# Covid-19 pandemic crisis and macroprudential policy measures in Brazil

**Fernanda Martins Bandeira**[i]
**José Renato Haas Ornelas**[ii]



**Abstract:** This article investigates the impact of macroprudential measures adopted in response to the initial shock of the Covid-19 crisis in Brazil, aimed at preserving bank capital and maintaining the credit flow. The restricted macroprudential space motivated the adoption of *ad-hoc* measures: a partial release of the Conservation Capital Buffer (CCoB) and a temporary restriction on dividends´ payment for the whole 2020 fiscal year. Overall, results provide evidence that the *ad-hoc* policy space created by the partial release combined with dividends restrictions helped sustain credit while preserving solvency during the pandemic.

**Key words:** Banking, Covid-19, credit, solvency, regulatory capital buffer, dividends, macroprudential measures.

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[i] Prudential and Foreign Exchange Regulation Department, Banco Central do Brasil.
[ii] Research Department, Banco Central do Brasil and FGV - EPPG.

# Non-Technical Abstract

Over the past decades, the world has experienced financial crises that highlighted vulnerabilities in the financial system. The 2008 financial crisis has accelerated efforts to develop the so called macroprudential policy framework and the shock of Covid-19 offered the most important test for the capital framework in general, and for the macroprudential instruments in particular. This paper investigates the impact of the macroprudential measures adopted in response to the initial shock of the Covid-19 crisis in Brazil. The regulatory package was aimed at preserving the system´s resilience and preventing excessive tightening of credit due to the procyclical behavior of banks in crisis.

At the onset of the pandemic, Brazilian authorities were faced with a restricted macroprudential space. At that moment, the Countercyclical Capital Buffer (CCyB) in Brazil was set at zero, which left no scope for deactivation of this buffer. This motivated the adoption of *ad-hoc* measures: a partial release of the Conservation Capital Buffer (CCoB) combined with a temporary restriction of dividends for the whole 2020 fiscal year.

The efficacy of the two measures is intertwined since they complement each other and create some desirables synergies. Released buffers increase the bank capacity to support the supply of credit to the economy. Restricting dividends provides a strong message to the banks that the extra capital provided by the CCoB reduction is not intended for capital distribution. And taken together, the measures were expected to encourage banks to rebuild their capital levels in a timely and gradual manner.

We perform two empirical analyses: the first assess the effects of the buffer release on credit volume; and the second the effects of dividends restrictions on regulatory capital. Both are based on a Difference-in-Differences (DiD) methodology. Our first empirical analysis investigates the effects of the capital buffer release on the credit volume. The identification strategy is based on the excess regulatory capital of conglomerates prior to the policy change. Our second empirical analysis complement the first and evaluate the effects of both dividends' restrictions and buffer release on regulatory capital variation. For the dividends, the identification strategy in based on the pre-pandemic's dividend payout.

Results confirm that the intervention worked as intended. On the lending side, quantitative evidence shows that the buffer release prevented banks with less capital headroom from excessive deleveraging during the pandemic. Our results for the buffer release reveals that this regulatory intervention had a significant impact on credit allocation for the affected banks, i.e., those with low regulatory capital cushion, when compared to the control group. Baseline regressions indicate that after the policy change, control banks experienced a reduction in credit, but treated banks were able to keep credit concessions.

The analysis also indicates that most banks preserved resilience, which can be partly attributed to the imposition of restrictions on capital distributions. The dividend restriction helped banks with high pre-pandemic dividend payouts maintain capital strength. Banks with tight capital conditions and low dividends consumed part of the buffer release. The dividend restriction complemented the capital buffer release, ensuring a more effective capital position for banks under financial stress.

# 1 Introduction

What is the impact of releasing capital buffers on credit supply during downturns? Do restrictions on dividends help preserving banks´ solvency in crisis times? During the Covid-19 crisis, financial authorities were faced with two major challenges: to ensure that banks had sufficient resources to support the real economy, and that these resources were effectively used without compromising financial stability.

At the onset of the pandemic, Brazilian authorities were faced with a restricted macroprudential space. At that moment, the Countercyclical Capital Buffer (CCyB) in Brazil was set at zero, which left no scope for deactivation of this buffer[1]. This motivated the adoption of *ad-hoc* measures: a partial release of the Conservation Capital Buffer (CCoB) – from 2,5% to 1,25% of the risk weighted assets (RWA) - combined with a temporary restriction of dividends for the whole 2020 fiscal year. These measures were applied to all banks to overcome the stigma[2] of individual banks using their capital buffers and restricting dividends.

This paper evaluates whether these two macroprudential measures affected the flow of credit and banks´ solvency during and after the crisis in Brazil. Our results show that the *ad-hoc* partial release of the conservation capital buffer in Brazil amidst the shock helped sustain credit during the pandemic. Also, the broad-based and temporary restriction on dividends helped banks with tighter capital conditions and favorable ex-ante payout policies to preserve and rebuild their capital levels in a timely and gradual manner.

We perform two empirical analyses: the first assesses the effects of the buffer release on credit volume; and the second the effects of dividends restrictions on regulatory capital.

Our first empirical analysis uses a Difference-in-Differences (DiD) methodology in order to check whether the capital buffer release affected the credit volume. The identification strategy is based on the excess regulatory capital of conglomerates prior to the policy change. We assume that capital-constrained financial institutions would have been forced to severely restrict lending due to the economic recession following the pandemic, had the conservation buffer reduction not been implemented. Therefore, we hypothesize that, after the policy, capital-constrained institutions would lend more than non-capital-constrained institutions.

As of December 2019, bank conglomerates were categorized into tertiles based on their excess capital above the regulatory minimum (regulatory margin). The treated group consists of conglomerates within the first tercile, namely, those with the smallest amount of excess capital above the requirement. These entities are the most likely to be affected by the release of the capital buffer, as they were operating in closer proximity to the minimum capital requirements. Our dataset is built at the bank x firm x month dimension, and our baseline regressions considers bank x firm fixed effects, but we also present a more saturated specification with firm x time fixed effects.

Our results for the buffer release reveals that this regulatory intervention had a significant impact on credit allocation for the affected banks, i.e., those with low regulatory capital

[1] Section 2 provides a comprehensive description of the capital buffers and requirements in Brazil.

[2] Since the inception of the pandemic, the Basel Committee on Banking Supervision (BCBS) alongside national supervisory authorities, advocated for directives motivating banks to make use of their capital buffers. Despite this being a fundamental aspect of the Basel standards, a multitude of jurisdictions have discerned obstacles hindering the operational efficacy of these buffers, thereby prompting inquiries regarding the framework's intended functionality.

cushion, when compared to the control group. Baseline regressions with bank x firm fixed effects indicate that after the policy change, control banks experienced a reduction in credit, but treated banks were able to keep credit concessions. A more saturated econometric specification with firm x time fixed effects corroborates these results. The analysis of dynamic coefficients shows no apparent pre trends.

Furthermore, a robustness exercise excluding state-owned banks demonstrated that the positive credit effects remained significant for private banks, though with slightly lower intensity. This underscores that the regulation effectively sustained credit during a period of crisis, particularly for capital-constrained banks, aligning with theoretical expectations of such policy measures.

Our second empirical analysis complement the first and evaluate the effects of both dividends' restrictions and buffer release on regulatory capital variation. A Difference-in-Differences is used first to analyze the impact of dividend restrictions on banks' regulatory capital margins. The analysis is conducted at the bank-quarter level, with banks categorized into treatment and control groups based on their 2019 dividend payout ratios.

Additionally, the capital buffer release is considered as a second treatment, so that we have a double treatment set-up. By comparing banks affected by both policies with a double unaffected control group, which experienced neither policy intervention, this approach provides a comprehensive analysis of the independent and joint effects of these regulatory policies on bank capital margins. The baseline regression estimates how the capital margin varies over time, controlling for bank fixed effects and using Risk-Weighted Assets as weights.

Overall, bank's capital margins increased by 1.076 percentage points post-policy, aligning closely with the capital buffer release of 1.25. Banks unaffected by dividend restrictions partially consumed the buffer (around half percentage point), while those affected by dividend restrictions experienced higher capital margin variations of approximately 1.207 percentage points, near the buffer release amount. This implies that the dividend restriction successfully supported banks with tighter capital conditions in preserving their capital strength. Banks affected only by the capital release showed a smaller margin variation (0.406 p.p.), indicating partial buffer consumption. Meanwhile, banks impacted by both policies exhibited a significant combined effect, with the double-treatment coefficient (0.675 p.p.) contributing to a total effect near 1.25 p.p.. These findings suggest that the dividend restriction complemented the capital release, particularly aiding banks with high dividend payouts and tight capital conditions, thereby ensuring a sound capital position amidst economic pressures.

We believe that this paper contributes to two main aspects. First, we document important shortcomings of the capital framework that arose during the pandemic crisis. And second, the results of the intervention help inform the rules governing macroprudential policy in the future.

The release of the conservation buffer overcame the stigma associated with the use of buffers and allowed banks with less capital to avoid restricting credit during the pandemic. The policy also highlighted the challenges of calibrating the countercyclical buffer throughout the credit cycle. Activating the countercyclical buffer is particularly challenging, as it tends to remain at 0% most of the time. The original design of the countercyclical buffer determines a base, or neutral, level calibrated at zero in periods without accumulation of vulnerabilities.

The remainder of this text is divided as follows: in the next section, we detail the conditions and the rationale behind the policy choices made by the Central Bank of Brazil. The third section is devoted to the theoretical framework and empirical evidence around the world. The fourth section presents the main results, and the final part concludes with policy discussion and options for the future.

# 2 Description of the policy measures

Over the past decades, the world has experienced financial crises that highlighted the complexity and, to some extent, the fragility of the financial system. The 2008 financial crisis has accelerated efforts to develop the so called macroprudential policy frameworks and the Covid-19 challenges offered an important test for the capital framework in general, and for the macroprudential instruments in particular.

The broad goal of macroprudential policy is to limit systemic risk – the risk of financial system disruptions that can destabilize the economy. To implement macroprudential policy, instruments typically used in the prudential regulation and supervision of individual financial institutions are adapted to limit risks in the financial system.

Macroprudential policy limits systemic risk by addressing the two key externalities of the financial system. The first is joint failures of institutions because of interlinkages and common exposures among them. The second externality is procyclicality, the phenomenon of amplifying feedback within the financial system and between the financial system and the economy over the financial cycle.

Procyclicality can promote the emergence of unsustainable booms. As boom turns to bust, procyclicality can magnify the disruption and cause deep economic recessions. Macroprudential policy, which broadens the perspective of the traditional prudential policy, can readily strengthen the resilience of the financial system to procyclicality by adapting conventional prudential tools, such as capital and liquidity ratios, to countercyclical objectives.

The Basel framework[3] of capital buffers was designed to build resilience in good times and be able to both absorb losses and sustain the supply of credit during financial stress. In practice, this is typically the case for the countercyclical capital buffer (CCyB) that is calibrated in accordance with the credit cycle, but not really the case for other capital buffers, such as the capital conservation buffer (CCoB) or the buffers for globally and domestically systemic important banks (respectively, G-SIB and D-SIB), that are considered to be fixed[4] and usually associated with building permanent resilience.

From the onset of the pandemic, the Basel Committee on Banking Supervision (BCBS) and national supervisors promoted communications encouraging banks to use their capital buffers. Although this is one of the key tenets of the Basel standards, numerous jurisdictions have identified impediments to the usability of buffers, raising the question whether the framework has worked as designed to.

Despite banks' voluntary excess capital buffers, incentives for banks to deleverage were assumed to be pronounced and anecdotal evidence suggested that the stigma to use capital buffers was persistent. In this context, the stigma can be understood as a bank's negative

[3] The Basel Framework is the full set of standards of the Basel Committee on Banking Supervision (BCBS), which is the primary global standard setter for the prudential regulation of banks.

[4] The G-SIB/D-SIB can be turned on or off depending on whether certain systemic indicators criteria are met. But these indicators respond to slow-moving changes that are outside authorities´ control.

bias towards the potential consequences of using the capital buffers, which translates into a lack of willingness to use the buffers. As a result, banks might prefer deleveraging instead of lending to the real economy when mostly needed.

In other words, buffers´ usability[5] may be prevented by:

- Individual bank restriction of capital distribution: The use of the capital buffers restricts capital distribution. Investors perceive a bank that can distribute capital at any chosen time as financially healthier than a bank that is not able to pay dividends due to regulatory restrictions. This is articulated, for instance, in Svoronos and Vrbaski (2020), and in Drehmann et al. (2020).

- CCoB is considered a minimum requirement[6]: In contrast to the CCyB, which by design was meant to be activated or deactivated with the financial cycle, the CCoB is always set at a fixed level of 2.5% of a bank´s risk weighted assets (RWA)[7]. Since the CCoB is not expected to fluctuate, banks and bank investors perceive it as part of the minimum capital requirement.

- Associated to the previous item, banks' willingness to draw down buffers depends on the expected reaction of supervisory authorities in the form of heightened scrutiny (Borio et al., 2020). Banks might be uncertain about the time they will be given to replenish capital buffers. Such concerns may be more relevant when profitability is low or access to capital markets is constrained. For the above reasons, banks tend to keep capital targets above the minimum (Behn et al., 2020) by holding excess capital or management buffers.

- Risk assessment of credit rating agencies: Credit rating agencies consider capital as a key element in their credit rating assessment. This may discourage banks from providing credit to the economy during the downturn, since assuming more risk will consume their capital buffers, lead to higher funding costs, and increase the likelihood of having their ratings downgraded (Claessens et al., 2018).

- Cancellation of AT1[8] coupons: Banks can be particularly worried about capital distribution restrictions that, under the Basel framework, trigger the cancelation of coupons on Additional Tier 1 (AT1) capital instruments. These securities are a hybrid form of financing and thus combine the usual characteristics of debt financing with equity's ability to absorb losses, e.g. by cancelling coupons, and therefore are recognized in the banks´ regulatory capital base.

[5] Banks may also be unable to fully use their capital buffers as it could result in breaching other parallel requirements, such as the leverage ratio. This may be the case for banks with lower risk-weights density, for which the leverage ratio provides an effective backstop. This is not an issue in Brazil since the latter is not as binding as compared to the risk-based requirements.

[6] In theory, minimum requirements are "hard" requirements that may attract severe sanctions including sending a bank into resolution when breached. Regulatory capital buffers, on the other hand, are "soft" requirements that allow banks time to recover. If the buffer is breached, the main consequence refers to the bank's ability to pay dividends and bonuses which is restricted until its capital is rebuilt.

[7] In Brazil, regulatory buffers comprise the capital conservation buffer (CCoB) of 2,5% of risk weighted assets (RWA), the buffers for domestic systemically important banks (D-SIBs) of up to 2% of RWA, and the countercyclical capital buffer (CCyB), ranging from 0% to 2,5% of RWA.

[8] The minimum regulatory capital ratio comprises three layers of capital resources: Common Equity Tier 1 (CET1), Additional Tier 1 (AT1) and Tier 2 capital. AT1 are mainly perpetual debt instruments with coupons and principal loss absorbency requirements and have limited recognition up to 1,5% of the Total Capital Ratio.

• An additional concern reported by banks during the pandemic of Covid-19 referred to the huge uncertainty over the severity of the downturn, including the shape of its recovery (eg V-, U- or L-shape) and magnitude of credit losses. Consequently, capital levels could be adversely affected, making banks more averse to both lending, and using their capital buffers.

As mentioned above, the buffers framework contains a conservation mechanism of automatic restrictions on dividends and other forms of payout when a bank dip into the buffers level. This is a microprudential mechanism imposed on individual banks to progressively restore their original levels of capital once buffers are used at the 'cost' of restricting capital distribution to shareholders[9].

Arguably, this constraint mechanism hinders banks to voluntarily use buffers, issue that will be further explored along the text. The idea behind them is to give supervisors stronger tools to preserve capital in the banking sector through internationally agreed constraints that help increase sector resilience going into a downturn and provide the mechanism for rebuilding capital during the economy recovery[10]. They include proportional restrictions on discretionary distribution via dividends and share buybacks, along with other discretionary payments on capital instruments (e.g. AT1 coupons), as defined in the table below:

| **Individual bank minimum capital conservation standards** | |
|---|---|
| **Common Equity Tier 1** | Minimum Capital Conservation Ratios (percentage of earnings) |
| **Within first quartile of buffer** | 100% |
| **Within second quartile of buffer** | 80% |
| **Within Third quartile of buffer** | 60% |
| **Within Fourth quartile of buffer** | 40% |
| **Above top of buffer** | 0% |

Brazilian banks entered this crisis with capital buffers above the prudential minima. For instance, in March 2020, the simple average of the Capital Adequacy Ratio (CAR) for the D-SIBs in Brazil was above 16%, vis-à-vis a minimum requirement plus buffers for these banks of 11.5%, that includes the Conservation Capital Buffer (CCoB) and D-SIB´s buffer requirement.

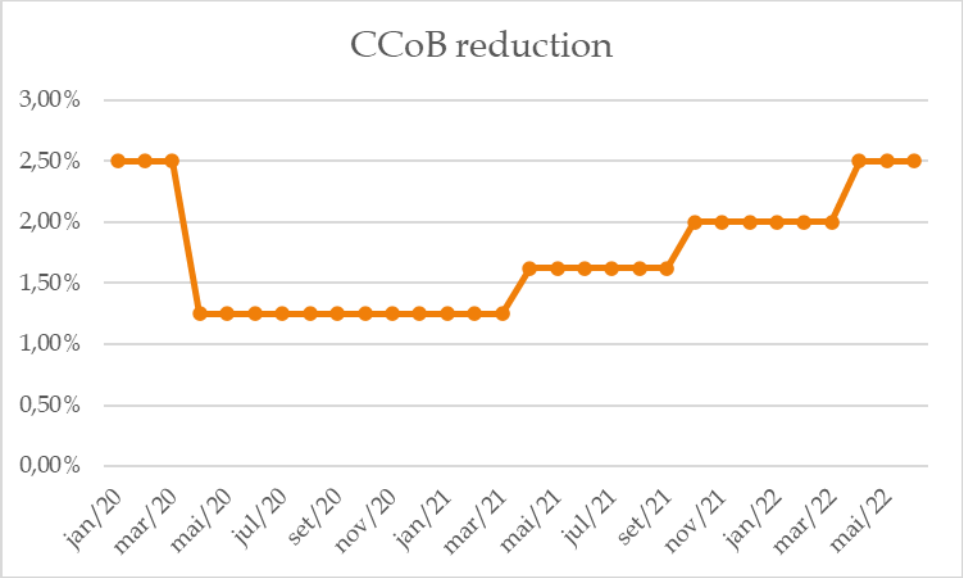
Amid this background, the Countercyclical Capital Buffer (CCyB) in Brazil was zero before the surge of the Covid-19 pandemic, which left no scope for deactivation or use of this buffer. This implied that the only buffers that could be used were the CCoB or the

[9] See Basel Framework, RBC30 and RBC40.

[10] The motivation behind this objective was driven by the observation that, during the Global Financial Crisis (GFC), several banks continued to make large distributions in the form of dividends, share buy backs and generous compensation payments even though their individual financial condition and the outlook for the sector were deteriorating. The Basel Committee noted that much of this activity was driven by a collective action problem, where reductions in distributions were perceived as sending a signal of weakness which made individual banks and the sector less resilient. Moreover, many banks soon returned to profitability but did not do enough to rebuild their capital buffers to support new lending activity, which increased the procyclicality of the system.

systemic buffer for D-SIBs. Between the two, the CCoB was clearly the preferred instrument of choice because the D-SIB´s buffer was applied to only a small cohort of five banks. Therefore, with the intent to address the stigma on the buffer usability, and given the limited scope for policy actions, the Central Bank of Brazil decided to temporarily reduce the conservation buffer from 2.5% to 1.25%, plus a 1-year period of unwinding (See Chart 1).

**Chart 1 – gradual phase-out of the CCoB release**




Source: Central Bank of Brazil

Reducing the CCoB was also intended to address the investors´ perception over the CCoB as a minimum requirement and not as a buffer to be used. In principle, the reduction would provide an excess of capital over the minimum requirement, which could be used without triggering any supervisory sanctions. Still, freeing capital alone would not necessarily channel resources to lending. And would risk opening space to imprudent outlays that may induce externalities that lead to excessive dividends and inefficient recapitalization.

Accordingly, the Central Bank of Brazil decided to restrict all discretionary capital payouts that exceeded the minimum threshold set by the civil and corporate Brazilian laws[11], including dividends that have already been announced in the 2020 financial year and shares buybacks. The restrictions were applied to all Brazilian banks, regardless of their respective size or level of excess capital above the minimum requirement[12].

The imposition of a system-wide restriction on capital distributions would thus help remove the stigma of an individual bank entering its CCoB. Because none of a bank's competitors would be also paying dividends, drawing down the CCoB would not create any relative competitive disadvantage for each individual bank using its buffer. Taken together, the reduction of the conservation buffer from 2.5% to 1.25% for a temporary

[11] Under Law 6.404, of December 15, 1976, absent the definition in companies´ statutes, minimum payouts should be no less than 25% of the net profits. Most banks generally adopt minimum ratios of 25 to 30% of net profits.

[12] The Basel regime for buffers requires dividends not paid due to capital constraints to be permanently incorporated in the capital of the institution. In Brazil, during the pandemic, the *ad-hoc* restriction on dividends was quantitatively more severe than the one prescribed in Basel framework. But the dividends not distributed in the fiscal year of 2020 could be distributed later.

period and a system-wide restriction on capital distribution would have the advantage of addressing the stigma on the buffer usability.

Another difference from the Basel´s capital conservation standard, the package didn´t require banks to cancelling the coupons of the AT1 instruments due to restrictions imposed to dividends distribution. In fact, the Basel Committee has extensively monitored and studied the role of AT1, both regarding its loss-absorption capacity as a capital instrument and interaction with buffer usability. It has found some evidence that the possibility of losses for holders of AT1 capital contributed to the stigma of drawing down capital buffers.

The AT1 bond market in Brazil is considered small but strategically important. In contrast to the distribution's restriction measure, in which banks retained profits and postponed dividends´ payment to the subsequent year, cancelling AT1 coupons would be irreversible. Besides, compared to retained earnings, coupons would be immaterial in terms of resources preserved. Consequently, the Central Bank decision to exempt AT1 bonds avoided possible negative effect on the long-term prospects of the AT1 incipient market without compromising the effectiveness of the intervention.

The efficacy of the two measures is intertwined since they complement each other and create some desirables synergies. Restricting dividends distribution provides a strong message to the banks that the extra capital provided by the CCoB reduction is not intended for capital distribution. Released buffers increased the bank capacity to support the supply of credit to the economy. And taken together, the measures were expected to encourage banks to rebuild their capital levels in a timely but gradual manner.

# 3 Theoretical-empirical framework

Our assessment contributes to a growing literature on capital regulation supportive of the potential benefits of time-varying capital requirements. The capital release measure during the Covid-19 adds evidence on the importance of prudent build-up and use of buffers to mitigate the amplification of shocks across the financial system during downturns.

The Basel Committee published its early lessons from Covid-19 pandemic in July 2021. Two thirds of the jurisdictions surveyed for that report held the view that releasing buffers was or would have been valuable in the face of the pandemic. In addition, the Committee provided some empirical evidence that the releases of capital requirements in its members jurisdictions during the pandemic had a positive effect on lending. This result was later confirmed in a subsequent report on usability and cyclicality of the buffers´ framework (BCBS, 2022).

Also drawing on the experience from the Covid-19 crisis, Couaillier et al. (2022a) found that European banks with little headroom above regulatory buffers reduced their lending relative to other banks. These findings point to some unintended effects of the capital framework which may create incentives for procyclical behavior by banks during downturns.

In another analysis, Couaillier et al. (2022b) found that capital relief measures in the banking union supported banks' capacity to supply credit to firms and did not result in unwarranted risk-taking. The effects were particularly strong for capital-constrained

banks with little capital headroom above the minimum requirements[13], suggesting that the relief prevented reductions in lending that could otherwise have resulted from banks' reluctance to dip into buffers. Measures were also more effective when implemented through established processes that foresaw long release periods and that affected banks´ ability to distribute dividends.

More recently, Badayo and Galan (2024) developed a comprehensive assessment of how the CCyB release during the pandemic and its earlier accumulation impacted lending activity. They found that the release of the CCyB in response to the pandemic had a positive impact on lending, especially for banks with the lowest headroom over requirements, and this effect was larger than the negative impact of its previous accumulation[14]. The study comprised data of 170 banks in 25 European Union countries.

The idea of cyclical adjustment of risk-sensitive capital requirements is not new. It is seen for instance in Borio (2003), Kashyap and Stein (2004) and Repullo and Suarez (2013). In fact, a constant capital requirement could result in a reduction in the aggregate supply of bank loans following a large negative shock, exacerbated by rises in risk weights during downturns. On the other hand, a cyclical adjusted requirement would give authorities flexibility to activate and release a proportion of capital to address macroprudential policy concerns.

After the 2008 Global Financial Crisis, a more active use of macroprudential tools was expected. Nevertheless, before the Covid-19 pandemic, only eight out of 27 BCBS member jurisdictions either had a positive CCyB (six countries) or had announced an intent to activate the CCyB (two countries), with effective jurisdictional CCyB rates generally low, reflecting light use of this countercyclical tool (BCBS 2022). In addition, while CCyB use was originally envisaged for shocks resulting from excess aggregate credit growth, in practice all the CCyB releases thus far have been motivated by shocks of another nature.

In March 2022, the European Central Bank (ECB) published a report assessing specific policy options aimed at operationalizing an increase in macroprudential policy space, in the form of a higher amount of releasable capital buffers. It concludes that a larger share of buffers that are (*ex ante*) defined as releasable in nature provides more predictability to changes in capital requirements in stress scenarios and enhances the credibility and efficacy of the prudential framework, when compared with a situation where authorities must resort to discretionary adjustments of buffers that are (*ex ante*) not releasable.

Mathur, Naylor and Rajan (2023) published a Bank of England´s Staff Working Paper indicating that releasable buffers might be a necessary precondition for practical usability of buffers. The authors also argue that it may imply that other non-releasable regulatory buffers are indeed unusable in practice, as in Saporta (2021) and in Restoy (2021)[15], for whom a large non-zero buffer built up during good times, which can be easily released during periods of stress, has macroprudential benefits.

[13] Similar results were found in Avezum et al (2021) for European households and small business portfolios, and in Ríos-Rull et al (2020) using a model of the Canadian banking sector, among others in the same direction.

[14] Behn et al (2022) argue that the effect of releases on lending growth could be stronger than the effect of increases, for example because in upturns banks might be better able to generate capital internally (eg via retained earnings) and therefore continue to lend as before.

[15] The Bank of England´s Financial Policy Committee (FPC) was one of the first banking authorities to advocate a positive base rate for the CCyB.

In October 2022, the BCBS issued a newsletter demonstrating its support for a positive cycle neutral CCyB rate. The Committee sees benefits in the ability of authorities to set a positive cycle neutral rate on a voluntary basis, to increase the capital buffers that can be explicitly released in the event of sudden shocks, including those unrelated to the credit cycle.

As mentioned in the previous section, in dire circumstances, freeing capital alone could risk opening space to imprudent outlays. Taking the banks´ behavior during the Global Financial Crisis (GFC), several banks continued to make large distributions in the form of dividends, share buy backs and generous compensation payments even though their individual financial condition and the outlook for the sector were deteriorating. Moreover, many banks soon returned to profitability but did not do enough to rebuild their capital buffers to support new lending activity, which increased the procyclicality of the system. See Acharya et al (2017) for further discussion on this.

Amid that fear, Carstens (2020) documented that, by the end of April 2020, regulators in 45 jurisdictions have suspended or limited a broad set of distributions, expecting that these resources could contribute as shock absorbers in a more socially acceptable sharing of the overall costs of the pandemic. The retained earnings could also be expected to be channeled into new lending. The higher capital cushion would lower funding costs and could be leveraged to support increased lending, as mentioned in Gambacorta and Shin (2018).

Hardy (2021) shows that banks that increased their lending capacity more from Q4 2019 to Q2 2020 relative to the risk-weighted assets at end-2019 also increased their loan growth more. This relationship is much stronger for banks in countries that implemented payout restrictions, connecting the capital saved from restrictions to the change in lending. In a more recent paper, Sanders et al. (2024) show that the European Central Bank's dividends ban was successful in stimulating credit supply to the real economy, confirming earlier evidence[16] in that direction. But the authors caution that imposing a dividend ban may carry risks in terms of market prices volatility and increased funding costs.

Restrictions on capital distributions had a large effect on the dividends paid. The aggregate dividends paid during 2020 were as much as 57% lower than their 2019 value, mainly in Europe. Dividends for large banks there declined to nearly zero in 2020. Dividends for emerging market banks, including those in China, fell by 26%, while US banks paid out capital (mainly via share buybacks) declined dramatically in 2020 to just 25% of their 2019 value (Hardy, 2021).

In Brazil, there was no noticeable evidence of abnormal share prices volatility or pressures on funding costs due to the restrictions. Dividends declined almost 50% in 2020 but swiftly recovered and even increased from historical patterns due to banks´ strong internal capital generation capacity. This evidenced that dividends refrained were effectively paid to investors in subsequent years, as anticipated in the intervention design.

For Matyunina and Ongena (2022), market pressure could have incentivized banks not to increase lending, because they might want to underline the temporary nature of the dividend ban to their shareholders, meaning dividends were only delayed, not foregone. It could be argued that banks may have chosen to preserve their higher capital buffers to

[16] Martínez-Miera and Vegas (2021) find that Spanish banks that restricted dividends in 2020 significantly increased lending to firms, while Acosta-Smith et al. (2023) show that the dividend ban increased the capital ratio of European banks.

boost payouts after the lifting of the ban, rendering the intended positive effect on credit supply a priori uncertain.

Overall, we found that the dividends restriction was important to help conglomerates with tighter capital conditions to preserve solvency. Although it was not possible to clearly identify effects on lending growth, the measure helped banks to increase the lending capacity by preserving bank capital and to keep the system prepared if larger losses started to accrue.

# 4 Conservation Capital Buffer Release

In this section, we evaluate the conservation capital buffer (CCoB) release measure. As mentioned before, since the CCoB is not expected to fluctuate, economic agents perceive it as part of the minimum capital requirement. However, as an extraordinary measure to mitigate the credit crunch following the Covid-19 pandemic, the BCB released the CCoB in April 2020. This measure was expected to allow capital restricted financial institutions to keep lending.

We assume that capital restricted financial institutions would be forced to severely restrict lending due to the economic downturn that followed the pandemics. Therefore, our hypothesis is that, after the measure, capital restricted institutions would lend more than capital unrestricted institutions.

## 4.1 Data description and Identification Strategy

Our analysis relies on datasets collected from multiple sources. First, we construct a bank-level dataset by combining information from several supervisory sources. Conglomerate-level balance sheet as well as capital and buffer requirements data are gathered from the accounting and prudential databases of Brazilian Financial Institutions[17]. For simplicity, throughout this study we often refer to conglomerates as simply banks.

We match supervisory bank's balance sheet variables with data from the credit registry (SCR) managed by the Brazilian Central Bank. The Brazilian credit registry contains information on all individual bank loans to firms above R$200 (two hundred reais). As the country's primary financial regulator, it maintains information about loan contracts signed by regulated financial institutions. Thus, we can observe new loans from the same borrower with each lender. We focus on the credit for firms, and our loan dataset is aggregated at the bank x firm x month level. We built a balanced panel, filling the loan amount with zeros in the months where a bank-firm pair has no loans.

Our baseline regression is estimated using approximately 135M bank-firm-month observations by 91 banks (b1 segment) to 4,3M firms before and after the shock. Our data range from April 2019, one year before the policy measures came into effect, to April 2022, when the policy measures were completely unwound.

The identification strategy is based on the excess regulatory capital of conglomerates before the policy. Conglomerates were distributed into terciles according to their excess capital over the regulatory minimum (regulatory margin) as of December 2019. The treated group is composed by conglomerates in the first tercile, i.e., those with least excess capital over the requirement. They are the most likely affected by the capital buffer´s

[17] Respectively, the "Plano Contábil das Instituições do Sistema Financeiro Nacional – COSIF" and the "Demonstrativo de Limites Operacionais – DLO"

release since they were operating closer to the minimum capital requirements. The median regulatory margin in this first tercile is around 2 percentage points (p.p.). The control group is composed the conglomerates in the second and third terciles, i.e., those with capital cushion. The median regulatory margin in the second tercile was 7 p.p., while in the last tercile it is 30 p.p., so that these banks were not restricted in capital.

It is worth noting that large Brazilian banks are in the first and second terciles, and that the third tercile has only small banks. Moreover, Table 1 shows that there are 35 banks affected by the buffer release (among them 3 large banks) and 56 unaffected (among them 2 large banks). Banks in the treatment group and control groups have a similar number of bank x firm x month observations. The number of firms and the mean loan amount are also similar in the treatment and control groups.

**Table 1 – Summary Statistics**

| | **Affected by Buffer Release** | **Unaffected by Buffer Release** | **Total** |
|---|---|---|---|
| **# Observations** | 70.589.928 | 64.524.285 | 135.114.213 |
| **# Banks** | 35 | 56 | 91 |
| **# Firms** | 2.495.820 | 2.423.846 | 4.272.239 |
| **Loan Amount (mean)** | 18.147 | 19.618 | 18.849 |

## 4.2 Econometric Methodology

Our econometric analysis employs a Difference-in-Differences (DiD) approach. The analysis is conducted at the firm-bank-month level. The treatment group is defined at the bank level using the distribution of the excess bank capital just before the outbreak of the Covid-19 pandemics. Those banks in the lowest tercile of the ex-ante excess bank capital are considered the treatment group, since they are the most affected by the capital relief. If the policy is effective, these banks should increase credit when compared with the control group, i.e., those banks with a considerable capital cushion.

Our baseline econometric specification is:

$$Ln(V_{bft}) = \alpha\, post_t + \beta\, [treat\_cap_b \times post_t] + \theta_{bf} + \boldsymbol{\varepsilon}_{fbt} \qquad (1)$$

Where:

- $Ln(V_{bft})$ is the natural logarithmic of new credit volume *V* plus one of bank *b* to firm *f* at month *t*.
- $treat\_cap_b$ is a dummy variable equal to one the bank *b* is treated, i.e., if the bank is in the lowest tercile of excess bank capital before the pandemics.
- $post_t$ is a dummy variable equal to one if time *t* is after the start of the capital release measure.
- $\theta_{bf}$ are bank-firm fixed effects.
- $\varepsilon_{fbt}$ is an error term**.**

Our main coefficient of interest is $\beta$, that can be approximately interpreted as percentage change of the credit of the treated group relative to the control group, comparing the

period before the policy with the period after the policy. This represents the DiD estimator, which is the estimated effect of the capital buffer reduction.

Our approach assumes that, in the absence of regulatory intervention, the average credit volume of the treatment group would have followed a downward trend, since this group had little regulatory capital space for sustaining credit levels.

In addition to the baseline specification, we show a more saturated specification, using firm x time fixed effects. Is it worth noting that this most saturated specification reduces our sample considerably. So, in this more saturated case it is likely that the sample is not representative of the overall sample but biased towards larger firms. However, the use of firm x time fixed effects improves our identification power since we are comparing the same firm with affected and with unaffected banks.

As mentioned before, the initial buffer release had a magnitude of 1.25% p.p. for one year, and then was progressively reduced until the full unwinding of the policy in April 2022. Therefore, we would expect the effects of the policy to be strong at the start (April/2020), but then fading out over time. Moreover, as in a diff-in-diff strategy, we need to check pre-trend parallel assumption, i.e., if before the measure treated and control groups were behaving in a similar way. To check these time changing behaviors, we also estimate a version of equation (1) with dynamic $\beta$ coefficients, i.e., a $\beta$ coefficient for each month. If our hypothesis is true, these coefficients should have no trend and be near zero before the policy, then jump just after the policy starts, and finally diminish gradually as the policy effect unwinds.

## 4.3 Results

### 4.3.1 Baseline Results

Our baseline estimation can be seen on Table 2, where we compare one year before with one year after the regulations change. Column (1) shows the average results for all banks regardless of being treated or not. The coefficient $\alpha$ for the "After" dummy is negative but not statistically significant, so that there is little evidence of a change on the overall credit for firms after the policy measure.

Column (2) of Table 2 estimates separately the coefficient for treated and control groups. Coefficient $\alpha$ for the "After" dummy is negative and statistically significant, meaning that banks in the control group decreased credit after the regulation change. However, coefficient $\beta$ "Treated x After" is positive and statistically significant, suggesting that banks affected by the regulatory intervention had a credit volume percentual increase greater than the control group, after the capital release measure. The sum coefficients $\alpha$ and $\beta$ is not statistically significant. This means that treated banks were able to keep credit after the pandemic and regulations change.

The most saturated specification is shown in column (3). Coefficient $\beta$ is again positive and statistically significant, although with a lower magnitude. In this regression the firm x time fixed effects exclude firms with relationships with either only affected or only unaffected banks. This reduces our sample drastically, from more than 4 million firms to less than one million. Thus, the sample of this regression is likely to be not representative of the overall sample but biased towards larger firms. However, the firm x time fixed

effects improve our identification power, since we can compare the same firm with unaffected and affected banks.

Overall, results in table 2 provide evidence that the regulatory change was able to keep credit steady, and this was done because of the effect on the treated banks. One possible interpretation is that, since the capital release didn´t affect banks with a comfortable regulatory capital, in a scenario of heightened risk aversion, the expected behavior is to reduce credit. But banks with tight regulatory capital ex-ante were able to keep credit because of the regulatory capital release, as in Couaillier et al. (2022b). In this interpretation, we assume that these capital restricted banks would have also decreased credit with the pandemics, but the regulatory change helped them to sustain lending.

**Table 2 - Baseline Regressions**

| | (1)<br>Ln(Loan) | (2)<br>Ln(Loan) | (3)<br>Ln(Loan) |
|---|---|---|---|
| After | -0.1904 | -0.4438*** | |
| | (0.137) | (0.156) | |
| Treated x After | | 0.4851*** | 0.4661*** |
| | | (0.169) | (0.168) |
| # Observations | 135,114,213 | 135,114,213 | 55,958,463 |
| $R^2$ | 0.4175 | 0.4189 | 0.6670 |
| Fixed Effects | Bank x Firm | Bank x Firm | Bank x Firm<br>Firm x Time |
| # Banks | 91 | 91 | 91 |
| # Firms | 4,272,239 | 4,272,239 | 974,131 |

Standard errors in parentheses are clustered by banks. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.0$.

### 4.3.2 Dynamic Coefficients

In this section we analyze the temporal variation of coefficient $\beta$. Figure 1 plots these coefficients from 12 months before to 24 months after the pandemics. Before the pandemics, we see parallel trends between control and treated groups. After the intervention, we see a relative increase of the credit from the capital release of the treated group in comparison with the control group.

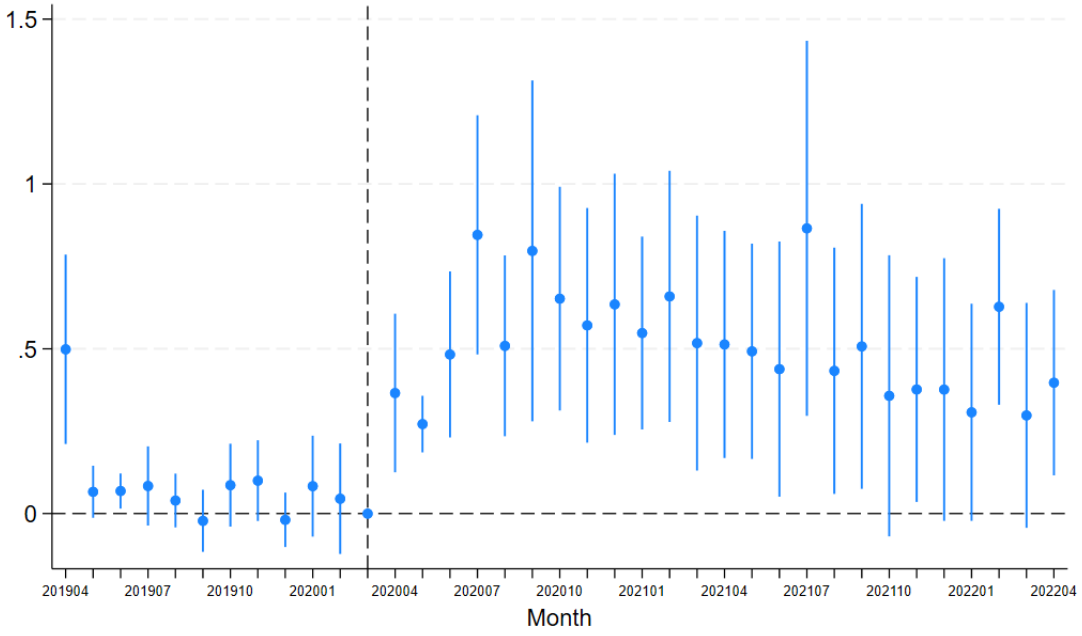
These coefficients show a sharp increase in the first 6 months after the event, and later turn to a downward trend. In the last months of the sample coefficients are still positive, but not always statistically significant, which could be a consequence of the policy unwinding.

It is worth noting that the dynamic pattern of the beta coefficients might be also influenced by the dividends restriction policy over the year. However, the sharp increase just after the policy started is certainly not influenced by the dividends restriction, since dividends are earned throughout the year.

When this restriction came into force, during the first year, it could have been the case that banks affected would have improved their capital position, and thus would be able to lend more. However, it is worth mentioning that many banks that paid lower than usual dividends because of the policy restriction, later compensated by paying more

dividends[18]. Hence, it is likely that banks have foreseen an increased dividend payout in the future, making it unlikely that the dividends restriction had a significant impact on credit (Matyunina and Ongena, 2022).

**Figure 1 – Dynamic Coefficients**




### 4.3.3 Robustness

One particular feature of emerging markets and Brazil is the presence of state-owned banks. These banks are known to help keep credit steady during crisis (see for instance, Brei and Schclarek, 2013). Therefore, it may be the case that our previous results are coming from the material number of state-owned banks in the treated groups, and therefore the channel would not be due to the regulation change but rather the state-owned banks countercyclical behavior. In this way we perform a robustness check dropping state-owned banks and running again our baseline regression with only private banks.

Table 3 shows the results for this exercise. On Column (1), the "After" coefficient $\alpha$ is now statistically significant, meaning that the overall behavior was a decrease in the credit for private banks. The "After" coefficient on column (2) is similar to Table 2, meaning that unaffected private banks reduced credit. Moreover, the beta coefficient "Treated vs After" is still significant, but with a lower intensity than in Table 2. Therefore, the policy was also effective for private banks.

[18] Dividends not distributed in the fiscal year of 2020 could be distributed later, so they were not permanently incorporated in the capital.

**Table 3 – Regression with only private banks**

| | (1) Ln(Loan) | (2) Ln(Loan) | (3) Ln(Loan) |
|---|---|---|---|
| After | -0.2967** | -0.4504*** | |
| | (0.145) | (0.162) | |
| Treated # After | | 0.3979** | 0.3938*** |
| | | (0.164) | (0.148) |
| # Observations | 100,896,165 | 100,896,165 | 32,582,088 |
| $R^2$ | 0.4409 | 0.4417 | 0.6992 |
| Fixed Effects | Bank x Firm | Bank x Firm | Bank x Firm<br>Firm x Time |
| # Banks | 82 | 82 | 82 |
| # Firms | 3,445,675 | 3,445,675 | 599,175 |

Standard errors in parentheses are clustered by banks. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.0$.

# 5 Dividends Restriction

In this section, we evaluate the dividends restriction measure that was adopted in addition to the capital relief. The hypothesis behind the intervention was that the restriction would induce banks to devote as much resources as possible to absorbing losses while preserving solvency levels. By doing so, the restriction would arguably help the system to preserve its critical functions throughout the stress period and afterwards.

We assume that institutions with a high dividend payout would be induced to absorb profits into the capital during the intervention. Therefore, our hypothesis is that dividend restricted institutions would increase their capital margin more than dividend unrestricted institutions, after the restriction imposed.

## 5.1 Data description and Identification Strategy

The data used in this analysis comprises capital and buffer requirements information already used in the previous analysis; and conglomerate-level income statements. From the capital data we calculate the regulatory capital margin for each conglomerate, e.g., the difference between the capital and the regulatory minimum (regulatory margin). This data is at the conglomerate x quarter basis, and we consider one year before to one year after the policy measures, i.e., from second quarter of 2019 to the second quarter of 2021. From the income statement we calculate the dividend payout, i.e., the proportion of the net income paid in as dividends.

The identification strategy is based on whether banks had dividends payment restricted by the measured. As mentioned before, the dividends payments were restricted to up to 30% of the net income. To identify those banks affected by the dividend's restriction, we used the 2019 payout distribution and tagged as restricted (our treatment group) those with dividend payout above 30%.

Table 4 shows the percentage of conglomerates affected by each measure. We see that the dividends restrictions affected approximately half of the conglomerates. However, four out of five large traditional Brazilian banks were affected by this measure. One issue

is whether banks affected by dividends restrictions were also affected by the capital buffer release measure. Table 4 shows this balance.

**Table 4 – Summary for Affected by Buffer Release and Dividend Restrictions**

| % Banks Affected by Buffer release | % Banks Affected by Dividends Restrictions | | |
|---|---|---|---|
| | **No** | **Yes** | **Total** |
| **No** | 30% | 37% | 67% |
| **Yes** | 17% | 17% | 33% |
| **Total** | 47% | 53% | |

This table shows the percentage of conglomerates affected by the capital buffer release and the dividend restriction measures.

## 5.2 Econometric Methodology

Our econometric analysis employs a Difference-in-Differences (DiD) approach. The analysis is conducted at the bank-quarter level. The treatment group is defined as a bank that has a dividend payout ratio above 30% for the year of 2019. If the policy is effective, these banks should experience a higher variation in the capital margin when compared with the control group, i.e., those banks with low dividend payout.

Our baseline econometric specification is the following:

$$\Delta M_{bt} = \alpha\, post_t + \beta\, [treat\_div_b \times post_t] + \theta_b + \boldsymbol{\varepsilon}_{bt} \qquad (2)$$

Where:

- $\Delta M_{bt}$ is the quarterly variation of the regulatory capital margin *V* of bank *b* to at quarter *t*. It is expressed in percentage points.
- $treat\_div_b$ is a dummy variable equal to one the bank *b* is treated, i.e., if the dividend payout ratio is above 30% for the year 2019.
- $post_t$ is a dummy variable equal to one if time *t* is after the start of the dividend restriction measure.
- $\theta_b$ are bank fixed effects.
- $\varepsilon_{bt}$ is an error term**.**

The regressions are estimated using the Risk Weighted Average (RWA) as weights. The main coefficient of interest is $\beta$, that can be interpreted as the change of capital margin (in percentage points) of the dividend treated group relative to the control group, comparing the period before the policy with the period after the policy. This represents the DiD estimator, which is the estimated effect of the dividend restriction.

The $\alpha$ coefficient can be interpreted as the change of the excess margin relative to the pre-pandemic period, for the control group, i.e., those not affected by the dividend restriction.

In addition to the baseline specification, we show a specification considering also the capital buffer release measure treatment. In this way, we would have two treatments:

dividend restriction and capital buffer release. Our double treatment econometric specification is the following:

$$\Delta M_{bt} = \alpha\, post_t + \beta_1[treat\_div_b \times post_t] + \beta_2[treat\_cap_b \times post_t] + \beta_3[treat\_div_b \times treat\_cap_b \times post_t] + \theta_b + \boldsymbol{\varepsilon}_{bt} \quad (3)$$

In this specification, $\alpha$ coefficient reflects the change of the excess margin relative to the pre-pandemic period for our "double unaffected" control group, which is composed by those institutions that were neither affected by the dividend restriction nor by the capital buffer release.

Moreover, $\beta_1$ can be interpreted as the effect on banks affected by dividend restriction measure, but not affected by the capital release, compared with the "double unaffected" control group. Furthermore, $\beta_2$ is the effect on banks affected by capital release measure, but not affected by the dividend restriction, in comparison with the "double unaffected" control group.

Finally, $\beta_3$ is the additional effect of those banks affected by both measures, when compared to those affected by only one of the measures.

## 5.3 Results

Table 5 shows the econometric estimation. Column 1 has an initial analysis with only the "After" coefficient, and the estimated value of 1.076 suggests that, on average, the regulatory capital margin increased after the policy by approximately the capital buffer release of 1.25.

Column 2 shows the econometric specification (2). The $\alpha$ coefficient ("The After") is positive, but statistically lower[19] than the buffer release of 1.25, suggesting that those conglomerates unaffected by the dividend restrictions consumed a part of the buffer release. The positive $\beta_1$ coefficient (After x Treated Dividends) suggests that conglomerates affected by the dividend's restrictions had a higher variation in the margin than those unaffected. The sum of coefficients $\alpha + \beta_1$ is equal to 1,207 near the buffer release amount of 1.25. These results corroborate that the policy was effective in helping those affected by the dividends restriction to keep a strong capital position.

Column 3 estimates a similar regression but considering as treated those affected by the capital release measure. Although the "After x Treated Capital" is negative, it is not statistically significant, suggesting that banks follow a similar path for the capital margin, regardless of being affected and unaffected by the capital release measure.

Column 4 shows estimation for the specification (3), which considers the interaction of both treatments. The $\alpha$ coefficient (After) of 1.121 suggests that excess margin relative to the pre pandemics period is very near the buffer release of 1.25 for those institutions that were neither affected by the dividend restriction not the capital buffer release (our "double unaffected" control group). The $\beta_1$ coefficient (After x Treated Dividends) is positive, but not statistically significant. This indicates that banks affected by dividend

[19] A statistical test rejected the hypothesis that the Alfa coefficient 0.720 is equal to 1.25 with a p-value of 2.92%.

restriction measure, but not by the capital release, have a similar behavior when compared with the "double unaffected" control group.

Moreover, $\beta_2$ (After x Treated Capital) in column 4 is statistically negative. The interpretation is that banks affected by capital release measure but not affected by the dividend restriction had a lower margin variation than the "double unaffected" control group. The sum of coefficients $\alpha + \beta_2$ is equal to 0.406, being statistically higher than zero, but statistically lower than 1.25, the amount of buffer release. This is an indication that those conglomerates consumed a share of the buffer release.

Finally, the double treatment coefficient $\beta_3$ (After x Treated Dividends x Treated Capital) is positive, suggesting a higher effect on those banks affected by both measures, when compared to those affected by only one of the measures. The magnitude of this coefficient (0.675) is sizable, since it is more than half the amount of the buffer release. The sum of all coefficients on column 4 ($\alpha + \beta_1 + \beta_2 + \beta_3$) is 1.187 which is very near[20] the buffer release of 1.25, suggesting that banks affected by both measures kept the capital margin originated by the capital release.

Overall, results of this table suggests that the dividend policy measure was important to help conglomerates with tight capital conditions to maintain a sound capital position if they have had a high dividends payout. Those with tight capital conditions, but that were already paying low dividends, had to consume part of the capital buffer release. Therefore, these results suggest the dividend restriction measure was a suitable complement to the capital release measure.

**Table 5 - Baseline Regressions**

| | (1) Margin Variation | (2) Margin Variation | (3) Margin Variation | (4) Margin Variation |
|---|---|---|---|---|
| After | 1.076*** | 0.720*** | 1.201*** | 1.121*** |
| | (0.135) | (0.241) | (0.092) | (0.210) |
| After x Treated Dividends | | 0.487* | | 0.106 |
| | | (0.271) | | (0.231) |
| After x Treated Capital | | | -0.241 | -0.715*** |
| | | | (0.258) | (0.217) |
| After x Treated Dividends x Treated Capital | | | | 0.675** |
| | | | | (0.329) |
| # Observations | 1,133 | 1,133 | 1,133 | 1,133 |
| $R^2$ | 0.1913 | 0.1946 | 0.1923 | 0.1970 |
| # Banks | 145 | 145 | 145 | 145 |

Standard errors in parentheses are clustered by banks. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.0$.

[20] We cannot reject the hypothesis that this sum of coefficients is different from 1.25.

# 6 Key lessons and policy discussion

## 6.1 Finding policy space to fight an unexpected shock.

During the Covid-19 crisis, financial authorities were faced with two major challenges: to ensure that firms had sufficient resources to support the real economy, and that these resources were effectively used. The partial release of the CCoB in Brazil proved that the *ad-hoc* policy space created amidst the shock helped sustain credit during the pandemic.

Overall, results in section 4 provide evidence that the capital release was able to keep average credit steady, and this was primarily due to the behavior of banks restricted in capital. In fact, credit from banks affected by the capital release measure was sustained when compared to the control group of unaffected banks. Absent the measure, it would be reasonable to expect a severe reduction in aggregate lending, and even more pronounced in the treatment group. Results persisted even when state-owned banks were dropped from equations (section 4.3).

Still, the analysis found stronger effects in the first 6 months after the release and turned to a downward trend in the last months of the sample, consistent with the policy unwinding during the second year period. The sharpest effect was identified just after the capital release was announced, and before dividends restriction effects materialize[21]. This temporal difference also excluded any potential confounding effect the dividends restrictions could have had.

The interaction of both measures and the intersection of treated and control groups of each were challenging. The dividends restriction´s treated banks did not coincide with the treated group of capital constrained banks. While capital release affected approximately one third of banks in the study, the dividends restriction affected half of the conglomerates. Banks affected by both measures only represented 17% of total while 30% were not affected by either of the measures, the "double-unaffected", and 53% are affected by only one of the regulations.

As noted in the previous section, dividends´ affected banks are those with a previous pattern of higher dividends payout than minimum ratios. As expected, on average, the regulatory capital margin increased after the dividend policy by approximately the capital buffer release of 1,25% of RWA.

Nevertheless, conglomerates affected by the dividends´ restrictions had a higher variation in the margin than those unaffected, i.e. their solvency improved when compared to the control group. And a higher effect is identified on those banks affected by both measures, when compared to those affected by only one of the measures.

On the other hand, payout restrictions did not materially affect the solvency of banks with already large capital headroom. And for those conglomerates not affected by the dividend restrictions, excess margin has slightly decreased. Due to different treatment and control groups for each measure, it is not possible to ascertain that the resources from reduced margins were effectively channeled to credit.

Overall, results in section 5 suggest that the dividend policy measure was important to help conglomerates with tighter capital conditions and favorable ex-ante payout policies to maintain a sound capital position. Although effects on lending of dividends restrictions

[21] When profits are not distributed and incorporated in the capital resources, this could alleviate capital restrictions. But as dividends are earned throughout the year, their effects are not immediate.

were not possible to be clearly identified, restrictions helped banks to preserve bank capital and to prepare the system if larger losses started to accrue, being a suitable complement to the capital release measure.

## 6.2 The case for a positive cycle neutral CCyB?

The partial release of the CCoB in Brazil proved that the *ad-hoc* policy space created helped sustain credit during the pandemic. The case also highlighted the challenges to predict periods of stress and the natural tendency of the CCyB to remain at 0% most of the time.

The pandemic episode evidenced that shocks frequently occur without periods of excessive credit and shed light on the difficulty of making real time assessment of crisis risks even using a broad range of tools as the credit-to-GDP gap and other financial and macroeconomic metrics (BoE, 2019). In fact, many policymakers regret not having built up buffers ahead of the pandemic that would have provided "policy space" for the release (BCBS, 2022).

The original CCyB design implied a baseline CCyB rate of zero. To facilitate the prudent build-up of buffers, an increasing number of jurisdictions are now operating under a positive baseline rate framework or are in the process of doing so. The BCBS reinforced the benefits in countries adopting a Positive Cycle Neutral (PCN) CCyB, even if not mandatory (BCBS, 2022). In July 2023, a review of the Basel Core Principles for laws and regulations incorporated recommendations to enable supervisors to require banks to have more releasable capital buffers, be it the CCyB or other buffers.

More recently, the International Monetary Fund (IMF) endorsed the early build-up and a PCN CCyB as part of its Financial Stability Assessment Program (FSAP) of several countries, including Turkey, Jordan, Sweden, and Finland (Nier, 2024). Many already adopted a positive neutral level, as Australia and Hong Kong at 1%, Ireland at 1.5%, and Netherlands, Sweden, and the UK at 2%.

In fact, a PCN CCyB is desirable irrespective of the credit-gap and other indicators, so that buffers can be explicitly released in the event of sudden shocks including those unrelated to the credit cycle, such as the impact of the Covid-19 pandemic. Finally, for emerging markets, there should be even greater emphasis on positive rates relative to rates that respond to credit gaps[22] and also due to historical pattern of higher volatility.

Drawing on the Brazilian experience from the coronavirus pandemic, a positive neutral CCyB rate could be a key means to generate releasable capital when most needed and to enhance the effectiveness of the current macroprudential framework.

## 6.3 Dividends as part of the macroprudential toolkit

Capital relief alone does not ensure that all available resources are deployed as intended. In theory, retaining earnings would allow banks to increase capital without the need to raise equity or to reduce exposures. However, empirical evidence suggests that firms may wish to maintain stable distributions to shareholders to reassure markets that their position is healthy. So, they are generally reluctant to cut dividends.

During the pandemic, several national authorities have imposed broad-based restrictions on capital distributions to avoid imprudent outlays of capital. In scenarios of heightened

[22] The usefulness of the credit-to-GDP gap as a guide in the case of emerging market is a source of debate.

uncertainty, those restrictions were an effective complement to the relief of capital requirements, as they induced banks to preserve as much resources as possible to absorb losses and maintain lending levels.

Overall, results in this study show that the measure helped conglomerates with tighter capital conditions and favorable ex-ante payout policies to preserve capital, being a suitable complement to the capital relief. Moreover, by limiting distributions, the restriction contributed to a more socially acceptable sharing of the overall costs of the pandemic, given the large sums of public resources deployed to support the system.

The pandemic episode marked the first circumstance in which a broad-based dividend ban was adopted by policymakers, and its introduction as a macroprudential policy tool. Taken results with caution, as the unique circumstances of the pandemic may have influenced the outcomes, the measure succeeded in preserving solvency and creating capital capacity to lending to the real economy.

The capital conservation standard as envisaged in Basel III is microprudential in nature. Therefore, restrictions at an individual level tend to hinder banks from dipping into capital buffers. On the other hand, a broad-based restriction, if carefully adopted, appears as an alternative ingredient to the effective release of capital resources during periods of severe stress.

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