34	5.11
Repo to NW of h/h	22.94	1.19
Repo to Bank total deposits	6.52	0.30
Spread of mortgage rate and JIBAR		
Repo	36.11	1.83
Debt to NW of h/h	10.37	0.59
Bank total deposits	0.01	0.42
CPI	7.01	1.54
CommPr	1.35	0.76
GDP	3.37	10.92
Repo to Debt to NW of h/h	6.88	0.09
Repo to Bank total deposits	1.34	0.26

Conclusions

- Credit channel of MP transmission is operative in SA and has differences in its effects before and after the GFC
 - ▶ policy tightening doesn't induce changes in credit volumes after the GFC
- The bank lending channel is present after the GFC
 - ▶ banks increase spreads on housing loans relative to JIBAR rate
 - ▶ tight money produces a significant reduction in the relative supply of nonbank mortgages
 - ▶ demand for house purchases by households is affected by changes in the source of funding significantly
- No space for balance sheet channel after the GFC:
 - ▶ real net wealth of households, debt to net wealth ratio don't respond significantly to MP contractions
- Reduced importance of credit channel after the GFC

Further work:

- identifying the driving force of higher spreads following tight money after the GFC: banks' risk perception and willingness to bear risk (Disyatat, 2011)

Thank you!