Macroprudential Policy and Elections: What Matters?

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Abstract

We provide evidence for a specific challenge in the design of macroprudential policy, namely political interference. Using panel data from 80 countries over the period of 1990-2016, we uncover the electoral cycles in macroprudential policy. We show that a loosening in macroprudential policy becomes more likely in the pre-election year, especially in countries with lower institutional quality. There is no evidence for the reversal of such actions in the post-election year. We also find that capital account openness, the history of macroprudential policy actions and inflation matter in the electoral cycles in macroprudential policy, in addition to institutional quality. The electoral cycles are found to be stronger in countries that are financially less open, that relied less on macroprudential policy in the past, and that have lower inflation.

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1 Introduction

Whether incumbent governments engage in pre-election manipulation of economic policies in an effort to get re-elected is a popular empirical question of electoral politics. In this paper, we tackle this question for a specific type of economic policy tool whose main goal is to contain the systemic risk in the financial system, namely macroprudential policy. Using a large panel dataset, we show evidence on the presence of electoral cycles in macroprudential policy, especially when institutions are weak. We also shed light on various other determinants of the strength of electoral cycles in macroprudential policy, such as past policy actions, macroeconomic factors and political environment. The evidence we provide suggests that political pressures can create a challenge in designing and implementing the macroprudential toolkit.

The concept of an electoral cycle arises from the notion that governments can try to use various policy tools available to them to boost the economic activity before elections, if they believe that this will help them get re-elected. This can in turn create a cycle in economic policies characterized by expansionary patterns right before elections. However, this kind of policy manipulation works only under some circumstances: e.g. when voters are shortsighted, when voters have short memory, when voters cannot directly observe the competence level of elected officials etc.[1] If such conditions are not satisfied, thus if incumbent governments are unlikely to reap any short-term political dividend from such policies, then they may not be willing to engage in this type of policy manipulation in the first place. Hence, whether this phenomenon -where political interference leads to changes in economic policy based on the timing of elections, thereby causing an electoral cycle in economic policy- actually exists or not is ultimately an empirical question.

[1] For the theoretical literature on opportunistic manipulation of economic policy before elections, see Nordhaus (1975), Rogoff and Sibert (1988), Persson and Tabellini (1990), Rogoff (1990).

This question is indeed a very popular one and there is a huge literature on electoral cycles in economic policy. However, the extant literature almost exclusively investigates electoral cycles in fiscal and monetary policies. We contribute to this literature by focusing on electoral cycles in macroprudential policy, where macroprudential policy is defined as the set of tools that aim to mitigate the risk to the financial system as a whole (systemic risk). We believe this is an important issue, because even though there is widespread agreement (particularly after the 2008 Global Financial Crisis) that setting macroprudential policy tight enough is crucial in reducing the accumulation of systemic risk and in turn avoiding financial crises,[2] macroprudential tightening may generate short-run costs (in the form of lower economic output), which can be perceived by incumbent governments as reducing their chances of re-election. Hence, incumbent governments may choose to loosen macroprudential policy before elections to raise economic output in the short run, even when the potential long-run cost of loosening macroprudential policy (in the form of increased likelihood of financial crises) is much larger. Whether incumbent governments actually use macroprudential policy as a tool to win elections is thus an open and crucial question, and it is the one we investigate in this paper.

The first of our main empirical findings in this paper is that the probability of a loosening in macroprudential policy increases one year before the election,[3] with this pre-election year effect being particularly pronounced in countries with lower institutional quality. This result is not likely to be driven by omitted variables or reverse causality, and remains the same across a large battery of robustness checks. The size of the impact is economically large, where the pre-election year probability of a loosening in macroprudential policy can more than double the overall loosening probability across the sample, especially in cases of low institutional quality. More specifically, our estimates suggest that the probability of a

[2] See Section 2 for a more detailed description of what macroprudential policy is and what it does.

[3] Timing of this loosening is consistent with the idea that macroprudential policy affects credit, investment and GDP with a lag. See Reis (2020) for a theoretical discussion of why a sophisticated politician should loosen macroprudential policy one year before the election rather than the election year.

loosening in macroprudential policy increases in the pre-election year by up to 10.6 percentage points in countries with low institutional quality. It is more than the overall probability of a loosening in the sample, which is 7.6%. This effect weakens and finally disappears as institutional quality increases.

Our reasoning on this result is that the existence of electoral cycles in macroprudential policy may crucially depend on the extent to which the executive branch (who is trying to get re-elected) is able to pressure the authorities that set macroprudential policy. The ability of the executive branch to pressure these authorities is potentially higher in countries with lower institutional quality and fewer constraints on the executive. As a result, we are more likely to observe stronger electoral cycles of macroprudential policy in such countries. This finding points out that macroprudential policy is not immune to political influence, particularly when institutional quality is not high enough, and that strong institutions can shield it from political pressures.

We also investigate what happens to macroprudential policy after the election. We do not find evidence of a further loosening in macroprudential policy in the post-election year, indicating that our finding on the pre-election loosening is indeed driven by the pressure of upcoming elections on the executive. We also do not find evidence of a reversal (a tightening) in macroprudential policy in the post-election year.

Our second main empirical result is that financially less open countries experience a stronger effect of elections on the probability of loosening in macroprudential policy, even after controlling for the effect of institutional quality on the electoral cycle. This is consistent with the recent literature finding evidence that financially more open economies are more subject to global conditions, undermining the role of domestic policy actions in the case of monetary and financial policies.[4] The existing evidence in the literature specific to macro-

[4]For instance, Ehrmann and Fratzscher (2009) find that the monetary policy shocks in the US play a role in

prudential policies also points to a similar fact. In financially more integrated economies, macroprudential policy is subject to cross-border effects (IMF 2013, Caruana 2010), such as leakages and potentially undesirable spillovers of policy actions from other countries, which can undermine the role of domestic action in the domestic financial and economic performance. As a result, macroprudential policy actions appear to be less effective in economies with relatively more open financial systems (Cerutti et al. 2017).[5] Therefore, anticipating that macroprudential policy changes would be less effective in spurring the economic or financial performance anyway, the executive branch in financially more open countries may not bother to pressure the macroprudential authorities to change policy before elections. Hence, it can be expected that electoral cycles in macroprudential policy would be stronger in financially less open economies. With our second result, we document that this is indeed the case in the data.

Our third main empirical finding is that the electoral cycle in macroprudential policy –characterized by a higher probability of loosening before the election- is stronger in countries which loosened macroprudential policy fewer times in the past. This suggests that past policy actions in macroprudential policy (defined as the total number of macroprudential loosening or tightening episodes of the country to date) play a role in generating the electoral cycle in macroprudential policy. If macroprudential policies are already loose to begin with, there may be less space to loosen them further. Indeed, as documented by Alam et al. (2019), effects of macroprudential policy on credit growth may be nonlinear, suggesting that the marginal benefit of loosening macroprudential policy may be decreasing as policy is loosened further. This might in turn influence the decision of whether to loosen or not before the election, where governments may decide to loosen policy only when the marginal benefit of loosening is high. Our third main finding is in line with this kind of phenomenon.

financial markets of financially more open economies, thereby undermining the role of domestic policy actions. Schoenmaker (2011) discusses that financially open economies may not be able to undertake domestic financial policies to ensure financial stability. Rey (2015) argues that domestic monetary policy is effective, only if capital flows are managed due to the global financial cycle in capital flows, prices and credit growth.

[5]See Buch and Goldberg (2016) for a detailed discussion.

We also uncover the effect of macroeconomic variables on the strength of the electoral cycle in macroprudential policy. Since macroprudential policies affect macroeconomic variables such as output, credit and inflation,[6] the existing levels of these macroeconomic indicators can affect the decision of whether to loosen or not before the election. For instance, if inflation is already high, e.g. due to high demand, loosening macroprudential policy to further boost aggregate demand is more likely to deteriorate inflation than to increase output. Therefore, governments may be reluctant to loosen policies when inflation is high in the first place. Our fourth main empirical finding is consistent with this hypothesis: We find that macroprudential loosening is more likely before an election, if the country is experiencing lower inflation. Interestingly though, we do not find much evidence on the effect of economic growth or credit on the strength of the electoral cycle in macroprudential policy.

Finally, we explore the role of other variables regarding the political environment on electoral cycles in macroprudential policy. We do not find evidence that political variables affect the electoral cycle in macrorprudential policy. Particularly, the strength of the electoral cycle does not seem to depend on the system of government (parliamentary vs. presidential) or the political orientation of the governing party/executive (left, center or right).

In broad terms, our paper contributes to the long and extant literature on opportunistic political business cycles (PBCs). This literature on PBCs, which dates back to the seminal paper of Nordhaus (1975), is huge.[7] Earlier studies that investigate the impact of elections on macroeconomic outcome variables such as GDP, inflation and unemployment find mixed results.[8] As these macroeconomic outcome variables are not within direct control of the government, literature evolved in time to look for PBCs in economic policy variables rather than

[6] See, among others, Kuttner and Shim (2016), Sanchez and Rohn (2016), Kim and Mehrotra (2017).

[7] See Dubois (2016) for an excellent survey.

[8] Allen et al. (1986), McGavin (1987), Haynes and Stone (1988), Keil (1988), Findlay (1990) find evidence of electoral cycles in these variables, whereas McCallum(1978), Golden and Poterba (1980), Alt and Chrystal (1981), Beck (1982), Davidson et al. (1990), Alesina and Roubini (1992) do not find such evidence.

these macroeconomic outcome variables.[9] Among these, literature mostly focused on fiscal policy variables such as government spending and taxes,[10] with some interest in monetary policy as well.[11]

In this paper, we investigate instead the effect of elections on macroprudential policy, which is scarce as opposed to the well-studied effects on fiscal policy and monetary policy.[12] In fact, we are aware of only one study thus far that investigates this issue, which is the working paper by Müller (2019). Using data from 58 countries from 2000 to 2014, he finds that macroprudential tools targeting mortgages and consumer credit are less likely to be tightened before elections, with this effect being smaller in countries with higher central bank independence. Key differences between his paper and ours are as follows: First, we have a longer time span (1990-2016 vs. 2000-2014) and a broader set of countries (80 vs. 58) including emerging market, developing and advanced economies, which allows for a higher amount of variation in institutional quality, our key focus in the empirical analysis. Second, our main result suggests that governments actively change policy (increased probability of loosening) before elections, as opposed to the emphasis on the policy inaction (reduced probability of tightening) by Müller (2019). Third, in terms of the factors affecting the strength of the electoral cycle, we are the first exploring the roles of past policy actions, capital account regime, inflation rate, system of government and the political orientation of the incumbent government.

[9] After all, if economic outcome variables are affected by electoral pressures, this effect would happen through changes in policy variables.

[10] It is not possible to cite hundreds of papers written on this strand of the literature, but for some prominent examples, see Remmer (1993), Kneebone and Mckenzie (2001), Gonzalez (2002), Akhmedov and Zhuravskaya (2004), Khemani (2004), Persson and Tabellini (2005), Brender and Drazen (2005, 2007, 2013).

[11] See Alesina et al. (1992), Clark and Hallerberg (2000), Leertouwer and Maier (2001), Block (2002), Hiroi (2009), Alpanda and Honig (2010).

[12] This is not to say that macroprudential policy itself has not been on the focus of academic research, as the previous literature on macroprudential policy is large. See Galati and Moessner (2013) for an excellent survey of this literature.

To sum up, we contribute to the existing literature in political business cycles by using a recent and comprehensive dataset to investigate the impact of elections on a policy variable that was overlooked by almost all of the previous literature, yet is so important for the health of the financial system and the economy, namely macroprudential policy. Our findings suggest that macroprudential policy is not immune to political interference. We also contribute to the literature by identifying the institutional and other factors that affect the strength of this electoral cycle in macroprudential policy.

The rest of this paper is organized as follows: Section 2 goes over in detail what macroprudential policy is and what it does. Section 3 explains the data. Section 4 illustrates the methodology. Section 5 documents the results. Section 6 concludes.

2 Macroprudential Policy

Macroprudential policy can be summarized as the collection of tools that aim to limit the risk in the financial system as a whole, namely, systemic risk (Crockett 2000, IMF-FSB-BIS 2011, IMF 2013). Systemic risk is defined as the risk of system-wide disruptions to the provision of financial services led by an impairment in the financial system, and which can yield adverse consequences on the economy (IMF-FSB-BIS 2009, 2016).[13] Macroprudential policy includes a wide set of tools to mitigate systemic risk and, in turn, to reduce the likelihood and severity of financial crises.[14] Hence, it provides cushion against their adverse consequences on the real economy. Particularly after the 2008 Global Financial Crisis, the widespread agreement on the necessity of macroprudential policy tools in avoiding finan-

[13] Systemic risk has mainly two dimensions: time dimension (vulnerabilities from the build-up of risks over a period of time) and cross-sectional dimension (vulnerabilities from interconnectedness and the distribution of risks within the financial system at a given point in time).

[14] Macroprudential policy has intermediate objectives to achieve its ultimate goal: (1) to increase the resilience of the financial system to shocks by accumulating or relaxing buffers that can help maintain the effective functioning of the financial system, (2) to dampen the build-up of vulnerabilities over time by reducing feedback effects between asset prices and credit, and also smoothing unsustainable booms in leverage, and (3) to observe structural vulnerabilities within the financial system that can emerge through interconnectedness, common exposures, and also focusing on the institutions that are systematically important. Also see De Nicolo et al. (2012) for a discussion of intermediate goals for macroprudential policy. See IMF-FSB-BIS (2016) for a comprehensive discussion and review of the policy literature.

cial crises led to the widespread utilization of such policies around the globe, including emerging market and developing economies (EMDEs), as well as advanced economies.[15] Moreover, we are recently witnessing that many EMDEs have been using various macroprudential tools as a policy response to the ongoing COVID-19 pandemic.[16]

It is, however, important that macroprudential policy is not overburdened with other objectives (CGFS 2012, IMF 2013). Mainly, rather than managing the level (or composition) of aggregate demand or the business cycle, macroprudential policy must indeed focus on the resilience of the financial system in the periods of aggregate shocks, and in turn contribute to the continuation of financial services to serve the real economy. For this purpose, a wide range of targeted tools are available to policy makers, such as capital-based tools (e.g. countercyclical capital buffers), loan restrictions (e.g. caps on loan-to-value, debt-service-to-income or loan-to-income ratios) and liquidity-related tools (such as reserve requirements).

In practice, the arrangement of the authority which sets macroprudential policy does not have a standard across countries, and indeed there is a large variation. In some (but not all) countries, the authority that sets macroprudential policy is the central bank. However, in most cases, it is neither a single body nor the central bank itself that sets the macroprudential framework, instead different bodies and agencies cooperate and coordinate, generally with the participation of the government.[17] In terms of our empirical investigation, this large variation implies that compared to the indexes on the independence of the central bank

[15] See Cerutti et al. (2017).

[16] See Nier and Olafsson (2020) and IMF (2020).

[17] For instance, the joint report by IMF-FSB-BIS (2016) summarizes the institutional arrangements in practice for macroprudential policy in three different models: In the first, the main macroprudential objective is assigned to the central bank (e.g. Belgium and Russia). In the second, it is assigned to a committee within the central bank structure (e.g. South Africa and UK). In the third, there is a committee outside the central bank (e.g. Germany and Turkey). There are both advanced and developing countries under each category. The report also notes that The Ministry of Finance participates in a committee setup, as a non-voting member (e.g. the UK), a voting member (e.g. Poland), or chair (e.g. France, Germany and the US). Lim et al. (2013) also conclude that for the majority of countries, the government is also involved in the decision-making process in the macroprudential framework. Moreover, across different institutional models, macroprudential functions are mostly allocated to several authorities that coordinate through a committee (Claessens, 2019).

alone, indexes on overall institutional quality (such as the constraints on executives index that we use in our empirical analysis) can better capture the ability of the executive branch to pressure the macroprudential authority in a country.

An important challenge for the optimal macroprudential framework is the ex-ante analysis of costs and benefits to design and calibrate those tools accordingly. Although it is hard to quantify costs or benefits ex-ante, implementation of macroprudential tools may consider a set of potential costs in the short-term, such as adjustment costs to the financial sector and output costs (IMF 2014). For instance, capital and liquidity tools imposing minimum ratios on the balance sheet of intermediaries can yield such adjustment costs for financial industry. In addition, implementation of new macroprudential regulations can generate temporary costs to economic output. Although these effects are likely to be weak and overcome by positive effects over the longer-term due to the lower likelihood of crises (BIS 2010, Nier et al. 2012), they can be politically costly for the government in the short term. Incumbent governments thus may be reluctant to implement tight macroprudential policy before elections, with the fear that these short-term costs may reduce their probability of re-election. This might in turn create an electoral cycle in macroprudential policy with loose policies right before the elections in the quest of political gains. In this paper, we thus empirically investigate whether such cycle exists or not, and which factors matter in determining the strength of this cycle.

3 Data

3.1 Macroprudential policy

The data on macroprudential policy is from the IMF integrated Macroprudential Policy (iMaPP) database by Alam et al. (2019). The authors combine information from various sources, namely from five different databases, as well as the IMF's Annual Macropruden-

tial Policy Survey, and additional sources, such as official announcements and IMF country documents. It is the most comprehensive and the most recent database available on macroprudential policy in terms of the time span and the number of countries. It has been increasingly used by the literature on international finance, e.g. Alfaro et al. (2020), Bergant et al. (2020) and Brandao-Marques et al. (2020).

The database has information for a large set of countries, including emerging market, developing and advanced economies, for the period of 1990-2016 at the monthly frequency. It provides a dummy-type measure for tightening and loosening actions for 17 main categories of macroprudential policy, such as countercyclical capital buffers, leverage limits, limits on credit growth, limits on loan to value ratio, and loan requirements. We note that the analysis cannot be done using individual tools due to the sparsity of the data. We provide detailed descriptions for the individual tools in the iMaPP database based on Alam et al. (2019) in Appendix A.1.

The dataset also includes a summary variable of these categories which indicates whether the overall macroprudential framework is loosened, not changed or tightened. The dummy-type indices in the dataset are useful for our analysis, since they extract information across diverse policy actions, by focusing on the policy action and its direction. On the other side, a drawback of such an approach is that they lack information on the intensity of policy measures and the initial level of those tools. As mentioned by Alam et al. (2019), though, it is difficult, and may not be feasible to construct intensity measures given that the designs of macroprudential instruments are diverse and not compatible across countries and also across years within a country.

To get an annual measure based on the dummy-type policy actions, we sum monthly data points and build a summary index for the overall change in macroprudential policy

in each year. Our goal is to examine if macroprudential policy is loosened before elections, or not. Hence, we assign a dummy variable 1, when there is an overall loosening in the macroprudential framework within that year, and 0 otherwise.[18]

Throughout the regressions, we control for the history of changes in the macroprudential policy actions since 1990, the first year in the data. For this purpose, we construct two separate indexes which are the cumulative number of years with an overall loosening and tightening in macroprudential policy in a country until the current year.[19]

3.2 Dates for elections and other political variables

Dates for elections and other political variables are from the Database of Political Institutions (DPI) by Scartascini et al. (2008) who update the earlier version of the World Bank dataset by Beck et al. (2001). This database has been heavily used in the political economy literature (e.g. Brender and Drazen, 2005, Faye and Niehaus, 2012, Collier and Hoeffler, 2015, Castro and Martins, 2019). It compiles information from various sources and provides a comprehensive worldwide database over the period of 1975-2017 on the political environment at annual frequency. We construct a dummy variable which equals 1 if there is an election next year for the chief executive.

In addition, we assign a dummy variable 1, indicating presidential systems, whenever the political system is categorized as presidential in the DPI, and 0 if the system is parlia-

[18] In this regard, the dummy variable for a loosening is 1, if there is a loosening within a year on net terms. We prefer this definition, since it is more appropriate for our purpose to capture if there is an overall loosening in the macroprudential policy tools. However, we also check results for the case where we construct the dummy for a loosening episode for a country-year observation on gross terms. In other words, instead of summing up loosening and tightening episodes in a given year to construct the dummy -based on the net value of the sum of the actions throughout the year-, we assign the dummy for a loosening 1, whenever there is a loosening in a country in that year, although it may be the case that there are many tightening episodes in the same year, and 0 otherwise. Appendix A.2 illustrates those results when the dummy is constructed based on gross terms. The results from both approaches are almost the same.

[19] Recently, Akinci and Olmstead-Rumsey (2016) and Bergant et al. (2020) follow very similar approaches. However, there are two potential drawbacks in this approach due to the limited information in the existing data on macroprudential policy. First, the initial level of policies at 1990 is unknown and can potentially be different across countries. Second, the intensity of macroprudential policy actions are missing, and we are constrained to add dummy-type variables over years instead of the intensity of policy actions.

mentary. In a different test, we use dummy variables for the political orientation of the governing party/executive, namely right, center or left, based on the definition in the dataset. In a robustness test we also use the information on the month of elections whenever available.

3.3 Institutional quality

We need variables capturing the strength of checks-and-balances on decision making by politicians who can have incentives to influence policies to stimulate the economy aiming to reap political dividend from it. We use the Polity V database by the Center for Systemic Peace for this purpose. This is the most widely-used database in the literature focusing on institutional factors (e.g. Acemoglu et al. 2001, Leigh, 2009, Leonida et al. 2013). We adopt the degree of constraints on executives as the baseline measure of institutional quality following the majority of the literature, e.g. Cerra and Saxena (2008). This variable summarizes the extent of institutionalized constraints on the decision making of chief executives, whether individuals or collectivities. Such limitations may be imposed by "accountability groups". These are generally legislatures in Western democracies. Other sorts of accountability groups are the ruling party in a one-party state, councils of nobles or advisors in monarchies, the military power in coup-prone countries, and in many countries a powerful and independent judiciary. The index ranges from 0 to 7, larger values indicating higher degree of constraints on executives, and hence higher institutional quality.[20]

As alternative proxies for institutional quality, we also adopt the index on the institutionalized democracy, the degree of political competition and the polity score from the Polity V database in robustness tests. The index on democracy and political competition both range from 0 to 10, higher values meaning stronger institutions. The polity score is obtained by

[20]The index on the constraints on executives at 0 represents the periods of interruption, transition or interregnum, where the institutions are not really operative. Results stay similar, if we assign the index during those periods 1, or if we drop the few country-year observations with any such periods.

subtracting the degree of the institutionalized autocracy score from the democracy score, ranging from -10 to 10, higher values meaning a stronger institutional environment.

In robustness tests, we also use the indexes on civil liberties and political rights from the database by Freedom House (Freedom in the World) to proxy for institutional quality. These indexes compile information from country expert surveys based on standardized questions in different sub-categories. The indexes on civil liberties and political rights provide a summary of the results obtained from the answers of those questions.[21] The indicators range from 1 to 7, higher values meaning lower degree of civil liberties or political rights. We use the inverse of these (8 minus the index), and get direct measures for institutional quality consistent with other tests. Appendix A.3 provides the summary statistics of the indexes on institutional quality.

3.4 Macroeconomic variables

Throughout all regressions, we control for a large set of macroeconomic variables that can affect the decision on macroprudential tools, namely domestic credit to private sector by banks, international reserves, export, import, broad money, current account balance, government final expenditure, and capital flows as shares of GDP; growth rate of real GDP per capita (constant in 2010 US dollars), inflation (deflator-based), percentage change in the nominal exchange rate vis-a-vis the US dollar and a de jure index for capital account openness. All macroeconomic variables except capital flows and the index for openness are from the World Bank World Development Indicators Database. Capital flows are from Lane and Milesi-Ferreti (2018).

[21] There are 10 political rights indicators and 15 civil liberties indicators, which take the form of questions; a score of 0 is the smallest degree of freedom and 4 is the largest degree of freedom. The political rights questions are grouped into 3 sub-categories: (i) electoral process (3 questions), (ii) political pluralism and participation (4 questions), and (iii) functioning of government (3 questions). The civil liberties questions are grouped into 4 different sub-categories: (i) freedom of expression and belief (4 questions), (ii) associational and organizational rights (3 questions), (iii) rule of law (4 questions), and (iv) personal autonomy and individual rights (4 questions). As the methodology mentions, the political rights also contain an additional discretionary question addressing forced demographic change. Further details of the methodology is available at https://freedomhouse.org/reports/freedom-world/freedom-world-research-methodology.

We adopt the capital account openness measure of Chinn and Ito (2006). The authors evaluate restrictions on cross-border financial transactions reported in the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER). It is a de jure measure, and hence a proxy for financial openness in regulatory perspective. We use the most recent version which has been updated by the authors until 2017. It is coded between 0 and 1, higher values meaning financially more open economies.

3.5 Sample

We use all countries for which the data is available, but few points and restrictions are important to note. We drop the three economies with the largest central banks, namely the US, Japan and the UK, since their central banks' actions may basically serve as global shocks, affect the global financial cycle, and in turn drive macroprudential policy actions for the majority of other countries (Canova, 2005).[22] However, we show that results are robust to including these three countries (see Section 5.2). Our baseline sample has data from 80 emerging market, developing and advanced economies from different regions of the world (see Appendix B) covering the 1990-2016 period with 348 elections. We also report the results when we restrict our sample to emerging market and developing economies (EMDEs). We address other potential concerns about the sample in robustness tests (Section 5.2).[23]

3.6 Facts on the loosening actions

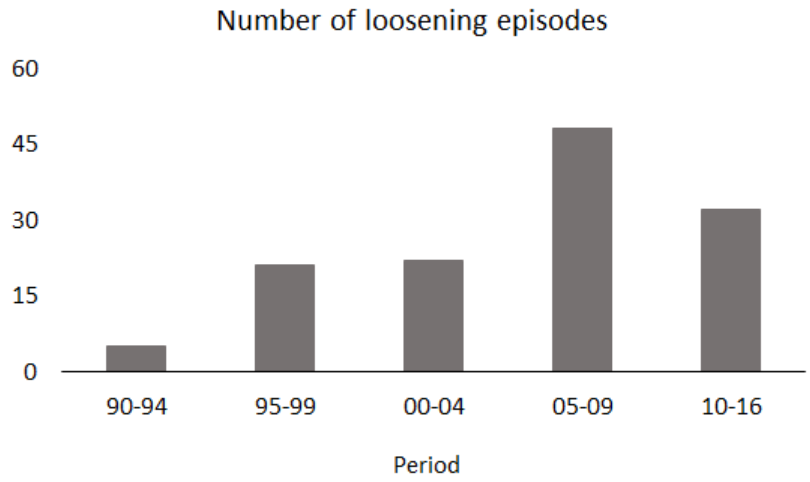
We document the distribution of loosening events in the sample across different periods (Figure 1). In total, there are 128 country-year observations with an overall loosening

[22] Also, note that we control for the change in the exchange rates vis-a-vis the US dollar.

[23] We also note that our main sample does not include the Eurozone economies operating under the European Central Bank (ECB) due to that fact that we control for broad money throughout regressions -as a proxy for monetary policy-, and this is not available at the country-level in the case of monetary unions. This is also important for our analysis in the sense that policy makers in those countries may be subject to other regulations or targets to meet standards by the ECB in the case of macroprudential policy. Thus, it is sensible not to include the Eurozone countries. However, results throughout the paper stay very similar both qualitatively and quantitatively, if we drop broad money to GDP ratio from macroeconomic control variables, and include the Eurozone countries. We show that result in robustness checks.

in macroprudential policy. We note that 26 of those took place during the 1990s, and 22 episodes were in the 2000s until 2005. It is also important to note that 70 of them occurred before the 2008 Global Financial Crisis (GFC). Roughly speaking, since 2005, countries relied more on the relaxation on macroprudential policy, where there were 80 events. Motivated by this, we also run the analysis in the period of 2005-2016 where macroprudential policy is loosened more heavily (Section 5.2). We also note that the majority of our sample (67 countries out of 80) consists of EMDEs based on the categorization by the United Nations World Economic Situation and Prospects (2018) report. As a result, the majority of the observations with a loosening is from those countries. Overall, 93 out of 128 loosening actions are by EMDEs in the sample.

Figure 1: *Number of loosening in the macroprudential framework over the sample period*



Notes: The figure reports the number of country-year observations in the sample with a loosening episode over the period of 1990-2016 based on the data by Alam et al. (2019).

Next, we explore whether the likelihood of loosening episodes appears to be higher in the pre-election year in the full sample, and also in the subsample consisting of countries with low institutional quality. Figure 2 illustrates several interesting facts on this phenomenon and paves the way for our analysis. It reports the overall probability of a loosening in macroprudential policy (the first dotted bar) and the probability in the pre-election years (the first solid bar) in the full sample. Then, it focuses on the subsample using the data from coun-

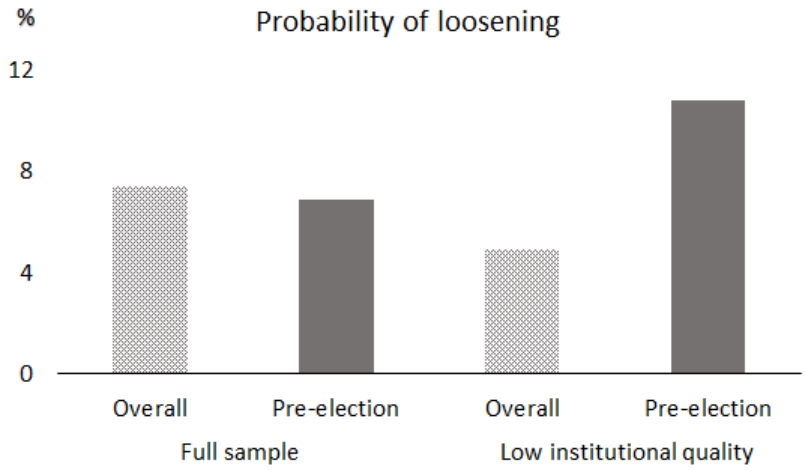
tries with low institutional quality (the bottom 25th percentile of the index on institutional quality). The second dotted (solid) bar is the overall (pre-election) probability of a loosening in macroprudential policy in countries with low institutional quality.

To start with, comparing the first dotted and solid bars, the pre-election year probability (6.6%) does not seem to be much different than the overall probability of a loosening (7.6%) in the full sample. Hence, the pre-election year does not appear to make a loosening action in macroprudential policy more likely in the full sample.

However, when we narrowly focus on the countries with weak institutions, a striking difference in probabilities emerges. The pre-election probability of a loosening (the second solid bar) is much larger than the overall probability (the second dotted bar) in this set of countries. In the pre-election year, the probability of a loosening reaches up to 10.5% in this case, more than doubling the overall probability (which is 5%). This large difference means that loosening episodes become much more frequent in the pre-election year, when we consider the countries with weak institutions.

Finally, the pre-election probability of a loosening in countries with weak institutions (10.5%) is much higher than the pre-election probability in the full sample (6.6%). These facts point out that elections can be a significant driver of loosening actions, particularly in countries with low institutional quality. We next introduce our empirical methodology to explore this phenomenon more formally.

Figure 2: *The probability of loosening in the macroprudential framework*



Notes: The figure reports the overall and pre-election probabilities of loosening episodes in the full sample, and in the subsample consisting of countries with a low institutional quality. The dotted (solid) bars document the overall (pre-election) probabilities in two samples. The overall probability is the number of loosening episodes divided by the number of observations in the corresponding sample. The pre-election probability is the number of loosening episodes in the pre-election years divided by the number of election events in the corresponding sample. To identify the countries with low institutional quality, we take the country mean value of the index on the constraints on executives for each country in the sample, and use the bottom 25th percentile of the cross-country distribution as the threshold.

4 Methodology

Our goal is to examine if a loosening in macroprudential policy is more likely in the year before elections, particularly in countries with weaker institutions. The empirical specification is as follows:

$$\begin{aligned} Loosening_{c,t} = {} & \alpha_1\, Election_{c,t+1} + \alpha_2\, Election_{c,t+1} \times Institutional\ quality_{c,t} \\ & + \alpha_3\, Institutional\ quality_{c,t} + \beta_1\, History_{c,t-1} + \beta_2\, Political_{c,t} + \beta_3\, Economic_{c,t-1} \\ & + \mu_c + \mu_t + \epsilon_{c,t} \end{aligned} \tag{1}$$

where $Loosening_{c,t}$ is the dummy variable which is equal to 1 whenever there exists a loosening in the macroprudential framework in country c at year t, and 0 otherwise. $Election_{c,t+1}$ is the dummy variable which takes the value of 1 if there is an election to elect the head of executive at year $t+1$, and 0 otherwise. $Institutional\ quality_{c,t}$ is a proxy for the degree of institutional quality.

We control for the full history of changes in the macroprudential policy since 1990, the first year in the data. The corresponding variable $History_{c,t-1}$ includes two indexes, namely the total number of loosening and tightening episodes up to the current year. To account for a potentially competing channel, the variable $Political_{c,t}$ includes the dummy variable for presidential systems, as well as the interaction between the election dummy (at year $t+1$) and the dummy for presidential systems, since the political system may influence the strength of electoral cycles in a country.

We also control for a large set of macroeconomic variables ($Economic_{c,t-1}$) that can affect macroprudential policy decisions. We prefer the lagged values of macroeconomic variables to alleviate the reverse causality concern, since macroprudential policy actions at year t can affect the year t values of macroeconomic variables but cannot affect the year $t-1$ values.[24] This set of control variables include credit, international reserves, export, import, broad money, current account balance, government expenditure, and capital flows as shares of GDP; growth rate of real GDP per capita, inflation, percentage change in the nominal exchange rate vis-a-vis the US dollar and the index for capital account openness.

We also control for unobservable features at the country-level and year-specific shocks which are common across countries, using country (μ_c) and year (μ_t) fixed effects, respectively. These sets of fixed effects are important for our analysis. For instance, some coun-

[24]Not controlling for these variables can prove problematic if macroeconomic variables are affected by upcoming elections. Particularly, macroeconomic variables may show expansionary patterns in the years running up to elections due to changes in other dimensions of economic policy, e.g. fiscal policy. As a likely response to such a pattern, macroprudential regulators may choose tighter macroprudential policy in the pre-election year, thereby creating a downward bias on the coefficient measuring the impact of the pre-election year on the probability of loosening, in the case where macroeconomic variables are not controlled for. We formally examine whether this concern is relevant in the data. To do so, we separately regress the lagged values of macroeconomic indicators included in our regression on the election dummy, the index on institutional quality and the interaction between the two. We include country and year fixed effects and cluster standard errors at the country-level consistent with equation 1. Coefficient estimates for explanatory variables are statistically insignificant with generally large p-values, as illustrated in Appendix C. We conclude that it is not likely that upcoming elections drive (the lagged values of) macroeconomic variables, and in turn, this concern is not very relevant. To be on the completely safe side, though, we include macroeconomic indicators as control variables in our regressions.

tries may have some underlying reasons why they lean towards macroprudential policy more heavily than others. Any potential bias from that is absorbed by country fixed effects. Moreover, global shocks, such as the GFC, policy action by the Federal Reserve of the US, or the global financial cycle, can affect policies across countries. This is absorbed by year fixed effects. Standard errors are clustered at the country-level.[25] We prefer the linear probability model since it is easy to interpret and also because non-linear models with fixed effects can generate biased results (Lancaster, 2000). However, we show that our results are robust to using probit and logit models, and also to using alternative specifications (Section 5.2).

We expect α_1 to be positive to the extent that the probability of a loosening in macroprudential policy increases in the pre-election year. We also expect α_2 to be negative, if the likelihood of a loosening in macroprudential policy in the pre-election year becomes particularly larger in countries with lower degree of institutional quality.

5 Results

5.1 Baseline results

Table 1 represents the results on the probability of a loosening in the macroprudential framework in the year prior to elections, and how this relationship depends on institutional quality based on equation 1. We control for a large set of macroeconomic variables, political factors and the full history of policy actions in the macroprudential framework, as well as country and year fixed effects, as mentioned in Section 4. The proxy for institutional quality is the degree of constraints on the decision making of political executives as our baseline measure.

The first column shows that, on average, elections do not have a statistically significant predictive power on a loosening in macroprudential policy. When the proxy for institutional

[25] Results are virtually the same if we cluster standard errors at the year-level as well.

quality is included in the second column, this does not change, and institutional quality itself does not have a statistically significant effect either. However, the third column sheds light on the role of institutional quality in the interplay between elections and macroprudential policy. It provides evidence that there exists an electoral cycle in macroprudential policy, which is particularly strong when institutions are weaker (consistent with Figure 2).

When the index on institutional quality is at its lowest level, the probability of a loosening increases by 10.6 percentage points in the pre-election year. This is large, since the overall probability of a loosening in the sample is 128/1691=7.6%. Figure 3 represents the sum of the coefficient estimates of elections and the interaction between elections and the index on institutional quality with 90% confidence interval, based on the result in the third column of Table 1. As institutional quality increases, the size of the impact of the pre-election year on the likelihood of a loosening decreases. The overall effect from the pre-election year is statistically significant, at least at the 10% level, as the index on institutional quality ranges from 0 to 3. It becomes marginally statistically insignificant when the index reaches to 4, and stays insignificant as the index increases up to its maximum level, 7.

In the sample, this range of the index on institutional quality (0-3) covers 35 countries from different regions of the world with 357 country-year observations (out of 1691), and 71 elections. While some of the countries had such a lower degree of institutional quality only for few years, some countries continued to have lower degrees of institutional quality over a large span of time. The size of the effect is still large as the index reaches up to 3. When the index is 1, the increase in the probability of a loosening in the pre-election year is 8.9 percentage points. It becomes 7.1 and 5.4 percentage points as the index on institutional quality increases to 2 and 3, respectively. Alternatively, the coefficient estimates suggest that the overall effect of the pre-election year on the probability of a loosening decreases by 3.2 percentage points as the index on institutional quality increases by one standard deviation

(1.87), which is almost as large as the half of the overall probability in the sample. We conclude that the size of the effect is economically important.

Table 1: *Macroprudential policy, elections and institutions: Baseline results*

Variable	(1) Loosening	(2) Loosening	(3) Loosening	(4) Tightening
Election	-0.002	-0.002	0.106**	-0.016
	(0.021)	(0.021)	(0.047)	(0.092)
Institutional quality		0.002	0.007	-0.028*
		(0.006)	(0.007)	(0.016)
Election × *Institutional quality*			-0.017**	-0.001
			(0.007)	(0.013)
Presidential system	-0.040	-0.039	-0.033	0.102
	(0.032)	(0.032)	(0.032)	(0.127)
Election × *Presidential system*	-0.017	-0.017	-0.038	0.074
	(0.025)	(0.025)	(0.025)	(0.047)
Loosening history	-0.064***	-0.064***	-0.064***	0.016
	(0.014)	(0.014)	(0.014)	(0.014)
Tigthening history	0.028***	0.028***	0.027***	-0.050***
	(0.009)	(0.009)	(0.009)	(0.013)
Capital account openness	-0.035	-0.035	-0.036	-0.017
	(0.033)	(0.033)	(0.033)	(0.046)
Inflation	-0.000	-0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
GDP growth	-0.002	-0.002	-0.002	0.005
	(0.002)	(0.002)	(0.002)	(0.003)
Credit	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Export	0.003*	0.003*	0.003*	0.003
	(0.002)	(0.002)	(0.002)	(0.003)
Import	-0.002*	-0.002*	-0.002*	-0.003
	(0.001)	(0.001)	(0.001)	(0.003)
Current account balance	-0.002	-0.002	-0.002	-0.003
	(0.002)	(0.002)	(0.002)	(0.003)
Capital flows	0.000	0.000	0.000	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Reserves	-0.001	-0.001	-0.001	0.005**
	(0.001)	(0.001)	(0.001)	(0.002)
Δ *Exchange rate*	0.000	0.000	0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Broad money	0.000	0.000	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.002)
Government expenditure	0.002	0.002	0.002	0.005
	(0.003)	(0.003)	(0.003)	(0.007)
Country-year fixed effects	Yes	Yes	Yes	Yes
R^2	0.193	0.193	0.195	0.212
Countries	80	80	80	80
Observations	1691	1691	1691	1691

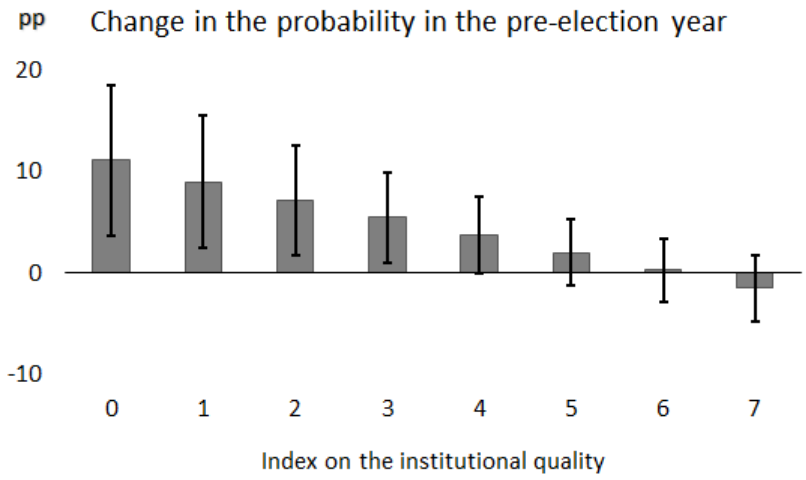
Notes: The results are based on equation 1. In the first 3 columns (the last column), the dependent variable is the dummy variable indicating a loosening (tightening) in the macroprudential framework based on the database by Alam et al. (2019). Election years are from the DPI. The proxy for institutional quality is the degree of institutionalized constraints on executives from the Polity V database. Macroeconomic control variables include credit, international reserves, export, import, broad money, current account balance, government expenditure, and capital flows as shares of GDP; and growth rate of real GDP per capita, inflation (deflator-based), percentage change in the nominal exchange rate vis-a-vis the US dollar and the de jure index for capital account openness. Political control variables include the dummy variable for presidential systems, and the interaction between elections and this dummy variable. The last set of control variables include the total number of loosening and tightening episodes since 1990 until the current year. Country and year fixed effects are included in all regressions. Standard errors in parentheses are clustered at the country-level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

The last column shows that the pre-election year and its interaction with institutional quality do not have a statistically significant impact on the probability of a tightening. Table 1 also reports the coefficient estimates for the full set of control variables included in equation 1. The first set of control variables consists of variables regarding the political environment. As a possibly competing channel, we control for a possible differential effect of the political system, namely presidential versus parliamentary, in the pre-election year throughout the regressions, together with the direct effect of the political system on the probability of a loosening. Results suggest that the political system does not have a statistically significant impact.

The second set of control variables are the history of changes in macroprudential policy. It is important to note that the history of the actions in the macroprudential framework matters on average. Results show that the total number of loosening actions in the past decreases the probability of a loosening on average. This makes sense, since in countries which loosened more in the past, the room for additional loosening and the marginal benefits from a further loosening are less. It is the opposite when we focus on the total number of tightening episodes in the past. Later, we will turn back to the differential effect of the history of policy actions in the pre-election year.

The third set of variables are macroeconomic factors. We would like to emphasize the role of three variables here. Capital account openness does not have a statistically significant impact on average. Among domestic macroeconomic indicators, inflation, economic growth and credit appear not to have a statistically significant impact. Later on, we will explore potential differential effects of these control variables in the pre-election year. We do not report the coefficient estimates of the control variables for the rest of the regressions in order to focus on the main results on institutional quality, but we keep them in all of the tests.

Figure 3: *Effect of the pre-election year on the probability of a loosening*



Notes: The figure documents the overall effect of elections based on the index on institutional quality, as reported by the third column in Table 1 with 90% confidence interval. The y-axis represents the change in the probability of a loosening in the macroprudential framework in percentage points (pp).

Before going into robustness tests, we would like to mention two additional findings. First, we evaluate the overall predictive power of the full-fledged empirical model using the receiver operating characteristic (ROC) curve in Appendix D (Figure A2). We conclude that our model is informative, and its predictive power is well comparable with recent studies focusing on binary events such as financial crises. Second, we document a similar finding on the role of institutional quality in the strength of electoral cycles in the case of monetary policy. Table A5 in Appendix E shows that monetary policy rate is more likely to be cut in the year before elections, particularly in countries with lower institutional quality.

5.2 Robustness

5.2.1 Institutional quality

Next, we test whether the previous result is robust to using different definitions or indexes for institutional quality. Table 2 illustrates the results. First, we define a dummy variable indicating low institutional quality to explore whether the pre-election year has a pronounced differential effect in countries with a low degree of institutional quality relative to their peers. The dummy variable for weak institutions is assigned 1 in a country, if the

mean value of the index on the constraints on executives throughout the sample period is below the bottom 25th percentile of the cross-country distribution, consistent with the definition in Figure 2. Note that the dummy variable is dropped from the regression, since it is time-invariant and absorbed by country fixed effects. The result shows that the probability of a loosening in the pre-election year increases by 9.3 percentage points in countries with low institutional quality, whereas elections do not have a statistically significant effect in countries with stronger institutions. This suggests that, in countries with weak institutions, the pre-election year more than doubles the overall probability of a loosening in the sample (which is 7.6%).

Table 2: *Alternative proxies for institutional quality*

Variable	Weak institutions dummy	Democracy	Political competition	Polity score	Freedom House: Civil liberties	Freedom House: Political rights
Election	-0.013	0.082**	0.110***	0.049**	0.106**	0.091**
	(0.020)	(0.033)	(0.037)	(0.023)	(0.045)	(0.045)
Institutional quality		0.002	0.007	0.002	0.004	-0.007
		(0.005)	(0.005)	(0.003)	(0.013)	(0.009)
Election × *Institutional quality*	0.093***	-0.011***	-0.014***	-0.007***	-0.020***	-0.016**
	(0.032)	(0.004)	(0.004)	(0.002)	(0.008)	(0.007)
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Macroeconomic controls	Yes	Yes	Yes	Yes	Yes	Yes
Political controls	Yes	Yes	Yes	Yes	Yes	Yes
History controls	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.195	0.196	0.196	0.196	0.194	0.195
Countries	80	80	80	80	80	80
Observations	1691	1691	1691	1691	1691	1691

Notes: The results are based on equation 1. The dependent variable is the dummy variable indicating a loosening in the macroprudential framework based on the database by Alam et al. (2019). Election years are from the DPI. In column 1, the proxy for institutional quality is a dummy variable indicating weak institutions. The dummy for weak institutions is assigned 1, if a country has the average value of the index on constraints on executives below the bottom 25th percentile of the cross-country distribution (consistent with Figure 2), and 0 otherwise. Note that the dummy is time-invariant for each country, and hence dropped given the country fixed effects. The index on constraints on executives is from the Polity V database. In columns 2,3 and 4, the proxies for institutional quality are indexes on democracy, political competition and polity score, respectively, obtained from the Polity V database. In columns 5 and 6, the proxies for institutional quality are the indexes on civil liberties and political rights, respectively, obtained from the Freedom House database. Macroeconomic control variables include credit, international reserves, export, import, broad money, current account balance, government expenditure, and capital flows as shares of GDP; and growth rate of real GDP per capita, inflation (deflator-based), percentage change in the nominal exchange rate vis-a-vis the US dollar and the de jure index for capital account openness. Political control variables include the dummy variable for presidential systems, and the interaction between elections and this dummy variable. The last set of control variables include the total number of loosening and tightening episodes since 1990 until the current year. Country and year fixed effects are included in all regressions. Standard errors in parentheses are clustered at the country-level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

The second, third and fourth columns adopt the indexes on the democracy, political competition and polity score from the Polity V database, respectively. The last 2 columns represent results when we proxy institutional quality using indexes on civil liberties and political rights from the Freedom House database. Results are similar.

5.2.2 Dates for elections

Now, we aim to address two potential concerns related to election years. First, we use one-year forward value of the election dummy ($t + 1$), since economic outcomes are likely

to reflect changes in policies with a delay, and thus ruling parties may alter policies prior to election years considering this fact. However, for elections which do not take place at the beginning of the year, policy changes can be undertaken within the same year, since there is presumably enough time for policy changes to be reflected in economic outcomes. We test this by assigning the election dummy within the same year for the elections which takes place after the first quarter of the year based on the data available for months. However, we note that a drawback of this specification is that information on the exact month is not available for many elections. We assign these years only when the month is available. The first column in Table 3 shows the result. This result is similar if we do a similar analysis using the first half of the year, instead of only the first quarter. The result is similar.

The second issue is reverse causality, particularly in case of elections that took place earlier than previously scheduled (snap elections). Economic developments may force ruling parties to hold an election, which can make the timing of elections endogenous. Although controlling for a large set of macroeconomic indicators may alleviate this problem, this can still be an issue.[26] On the other hand, in the case of such elections, ruling parties may not have enough time to change policy in the year prior to elections, which potentially works against our findings.[27] We identify such irregular elections using the DPI database, and assign the dummy for election years 0 for those elections. Therefore, we only count regular elections whose timing is truly exogenous. The second column of Table 3 illustrates the result. We see that our main result stays robust. This is crucial for identification, since it rules out reverse causality as a possible explanation of our findings.

[26] We also address this possibility as mentioned in footnote 24. In sum, forthcoming elections in the sample do not appear to have a significant effect on the lagged values of macroeconomic variables on average. See footnote 24 and Appendix C for the corresponding results.

[27] There is possibly another channel working against our results in the case of snap elections. Governments, if they have enough power, may decide to hold elections earlier than scheduled if they think their probability of re-election is high enough at that point due to some other factors not related to economics variables. If this is the case, they may not need to take policy actions, since they believe that they are likely to win anyway.

Table 3: *Tests on election years*

Variable	Elections based on month	Regular elections
Election	0.086**	0.111**
	(0.041)	(0.051)
Institutional quality	0.008	0.006
	(0.006)	(0.007)
Election × *Institutional quality*	-0.016***	-0.018**
	(0.006)	(0.008)
Country fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Macroeconomic controls	Yes	Yes
Political controls	Yes	Yes
History controls	Yes	Yes
R^2	0.195	0.195
Countries	80	80
Observations	1688	1691

Notes: The results are based on equation 1. The dependent variable is the dummy variable indicating a loosening in the macroprudential framework based on the database by Alam et al. (2019). Election years are from the DPI. In column 1, we use the election dummy at year t, if the election occurs after the first quarter of the year. In column 2, we assign the dummy for election years 1 only in case of regular elections. The proxy for institutional quality is the degree of institutionalized constraints on executives from the Polity V database. Macroeconomic control variables include credit, international reserves, export, import, broad money, current account balance, government expenditure, and capital flows as shares of GDP; and growth rate of real GDP per capita, inflation (deflator-based), percentage change in the nominal exchange rate vis-a-vis the US dollar and the de jure index for capital account openness. Political control variables include the dummy variable for presidential systems, and the interaction between elections and this dummy variable. The last set of control variables include the total number of loosening and tightening episodes since 1990 until the current year. Country and year fixed effects are included in all regressions. Standard errors in parentheses are clustered at the country-level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

5.2.3 Model specification

In this set of tests, we examine the sensitivity of our results to different model specifications, namely, to different combinations of trends and fixed effects, and to non-linear models. Table 4 illustrates the results. In the first column, we replace year fixed effects with a year trend that is common across countries to investigate global trends, such as globalization, can affect policy decisions across countries. Second, we add country-specific year trends (on top of country and year fixed effects) to account for any slow-moving country trends that can drive, or correlate with, policy actions within countries. Results stay very similar.

In the third column, we control for the VIX index as a proxy for global factors, instead of year fixed effect. Our main result is not affected. This result is almost the same when we control for the oil price or the growth rate of GDP in the US, instead of the VIX index. The coefficient estimates for both the VIX index and oil price are positive, and it is negative for the US GDP growth. Their coefficient estimates are all statistically significant, pointing out that tighter global conditions are associated with a higher probability of a loosening on average.

Fourth, it can be the case that most of the direct effect of institutional quality is absorbed by country fixed effects, since it is a slow-moving variable within country. The result in the fourth column shows that results do not change, if we drop country fixed effects to supposedly capture the effect of institutional quality better. The coefficient estimate of institutional quality is still statistically insignificant. In the last 2 columns, we run the test using non-linear models (i.e. probit and logit), instead of linear probability model. Results remain similar.

Table 4: *Different models*

Variable	Common year trend	Country-specific year trends	Global shocks	No country F.E.	Probit	Logit
Election	0.105**	0.112**	0.105**	0.107**	0.103**	0.112***
	(0.049)	(0.048)	(0.048)	(0.048)	(0.044)	(0.041)
Institutional quality	0.006	0.014	0.009	0.007	0.008	0.008
	(0.007)	(0.009)	(0.006)	(0.005)	(0.005)	(0.005)
Election × *Institutional quality*	-0.017**	-0.018**	-0.017**	-0.017**	-0.016**	-0.017***
	(0.008)	(0.007)	(0.008)	(0.007)	(0.007)	(0.007)
Country fixed effects	Yes	Yes	Yes	No	No	No
Year fixed effects	No	Yes	No	Yes	No	No
Macroeconomic controls	Yes	Yes	Yes	Yes	Yes	Yes
Political controls	Yes	Yes	Yes	Yes	Yes	Yes
History controls	Yes	Yes	Yes	Yes	Yes	Yes
R^2/pseudo R^2	0.161	0.272	0.169	0.083	0.076	0.073
Countries	80	80	80	80	80	80
Observations	1691	1691	1691	1691	1691	1691

Notes: The results are based on equation 1. Column 1 controls for common linear year trend instead of year fixed effects. Column 2 controls for country-specific linear year on top of country and year fixed effects. Column 3 controls for the VIX index as a proxy for global shocks common across countries, instead of year fixed effects. Column 4 drops country fixed effects. Columns 5 and 6 run probit and logit models, respectively. The dependent variable is the dummy variable indicating a loosening in the macroprudential framework based on the database by Alam et al. (2019). Election years are from the DPI. The proxy for institutional quality is the degree of institutionalized constraints on executives from the Polity V database. Macroeconomic control variables include credit, international reserves, export, import, broad money, current account balance, government expenditure, and capital flows as shares of GDP; and growth rate of real GDP per capita, inflation (deflator-based), percentage change in the nominal exchange rate vis-a-vis the US dollar and the de jure index for capital account openness. Political control variables include the dummy variable for presidential systems, and the interaction between elections and this dummy variable. The last set of control variables include the total number of loosening and tightening episodes since 1990 until the current year. Standard errors in parentheses are clustered at the country-level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

5.2.4 Sample

In the final set of robustness, we focus on the sample. In the first column in Table 5, we add the three major economies, namely the US, Japan and UK to the sample, and run the test for 83 economies. In the second column, we drop macroeconomic control variables that are not available for the Eurozone countries to include those economies.

In the third column, we drop advanced economies from the sample, based on the categorization by the United Nations World Economic Situation and Prospects (2018) report, and test the relationship using data only from EMDEs. This test is sensible, since macropru-

dential policy may be more important in those countries due to higher exposure to external shocks, such as volatile capital flows and global financial cycle. Few papers also find evidence in line with this showing that macroprudential policy is more effective in EMDEs, e.g. Cerutti et al. (2017) and Richter et al. (2019). This check is also useful to observe if institutional proxy used in this study was a proxy for economic development. If this was the case, we would not be able to observe an effect (coming from the interaction term between the pre-election year and institutional quality) as strong as the previous results, since this sample is more homogeneous in terms of the level of economic development. Note that we explore the role of this alternative explanation (institutional quality as a potential proxy for economic development) in our results, and conclude that it is not the case (see Appendix F).

The fourth column tests the relationship using data only from 44 countries (with 35 EMDEs) which had at least one loosening in the sample. The fifth column drops countries which saw a change in the index on institutional quality in the sample. By doing so, we aim to address a potential concern that past elections may affect the institutional environment. In this test, there are 38 countries in which the index did not change throughout the sample period.

The sixth column runs a weighted regression where weights are the lagged values of logarithm of real GDP to make sure that smaller economies do not drive the result. To further alleviate this concern about smaller economies, the seventh column drops 20 smallest economies (based on the average GDP across the sample period), and runs the test using data from the 60 largest economies.

The eighth column drops the countries in the European Union from the sample, and examine the relationship with the data from the remaining countries. The main reasoning behind this is that policies in those countries can be influenced by the standards imposed by

the rules of the union, and policy makers may have less room to manipulate policies.

Finally, the number of loosening episodes are higher since 2005, as shown by Figure 1. To examine whether our results survive in this period where these tools were more heavily used, we test the relationship for the period of 2005-2016. Throughout these tests on the sample selection, results stay similar.[28]

[28] Results are also robust, if we focus narrowly on the GFC where the loosening episodes are the most frequent in Figure 1, namely the period over 2005-2009. In addition, when we include a dummy variable indicating the post-GFC period, which takes 1 for the period starting from 2008, and its interaction with the election dummy, we observe that the post-GFC period does not make a difference in the relationship. That is, the effect of elections does not change in the post-GFC period significantly. Our baseline result on the differential effect of institutional quality stays robust in that test.

Table 5: *Sample*

Variable	Major economies	Eurozone	EMDEs	At least one loosening	Constant inst. quality	Weighted regression	Larger economies	Dropping the EU countries	2005-2016
Election	0.109**	0.100**	0.132***	0.173**	0.145**	0.116**	0.162***	0.132***	0.219***
	(0.046)	(0.047)	(0.043)	(0.075)	(0.066)	(0.049)	(0.058)	(0.044)	(0.082)
Institutional quality	0.008	0.06	0.003	0.011		0.008	0.013	0.005	0.019
	(0.006)	(0.007)	(0.006)	(0.013)		(0.007)	0.008	(0.006)	(0.016)
Election × *Institutional quality*	-0.017**	-0.18**	-0.019***	-0.031**	-0.022**	-0.019**	-0.025***	-0.021***	-0.035***
	(0.007)	(0.007)	(0.007)	(0.013)	(0.010)	(0.008)	(0.009)	(0.007)	(0.012)
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Macroeconomic controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Political controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
History controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.190	0.144	0.188	0.194	0.218	0.195	0.210	0.187	0.291
Countries	83	97	44	38	80	60	72	79	
Observations	1765	1907	1404	991	786	1691	1365	1512	882

Notes: The results are based on equation 1. Column 1 adds the US, Japan and UK to the sample. Column 2 drops money to GDP ratio and change in the exchange rate and include the Eurozone countries. Column 3 runs the test using data from emerging market and developing economies (EMDEs). Column 4 tests the relationship in the sub-sample consisting of countries which had at least one episode in loosening in the overall sample. Column 5 includes only the countries whose index on institutional quality did not change throughout the sample period. Column 6 runs a weighted regression where weights are lagged values of the logarithm of real GDP. Column 7 drops 20 smallest economies from the sample. Column 8 drops the countries in the European Union from the sample. The last column tests the relationship in the period of 2005-2016. The dependent variable is the dummy variable indicating a loosening in the macroprudential framework based on the database by Alam et al. (2019). Election years are from the DPI. The proxy for institutional quality is the degree of institutionalized constraints on executives from the Polity V database. Macroeconomic control variables include credit, international reserves, export, import, broad money, current account balance, government expenditure, and capital flows as shares of GDP; and growth rate of real GDP per capita, inflation (deflator-based), percentage change in the nominal exchange rate vis-a-vis the US dollar and the de jure index for capital account openness. Political control variables include the dummy variable for presidential systems, and the interaction between elections and this dummy variable. The last set of control variables include the total number of loosening and tightening episodes since 1990 until the current year. Country and year fixed effects are included in all regressions. Standard errors in parentheses are clustered at the country-level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

5.3 Policy actions in the post-election year

In this section, we explore the policy decisions in the post-election year. First, if policy makers loosen macroprudential policy in the pre-election year to reap political benefits in the short-term, i.e. if this is driven by electoral cycles, we may expect not to observe a significant change in the probability of a loosening in the year after elections. The first column in Table 6 shows that this is the case. Our coefficient estimates are small and statistically insignificant when we use the lagged value of the election dummy in equation 1. This further

suggests that our previous findings are mainly driven by electoral cycles.

Second, it is important to see if loosening episodes in the pre-election year is likely to be reversed in the post-election year, or if macroprudential policy is likely to stay in its new level following the election. We use a dummy variable indicating a tightening in macroprudential policy in this case. As Column 2 shows, there is no strong evidence that policy actions are reversed following elections.

Table 6: *Policy actions in the post-election year*

Variable	Probability of a loosening	Probability of a tightening
Election	-0.007	0.023
	(0.051)	(0.100)
Institutional quality	0.005	-0.029*
	(0.006)	(0.015)
Election × *Institutional quality*	0.001	-0.007
	(0.007)	(0.014)
Country fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Macroeconomic controls	Yes	Yes
Political controls	Yes	Yes
History controls	Yes	Yes
R^2	0.197	0.212
Countries	80	80
Observations	1680	1680

Notes: The results are based on equation 1. The dependent variable is the dummy variable indicating a loosening and tightening in the macroprudential framework based on the database by Alam et al. (2019) in columns 1 and 2, respectively. Election years are from the DPI. We use the lagged value (t-1) of the election dummy to examine the policy actions in the post-election year. The proxy for institutional quality is the degree of institutionalized constraints on executives from the Polity V database. Macroeconomic control variables include credit, international reserves, export, import, broad money, current account balance, government expenditure, and capital flows as shares of GDP; and growth rate of real GDP per capita, inflation (deflator-based), percentage change in the nominal exchange rate vis-a-vis the US dollar and the de jure index for capital account openness. Political control variables include the dummy variable for presidential systems, and the interaction between elections and this dummy variable. The last set of control variables include the total number of loosening and tightening episodes since 1990 until the current year. Country and year fixed effects are included in all regressions. Standard errors in parentheses are clustered at the country-level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

5.4 Role of other factors

5.4.1 Openness and history

Until now, we control for the average effect of capital account openness in the set of macroeconomic control variables, as well as the full history of macroprudential policy actions. As shown in Table 1, openness does not have a statistically significant effect on the likelihood of a loosening, whereas the history of policy actions does. Countries which relied more on the loosening (tightening) of macroprudential policy are less (more) likely to loosen, on average. Now, we examine whether these past policy-related factors contribute to the effect of elections on the likelihood of a loosening in the macroprudential framework, in addition to the impact of institutional quality. For this purpose, we add the interaction between these control variables and the election dummy into our specification in equation 1.

The first column in Table 7 shows that countries that loosened the macroprudential framework less in the past are somewhat more likely to loosen in the pre-election year, relative to their peers. In other words, as countries loosen more in the past, they experience weaker electoral cycles in macroprudential policy.[29] This is potentially driven by: (i) there exists less space to loosen, and (ii) marginal benefit of a macroprudential policy loosening may be decreasing as the policy makers lean more towards those, as mentioned before. The situation is different in the case of the number of tightening episodes as the second column shows. Although, on average, it has a significant effect on the probability of a loosening, the number of tightening actions in the past does not appear to affect the probability of a loosening specifically before the election year.

Second, as mentioned before, financially more open countries are more subject to the global financial conditions. This leaves their policy makers less room for domestic financial policies. Moreover, cross-border interactions may make macroprudential policy less

[29] If the number of past loosening episodes is larger than one (covering 31 countries with 340 country-year observations), the overall effect of the pre-election year becomes insignificant.

effective in determining domestic outcome. Consistent with these, the the third column documents that countries that are financially less open are more likely to experience a loosening in the pre-election years, relative to more open countries. As the index for openness increases by one standard deviation (0.495), the probability of a loosening in the pre-election year is dampened by 3.2 percentage points. We conclude that financial openness weakens the electoral cycle in macroprudential policies.

We conclude that the policy-related factors are likely to affect the strength of electoral cycles in macroprudential policy, especially in the case of the past actions in macroprudential policy and regulatory actions in terms of financial openness. Lastly, we note that these do not undermine the role of institutional quality, as our previous result on the impact of institutions stays robust across these tests.

Table 7: *The role of the history of policy actions and openness*

Variable	Past loosening	Past tightening	Capital account openness
Election	0.108**	0.101**	0.131***
	(0.046)	(0.047)	(0.049)
Institutional quality	0.006	0.007	0.006
	(0.007)	(0.007)	(0.007)
Election × Institutional quality	-0.016**	-0.018**	-0.016**
	(0.007)	(0.007)	(0.008)
Past loosening	-0.060***	-0.063***	-0.063***
	(0.013)	(0.014)	(0.014)
Past tightening	0.027***	0.026***	0.027***
	(0.009)	(0.009)	(0.009)
Openness	-0.035	-0.036	-0.022
	(0.033)	(0.033)	(0.034)
Election × Past loosening	-0.017*		
	(0.008)		
Election × Past tightening		0.004	
		(0.009)	
Election × Openness			-0.064**
			(0.026)
Country fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Macroeconomic controls	Yes	Yes	Yes
Political controls	Yes	Yes	Yes
History controls	Yes	Yes	Yes
R^2	0.197	0.195	0.197
Countries	80	80	80
Observations	1691	1691	1691

Notes: The results are based on equation 1. Columns 1,2 and 3 add the interaction between the election dummy and the cumulative number of loosening and tightening episodes, and the capital account openness, respectively. The dependent variable is the dummy variable indicating a loosening in the macroprudential framework based on the database by Alam et al. (2019). Election years are from the DPI. The proxy for institutional quality is the degree of institutionalized constraints on executives from the Polity V database. Macroeconomic control variables include credit, international reserves, export, import, broad money, current account balance, government expenditure, and capital flows as shares of GDP; and growth rate of real GDP per capita, inflation (deflator-based), percentage change in the nominal exchange rate vis-a-vis the US dollar and the de jure index for capital account openness. Political control variables include the dummy variable for presidential systems, and the interaction between elections and this dummy variable. The last set of control variables include the total number of loosening and tightening episodes since 1990 until the current year. Country and year fixed effects are included in all regressions. Standard errors in parentheses are clustered at the country-level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

5.4.2 Macroeconomic indicators

Given the existing evidence on the effect of macroprudential policy decisions on inflation, economic growth and credit, we now focus on the differential effect of these variables on the likelihood of a loosening in macroprudential policy in the pre-election year. Table 8

represents the results. In Column 1, we find evidence that electoral cycles in macroprudential policy are even stronger, when inflation is lower. So, higher inflation weakens the strength of electoral cycle in macroprudential policy. An explanation for this can be that, for instance, if aggregate demand is already high and driving the inflation, and the economy operates close to full employment, further boosting the demand with loose macroprudential policy is less likely to increase output and more likely to exacerbate the inflation problem. Thus, policy makers might avoid using loose macroprudential policy before the election if inflation is high in the first place. The coefficient estimate implies that as inflation increases by 10 percentage points, the probability of a loosening in the pre-election year is dampened by 0.4 percentage points.

Interestingly, we do not find a statistically significant effect of past economic growth (column 2) or credit (column 3) on the likelihood of a loosening before elections. We note that the result on credit does not change if we use the change in credit instead of its level. The effect of institutional quality in the pre-election year remains similar throughout these tests.

Table 8: *The role of macroeconomic indicators*

Variable	Inflation	Growth	Credit
Election	0.107**	0.095**	0.096**
	(0.047)	(0.046)	(0.045)
Institutional quality	0.007	0.007	0.007
	(0.007)	(0.007)	(0.007)
Election × *Institutional quality*	-0.017***	-0.017***	-0.018***
	(0.007)	(0.007)	(0.008)
Inflation	-0.0001	-0.0001	-0.0001
	(0.0000)	(0.0000)	(0.0000)
GDP growth	-0.002	-0.003	-0.002
	(0.002)	(0.003)	(0.002)
Credit	0.0001	0.0001	0.0000
	(0.0005)	(0.0004)	(0.0001)
Election × *Inflation*	-0.0004***		
	(0.0001)		
Election × *GDP growth*		0.004	
		(0.0004)	
Election × *Credit*			0.0001
			(0.0004)
Country fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Macroeconomic controls	Yes	Yes	Yes
Political controls	Yes	Yes	Yes
History controls	Yes	Yes	Yes
R^2	0.196	0.195	0.195
Countries	80	80	80
Observations	1691	1691	1691

Notes: The results are based on equation 1. Columns 1,2 and 3 add the interaction between the election dummy and inflation, economic growth and credit, respectively. The dependent variable is the dummy variable indicating a loosening in the macroprudential framework based on the database by Alam et al. (2019). Election years are from the DPI. The proxy for institutional quality is the degree of institutionalized constraints on executives from the Polity V database. Macroeconomic control variables include credit, international reserves, export, import, broad money, current account balance, government expenditure, and capital flows as shares of GDP; and growth rate of real GDP per capita, inflation (deflator-based), percentage change in the nominal exchange rate vis-a-vis the US dollar and the de jure index for capital account openness. Political control variables include the dummy variable for presidential systems, and the interaction between elections and this dummy variable. The last set of control variables include the total number of loosening and tightening episodes since 1990 until the current year. Country and year fixed effects are included in all regressions. Standard errors in parentheses are clustered at the country-level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

5.4.3 Political orientation

Finally, we explore if the political orientation of the existing government makes a difference in electoral cycles in macroprudential policy. We define three dummy variables indicating political orientation, namely, right, center and left. We add the dummy variable defining the political orientation of the existing executives and the interaction between this and the

election dummy into equation 1. Table 9 shows that none of those orientations affects the policy actions. Our baseline result on the effect of institutional quality stays robust.

Table 9: *The role of political orientation*

Variable	Right	Center	Left
Election	0.106**	0.114**	0.111**
	(0.047)	(0.048)	(0.048)
Institutional quality	0.007	0.007	0.007
	(0.007)	(0.007)	(0.007)
Election × *Institutional quality*	-0.018**	-0.019**	-0.018**
	(0.007)	(0.008)	((0.007)
Orientation	0.022	-0.050	0.003
	(0.035)	(0.031)	(0.032)
Election × *Orientation*	0.018	0.071	-0.018
	(0.031)	(0.048)	(0.029)
Country fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Macroeconomic controls	Yes	Yes	Yes
Political controls	Yes	Yes	Yes
History controls	Yes	Yes	Yes
R^2	0.196	0.195	0.195
Countries	80	80	80
Observations	1688	1688	1688

Notes: The results are based on equation 1. The dependent variable is the dummy variable indicating a loosening in the macroprudential framework based on the database by Alam et al. (2019). Election years are from the DPI. The proxy for institutional quality is the degree of institutionalized constraints on executives from the Polity V database. In columns 1,2 and 3, we add the dummy variables regarding the political orientation of the existing party as defined by the DPI, as well as its interaction with election years. Macroeconomic control variables include credit, international reserves, export, import, broad money, current account balance, government expenditure, and capital flows as shares of GDP; and growth rate of real GDP per capita, inflation (deflator-based), percentage change in the nominal exchange rate vis-a-vis the US dollar and the de jure index for capital account openness. Political control variables include the dummy variable for presidential systems, and the interaction between elections and this dummy variable. The last set of control variables include the total number of loosening and tightening episodes since 1990 until the current year. Country and year fixed effects are included in all regressions. Standard errors in parentheses are clustered at the country-level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

6 Conclusion

The electoral cycles in fiscal and monetary policies are relatively well-documented by the existing literature. The evidence on macroprudential policy is scarce though. We shed light on this phenomenon and document comprehensive evidence on the presence of electoral cycles in macroprudential policy. We find that institutional quality plays a key role in this relationship. Electoral cycle is particularly strong and leads to a higher probability of a loosening in macroprudential policy in the pre-election year, when institutions are weak.

Our results point out to a specific challenge in economies while designing macroprudential tools, namely political influence. Macroprudential policy is not immune to political pressure, particularly when institutions are not strong enough, meaning that strong institutions can shield it from political interference. This implies additional gains from improving the institutional environment in a country. When countries take steps and undertake relevant reforms to improve institutional quality, they enable macroprudential authorities to set the policy framework independent of any influence from politicians. Hence, macroprudential policy in turn can serve its main goal -to contain systemic risk and prevent financial crises- and help the country avoid potentially large losses arising from the financial stability issues. Moreover, in a multilateral perspective, the implication of our findings goes beyond the domestic policy making. That is, when a financial crisis hits one country due to the lack of preventive and forceful macroprudential actions, this would impose substantial costs on other countries through financial linkages. Hence, other countries, as well as the international financial system as a whole, would also gain from improving the institutional strength in one country.

Besides institutions though, the policy actions in the past, openness and inflation also appear to be important in determining the strength of electoral cycles in macroprudential policy. Lastly, it is important to note that this analysis does not suggest a best practice, or an optimal timing/way of undertaking macroprudential policy. It is an important question which must be answered considering a detailed cost-benefit analysis, and hence is beyond the scope of this paper.

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Appendix

A. Details on data

A.1. Macroprudential policy instruments

Alam et al. (2019) describe macroprudential policy instruments in 17 main categories as below:[30]

1. Countercyclical capital buffers: A requirement for banks to maintain a countercyclical capital buffer. Implementations at 0% are not considered as a tightening in dummy-type indicators.

2. Conservation: Requirements for banks to maintain a capital conservation buffer, including the one established under Basel III.

3. Capital requirements: Capital requirements for banks, which include risk weights, systemic risk buffers, and minimum capital requirements. Countercyclical capital buffers and capital conservation buffers are captured in their sheets respectively and thus not included here. Subcategories of capital measures are also provided, classifying them into household sector targeted (HH), corporate sector targeted (Corp), broad-based (Gen), and FX-loan targeted (FX) measures.

4. Leverage limits: A limit on leverage of banks, calculated by dividing a measure of capital by the bank's non-riskweighted exposures (e.g., Basel III leverage ratio).

5. Loan loss provisions: Loan loss provision requirements for macroprudential purposes, which include dynamic provisioning and sectoral provisions (e.g. housing loans).

6. Limits on credit growth: Limits on growth or the volume of aggregate credit, the household-sector credit, or the corporate-sector credit by banks, and penalties for high credit growth. Subcategories of limits to credit growth are also provided, classifying them into household sector targeted (HH), corporate sector targeted (Corp), and broad-based (Gen) measures.

7. Loan restrictions: Loan restrictions, that are more tailored than those captured in "LCG". They include loan limits and prohibitions, which may be conditioned on loan characteristics

[30] The source for this part is Table 3 in Appendix I in the paper by Alam et al. (2019).

(e.g., the maturity, the size, the LTV ratio and the type of interest rate of loans), bank characteristics (e.g., mortgage banks), and other factors. Subcategories of loan restrictions are also provided, classifying them into household sector targeted (HH), and corporate sector targeted (Corp) measures. Restrictions on foreign currency lending are captured in "LFC".

8. Limits on foreign currency: Limits on foreign currency (FC) lending, and rules or recommendations on FC loans.

9. Limits on the loan-to-value ratio: Limits to the loan-to-value ratios, including those mostly targeted at housing loans, but also includes those targeted at automobile loans, and commercial real estate loans.

10. Limits on the debt service-to-income ratio: Limits to the debt-service-to-income ratio and the loan-to-income ratio, which restrict the size of debt services or debt relative to income. They include those targeted at housing loans, consumer loans, and commercial real estate loans.

11. Tax measures: Taxes and levies applied to specified transactions, assets, or liabilities, which include stamp duties, and capital gain taxes.

12. Liquidity requirements: Measures taken to mitigate systemic liquidity and funding risks, including minimum requirements for liquidity coverage ratios, liquid asset ratios, net stable funding ratios, core funding ratios and external debt restrictions that do not distinguish currencies

13. Limits on the loan-to-deposit-ratio: Limits to the loan-to-deposit (LTD) ratio and penalties for high LTD ratios.

14. Limits on foreign exchange positions: Limits on net or gross open foreign exchange (FX) positions, limits on FX exposures and FX funding, and currency mismatch regulations.

15. Reserve requirements: Reserve requirements (domestic or foreign currency) for macroprudential purposes. Please note that this category may currently include those for monetary policy as distinguishing those for macroprudential or monetary policy purposes is often not clear-cut. A subcategory of reserve requirements is provided for those differentiated by

currency (FCD), as they are typically used for macroprudential purposes.

16. Systemically important financial institutions: Measures taken to mitigate risks from global and domestic systemically important financial institutions (SIFIs), which includes capital and liquidity surcharges.

17. Other: Macroprudential measures not captured in the above categories—e.g., stress testing, restrictions on profit distribution, and structural measures (e.g., limits on exposures between financial institutions).

A concern may emerge related to the definition of policies that fall into the category called "Other" in the dataset, since what sorts of specific tools this category include is not as clear as the rest. We note that our results throughout the paper stay the same, if we exclude this last category, and construct the dummy for a loosening using the remaining 16 categories.

A.2. Results based on an alternative definition of loosening events

In our baseline regressions, we construct the dummy variable for a loosening in a country at a given year based on the net terms. This sort of definition is more relevant for our purpose, since we explore whether there is an overall loosening in the macroprudential framework in the pre-election year. However, as a robustness check, we also show that results, both qualitatively and quantitatively similar, if we assign the dummy for a loosening 1, whenever there is a loosening episode in a year (regardless of whether or how many tightening actions take place in the same year). Thus, there are more loosening episodes in this sample, relative to our baseline sample. In total, there are 186 episodes, which make the overall probability of a loosening in this sample 11.0% in this analysis. Table A1 shows that results are the same. The pre-election year increases the probability of a loosening by 11.9 percentage points, when the index on institutional quality is at 0. The overall effect of the pre-election year stays statistically significant as long as the index is between 0 and 3, same as the baseline results.

Table A1: *Macroprudential policy, elections and institutions: An alternative definition of a loosening*

Variable	Loosening	Loosening	Loosening
Election	-0.007	-0.007	0.119**
	(0.025)	(0.025)	(0.051)
Institutional quality		0.004	0.0010
		(0.008)	(0.008)
Election × *Institutional quality*			-0.020**
			(0.008)
Country fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Macroeconomic controls	Yes	Yes	Yes
Political controls	Yes	Yes	Yes
History controls	Yes	Yes	Yes
R^2	0.249	0.249	0.251
Countries	80	80	80
Observations	1691	1691	1691

Notes: The results are based on equation 1. The dependent variable is the dummy variable indicating a loosening in the macroprudential framework based on the database by Alam et al. (2019) on gross terms. Election years are from the DPI. The proxy for institutional quality is the degree of institutionalized constraints on executives from the Polity V database. Macroeconomic control variables include credit, international reserves, export, import, broad money, current account balance, government expenditure, and capital flows as shares of GDP; and growth rate of real GDP per capita, inflation (deflator-based), percentage change in the nominal exchange rate vis-a-vis the US dollar and the de jure index for capital account openness. Political control variables include the dummy variable for presidential systems, and the interaction between elections and this dummy variable. The last set of control variables include the total number of loosening and tightening episodes since 1990 until the current year. Country and year fixed effects are included in all regressions. Standard errors in parentheses are clustered at the country-level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

A.3. Indexes on institutional quality

Table A2 provides the summary statistics of proxies for institutional quality.

Table A2: *Indexes on institutional quality*

Index	25th ptile	Median	Mean	75th ptile	Std. dev.	Observations
Constraints on executives	4	6	5.403	7	1.872	1691
Democracy score	4	8	6.291	9	3.497	1691
Political competition	6	9	7.266	9	2.831	1691
Polity score	3	7	4.935	9	5.732	1691
Civil liberties	4	5	4.756	6	1.503	1691
Political rights	4	5	4.828	7	1.891	1691

Notes: The index on the degree of institutionalized constraints on political executives, democracy score, the degree of political competition, and the polity score are from the Polity V database. See the Polity V User's Manuel for more details. The indexes on civil liberties and political rights are from the Freedom House database.

Table A3 provides the pairwise correlations between proxies for institutional quality. Correlations between indexes are very high and statistically significant at the 1% level.

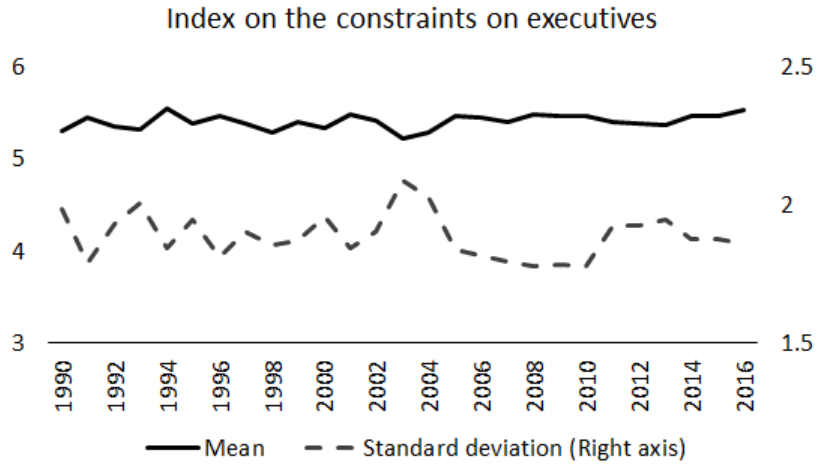
Table A3: *Correlations between indexes on institutional quality*

Index	Constraints on executives	Democracy score	Political competition	Polity score	Civil liberties	Political rights
Constraints on executives	1					
Democracy score	0.945***	1				
Political competition	0.846***	0.910***	1			
Polity score	0.951***	0.973***	0.935***	1		
Civil liberties	0.706***	0.800***	0.728***	0.751***	1	
Political rights	0.779***	0.866***	0.764***	0.824***	0.907***	1

Notes: The index on the degree of institutionalized constraints on political executives, democracy score, the degree of political competition, and the polity score are from the Polity V database. See the Polity V User's Manuel for more details. The indexes on civil liberties and political rights are from the Freedom House database. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Figure A1 reports the cross-country mean and standard deviation of our baseline measure for institutional quality, the index on constraints on executives, over the period of 1990-2016 in the sample. It shows that there is no significant trend over time, meaning that neither the mean nor the variation across countries has changed substantially over time.

Figure A1: *The index on the constraints on executives*



Notes: The figure reports the cross-country mean and standard deviation of the index on the constraints on executives in the sample.

B. Countries in the sample

The list of the 80 countries in the main sample is as follows: Albania, Algeria, Angola, Argentina, Armenia, Australia, Azerbaijan, Bangladesh, Belarus, Bosnia and Herzegovina, Botswana, Brazil, Bulgaria, Burundi, Cabo Verde, Cambodia, Canada, Chile, China, Colombia, Congo, Dem. Rep., Costa Rica, Croatia, Czechia, Denmark, Dominican Republic, Ecuador, El Salvador, Gambia, Georgia, Ghana, Haiti, Honduras, Hungary, India, Indonesia, Israel, Jamaica, Kazakhstan, Kenya, Korea, Kyrgyz Republic, Lao PDR, Lebanon, Lesotho, Malaysia, Mauritania, Mauritius, Mexico, Moldova, Mongolia, Mozambique, Nepal, New Zealand, Nigeria, North Macedonia, Norway, Pakistan, Paraguay, Peru, Philippines, Poland, Romania, Russia, Singapore, Solomon Islands, South Africa, Sri Lanka, Sweden, Switzerland, Tajikistan, Tanzania, Thailand, Tunisia, Turkey, Uganda, Ukraine, Uruguay, Vietnam and Zambia.

C. Exogeneity of macroeconomic control variables

Table A4 shows results on regressing the lagged values of each macroeconomic control variable regarding the state of the economy on the election dummy, the index on institutional quality and the interaction between the two, as mentioned in footnote 24. As mentioned in the footnote, the coefficient estimates for those 3 explanatory variables are statistically insignificant, meaning that neither elections nor its interaction with institutions has a significant impact on macroeconomic control variables in our regressions.

Table A4: *Exogeneity of macroeconomic control variables*

Dependent variable	*Election*	*Institutional quality*	*Election* × *Institutional quality*	R^2	Countries	Observations
Inflation	-12.320	10.310	-0.815	0.150	80	1691
	(16.621)	(10.385)	(2.882)			
GDP growth	0.008	0.002	-0.001	0.366	80	1691
	(0.005)	(0.002)	(0.001)			
Credit	-0.037	-1.349	0.099	0.850	80	1691
	(1.274)	(0.949)	(0.223)			
Export	-0.037	0.260	-0.037	0.918	80	1691
	(1.255)	(0.469)	(0.201)			
Import	0.449	0.795*	-0.060	0.911	80	1691
	(0.947)	(0.453)	(0.156)			
Current account balance	0.029	-0.198	-0.012	0.550	80	1691
	(1.048)	(0.220)	(0.160)			
Capital flows	0.033	-0.002	-0.013	0.114	80	1691
	(0.035)	(0.006)	(0.009)			
Reserves	-0.002	0.004	0.001	0.869	80	1691
	(0.013)	(0.004)	(0.002)			
Δ *Exchange rate*	-0.185	0.101	0.001	0.125	80	1691
	(0.163)	(0.105)	(0.028)			
Broad money	-0.433	-0.705	0.210	0.913	80	1691
	(1.588)	(0.535)	(0.264)			
Government expenditure	-0.346	0.184	0.043	0.877	80	1691
	(0.393)	(0.122)	(0.063)			

Notes: The results are based on regressing each macroeconomic indicator on election dummy, the index on institutional quality and the interaction between the two, as mentioned in footnote 24. Election years are from the DPI. The proxy for institutional quality is the degree of institutionalized constraints on executives from the Polity V database. Dependent variables (throughout regressions represented in each row) include credit, international reserves, export, import, broad money, current account balance, government expenditure, and capital flows as shares of GDP; and growth rate of real GDP per capita, inflation (deflator-based), and percentage change in the nominal exchange rate vis-a-vis the US dollar. Country and year fixed effects are included in all regressions. Standard errors in parentheses are clustered at the country-level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

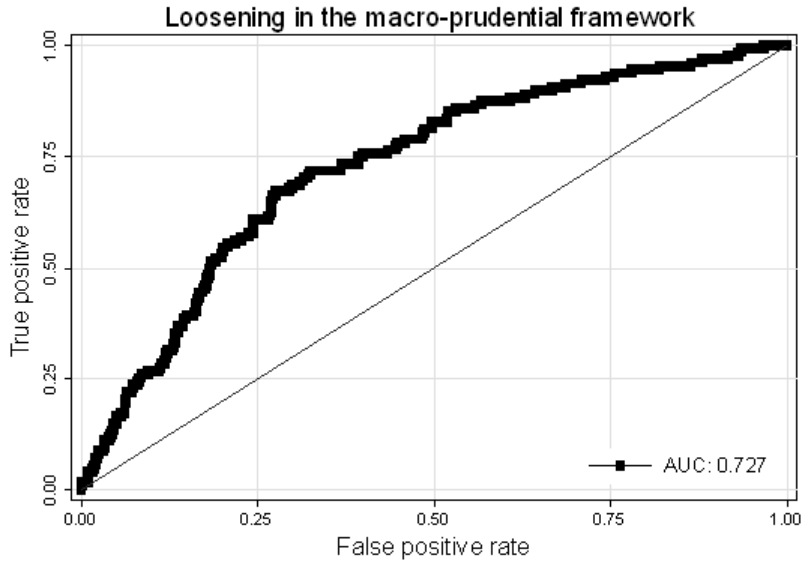
D. Predictive power

Figure A2 evaluates the predictive power of our empirical model, using the receiver operating characteristic (ROC) curve, which is a standard tool evaluating binary classification. The black line represents the goodness of fit, based on the result from probit model as illustrated in the fifth column in Table 4.

The ROC curve is a representation of whether a signal is able to successfully identify positive cases (loosening episodes in our analysis) and also not to identify negative cases (no loosening episodes) across all signal levels. The x-axis represents the false positive rate,

meaning how often there is no loosening in macroprudential policy when the model predicts a loosening. The y-axis is the true positive rate, showing how often the model predicts a loosening when there happens a loosening in the data. For instance, a point on the black line with true positive rate 0.50 and false positive rate 0.25 represents a threshold which predicts a loosening episode when there is a loosening around 50% of the time, also predicts a loosening when there is no loosening around 25% of the time. Hence, a ROC curve that is closer to the upper left corner reflects a better goodness of fit for the empirical model.

Figure A2: *Predictive power of the model*



Notes: The ROC curve is based on the result from probit model as illustrated in the fifth column in Table 4.

Numerically, the predictive power of the model is captured by the area under the curve (AUC). When this value is 0.50, the model is not informative, meaning that it is equivalent to tossing a coin in predicting an event (the 45 degree line). Thus, an informative model needs to lie well above the 45 degree line with an AUC value larger than 0.50. The model which perfectly predicts loosening episodes has an AUC value 1. The figure shows that the AUC value of the model is 0.727 with a standard error 0.023, meaning that it is statistically different from 0.50 at the 1% significance level. This is reasonable, and in the range of the recent empirical models predicting banking and currency crises which document AUC

values around 0.7-0.8 (e.g. Herrera et al. 2020 and Schularick and Taylor 2012). Hence, although it is still far from being a perfect predictor of loosening events, our empirical model is informative.

E. Results on the monetary policy rate

We use the IMF's International Financial Statistics (IFS) database to obtain monetary policy rates. "Monetary policy-related interest rate (percent per annum)" is adopted under the "central bank interest rates" section from this database. We use the average of quarterly rates to get an annual measure. We simply take the difference between 2 consecutive years to calculate the change in the rate.

The third column in Table A5 shows that the policy rate is likely to be cut in the pre-election year, especially if the institutions are weaker. The overall effect of the pre-election year on the policy rate is negative and statistically significant when the index on institutional quality is 0 or 1, and it becomes statistically insignificant as the index increases up to 7.

Table A5: *Monetary policy rate, elections and institutions*

Variable	(1)	(2)	(3)
Election	1.533	1.548	-2.878**
	(1.347)	(1.347)	(1.380)
Institutional quality		-0.494	-0.634
		(0.405)	(0.412)
Election × *Institutional quality*			0.678***
			(0.235)
Presidential system	-1.551	-2.256	-2.338
	(1.666)	(1.673)	(1.547)
Election × *Presidential system*	-1.566	-1.633	-0.894
	(1.462)	(1.470)	(1.351)
Country fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Macroeconomic controls	Yes	Yes	Yes
Political controls	Yes	Yes	Yes
R^2	0.208	0.210	0.217
Countries	61	61	61
Observations	877	877	877

Notes: The results are based on equation 1. The dependent variable is the change in the policy rate from IMF's IFS database. Election years are from the DPI. The proxy for institutional quality is the degree of institutionalized constraints on executives from the Polity V database. Macroeconomic control variables include credit, international reserves, export, import, broad money, current account balance, government expenditure, and capital flows as shares of GDP; and growth rate of real GDP per capita, inflation (deflator-based), percentage change in the nominal exchange rate vis-a-vis the US dollar and the de jure index for capital account openness. Political control variables include the dummy variable for presidential systems, and the interaction between elections and this dummy variable. Country and year fixed effects are included in all regressions. Standard errors in parentheses are clustered at the country-level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

F. Is institutional quality indeed a proxy for economic development?

We explore whether the index on institutional quality is a proxy for economic development. In particular, we now address whether elections have a differential effect on policy decisions depending on the level of economic development, with such effect eroding the role of institutional quality in electoral cycles.

As mentioned above, the subsample consisting of EMDEs (Table 5) is a way to alleviate this concern, since that sample is more homogeneous in terms of economic development. In this section, we take a few other approaches to test for this. Table A6 represent the results from those tests. We aim to observe if our main result on institutional quality still survives,

if we account for, if any, differential effect of elections based on economic development. If institutional quality was actually a proxy for economic development, our main result will disappear in horse race regressions with proxies for development.

First, we add the interaction between the dummy indicating advanced economies and the pre-election year dummy (column 1). In the second column, we assign a dummy variable 1 for high economic development, if a country's GDP per capita (averaged over the sample period) is above the cross-sectional median. We then include the interaction between the dummy for the pre-election year and this dummy indicating high economic development. In this way, we avoid any contemporaneous relationship or longer term feedback effects between economic development and institutional quality. The individual terms are dropped in both regressions due to country fixed effects.

In the third column, we add the interaction between the lagged value of real GDP per capita and the pre-election dummy. In the fourth column, we identify the level of economic development comparing each country with itself across time. Specifically, we assign a dummy for high economic development 1, whenever real GDP per capita is above the within-country median, and 0 otherwise. We use the interaction between this dummy for high development and the pre-election year dummy. By doing so, we can observe whether elections have a differential effect as countries become more developed over time, compared with their less developed periods. In column 5, we do a cross-country comparison in each year to categorize countries. A dummy for high economic development takes 1, whenever real GDP per capita is above the median across countries in a given year, and 0 otherwise. This definition identifies countries that are economically more developed at that point in time. We include the interaction between this dummy and the pre-election dummy in the regression. Note that the last three variables are time-variant within countries across years, hence individual terms can be included in regressions despite of country fixed effects.

Throughout these tests, our main result in this paper, the significant role of institutional quality on the strength of electoral cycles in macroprudential policy, stays the same. The coefficient estimates for the pre-election year dummy and the interaction between that and institutional quality represented in Table A6 are very similar to the baseline results. On the other hand, there is no significant/consistent effect on the strength of electoral cycles coming from economic development across these tests. We conclude that the concern that institutional quality is actually a proxy for economic development is not very relevant and not likely to affect our results.

Table A6: *Accounting for a potential effect of economic development in electoral cycles*

Variable	Advanced economies	High development: On average	GDP per capita	High development: within country	High development: cross-country
Election	0.108**	0.103**	0.110**	0.111**	0.096**
	(0.046)	(0.044)	(0.046)	(0.044)	(0.044)
Institutional quality	0.007	0.008	0.007	0.007	0.007
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Election × *Institutional quality*	-0.017**	-0.023***	-0.017**	-0.017**	-0.020**
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Economic development			-0.001	0.006	0.022
			(0.004)	(0.020)	(0.056)
Election × *Economic development*	-0.016	0.050*	-0.000	-0.016	0.031
	(0.039)	(0.029)	(0.001)	(0.032)	(0.028)
Country fixed effects	Yes	Yes	Yes	Yes	
Year fixed effects	Yes	Yes	Yes	Yes	
Macroeconomic controls	Yes	Yes	Yes	Yes	Yes
Political controls	Yes	Yes	Yes	Yes	Yes
History controls	Yes	Yes	Yes	Yes	Yes
R^2	0.195	0.196	0.195	0.195	0.195
Countries	80	80	80	80	80
Observations	1691	1691	1691	1691	1691

Notes: The results are based on equation 1. Column 1 adds the interaction between the pe-election year dummy and the dummy for advanced economies. Column 2 includes the interaction between the pre-election year dummy and real GDP per capita, averaged across years. Column 3 adds the interaction between lagged value of GDP per capita and the pre-election year dummy. Column 4 adds the interaction between the pre-election year dummy and the dummy for high economic development, based on a within country comparison across years. Column 5 includes the interaction between the pre-election year dummy and the dummy for high economic development, based on a cross-country comparison in each year. The dependent variable is the dummy variable indicating a loosening in the macroprudential framework based on the database by Alam et al. (2019). Election years are from the DPI. The proxy for institutional quality is the degree of institutionalized constraints on executives from the Polity V database. Macroeconomic control variables include credit, international reserves, export, import, broad money, current account balance, government expenditure, and capital flows as shares of GDP; and growth rate of real GDP per capita, inflation (deflator-based), percentage change in the nominal exchange rate vis-a-vis the US dollar and the de jure index for capital account openness. Political control variables include the dummy variable for presidential systems, and the interaction between elections and this dummy variable. The last set of control variables include the total number of loosening and tightening episodes since 1990 until the current year. Country and year fixed effects are included in all regressions. Standard errors in parentheses are clustered at the country-level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.