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The economic impact of changes in bank capital requirements in South Africa: An estimated structural macroeconomic theory approach

1. Introduction

The South African Reserve Bank (SARB) introduced a 1% positive cycle-neutral counter-cyclical capital buffer (PCN CCyB) to be phased in over a 12-month period, commencing on 1 January 2025 and to be fully implemented by 1 January 2026. The macroprudential measures implemented by the SARB align with international regulatory frameworks, which emphasise capital buffers to enhance loss-absorbing capacity and mitigate systemic risks (Basel Committee on Banking Supervision, 2024; Behn et al., 2025; Hollander and van Lill, 2019). Empirical studies consistently highlight that higher capital buffers effectively moderate financial vulnerabilities with minimal economic costs, particularly when phased in gradually (see, for example, Angelini et al., 2015; Conti et al., 2023). This paper uses structural macroeconomic analysis, specifically through an estimated New Keynesian dynamic stochastic general equilibrium (DSGE) model with financial frictions, to evaluate the macroeconomic consequences of this policy intervention.

DSGE models are well-suited for policy analysis, providing rigorous theoretical foundations for evaluating structural policy shocks and their transmission mechanisms within a general equilibrium context.[1] These models have been extensively utilised to assess macroprudential policies, such as changes in capital requirements, due to their ability to capture systemic interactions between financial institutions and the real economy (see, for example, Clerc et al. (2015), Hollander (2017) and Muñoz and Smets (2025) and many citations therein). Our analysis builds upon existing literature, notably tailored to the South African banking context, incorporating specific domestic financial system characteristics and regulatory frameworks (Hollander & van Lill, 2020, Hollander and Havemann, 2021).

Our results indicate that the phased introduction of the PCN CCyB will negligibly reduce credit growth without significantly disrupting overall economic activity. These results align with recent work by Sibande and Milne (2025) on the introduction of higher capital requirements under Basel III.[2] We also identify potential sectoral reallocations of credit, underscoring the importance of monitoring shifts between household and corporate lending as banks respond to regulatory adjustments (Sibande & Milne, 2025; Merrino et al., 2024).

These insights do not undermine the usefulness of bank capital requirements. Firstly, the estimated effects of bank capital requirements in South Africa are based on historical data for which it is difficult to identify any explicit policy actions for which we can expect quantitatively large and statistically significant responses (Hollander and Havemann, 2021). Secondly, while it is clear there is ample international literature that reinforces the view that dynamic capital buffers can serve as effective macroprudential tools, careful consideration should be taken in their design and interaction with macroeconomic policies, broadly (Pillay and Makrelov, 2025), this Topical Briefing does not explicitly focus on

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1 Empirical analyses from companion studies complement this structural approach. Bank-level econometric analyses, employing Bayesian vector autoregression (VAR) models, indicate negligible aggregate impacts from higher capital requirements, with adjustments largely taking place through subtle changes in lending patterns and capital structure (du Rand, Sikhosana & van Lill, 2025a). Furthermore, macro-level VAR analysis confirms these findings, noting modest initial economic impacts that typically diminish over time as banks adjust their capital structures and lending portfolios (Conti et al., 2023; du Rand, Sikhosana & van Lill, 2025b).

2 Sibande and Milne (2025) find little evidence that the introduction of higher bank capital requirements reduced the supply of bank credit, which they attribute to a well-capitalised banking sector.

macroeconomic policy interaction and coordination, which is currently taking place in ongoing research.

The remainder of this paper is structured as follows: Section 2 describes the theoretical underpinnings and adaptations of the DSGE model used. Section 3 outlines data and Bayesian estimation methods. Section 4 discusses the main findings, including impulse response functions and counterfactual simulations of the phased in PCN CCyB. Section 5 concludes with policy implications and directions for future research.

2. Methodology: The New Keynesian DSGE model framework

2.1 Model framework overview

The DSGE model employed in this study adapts the frameworks of Gerali et al. (2010), Hollander and Liu (2016) and Hollander (2017). The model has been tailored to incorporate South African banking sector characteristics as highlighted in Hollander and van Lill (2020) and Hollander and Havemann (2021). We direct the reader to Hollander and Liu (2016) and Hollander (2017) for full details on the model structure.[3] For this paper, we only briefly note the core components that are generic in this literature and focus more detail on the novel analytical aspects that extends the baseline model to incorporate bank capital regulations.

The model integrates the following standard New-Keynesian features. Nominal rigidities in the form of sticky prices and wages are included to allow for persistent responses to shocks, as well as a role for the monetary authority to stabilise inflation and limit real economic losses. Habit formation in consumption is used to capture intertemporal dependencies in household behaviour, which is necessary to sufficiently account for the empirical regularity that consumption tends to be smoother than output. Investment adjustment costs are used to calibrate the speed of capital stock adjustments to match the empirical persistence of capital stocks. A monetary policy reaction function of the typical Taylor-rule specification is calibrated to model the inflation targeting framework of

[3] Note that the model in this paper excludes the equity price channel which is in Hollander and Liu (2016) and Hollander (2017).

the SARB and includes the impact of inflation expectations and deviations of output from potential on realised inflation.

The financial sector is modelled as a monopolistically competitive banking system where markups over funding costs influence retail lending rates. Banks intermediate credit to households and firms, with sector-specific risk weights determining the capital adequacy ratio (CAR). Households and firms face separately calibrated borrowing constraints, which captures differences in creditworthiness and loan-to-value ratios. This structure captures key channels of macroprudential policy transmission, including the impact of capital requirement adjustments on credit supply, funding costs and borrowing costs. The formal details of these model components are discussed in the following sections.

2.2 Transmission Mechanisms

By construction, in the model and in practice, countercyclical capital requirements are implemented in a cycle-neutral fashion (Behn et al., 2025; Muñoz and Smets, 2025). For example, during economic expansions, a capital buffer reduces procyclical credit growth, whist a relaxation of capital requirements counteracts credit crunches during economic contractions, thereby preserving macro-financial stability in a symmetric manner.

The introduction of the PCN CCyB builds on this mechanism by ensuring that banks accumulate capital during periods of economic expansion, which can then be used during downturns to absorb losses and maintain lending capacity. This countercyclical approach reduces the amplification of shocks to the real economy, as banks are better positioned to withstand financial distress without abruptly reducing the supply of credit.

In the model, the PCN CCyB affects the economy through two main channels. In the bank balance sheet channel, higher capital requirements constrain credit supply, particularly for riskier borrowers. This dampens procyclical lending behaviour and reduces financial vulnerabilities during expansions. In the cost of credit channel, increased funding costs from higher capital requirements are passed on to households and firms through higher lending rates, moderating aggregate demand.

The model estimates these dynamics for the South African economy, highlighting how the CCyB both moderates credit expansion during economic booms and provides a buffer for absorbing losses during downturns, by reducing output volatility and mitigating the impact of financial shocks.

2.3 Modelling bank capital and regulatory shocks

Bank capital (K^B) evolves dynamically through retained earnings and exogenous shocks:

$$K^B = (1-\delta_B)K^B_{-1} + \Pi^B_{-1} + \varepsilon_{K^B},$$

where δ_B represents the depreciation of bank capital, Π^B_{-1} represents retained earnings from the previous period (indicated by the subscript -1), and ε_{K^B} represents an unpredictable shock to bank capital (e.g. asset valuation shocks due to market movements).

The capital adequacy ratio (CAR) is defined as:

$$CAR = \frac{K^B}{\omega_H L^H + \omega_F L^F},$$

where ω_H and ω_F denote the risk weights on household and firm loans respectively, and L^H and L^F are the sector-specific credit volumes. The impact of regulatory shocks is introduced by allowing for time-varying changes to capital requirements (τ_t) which induce a pecuniary cost modelled as an impact on funding costs as follows:

$$R^W - R = -\mathbf{F}(CAR - \tau) + c,$$

where R^W is the wholesale funding rate, R is the short-term interest rate, $\mathbf{F}(\cdot)$ captures the pecuniary impact when the capital adequacy ratio deviates from the regulatory required level, and c represents the steady-state spread between short-term rates and wholesale rates when $CAR = \tau$, i.e. $\mathbf{F}(0) = 0$.

The following section introduces and motivates the empirical proxy for the bank capital-to-asset ratio best suited to estimate regulatory requirements in this structural model.

2.4 Empirical proxy for bank capital regulation

To identify the economic impacts of changes to bank capital regulations, a DSGE model requires a relevant measure of capital regulations that satisfies the analytical requirements of a shock process in these models. The level of capital requirements, being non-stochastic, cannot be used directly.

The main challenge in estimating the impact of macroprudential policy is to distinguish between structural and spurious relationships within the financial system. For instance, the procyclicality of credit spreads and capital buffers is well-documented in the literature. However, disentangling causal mechanisms requires a structural analysis of bank balance sheets and credit conditions (Hollander and Liu, 2016; Hollander and Havemann, 2021).[4]

This paper uses aggregate Tier 1 capital adequacy ratio of banks to construct an empirical proxy used to identify regulatory shocks. [5] However, the model is estimated in a stationary form, so that no trending variable can be used in the estimation. As Figure 1 shows, the Tier 1 capital adequacy ratio is clearly trending over the sample. As such, the proxy used for the results presented in this model is the linearly detrended value of aggregate Tier 1 capital adequacy ratio of banks, which is shown as part of the model variables in Figure 2.[6]

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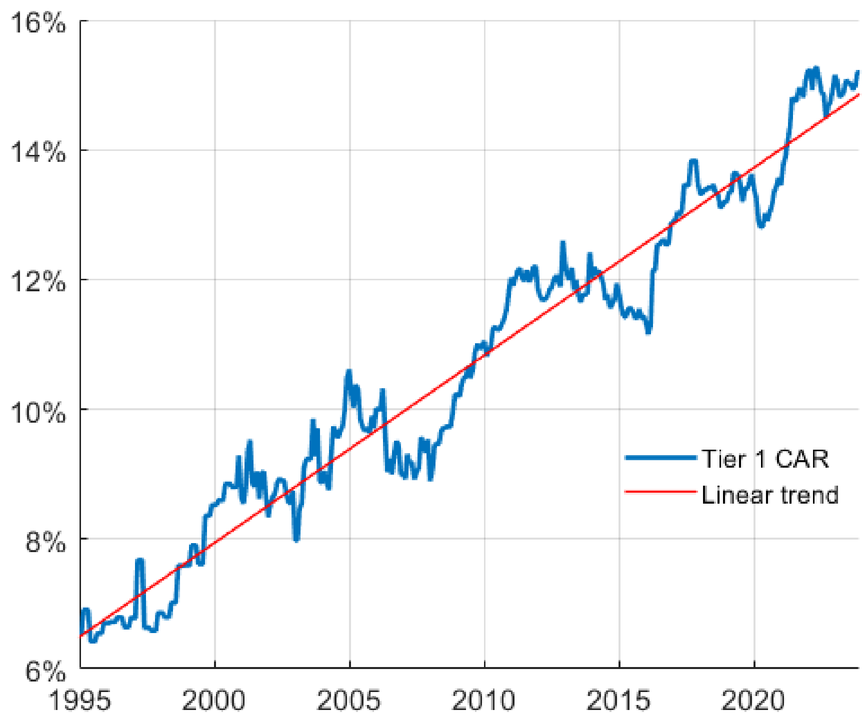
[4] Based on the data used for estimating the structural model, the relationships between linearly detrended tier 1 bank capital adequacy ratio and interest rate spreads show an uncanny strong correlation from 1995Q1 to 2011Q4 (correlation coefficients of 0.7 and -0.55 for retail and wholesale spreads, respectively). The breakdown in the relationship thereafter suggests either a spurious relationship or alternative driving forces dominating any causal mechanism between the observed series (from 2012Q1 to 2023Q2, correlation coefficients of 0.17 and -0.04 for retail and wholesale spreads, respectively). See Table 1 for more details about the data used to determine interest rate spreads.

[5] While the Basel III regulations allow for a broader definition of qualifying capital and reserves, this measure was chosen as it has the longest continuous data series available and constitutes the largest component of qualifying capital and qualifying reserves. Since the mid-2000s, the difference between total CAR and Tier 1 CAR has remained relatively constant at around 3%, and well-above minimum capital requirements, reflecting a well-capitalised banking sector.

[6] Many different options were explored, such as the growth rate in Tier 1 capital. The results in this paper used the measure that yielded the strongest and most consistent results and correlated most strongly with other bank-level endogenous variables such as funding spreads. Results based on other measures of bank capital regulation are available from the authors on request.

Figure 1: Tier 1 capital adequacy ratio in the banking sector (blue line) and linear trend (red line).



Source: Author's calculations based on SARB data

3. Estimation

The DSGE model is estimated using Bayesian methods, leveraging the Dynare computational toolbox within MATLAB. This approach balances prior economic theory with data-driven inference, allowing for robust parameter estimation while accounting for model uncertainty.[7] The estimation uses quarterly data for South Africa spanning 1995Q1 to 2023Q2, providing a comprehensive sample that captures multiple economic cycles, including the global financial crisis and the COVID-19 pandemic.

3.1 Data

The estimation incorporates nine observable variables, selected to capture the core dynamics of the South African economy and banking sector. These variables are

[7] Details on the Bayesian implementation, such as the selection of priors and specification tests are available from the author on request.

summarised in Table 1. Figure 2 illustrates the variables used in the estimation. Several alternative transformations and sub-sample estimations were tested to ensure robustness, with the final specification and sub-sample prioritising model fit and economic interpretability.

Table 1: Detail on variables used in estimation.

Source: Author's calculations based on SARB data

Variable name	**Description**[8]
Output	Growth rate in real GDP, quarter-on-quarter
Inflation	Growth rate in GDP deflator, year-on-year
Credit to households	Growth rate in real credit to households, quarter-on-quarter (using the GDP deflator)
Credit to corporates	Growth rate in real credit to corporates, quarter-on-quarter (using the GDP deflator)
Policy interest rate	Nominal interest rate on a 3-month Treasury bill
Deposits	Growth rate in real deposits, quarter-on-quarter (using the GDP deflator)
Bank capital-asset ratio	Linearly detrended reported Tier 1 bank capital adequacy ratio
Interbank (wholesale) rate	Average of interest rates on 3-, 6- and 9-month negotiable certificates of deposit
Retail interest rate	Weighted average of interest rates on loans to private sector, benchmarked to a 10-year Treasury bill

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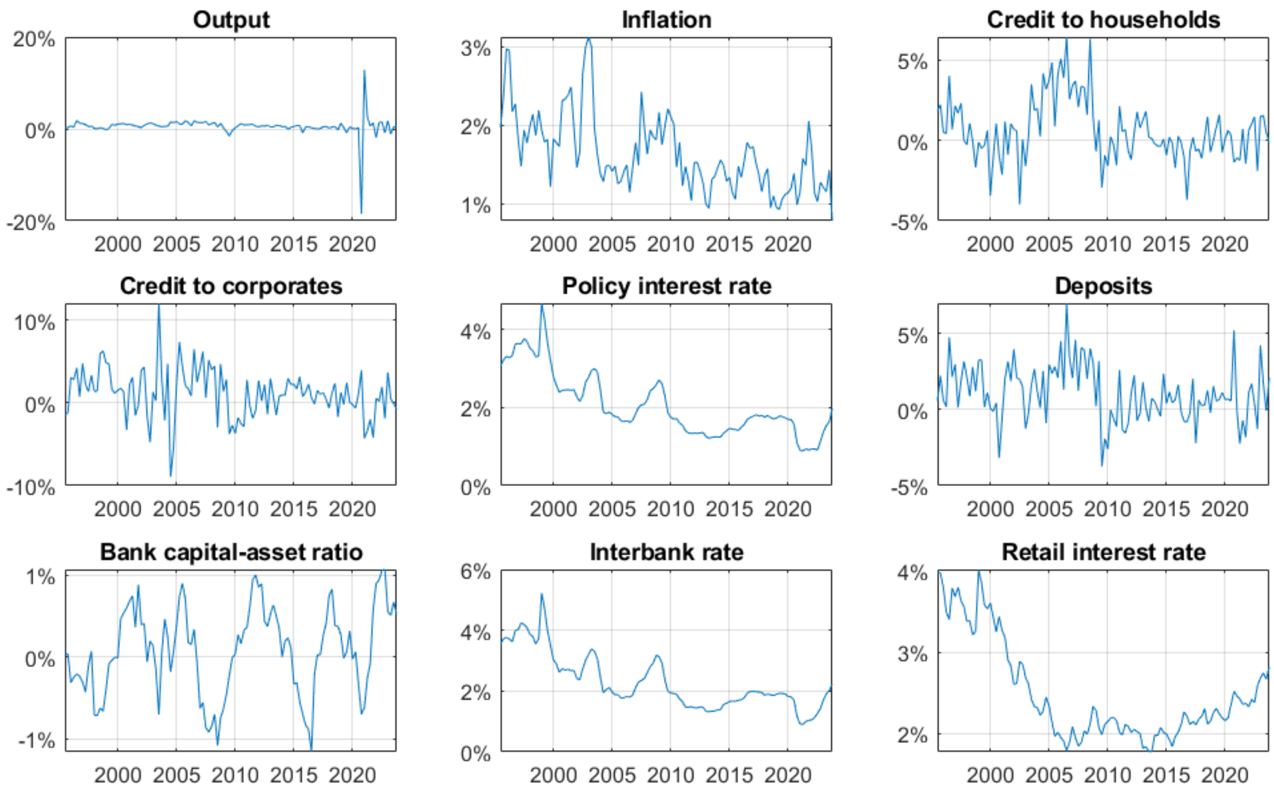
[8] All data were sourced from the Quarterly Bulletin of the South African Reserve Bank (resbank.co.za) and the database of the St Louis Federal Reserve (fred.stlouisfed.org). Exact data sources and transformations are available from the author.

Figure 2: Variables used in estimation.



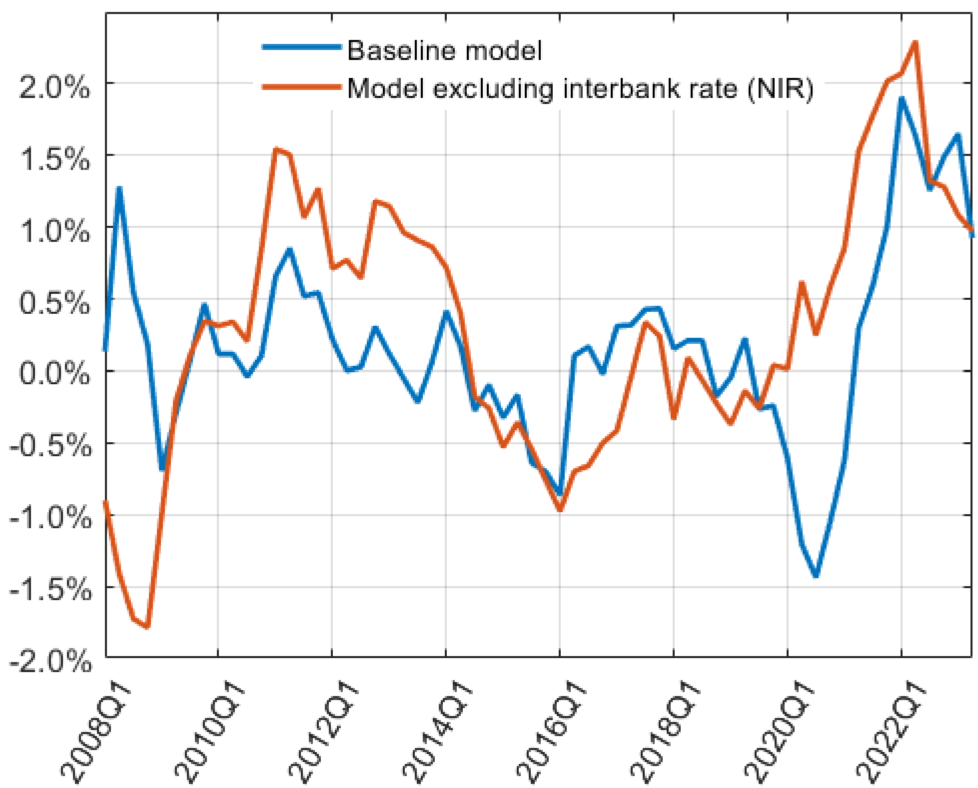
3.2 Historical Shock Identification

The model identifies a range of structural shocks, including bank capital requirement shocks (τ_t). Figure 3 plots the estimated historical capital requirement shock process from 2008Q1 to 2023Q4, comparing the baseline specification to an alternative that excludes the interbank rate as an observable variable (this alternative specification is labelled *NIR* below).[9] The results indicate greater variability in capital requirement shocks during periods of financial stress, such as the global financial crisis (2008/09) and the COVID-19 pandemic (2020/21). The alternative specification captures more realistic dynamics of

[9] Including the interbank rate constrains the identification of capital requirement shocks to deviations in the observed interbank spread, as shown by the model equations in Section 2.3 with the interbank (wholesale) spread $(R^W - R)$ determining deviations of the observed CAR ratio to that of time-varying changes to capital requirements (τ). Several alternative cross-correlated shocks and endogenous mechanisms were tested in the model and showed no meaningful or reliable alternative transmission mechanism of CAR or τ dynamics.

countercyclical capital requirements over the credit cycle, reflecting a closer alignment with observed regulatory adjustments during these episodes. However, differences in overall results between the baseline *NIR* and baseline model are not large. For subsequent analyses, the *NIR* results are used as the preferred specification for the counterfactual scenario assessing the phased implementation of the positive cycle-neutral buffer, as discussed in the following section.

Figure 3: Estimated historical shocks to bank capital regulations from two models. The blue line represents the results from the baseline model, while the orange line represents the results from the model which excludes the interbank interest rate (NIR).

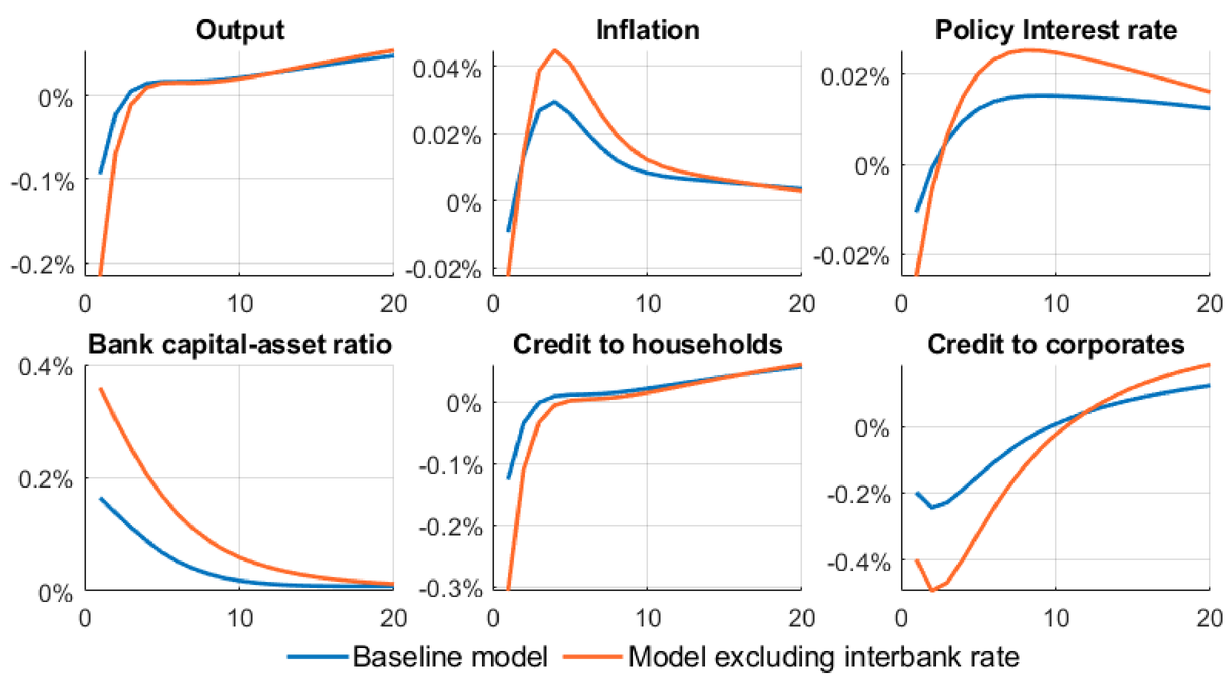


4. Results

4.1 Model dynamics

Figure 4 compares the estimated impulse responses for bank capital requirement shocks for two alternative specifications: (i) the baseline model, and (ii) the alternative identification without interbank interest rates. In both cases, higher capital requirements reduce output and credit extension to both households and corporates. The largest impacts are observed for the alternative identification approach (*NIR*). The negative impact on credit to corporates is larger and more persistent than that of households (approximately 0.5% versus 0.3% at the maximum of the mean response).[10] The impact of capital regulation shocks on inflation for both models based on recent data is negligible, leading to a limited response of the short-term interest rate.

Figure 4: Impulse responses to a capital requirement shock from two models. Blue lines represent the results from the baseline model, while orange lines represent results from the model that excludes the interbank interest rate (NIR).



[10] At the 90% highest posterior density, the maximum impacts reach 0.6% and 0.4% for corporate credit and household credit, respectively.

4.2 Monetary Policy and Macroprudential Policy interaction

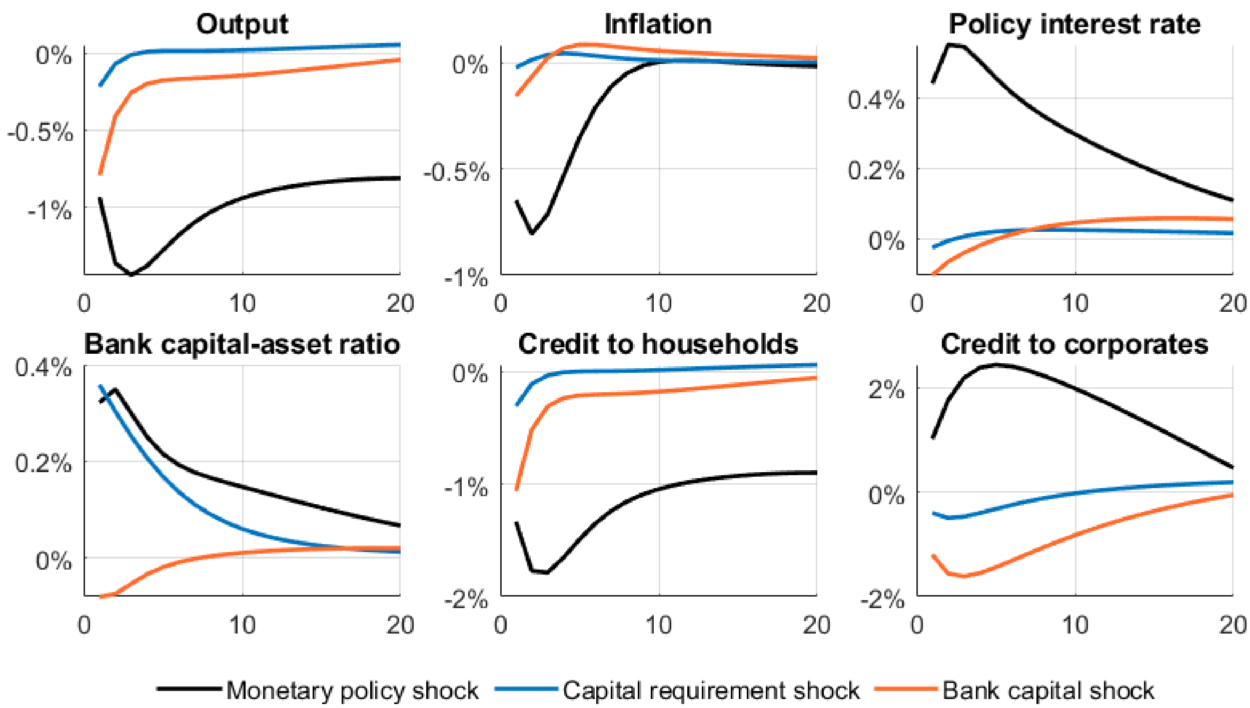
The interaction between monetary and macroprudential policies plays a vital role in ensuring financial stability. Monetary policy, typically focused on inflation stability, lacks the precision needed to address systemic risks arising from credit cycles. By contrast, macroprudential tools such as the PCN CCyB directly target these vulnerabilities by increasing capital buffers during credit expansions.

Figure 5 highlights the complementary roles of monetary and macroprudential policies. The impulse response functions (IRFs) show that while a monetary policy shock can partially stabilise inflation and output, it does little to address underlying credit-driven vulnerabilities in the financial sector. While credit to households falls, credit to corporates rises, mitigating the overall negative effect on aggregate credit. In contrast, the macroprudential policy shock, reduces overall credit supply, while its impact on the real economy is more limited. It is important to note that the quantitative size of the impact of these estimated shocks depends on the historical data. Moreover, this outcome is driven by the model's specific structural features, including potentially different interest rate sensitivities or credit demand elasticities for firms versus households, and bank portfolio reallocation behaviour where lending might shift towards the corporate sector if household credit demand contracts more sharply.

We also show the effect of an estimated direct negative bank capital shock which shows a more pronounced effect of the bank capital channel on the financial sector and real economy. This should not be interpreted as a pure policy shock, as many economic events may affect this variable as opposed to the identified policy shock.[11]

[11] This identified bank capital-specific shock is included to avoid overestimating the impact of policy shocks (Den Haan and Drechsel, 2021). It can also be interpreted as an asset quality shock (Gertler and Karadi, 2011) or a shock to bank net worth (Gertler and Kiyotaki, 2015). Such a shock can therefore be used to simulate financial crisis episodes and optimal policy responses, which we leave for future research.

Figure 5: Impulse responses three shocks from the model that excludes the interbank interest rate (NIR). Black lines represent the responses to a monetary policy shock, blue lines represent the responses to a capital requirement shock, and orange lines represent responses to a shock to bank capital.

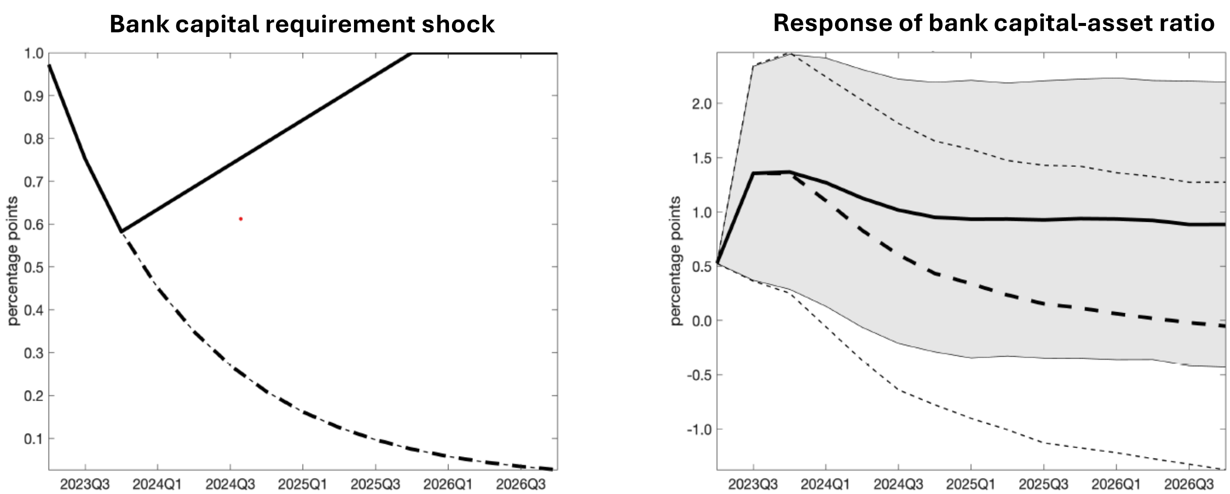


Overall, the results demonstrate that macroprudential tools like the PCN CCyB complement monetary policy, providing a targeted approach to stabilising financial conditions and mitigating the risks of credit-driven economic downturns. However, a misalignment between the two policies could weaken their collective impact. This underscores the need for careful coordination to achieve both inflation and financial stability objectives.

4.3 Estimated Impact of the PCN CCyB: Counterfactual forecasts

The counterfactual scenario evaluates the phased implementation of the PCN CCyB by introducing an unanticipated capital adequacy requirement shock over the period 2024Q1 to 2025Q4.[12] This shock mimics the gradual phasing-in of the PCN CCyB and examines its impact on credit supply, output, and broader macroeconomic stability over the forecast period of 2023Q3 to 2026Q4. The results indicate that the buffer will unlikely cause significant disruptions to the financial sector and overall economic activity. In terms of magnitude, the phased introduction of the PCN CCyB only slightly reduces household and corporate credit growth, with a marginally more persistent impact on corporate credit. Given the uncertainty of out-of-sample forecasts the statistical significance within the 90% highest posterior density are wide but stable.

Figure 6: The impact of the introduction of the 1% CCyB. The left panel shows the baseline shock without the PCN CCyB (dashed lines) and the modelled shock due to the introduction of the change (solid line). The right panel shows the response of the bank capital-asset ratio in the baseline scenario without the shock (dashed lines), and with the shock (solid lines and shaded area)



[12] While the actual phase in period is from 1 January 2025 to 31 December 2025, we employ a longer phase in period as the intended implementation of the PCN CCyB was announced well in advance.

Figure 6 shows that the modelled introduction of the PCN CCyB leads to a gradual increase in the capital adequacy ratio during the phase-in period. The counterfactual forecast demonstrates a steady adjustment in bank capital levels, with the solid line indicating the response under the PCN CCyB scenario. By the end of the forecast period (2026Q4), banks are observed to have stabilised their capital adequacy ratio at a higher level, aligning with the regulatory objectives of the PCN CCyB.

Figure 7 plots the counterfactual forecast for household and corporate credit growth under the modelled introduction of the PCN CCyB. The solid line represents the conditional forecast, and the dashed line represents the unconditional forecast (the expected path of the economy if the PCN CCyB was not phased in). We observe that the annual rate of credit growth declines during the phase-in period, but barely distinguishable for the unconditional path.

Figure 7: The impact of the introduction of the 1% CCyB on credit growth. Dashed lines represent the response to the baseline shock without the CCyB introduction, while solid lines represent response to the shock that includes the introduction of the CCyB.

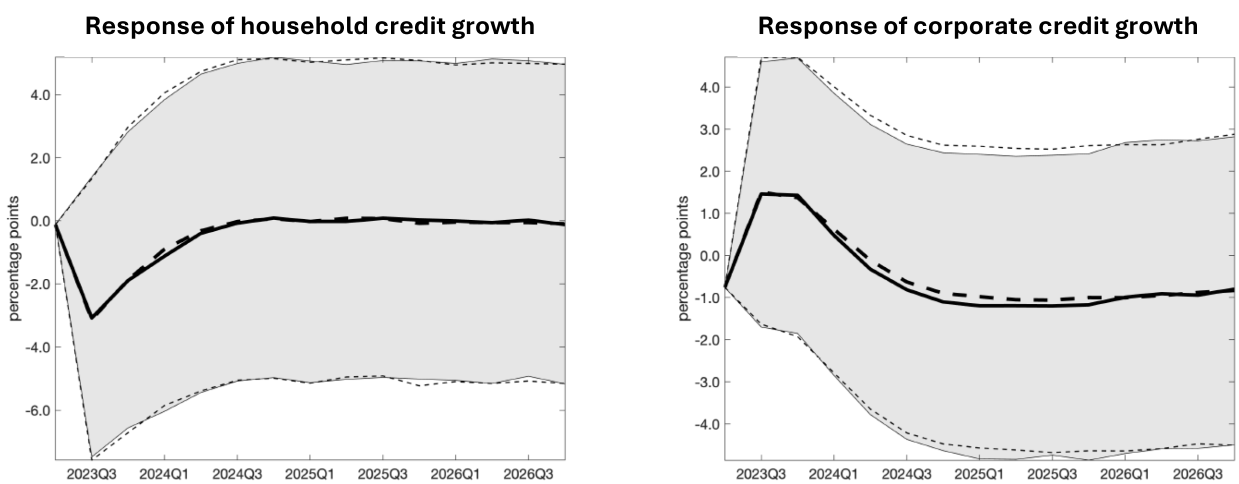
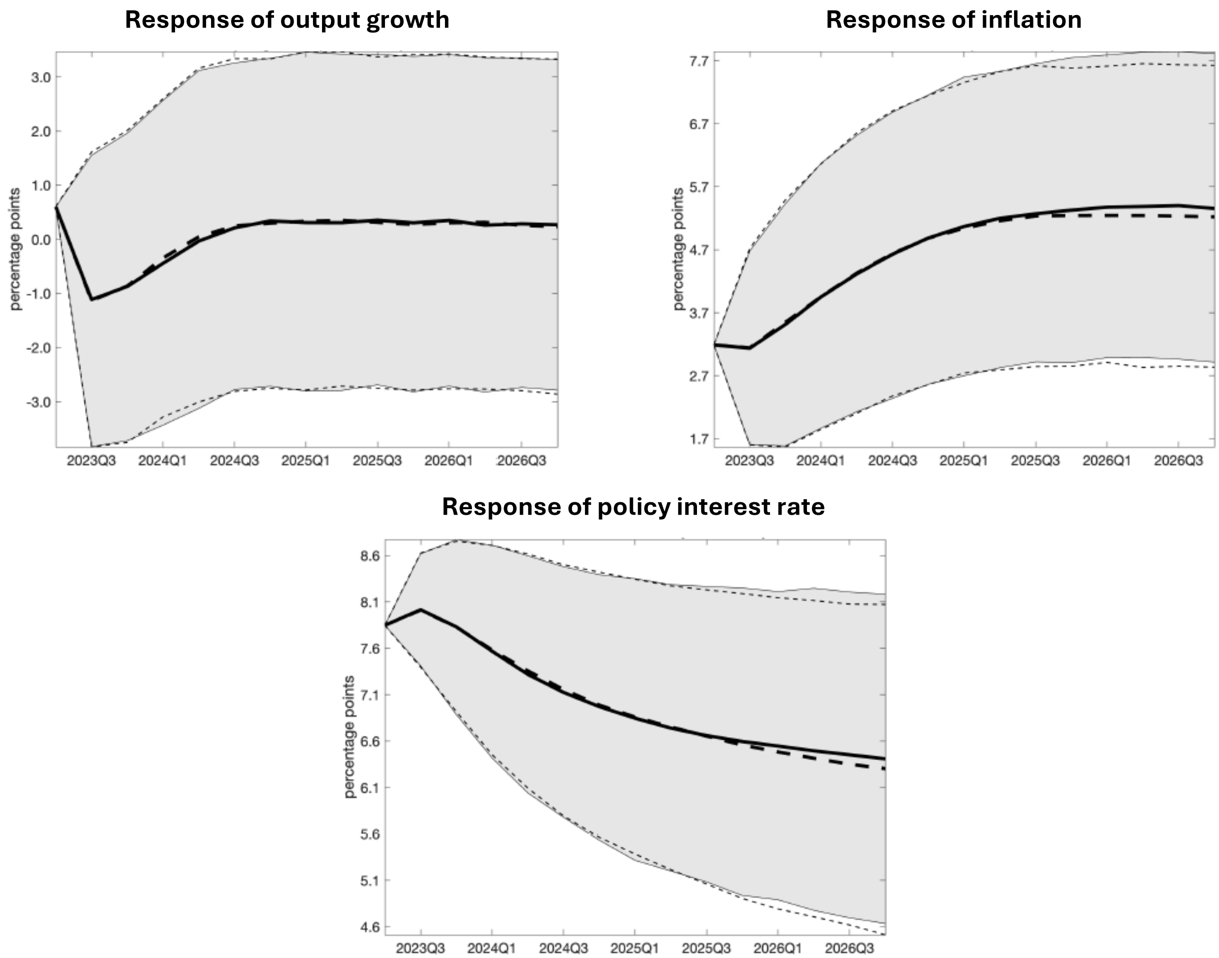


Figure 8 illustrates the impact of the PCN CCyB on output, inflation, and interest rates. The results show a slight reduction in output growth, with minimal effects on inflation and the monetary policy rate. This finding reinforces the view that phasing in the PCN CCyB will not be disruptive to the banking sector and will be effective in promoting financial stability going forward.

Figure 8: The impact of the introduction of the 1% CCyB on selected macroeconomic variables. Dashed lines represent the response to the baseline shock without the CCyB introduction, while solid lines represent response to the shock that includes the introduction of the CCyB.



Overall, these results demonstrate the potential of the PCN CCyB to enhance financial stability by moderating credit cycles while imposing minimal costs on economic growth. However, ongoing monitoring of its impacts, particularly sectoral shifts in credit allocation, will be essential to optimise its effectiveness.

5. Conclusion, limitations and future extensions

Capital requirements serve as an important tool for financial authorities in managing systemic risks. We use a DSGE approach to identify the effect of phasing in the PCN CCyB and find a marginal impact in dampening credit growth, while the broader economic impacts are negligible.

The PCN CCyB offers a mechanism for moderating credit cycles and enhancing the resilience of the South African banking sector. By accumulating capital during economic expansions, the buffer mitigates the impact of financial shocks on both the banking sector and the real economy. In contrast, a relaxation of the PCN CCyB counteracts credit crunches during economic contractions, thereby preserving macro-financial stability in a cycle-neutral manner Going forward, it remains to be seen how crucial its role is in preventing financial instability during downturns.

To ensure the effectiveness of the PCN CCyB, the SARB should monitor sectoral shifts in credit supply and demand. Additionally, the further consideration should be given to the potential for risk-shifting behaviour between sectors and the role of government bonds in the financial system.

While the DSGE model presented in this paper offers valuable insights, it has limitations. The model abstracts from granular household and firm-level heterogeneity, which may influence the distributional effects of macroprudential policies. The model would benefit from including a well specified government sector to capture important fiscal dynamics and interactions, especially related to financial stability (e.g., government debt sustainability, domestic banks' holdings of government debt, and the debt maturity structure). Finally, identifying structural shocks remains challenging, particularly for disentangling regulatory shocks from the Basel III reforms from other economic changes over time.

Future extensions should attempt to improve identification of the PCN CCyB and include more detailed modelling of the sovereign-bank nexus to enhance the analysis of macroprudential policies in South Africa's context.

Bibliography

Basel Committee on Banking Supervision, 2024. *Range of practices in implementing a positive neutral countercyclical capital buffer*. November 2024. www.bis.org.

Behn, M. & Pereira, A. & Pirovano, M. and Testa, A., 2023. A positive neutral rate for the countercyclical capital buffer – state of play in the banking union. *Macroprudential Bulletin, European Central Bank, vol. 21*.

Clerc, L., Derviz, A., Mendicino, C., Moyen, S., Nikolov, K., Stracca, L., Suarez, J. and Vardoulakis, A., 2015. Capital regulation in a macroeconomic model with three layers of default. *International Journal of Central Banking,* June, 11(3), pp. 9-63.

Den Haan, W. J. and Drechsel, T., 2021. Agnostic Structural Disturbances (ASDs): Detecting and reducing misspecification in empirical macroeconomic models. *Journal of Monetary Economics*, 117(C), pp.258-277.

Du Rand, G., Sikhosana, A. and Van Lill, D., 2025a. The economic impact of changes in bank capital requirements in South Africa: A bank-level econometric approach. *Financial Stability Department of the South African Reserve Bank, Topical Briefing TB/04.1/2025.*

Du Rand, G., Sikhosana, A. and Van Lill, D., 2025b. The economic impact of changes in bank capital requirements in South Africa: A macro-econometric approach. *Financial Stability Department of the South African Reserve Bank, Topical Briefing TB/04.2/2025.*

Gerali, A., S. Neri, L. Sessa, and Signoretti, F. M. , 2010. Credit and Banking in a DSGE Model of the Euro Area. *Journal of Money, Credit and Banking,* 42 (s1), pp. 107–141.

Gertler, M. and Karadi, P., 2011. A model of unconventional monetary policy. *Journal of Monetary Economics*, 58(1), pp. 17-34,

Gertler, M. and Kiyotaki, N., 2015. Banking, Liquidity, and Bank Runs in an Infinite Horizon Economy. *American Economic Review*, 105(7), pp.2011-2043, July.

Hollander, H., 2017. Macroprudential policy with convertible debt. *Journal of Macroeconomics*, 54, pp. 285–305.

Hollander, H. and Havemann, R. , 2021. South Africa's 2003–2013 credit boom and bust: Lessons for macroprudential policy. *Economic History of Developing Regions 36 (2),* pp. 339– 365.

Hollander, H. and Liu, G. , 2016. Credit spread variability in the U.S. business cycle: The Great Moderation versus the Great Recession. *Journal of Banking & Finance 67 (C),* pp. 37–52.

Hollander, H. and van Lill, D., 2019. A Review of the South African Reserve Bank's Financial Stability Policies. *Department of Economics Working Papers No. 11/2019*, Stellenbosch University.

Hollander, H. and van Lill, D., 2020. On the estimation and application of structural decompositions of the South African business cycle. In *Business Cycles and Structural Change in South Africa: An Integrated View* (pp. 167-234). Cham: Springer International Publishing.

Merrino, S., Lesame, K. and Chondrogiannis, I., 2024. Macroprudential policy and credit allocation: evidence from South Africa. *South African Reserve Bank Working Paper Series, WP/24/09.*

Muñoz, M.A. and Smets, F., 2025. The positive neutral countercyclical capital buffer. *Staff Working Paper No. 1,128. Bank of England, 30 May.*

Pillay, N. and Makrelov, K., 2025. The Lending Implications of Banks Holding Excess Capital. *South African Journal of Economics*, 93(1), pp.27-42.

Sibande, X. and Milne, A., 2025. The impact of Basel III implementation on bank lending in South Africa. *South African Journal of Economics*, *93*(1), pp.6-26.