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Macroprudential Policy, Cyclical Volatility And Banking Sector Resilience

MACROPRUDENTIAL POLICY, CYCLICAL VOLATILITY AND BANKING SECTOR RESILIENCE

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Abstract

This paper examines the effect of macroprudential policies at an economy-wide level on house prices, credit growth, and bank performance across 36 OECD countries from 1990 to 2023. The findings highlight the significant role of tools such as capital requirements, loan-to-value and debt-service-to-income ratios in curbing excessive credit growth and stabilising house prices. Additionally, the study reveals that liquidity-   . On the other hand certain tools are found to have effects contrary to stability, such as leading to greater bank risk. To ensure the robustness of findings we perform analysis winsorising our datasets, examining both standalone and combined effects, and investigating the effect of regulation in two subsamples: larger and smaller economies. These results provide valuable insights for policymakers aiming to balance economic and financial stability with sustainable growth.

Keywords: Macroprudential policy, credit growth, house prices, bank profitability, bank risk
JEL codes: C13, G23, O16

Outline

2.2 Tools of Macroprudential Policy

As mentioned, the main objective of macroprudential policy is minimisation of systemic risk and maintaining financial system resilience and reducing the amplitude of credit cycles. For these purposes, policymakers are using a variety of tools.

In "An Overview of Macroprudential Policy Tools", Claessens (2014) outlines various types of macroprudential tools designed to safeguard financial stability. These tools are categorised into borrower-based and financial institution-based measures. Borrower-based tools, such as loan-to-value (LTV) and debt-to-income (DSTI) ratios, directly limit excessive borrowing by imposing limits that prevent households from overleveraging. Financial-institution-based tools include countercyclical capital buffers, reserve requirements, and liquidity requirements, which ensure that banks maintain sufficient capital and liquidity, especially during economic downturns. However, Claessens also highlighted the challenges in implementing these tools, particularly in terms of coordinating them with other economic policies and adapting them to specific national contexts.

In light of the above, we examine the effect of the following macroprudential tools, which were broadly introduced by Alam et al. (2019) and described in detail in Appendix Table A1: the countercyclical capital buffer, the conservation buffer, capital requirements, the leverage ratio, loan loss provisions, limits on credit growth, loan restrictions, limits on foreign currency lending, debt-service-to-income ratio limits, loan-to-value ratio limits, tax on financial institutions, liquidity measures, loan-to-deposit ratio limits, limits on gross or net open foreign exchange, reserve requirement, SIFI surcharges and other macroprudential policies.

As background to our own research, we now go on to summarise and evaluate some of the key papers in the literature on macroprudential policy effectiveness.

3. Literature Review

3.1 Key papers

Commencing with papers on the effects of macroprudential policies on targets such as house prices and credit growth, Cerutti et al. (2017) constructed an index of macroprudential policies applied across 119 countries from 2000 to 2013. They found that these policies, especially those targeting the housing sector, effectively reduced credit growth and house price inflation, though their effectiveness was generally stronger in emerging markets than in advanced economies.

Akinci and Olmstead-Rumsey (2018) created a novel index of macroprudential policies across 57 advanced and emerging economies to assess their impact on credit growth and house price inflation from 2000 to 2013. The researchers concluded that targeted macroprudential policies, particularly those aimed at the housing sector, were effective in curbing credit and house price growth, with stronger effects observed in emerging markets.

Carreras et al. (2018) used a cointegration framework to evaluate the long-term effectiveness of macroprudential tools across 19 OECD countries over time period. They found that loan-to-value (LTV) ratios and debt-to-income (DSTI) limits were effective in curbing house price inflation and household credit growth, with their impact varying significantly across different countries.

Alam et al. (2019) utilised a new database, the latest version of which we also employ in this paper, covering macroprudential policies in 134 countries from 1990 to 2016 to analyse their impact on household credit and consumption. The researchers found that loan-targeted instruments like LTV ratios effectively limited household credit, particularly in advanced economies, although their effectiveness decreased with the increasing strictness of the measures.

Davis et al (2018) evaluated the wider macroeconomic effects of different macroprudential policies, such as LTV ratios and capital adequacy requirements, using the National Institute Global Econometric Model (NiGEM). The findings suggested that capital adequacy requirements were more effective in reducing financial instability and provided broader economic benefits compared to LTV ratios, though the effectiveness varied across countries.

Turning to key papers focused on bank performance and resilience, Claessens et al. (2013) analysed the impact of various macroprudential policies on bank balance sheets across 48 countries from 2000 to 2010. The authors found that borrower-targeted policies, such as LTV and DSTI caps, effectively reduced ˙leverage and asset growth during economic booms, but were less effective in mitigating declines in lending (credit crunches) during downturns.

Altunbas et al (2018) examined the effect of macropru

These findings underscore the complexity of macroprudential policy design and implementation, highlighting the need for careful, context-specific approaches that balance financial stability with economic growth and bank profitability. Our work seeks to contribute to the debate.

3.2 Principal f ndings across papers

A recurring theme across these studies is the effectiveness of macroprudential policies in managing financial stability, particularly in curbing excessive credit growth and stabilising housing markets. Papers by Alam et al. (2019) and Akinci and Olmstead-Rumsey (2018) both highlight the significant impact of loan-targeted instruments, such as loan-to-value (LTV) ratios, in reducing household credit and controlling house price inflation. These policies are shown to be particularly effective in environments with less stringent existing regulations, where they can mitigate financial excesses that could lead to economic instability. Carreras et al. (2018) also support this view, confirming the effectiveness of LTV and debt-service-to-Income (DSTI) ratios in controlling household credit growth. They find that these tools can in some cases produce immediate effects on credit markets, making them valuable for short-term economic stabilisation.

The widespread use of macroprudential measures, particularly in emerging markets, further underscores their importance. Cerutti et al. (2017) and Alam et al (2019) document that macroprudential policies are more frequently employed in emerging economies, where they are crucial for managing financial stability. This aligns with Claessens et al. (2013), who also highlight the effectiveness of borrower-focused policies, such as LTV and DSTI caps, in reducing systemic risks during economic booms by directly targeting the sources of financial instability. These findings collectively validate the role of macroprudential policies in preventing the buildup of systemic risks and financial excesses that often precipitate crises.

However, the studies also reveal significant limitations, particularly regarding the effectiveness of these policies during economic downturns and their impact on bank profitability. Both Cerutti et al. (2017) and Claessens et al. (2013) highlight that while macroprudential policies are effective in curbing credit growth during boom periods, their efficacy diminishes during recession periods. Cerutti et al. (2017) argue that these policies may even exacerbate downturns by encouraging cross-border borrowing, as financial institutions seek to circumvent domestic restrictions. This behaviour can undermine the overall stability that macroprudential policies aim to promote.

Claessens et al. (2013) add that countercyclical buffers, although useful in controlling credit growth during booms, may restrict banks' ability to lend during downturns, potentially worsening economic conditions. These findings suggest that macroprudential policies, while valuable in preventing the buildup of risks, may be insufficient in managing financial stability across the entire economic cycle. Or at least, there is a need for flexibility in reducing buffers at times of crisis as at the start of the COVID pandemic. Furthermore, there is a clear need for complementary policies, such as monetary and fiscal measures, to support financial systems during adverse economic times, as for example during COVID.

The impact of macroprudential policies on bank profitability presents another area of concern and divergence among the studies. Davis et al. (2022) provide evidence that certain macroprudential measures, particularly those affecting capital requirements and lending practices, can significantly reduce banks' profitability. The study highlights that while these policies are essential for ensuring

financial stability, they may hinder banks' ability to build capital through retained earnings, which is crucial for long-term resilience.

The studies also emphasise the importance of tailoring macroprudential policies to specific national contexts. Papers of Carreras et al. (2018) and Davis et al. (2018) both highlight the varying effectiveness of macroprudential tools across different countries and economic environments.

3.3 Gaps

The selected papers on macroprudential policies offer a nuanced understanding of their effectiveness, yet they also reveal several limitations and contradictions. While there is broad agreement on the importance of these policies for maintaining financial stability, the studies differ in their scope, methodologies, and focus, leading to varying conclusions about the impact of macroprudential tools across different contexts.

One recurring theme is the limited scope of the macroprudential tools analysed in the studies. For example, Alam et al. (2019) primarily focus on Loan-to-Value (LTV) limits, which, while crucial, do not

the potential long-

we tested for effects on the bank return on assets (before tax) and the bank Z-Score. All data employed are at national level including data

It is crucial to add relevant control variables to our econometric analysis to reduce the bias caused by missing variables. When a significant variable that affects both the dependent and independent variables is left out of the model, it might lead to omitted variable bias. Because the influence of the missing variable is mistakenly assigned to the included independent variables, this omission may result in estimates that are skewed and inconsistent. Control variables enhance the overall robustness of the analysis and increasing the likelihood that observed results are not spurious.

It was decided that for our research purposes the best control variables will be GDP Growth as in Claessens et al (2013), Akinci and Olmstead-Rumsey (2018), Alam et al (2019) and Cerutti et al (2017); short-term interest rates as in Alam et al (2019) and Akinci and Olmstead-Rumsey (2018), lagged dependent as in Alam et al (2019) and Akinci and Olmstead-Rumsey (2018) and CPI year-to-year change as in Davis et al (2022).

The GDP[3] level of a country is almost always non-stationary, thus, to avoid bias and make our econometric analysis more accurate, we are using the log-difference showing growth of GDP, which in turn may influence house Inclusion of GDP growth seeks to ensure changes in dependent variables are not caused by economic cycles and to isolate changes in house prices, bank performance, and credit due to economic growth from macroprudential regulation effects.

Short-term interest rates[4], set by the central bank of a nation typically aim to regulate economic developments, keep inflation under control, and keep the currency stable; they are an essential instrument in monetary policy. The inclusion of short rates aims to isolate the effects of macroprudential policy from broader economic factors like borrowing costs that affect bank performance, house prices, and credit volumes. Also, it helps to separate macroprudential policy effects from monetary policy to ensure observed changes are due to macroprudential regulation. As the short rate is bounded we include it as a level in the equations.

The consumer price index (CPI)[5] is used to evaluate changes in the cost of living and indicates inflation or deflation within an economy. CPI is usually a non-stationary indicator, thus, to avoid misinterpretation of our regression results, we are using year-to-year change of log CPI, that reflects the inflation rate. Inflation affects purchasing power and investment returns, including housing. High inflation can drive up housing prices or increase living costs, reducing disposable income and credit demand. Moreover, since monetary policy is highly related to the inflation rate, by including CPI as a control variable, helps further distinguish the effects of macroprudential policies from those of monetary policy.

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[3] 8) h

Accordingly, we estimate the following baseline equation for house prices, which is comparable to that used in Akinci and Olmstead-Rumsey (2018)[6]:

In all our estimates, we analyse the effects of macroprudential tools using both cumulative and impulse approaches as in Carreras et al (2018) and Davis et al (2022). We estimate such effects separately. The cumulative approach allows us to examine the long-term effects of these tools by aggregating their impact over time. This method is particularly useful for understanding how macroprudential policies influence economic variables in the aggregate and over extended periods. In contrast, the impulse approach focuses on the immediate or short-

(advanced economies), we rather utilise subsamples of larger[8] and smaller economies[9]. This approach will allow us to test whether the effectiveness of regulation depending on size of the economy.

5. Data

5.1 Dependent variables

We utilise the database provided by Bank for International Settlements (BIS, 2024) to collect the data regarding house prices. In the BIS database, average residential property prices are represented in two types: real and nominal. To take into consideration the effect of inflation, we are using real prices. To avoid large numbers and potential problems caused by them, all prices are normalised by setting them into a level, where average prices for a residential property in 2010 are equal to 100 and others are in proportion to 2010 level. The BIS database provides houses prices in quarterly timeframe and for the further convenience, we are annualising data by getting the average level for four quarters within a year. In our research we take first differences of logs, therefore, ensuring stationarity, which will lead to a more accurate and reliable results.

For credit data we are also using the database of the Bank for International Settlements as in Carreras et al (2018)

represented in dummy-type variable, where 1 indicates tightening, 0 denotes absence of change in regulation and -1 represents loosening of policy.

For our research purposes, we are annualising the monthly data in two ways: firstly, we are summing up all values for a country, it means that if macroprudential regulation tightened and then loosened

Table 1. Descriptive Statistics.

Variable	DLRHP	ROA	LZSCORE	DLCredit	CPI	GDP Growth	STIR
Mean	0.021	0.830	2.519	0.015	7.476	2.409	4.383

term interest rates tend to rise, reflecting monetary tightening to control inflationary pressures. Additionally, the positive correlation between CPI and ROA (0.29) indicates that higher inflation may be associated with improved profitability in the banking sector, possibly due to higher nominal   on loans while deposit rates are sticky (i.e. a wider net interest margin).

Table 2.Correlat on Matrix.

	CPI	DLCredit	GDPG	STIR	DLRHP	ROA	MPST	LZSCORE
CPI	1	0.15	0.19	0.59	0.06	0.29	-0.07	-0.07
DLCredit	0.16	1	-0.25	0.29	0.01	0.05	-0.25	-0.10
GDPG	0.19	-0.25	1	0.13	0.39	0.32	0.32	0.07
STIR	0.59	0.29	0.13	1	0.02	0.29	-0.20	-0.12
DLRHP	0.06	0.01	0.39	0.2	1	0.43	0.09	0.25
ROA	0.29	0.05	0.32	0.29	0.43	1	0.10	0.40
MPST	-0.07	-0.25	0.33	-0.20	0.09	0.10	1	0.09
LZSCORE	-0.07	-0.10	0.07	-0.12	0.25	0.40	0.09	1

DLRHP – First Dif erences of Logs for Real House Prices Index, ROA – Average Return on Assets of banks within the country , LZSCORE– Log of Average Z-Scores of banks within the country, DLCredit - First Dif erences of Logs for Aggregate Real Credit to private non-f nancial sector as percentage of GDP, CPI – Year-to-year change of Consumer Price Index, GDP Growth – Year-to-year change of Gross Domest c Product, STIR – short-term interest rates, MPST – sum of macroprudent al tools usage (impulse basis), which is SUM_17 in the iMaPP database

The positive correlation between GDPG and DLRHP (0.39) suggests that economic growth is accompanied by increases in real house prices. This relationship may be due to rising incomes and employment during periods of economic growth, which drive demand for housing. Moreover, the positive correlation between GDPG and ROA (0.32) implies that economic expansion supports higher profitability in the banking sector, which is likely to be through increased lending activity and lesser defaults as well as higher fee and trading incomes.

The Z-Score (LZSCORE), a key indicator of bank stability, is positively correlated with ROA (0.40), indicating that more profitable banks tend to be more stable. This relationship is expected, as   , accumulate capital and maintain solvency.

The correlations involving macroprudential regulation reveal some interesting insights. The sum of macroprudential tools usage (MPST) shows a positive correlation with GDP growth (0.33), indicating a potential relationship between economic growth and tighter regulatory measures to curb the financial cycle and promote bank resilience. Its negative correlation with short term interest rates (-0.20) and CPI inflation (-0.07) suggests that stricter regulations might be associated with lower inflation and a lesser need for monetary tightening via interest rates. Moreover, the negative correlation between credit growth and MPST (-0.25) implies that more stringent macroprudential regulations may effectively constrain credit growth, underscoring the role of regulatory tools in maintaining financial stability. However, the low correlations between MPST and both house price growth (0.09) and log Z score (0.09) suggest that while macroprudential tools are effective in managing credit growth, their impact on housing prices and bank risk might be limited or indirect.

Table 5. Regression results for DLRHP, DLCREDIT, ROA and LZSCORE for 36 OECD countries, for the period 1990–2023 (estimated by panel OLS with country-level and time fixed effects).

Independent variables	Dependent Variables			
	DLRHP	DLCREDIT	ROA	LZSCORE
Constant	0.0258*** (5.7)	0.014*** (4.2)	0.811*** (4.9)	1.493*** (15.5)
Lagged Dependent	0.197*** (7.3)	0.443*** (14.2)	0.054 (1.5)	0.400*** (11.6)
GDP Growth(-1)	0.006*** (6.2)	0.0004 (0.5)	0.108*** (3.3)	0.017*** (2.8)
Short-term interest rates(-1)	-0.005*** (-4.0)	-0.003*** (-3.1)	0.002 (0.03)	0.006 (0.6)
CPI Year-to-year change(-1))				

instance, previous increases in house prices tend to lead to further increases, highlighting the momentum effect in the housing market as also found in Carreras et al (2018).

The analysis also reveals a significant positive effect of GDP growth on bank resilience, profitability, and house prices. This implies that as the economy grows, banks tend to become more profitable and resilient, and house prices rise. The underlying mechanism for this relationship may be that economic growth leads to higher income levels, increased borrowing capacity, and greater demand for housing, which in turn boosts house prices. Additionally, economic expansion typically results in higher lending activity and better financial performance for banks, thereby enhancing their profitability and stability.

Conversely, the results indicate a significant negative effect of short-term interest rates on changes in house prices and credit volumes. This inverse relationship suggests that as short-term interest rates rise, the cost of borrowing increases, leading to a reduction in demand for credit and housing. The decline in house prices and credit volumes in response to rising interest rates underscores the sensitivity of these markets to changes in the cost of borrowing as monetary policy tightens.

Moreover, the analysis reveals a significant negative effect of CPI changes on bank profitability and house prices. This finding suggests that rising inflation can decrease the profitability of banks, possibly due to the lower demand on loans. Additionally, inflation may reduce the purchasing power of consumers, leading to lower demand for housing and, consequently, a decline in real house prices.

6.2 House Prices and macroprudential policy

We added macroprudential tools one at a time, firstly the cumulative effect and then the impulse, to the equations for real house prices from 1990 to 2023. We found several significant results regarding the impact of various both cumulated and impulse-based macroprudential tools, when added to the baseline model shown in Table 5.

Notably, as shown in Table 6, a cumulative tightening of capital requirements has a significant negative effect at the 1% level, indicating that stricter capital measures lead to a decrease in house prices. This finding is consistent with the work of Carreras et al. (2018), who found that capital requirements effectively curb house price inflation in OECD countries by reducing credit availability.

Moreover, we observe a significant positive effect for Limits on Foreign Currency (LFC), suggesting that tightening these constraints leads to an increase in house prices, perhaps as banks switch lending to domestic currency mortgages. Additionally, we found a positive, significant effect at the 10% level of the average LTV value (numerical), indicating that lower LTV ratios are associated with falling house prices, which supports the conclusions of Alam et al. (2019) and Akinci and Olmstead-Rumsey (2018) regarding the effectiveness of LTV limits in controlling housing market excesses.

In the impulse-based approach, which captures short-term effects, we observed a strong positive significance for reserve requirements (RR). This suggests that tightening reserve requirements leads to a short-term rise in house prices. There is also a cumulative effect, with the impulse effect being stronger. Reserve requirements are of course not directed at house prices but the positive effect of policy tightening is notable. It may be an aspect of policy tightening during a boom period that includes house price growth.

Table 6. Regression on Individual effect of Macroprudential Tools results for DLRHP for 36 OECD countries, for the period 1990–2023 (estimated by panel OLS with country-level and time fixed effects), policy variables entered one at a time.

	Cumulative	Impulse	Numerical
Capital(-1)	-0.005*** (-2.7)	0.003 (0.7)	
CCB(-1)	-0.003 (-0.8)	-0.004 (-0.6)	
Conservation(-1)	0.001 (0.2)	0.004 (0.7)	
DSTI(-1)	0.002 (0.6)	-0.002 (-0.4)	
LCG(-1)	-0.022 (-1.1)	0.0297 (1.0)	
LFC(-1)	0.01** (2.2)	0.016 (1.1)	
LFX(-1)	-		

6.3 Credit growth

Table 8. Regression on Individual effect of Macroprudential Tools results for Return on Assets for 36 OECD countries, for the period 1990–2023 (estimated by panel OLS with country-level and time fixed effects), policy variables entered one at a time.

	Cumulative	Impulse	Numerical
Capital(-1)	-0.051 (-0.7)	-0.184 (-1.2)	
CCB(-1)	-0.095 (-0.6)	-0.256 (-1.0)	
Conservation(-1)	-0.046 (-0.4)	-0.173 (-0.9)	
DSTI(-1)	0.056 (0.5)	0.049 (0.2)	
LCG(-1)	-0.236 (-0.3)	-0.232 (-0.2)	
LFC(-1)	0.074 (0.5)	0.146 (0.3)	
LFX(-1)	-0.143 (-0.2)	0.227 (0.3)	
Liquidity(-1)	-0.002 (-0.03)	0.595*** (3.6)	
LLP(-1)	0.164 (1.07)	-0.025 (-0.1)	
LoanR(-1)	0.044 (0.4)	0.066 (0.3)	
LTD(-1)	-0.922 (-1.4)	-0.453 (-0.6)	
LTV(-1)	-0.028 (-0.4)	-0.041 (-0.2)	
LVR(-1)			

Table 9. Regression on Individual effect of Macroprudential Tools results for Log of Z-Score for 36 OECD countries, for the period 1990–2023 (estimated by panel OLS with country-level and time fixed effects), policy variables entered one at a time.

	Cumulative	Impulse	Numerical
Capital(-1)	0.002 (0.1683)	0.0025 (0.0878)	
CCB(-1)	0.0085 (0.3369)	-0.0143 (-0.3068)	
Conservation(-1)	0.0037 (0.1799)	0.0002 (0.006)	
DSTI(-1)	-0.006 (-0.2819)	-0.0165 (-0.4466)	
LCG(-1)	-0.0459 (-0.3536)	0.0077 (0.0434)	
LFC(-1)	0.0081 (0.2781)	0.0149 (0.1713)	
LFX(-1)	-0.0292 (-0.2683)	0.0582 (0.4566)	

Moreover, Appendix Table A5 reveals a significant negative effect of cumulative capital requirements and debt service to income (DSTI) ratios on credit growth, indicating that tightening these instruments effectively reduces the overall amount of credit. This

Furthermore, we found that liquidity-oriented macroprudential regulations have a positive impact on bank profitability. However, our results also suggest that tightening measures such as reserve requirements and LTV ratios can significantly reduce banks' resilience as measured by the log of the sectoral Z-Score. This highlights the trade-off between enhancing profitability and maintaining the robustness of financial institutions.

Also, our analysis suggests that macroprudential tools are more effective in smaller economies, possibly due to better coordination, relative simplicity and concentration of financial system. More generally, there are major contrasts between large and small economies in terms of the effectiveness

Overall, our study underscores the importance of a targeted approach in applying macroprudential regulations to achieve balanced economic stability.

8.2 Limitat ons

While this research provides valuable insights into the effectiveness of macroprudential policies, several limitations must be acknowledged. First, the study relies on panel data analysis, which may not fully capture the nuances of individual country contexts or the impact of specific macroeconomic shocks. Additionally, the analysis is limited to OECD countries, which may reduce the generalisability of the findings to emerging markets or economies with different financial structures. The study also focuses generally on the period from 1990 to 2023, rather than focusing specifically on the effects of macroprudential policies implemented in response to the global financial crisis of 2008 or the policy reversals during the COVID pandemix. Finally, the research does not account for potential behavioural responses by financial institutions or borrowers to changes in macroprudential regulation, which could influence the overall effectiveness of these policies. Additionally, in our work we focus on country level data and do not investigate the effects of macroprudential regulation for

8.3 Recommendat ons

Based on the findings, it is recommended that policymakers adopt a targeted and flexible approach to macroprudential regulation. Capital requirements at a macro level should be emphasised as a primary tool for controlling credit growth and mitigating systemic risks in the banking sector, complementing their role in microprudential policy of helping ensure individual bank solvency. Tightening loan-to-value limits and debt-service-to-income ratios can help to counter house price booms and credit expansion. Ad

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macroprudential regulations in a diverse set of countries with various economic situations, backgrounds, and financial systems. Banking sector level control variables could be included in the equations for profitability and the log Z-Score as in the Davis et al (2020) study of bank capital, competition and risk at a sectoral level. Estimation by Generalised Method of Moments as well as OLS could be used as a further robustness check to reduce the potential endogeneity in the specification.

Additionally, future research could explore the impact of macroprudential policies on different sectors, such as the effect on prices of high-end versus affordable housing, or the differences in impact on properties located in urban centres compared to rural areas.

Lastly, considering the importance of economic sentiment, further research should investigate potential behavioural responses by financial institutions and borrowers to changes in macroprudential regulations. Understanding these responses is crucial, as they could significantly influence the overall effectiveness of these policies.

Appendix

Table A1. Macroprudental Tools.

Abbreviation	Name	Description
CCB	Countercyclical Capital Buffer	

Table A3. Regression on combined effect of Macroprudential Tools results for DLRHP for 36 OECD countries, for the period 1990–2023 (estimated by panel OLS with country-level and time fixed effects), policy variables entered all together.

	All tools together		Winsorised		Larger economies		Smaller economies	
	Cumulative	Impulse	Cumulative	Impulse	Cumulative	Impulse	Cumulative	Impulse
Capital (-1)	-0.008*** (-3.7)	0.003 (0.6)	-0.005*** (-3)	0 (-0.1)	-0.0003 (-0.06)	0.004 (0.5)	-0.01*** (-3.34)	0.002 (0.4)
CCB(-1)	0.002 (0.4)	-0.004 (-0.5)	0.001 (0.2)	-0.005 (-0.9)	0.003 (0.3)	-0.005 (-0.6)	0.003 (0.5)	-0.003 (-0.3)
Conservation(-1)	0.0001 (0.04)	0.005 (0.8)	0.001 (0.2)	0.004 (0.7)	0.001 (0.2)	0.002 (0.2)	-0.002 (-0.3)	0.003 (0.3)
DSTI(-1)	-0.0013 (-0.4)	-0.003 (-0.4)		0 (0)	0.002 (0.4)	0.007 (1.0)	-0.006 (-1.0)	-0.015 (-1.5)
LCG(-1)	-0.029 (-1.4)	0.031 (1.05)	-0.028					

Table A6. Regression on effects of Summary Macroprudential Tools results for DLCredit for 36 OECD countries, for the period 1990–2023 (estimated by panel OLS with country-level and time fixed effects), policy variables entered one at a time.
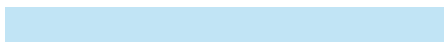
Table A10. Regression on ef ects of Summary Macroprudent al Tools results for Log of Z-Score for 36 OECD countries, for the period 1990–2023 (est mated by panel OLS with country-