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Political monetary cycles: An empirical study

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ABSTRACT

After decades of research, discussions related to the link between political events and monetary policy have been ongoing. The purpose of this study is to examine whether electorally induced cycles in monetary policy exist. To achieve this, a unique panel dataset comprising 110 countries over 32 periods (1985–2016) was constructed, incorporating election periods and political regimes. This study provides evidence that elections influence monetary policy in developed and developing countries. Specifically, the study reveals that the growth of monetary mass (measured as the growth rate of M1) is significantly higher during pre-electoral periods. On average, the growth of monetary mass is between 1.1% and 2% higher during the 12 months prior to a national election. Furthermore, the study conducts an extensive analysis on the type of institutional frameworks that may mitigate these political monetary cycles. it suggest that free and fair elections, left-wing incumbents and the seniority of central banks contributes to reducing the magnitude these political monetary cycles.

1. Introduction

The political pressures exerted on the Federal Reserve (Fed) during Trump's presidency, as well as the appointment of Şahap Kavcioğlu as the new director of the Central Bank of the Republic of Turkey in March 2021 have sparked concerns regarding the true level of political independence of these central banks. In fact, Jerome Powell has faced many calls to implement a monetary policy that aligns with the preferences of the American president.[1] Similarly, Şahap Kavcioğlu being the third in Turkey since July 2019, has raised doubts about the autonomy of the institution.[2] Instances of governments interfering in monetary policy decisions have been observed in many countries, despite their level of development, institutional quality or *ex ante* level of central bank independence (CBI). Notable examples include Argentina in 2010 (Vuletin and Zhu, 2011), post-Brexit England and India in late 2018 (Jones and Matthijs, 2019) or the former Ukrainian central banker, Yakiv Smoliy who resigned in July 2020 due to "*systematic political pressure*".[3] According to Binder's (2021) dataset on the political pressures faced by central banks, from 2010 to 2018, 39% of 118 central banks have faced political pressures.

These observations highlight the notable interactions between political phenomena and monetary institutions, despite high levels of *de jure* independence (Alesina and Stella, 2010; Fernández-Albertos, 2015; Lockwood, 2016; Binder and Spindel, 2017). The

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[1] For instance, the Wall Street Journal reported a declaration made by Donald Trump on Twitter on the September 16, 2019: "Will Fed ever get into the game? Dollar strongest EVER! Really bad for exports. No Inflation...Highest Interest Rates [...] The United States, because of the Federal Reserve, is paying a MUCH higher Interest Rate than other competing countries".. See Ballhaus, Rebecca, "Trump Again Pressures the Federal Reserve in Wake of Saudi Attacks", September 16, 2019 — Wall Street Journal. https://www.wsj.com/articles/trump-again-pressures-the-federal-reserve-in-wake-of-saudi-attacks-11568638112

[2] See Butler, Daren; Devranoglu, Nevzat and Coskun, Oran "Erdogan's Central Bank Overhaul Clears Way for More Rate Cuts", October 14, 2021 — Reuters https://www.reuters.com/world/middle-east/turkeys-erdogan-overhauls-cenbank-mpc-appoints-two-new-members-2021-10-13/.

[3] See Zinets, Natalia and Williams, Matthias, "Ukraine central bank chief abruptly resigns, citing political pressure", July 1, 2020 — Reuters. https://www.reuters.com/article/us-ukraine-cenbank-idUKKBN2427D5.

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literature has provided several explanations. First, the 2007–2008 financial crisis resulted in a curtailment of political independence for central banks (Balls et al., 2018) and necessitated more aggressive policies (Hofmann et al., 2021). Specifically, the crisis led to zero lower bound environments in a significant number of countries. It requires more aggressive fiscal policies to compensate for the limited effectiveness of monetary policy. This effect is even more pronounced during period of weak economic activity and low inflation (Corsetti et al., 2019). Consequently, a different policy mix emerged after the crisis, raising concerns about increased interference of fiscal authorities in monetary policy. Second, the recent rise of populism[4] (Agur, 2018; Goodhart and Lastra, 2018; Rodrik, 2018; Masciandaro and Passarelli, 2020) has placed central banks at the center of electoral debates like never before. In particular, the political independence of central banks is being less valued compared to the past. It leads to significantly greater interactions between monetary and fiscal authorities (Bodea, 2013). This close relationship between central banks and incumbent governments has reintroduced the concept of political monetary cycles (PMCs), as economies have shifted from monetary to fiscal dominance (de Haan and Eijffinger, 2016).

Following these recent observations and the existing literature, this study challenges the vision of a politically neutral central banker and aims to explore variations in monetary policy over the electoral cycle. Revisiting this concept of PMCs is of high importance considering the recent context characterized by new interactions between incumbents and central banks. Therefore, it is highly plausible that the relationship between monetary and fiscal policies shaped by the aftermath of the 2007–2008 global financial crisis, could lead to an increase in the number of political cycles. The main result of this study is that, given a certain number of institutional features, the orientation of monetary policy in recent years exhibits a correlation with electoral periods. Through an econometric specification inspired by Alpanda and Honig (2009) and utilizing a difference-generalized method of moments (GMM) model (Arellano and Bond, 1991), the study supports the hypothesis of an opportunistic PMC (i.e., an expansionary monetary policy prior to a national election) for 110 countries. Specifically, the growth of monetary mass (measured by M1) is, on average, 1.45% higher prior to a national election. In addition to this main result, this study addresses several methodological concerns frequently raised in the literature on PMC. First, the potential misspecification of electoral measures (Haynes and Stone, 1989, 1990, 1994) is mitigated by using the electoral index developed by Franzese (2000). This index provides precise measurement of electoral periods based on the exact date of elections. Second, to overcome the limitation of studies biased towards a limited number of countries (Franzese, 2002a), an extensive data collection is conducted, resulting in a unique dataset composed of 110 countries from 1985 to 2016.[5] Moreover, this comprehensive database allows for an in-depth investigation of political and institutional characteristics that may influence PMCs. In a nutshell, PMCs are observed when electoral timing is exogenous, the incumbent is running for his/her own re-election, the country is a presidential regime, or the incumbent does not originate from an identified left-wing party. Additionally, more competitive elections and older central banks tend to dampen electoral fluctuations within monetary policy. Finally, the study concludes that PMCs can be observed in both developed and developing nations.

The remainder of the paper is structured as follows. Section 2 discusses the related literature, Section 3 presents the data, summary statistics and econometric specification. Section 4 displays the main results, with robustness and heterogeneity in Section 5. Finally, Section 6 concludes.

2. Literature review

The literature on PMC emerged alongside the literature on political cycles in the 1940s (Kalecki, 1943; Akerman, 1947). Two distinct approaches of the political cycle were developed. The opportunistic approach pioneered by Nordhaus (1975) defined pre-electoral political cycles as a strategic move by incumbents to secure re-election. To do so, incumbent implement expansionary economic policies before a national election to increase their chances of being re-elected. The partisan approach influenced by Hibbs's (1977), suggests that post-electoral cycles arise due to the ideology defended by newly elected politicians. According to this approach, the more divided the political game, the more pronounced the cycle becomes. These initial models, as underlined by Drazen (2000), were primarily oriented towards monetary policy manipulations as they suppose the existence of a Phillips curve. They operated under the assumption that reducing unemployment to satisfy the electorate requires increasing inflation, and *vice versa*. In this paper, the investigation focuses on pre-electoral cycles impacting monetary policy (*i.e.* opportunistic PMCs). However, Franzese (2002b) argues that empirical research does not consistently support the theoretical findings. Numerous empirical studies have examined opportunistic PMCs but have fail to reach a consensus. For instance, in the United States, Beck (1984), Allen (1986) or Renshaw and Trahan (1990) were unable to detect these PMCs in monetary policy instruments. On the contrary, Grier (1987, 1989), Hakes (1988), Williams (1990) and Abrams and Iossifov (2006) found evidence of electoral cycles significantly impacting the monetary policy implemented by the Fed. Additionally, PMCs have been observed in the German *Bundesbank* (Sieg, 1997; Vaubel, 1997; Lohmann, 1998) albeit certain subtleties (Berger et al., 2001). Overall, Clark and Hallerberg (2000) and Hallerberg et al. (2002) underscored the influence of the exchange rate regime on the choice of manipulation strategy used by incumbents and central bankers. In other words, electioneering in monetary policy is only expected in countries with flexible exchange rate regime and low CBI. This observation find supports in Mundell's (1960) impossible trinity.[6] However, the literature on panel data has yielded mixed findings and emphasized differences between developed and developing countries. On the one hand, Block (2002), Dreher and Vaubel (2009) and Alpanda and Honig (2009) underline that PMCs are more prevalent

[4] See Inglehart and Norris (2016) for a comprehensive definition of the concept of populism (pp. 6–8).

[5] See Table A.2 in the Appendix A section for more details.

[6] Indeed, if a country is characterized by a fixed exchange rate regime and free capital mobility, Mundell's policy trilemma tells that it is impossible to observe monetary autonomy. Thus, in this situation, it is impossible to implement a PMC.

in developing countries. On the other hand, Leertouwer and Maier (2001) found no evidence that political nor electoral cycles can be imputable to central banks behavior across 14 OECD countries. The debate on this topic remains ongoing, as highlighted by Ferris (2008) or Klose (2012) monetary policy is significantly more expansionary prior to general elections in developed countries. Meanwhile, the partisan approach to PMCs brings more consistent results. Beck (1982), Hibbs (1987), Sheffrin (1989), Alesina et al. (1992, 1993, 1997), Franzese (1999) and more recently Dentler (2019) have argued that opportunistic PMCs are influenced by the partisanship of incumbent, based on miscellaneous samples. More generally, central banks tend to be more accommodating towards right-wing politicians. This result is confirmed by the analysis of the behavior of central bank executive committee members, who exhibit strong partisan patterns (Potts and Luckett, 1978; Woolley, 1984; Gamber and Hakes, 1997).

In addition to the existing literature on PMCs, this study aligns with recent works that challenge the presumed beneficial effects of CBI on monetary policy. Recognizing the significant impact that CBI should exert on PMCs is crucial. First, higher levels of CBI are associated with a lower likelihood of PMCs occurring (Gartner, 1999; Alpanda and Honig, 2009, 2010). This effect is contingent upon the level of democracy (Bodea and Hicks, 2015) and the dynamics of power between the incumbent and the central banker (de Haan et al., 2018). Second, the level of CBI, along with monetary policy in general, is highly influenced by the incumbent in power.[7] For instance, Clark and Arel-Bundock (2013) and Bodea and Higashijima (2017) illustrate that the Fed tends to be more accommodating towards Republican politicians. Nevertheless, in the case of the United States, Gandrud and Grafström (2015) find a strong correlation between inflation forecasts of central bank officials and the ideology of the incumbent. Even within a monetary union, Moschella and Diodati (2020) demonstrate that the decisions of national central bankers are influenced by the partisanship of the government they represent. Third, the characteristics of central bankers and central bank bureaucrats can also shape the process of monetary policy-making. Previous positions held by central bankers are identified as a key determinant of the monetary reform process (Adolph, 2013; Bennani, 2015; Mishra and Reshef, 2019).

3. Data and summary statistics

3.1. Data

The database is composed of 110 countries over 32 periods (1985–2016). The selection of countries in the sample was guided by on several criteria. First, only countries with available data for at least 10 consecutive periods were included. Second, countries with less than two elections over the sample period were excluded. Third, the database was restrained the mentioned period (1985–2016) to mitigate potential biases due to an excessively imbalanced sample.[8]

M1_Growth is the main dependent variable. It represents the orientation of monetary policy and is measured as the percentage change in the growth rate of monetary mass.[9] Several control variables are introduced in the regressions. These include *CBIE* an index of *de jure* independence of central banks; *Ygap*, a proxy of the output gap; *Inflation*, the first difference of the consumer price index; *Credit*, the credit to GDP ratio and *Fix*, a dummy variable that takes the value 1 if a fixed exchange rate regime is implemented in a given country. For a detailed list of data sources, please refer to Table A.1 available in the Appendix A section.

3.1.1. Orientation of monetary policy

As the sample consists of a large number of developing countries, the main variable of interest is the annual growth rate of monetary mass, measured as M1. Specifically, an increase (decrease) in monetary mass is considered an illustration of an expansive (restrictive) monetary policy. The use of the growth of M1 (*M1_Growth*) as a proxy for the orientation of monetary policy is motivated by several arguments: (i) the limited availability of data on monetary base and policy rates; (ii) low levels of financial development in developing countries resulting in a close gap between M0 and M1 and (iii) the will to ensure comparability with existing literature that study large databases (Alpanda and Honig, 2009). Although, the growth rate of M0 or the policy rate provide a closer measure of the real orientation of monetary policy compared to M1, these variables would limit the number of countries in the sample.[10] The *International Financial Statistics* database, developed by the International Monetary Fund (IMF) provides observations used to compute *M0_Growth*, *M1_Growth* and *M2_Growth*. Information on the main interest rate targeted by central banks (ΔPR) comes from *Monetary and Financial Statistics*, also provided by the IMF.

Furthermore, it is crucial to emphasize that a period of high money growth can weaken the popularity of the incumbent. Indeed, when inflation rates soar, it leads voters to hold the incumbent responsible for the economic instability (Ashworth, 2012). Consequently, to avoid punishment by the voters, the incumbent may be motivated to call for early elections before the economic situation is out of control (Smith, 2004). Therefore, extremely high growth rates of M1 could introduce bias in estimations due to

[7] See Potrafke (2017) for a complete list of empirical studies on this topic on fiscal and monetary policies.

[8] Indeed, observations of these variables were only previously available for certain developed countries (approximately 20).

[9] This measure is replaced in Table 6 by alternative measures composed of more or less stringent definitions of money supply (*M0_Growth* and *M2_Growth*). In addition, the first difference of the policy rate implemented by central banks (ΔPR) is used as dependent variable. See Table 1 for more information.

[10] Information on the monetary base and the policy rate is available for a large number of countries (85 and 93, respectively according to data provided by the IMF). Nevertheless, merging with other data sources used in the paper sharply reduces the number of countries within the sample. On the one hand, only 65 countries present information on M0 and the main variables (*CBIE*, *Ygap*, *Inflation*, *Credit* and *Fix*). Out of these 65 countries, only 55 are characterized by more than 10 continuous observations. On the other hand, 52 countries are characterized by available data on the policy rate, and the main explanatory variables. Nevertheless, to ensure robustness, Section 5.1 presents estimations of the main model using *M0_Growth*, *M2_Growth* and ΔPR as interest variables, which confirms the hypothesis of an opportunistic PMC (Table 6).

the possibility of reverse causality. To address this concern, the study excludes growth rates of the monetary mass that exceed 75% in absolute values.[11]

3.1.2. Electoral periods

Designation of the appropriate election interval is one of the major challenges in empirical research on political cycles. As previously stated, misspecified electoral variables could severely bias the estimations (Haynes and Stone, 1989, 1990, 1994). Moreover, since the study focuses on electoral cycles in monetary policy, a correct quantification of pre- and post-electoral periods is crucial. It is important to account transmission lags associated with monetary policy that may differ between countries. Consequently, designing an electoral measure that considers these specificities is crucial. In this study, the pre- and post- electoral periods will have a duration of 12-months. This choice is motivated by several factors. First, the data set is predominantly composed of developed countries, and according to Havranek and Rusnak (2013), these countries tend to have significantly shorter transmission lags. Additionally, a shorter electoral period is justified by the observation that electioneering intensifies as election date approaches (Tufte, 1978). Hence, a shorter pre-electoral period is more relevant to detect broad electoral effects in a substantial number of countries.

To ensure the accuracy of the election measure, this study considered three different measures. The first measure, *Election* is a dummy that takes the value of 1 in the year when an election occurs; otherwise, it takes the value of 0. Second, the exact date of an election impacts turnout or the capacity to implement certain types of policy (Anzia, 2011). As this study investigates pre-electoral manipulations of monetary policy, two additional measures were developed: *ElectionDpre* and *ElectionIpre*. These variables are designed as more accurate indicator of pre-electoral periods.

On the one hand, *ElectionDpre* is a binary variable that takes a value of 1 in year t if an election takes place in the second half of year t (*i.e.* from July to December). Conversely, if the election occurs in the first half of year t (*i.e.* from January to June), the dummy takes a value of 1 in *t-1*. For instance, if a country faces two elections, one in March 2002 and one in November 2014, the *ElectionDpre* variables will be equal to 1 in 2001 and 2014. This computation aims to mitigate potential measurement errors that may arise when considering both pre- and post-electoral events while focusing on pre-electoral phenomena.[12] *ElectionDpre* considers that the majority of the pre-electoral cycle for an election occurring from January to June will be observable in the previous year. To explore potential post-electoral effects, the study also computes the variable *ElectionDpost*. This variable takes a value of 1 in year t if an election occurs in the first half of year t. Similarly, if an election takes place in the second half of year t, the variable takes a value of 1 in *t+1*.

On the other hand, while the variables *Election* and *ElectionDpre* are basic dummies, they may not provide the most relevant measurement of pre-electoral periods. To address this limitation a more refined approach is adopted, following the methodology developed by Franzese (2000). His approach is based on the computation of an index, called *ElectionIpre* which takes into account the precise date of an election within yearly database. The *ElectionIpre* index is specifically designed to capture a 12-month pre-electoral period. More precisely, if an election is takes place in year t, during month M on a specific day d, the index takes the following value:

$$\text{ElectionIpre}_{i,t} = \frac{(M-1)+d/D}{12}$$

$$\text{ElectionIpre}_{i,t-1} = \frac{12-(M-1)-d/D}{12}$$

where D denotes the total number of days contained in month M.

When the observed period is neither an election year nor a pre-election year, *ElectionIpre* is equal to 0. To illustrate, suppose there is an upcoming election scheduled for January 23, 2004. In this case, *ElectionIpre* will be coded as 0.938 in 2003 and 0.062 in 2004. Similarly, using the same methodology, the study computed a second index called *ElectionIpost* which captures 12-month post-electoral periods. If an election is scheduled in year t, the *ElectionIpost* index will take the following values[13]:

$$\text{ElectionIpost}_{i,t} = \frac{12-(M-1)-d/D}{12}$$

$$\text{ElectionIpre}_{i,t+1} = \frac{(M-1)+d/D}{12}$$

where M stands for the exact month of an election, d denotes the exact day of an election and D represents the number of days contained in M.

Finally, to ensure that the results are not influenced by the 12-month duration of the pre- and post-electoral periods, the study also computed *ElectionIpre_[2 years]* and *ElectionIpost_[2 years]*. These indices are designed to cover 24-month periods and are closer

[11] This 75% threshold corresponds to the exclusion of the last percentile of *M1_Growth*. This threshold is also applied to negative values of *M1_Growth* as there is only one observation of the variable that exceeds -75 (−81,04 for Belarus in 2001). This observation represents a real outlier because the lowest value of *M1_Growth* is -46,25 when Belarus is introduced into the sample since 2002. The same limitation is applied to *Inflation* following the same reasoning. To ensure that the excluded observations are not driving the results, the main model is estimated with alternative limitations on *M1_Growth* (100% and 50%), as presented in Table A.11 in the Appendix A.

[12] For instance, Alesina et al. (1992, 1997) found evidence that inflation increases immediately after an election. Consequently, a poorly specified measure could consider these pre- and post-electoral effects at the same time.

[13] Similarly, if the observation is neither an electoral period nor a post-electoral period, the variable is equal to 0.

to the electoral variable used by Alpanda and Honig (2009). Specifically, if an election occurs in year *t*, *ElectionIpre_[2 years]* will be equal to $\frac{1}{12}[(M-1)+\frac{d}{D}]$ in year *t*, 1 in year *t-1*, and $\frac{1}{12}[12-(M-1)-\frac{d}{D}]$ in year *t-2*.[14]

Despite their precision, constructing of these indexes raises three issues. First, some countries have elections in two or more consecutive years. In such cases, *ElectionIpre* is computed as the sum of its values for each election, following Franzese (2000). Therefore, it is possible to observe index values greater than 1. However, as described by Franzese (2000), these situations are uncommon, and limiting the electoral indexes to values below 1 does not introduce a major bias in estimations (p. 63 and especially footnote 42).[15] Hence, *ElectionIpre* is considered equal to 1 when its value exceeds 1. Second, two or more elections may occur within the same year. To address this issue, the study considers only the last election that takes within the period. Third, several countries experienced national elections in the year after (before) their last (first) occurrence within the dataset. In such cases, the study computes a value for *ElectionIpre* (*ElectionIpost*) in the last (first) year observed in the panel, even if the election is held "out of sample".[16] Therefore, computating these electoral indexes requires an extensive data collection. Unfortunately, no single database contains information on the exact election dates of every country worldwide. As a result, data from multiple sources were combined, including the *Database of Political Institutions* (DPI) developed by Beck et al. (2001) for the World Bank; the *Election Guide* provided by the International Foundation for Electoral Systems[17]; the *Voter Turnout Since 1945* dataset provided by the Institute for Democracy and Electoral Assistance[18]; the *National Elections Across Democracy and Autocracy* established by Hyde and Marinov (2012) and the *Free and Fair Elections* dataset computed by Bishop and Hoeffler (2016). Although these data were supplemented with the extensive data collection efforts conducted by Nohlen et al. (1999, 2001a, 2001b, 2005a, 2005b, 2010).

In addition to the aforementioned electoral measures, a variable *PreElection* has been computed. It is a dummy equal to 1 when *ElectionIpre* is greater than 0. Similarly, another dummy called *PostElection* is assigned a value of 1 when *ElectionIpost* is different from 0. Table 2 uses these variables to distinguish between pre-electoral and non pre-electoral periods, as well as post-electoral and non post-electoral periods, within the sample. Moreover, *PreElection* is used as the treatment variable in the average treatment effect (ATE) methodology employed in Section 3.2.2[19] (Cerulli and Ventura, 2019). *PreElection* is preferred over *Election* for two primary reasons. First, to guarantee consistency in the results between Table 2 and Fig. 1 to A14. Second, it helps mitigate any potential biases arising from misspecifications of the *Election* variable (Haynes and Stone, 1989, 1990, 1994). Although, a more precise measurement using *ElectionIpre*, which considers the specific date of the election, would have been better. However, Cerulli and Ventura's (2019) methodology necessitates a binary treatment variable. To summarize, the period denoted as *t* in Fig. 1 to A14 does not represent an electoral period, but rather a pre-electoral period.

Finally, one may question whether or not non-democratic countries should be included in the study. In these countries, elections cannot be considered genuinely competitive, and it is common practice to exclude them from analyses. However, this study has chosen to retain these non-democratic regimes based on previous research that has demonstrated the presence of political manipulations in such contexts (Soh, 1988; Gonzalez, 2002; Pepinksy, 2007; Guo, 2009). These manipulations are due to the desire of political leaders to quell public discontent through electoral cycles as a means of legitimizing their authority.

3.1.3. Credit

The inclusion of the credit to GDP ratio (*Credit*) in the estimations is motivated by its potential impacts on the growth of monetary mass. First, as underlined by Alpanda and Honig (2009), the government's ability to borrow funds is closely associated with the degree of political pressure exerted on central banks. When governments cannot easily obtain external funding, they may resort to pressuring the central bank to finance additional public expenditures through discretionary monetary policy. Therefore, the level of financial development measured bu the credit to GDP ratio, can serve as a proxy for the extent of pressure faced by central banks to monetize government debt. Moreover, as elections get closer, the pressure on central banks to monetize public deficits tends to intensify. Given that the sample includes both developing countries (with low financial development) and developed countries (with high financial development), it is important to control for this aspect to mitigate potential estimation biases. Second, a high value of *Credit*, in conjunction with a low reserve to deposit ratio, can contribute to an increase in *M1_Growth*, even under a stable monetary policy. This implies that a significant and positive link can be observed between *Credit* and *M1_Growth*, even when monetary policy remains unchanged. Therefore, introducing this variable in the model is crucial for controlling for the potential endogeneity of monetary mass induced by variations in the credit to GDP ratio. Throughout the paper, the presence of a negative and significant coefficient for *Credit* indicates that the first negative effect outweighs the second positive effect described above. This highlights the importance of considering *Credit* as a control variable in the analysis.

Data on domestic credit to the private sector (measured in percentage of GDP) are available through the *World Development Indicators* (WDI) provided by the World Bank.

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[14] On the contrary, the post-electoral index will be $\frac{1}{12}[12-(M-1)+\frac{d}{D}]$ in *t*; 1 in *t+1*; and $\frac{1}{12}[(M-1)-\frac{d}{D}]$ in *t+2*.

[15] Specifically, only three out of the 1016 positive values of *ElectionIpre* exceed 1 (Kuwait in 2008, Latvia in 2010 and Netherlands in 2002). The example of Kuwait, is due to the fact that elections were held in 2008 (May 17) and 2009 (May 16). Consequently, *ElectionIpre* is composed of the pre-electoral component of the 2008 election computed in 2008 (0.3805) and the pre-electoral component of the 2009 election attached to 2008 (0.6222). Then, the computation leads to: $ElectionIpre_{\text{Kuwait,2008}} \simeq 0.3805 + 0.6222 \simeq 1.0028$.

[16] More precisely, the following countries are characterized by these "out of sample" pre-electoral periods in the database: Albania, Angola, Bahamas, Central African Republic, Chad, Chile, Czech Republic, Germany, Iran, Italy, Jamaica, Japan, Kenya, Kyrgyzstan, Latvia, Liberia, Luxembourg, Malta, Nepal, Netherlands, New Zealand, Russia, South Korea and the United Kingdom.

[17] Available here: https://www.electionguide.org/

[18] Available here: [https://www.idea.int/data-tools/data/voter-turnout]

[19] See Fig. 1 (p.20) but also Figures A1 to A14 (pp. 4–17) available in the Appendix A.

3.1.4. Central bank independence

As presented in Section 2, the level of CBI is a key control variable in the econometric specification, as it has a significant impact on PMCs in theory. The greater the independent of the central bank, the less likely PMCs are observable (Alpanda and Honig, 2009). This relationship explains the prevailing consensus that PMCs are more prevalent in developing countries. Therefore, the inclusion of CBI in the model is crucial. The measurement of CBI and its various measurements constitute an important area of study. Most of these measures focus on *de jure* independence (Alesina and Mirrlees, 1989; Grilli et al., 1991; Cukierman et al., 1992), while a few papers examine *de facto* independence (Dreher et al., 2008; Alpanda and Honig, 2010). In this study, the newly developed measure of *de jure* independence, *CBIE* computed by Romelli (2022) is used. This measure extends the CBI index originally proposed by Cukierman et al. (1992) by considering additional institutional characteristics of CBI.[20]

Finally, it is important to consider that the variable *CBIE*, being a *de jure* measure, is likely to exhibit low variation within countries. Changes in *CBIE* only occur when there are modifications to central bank laws. To address this issue and provide further insights, an estimation of the main model with a *de facto* measure of central bank independence (*Turnover*) is presented in Table A.10 (see the Appendix A section). This *Turnover* variable represents the moving average of the central bank governor's turnover rate over the previous 5 years Dreher et al. (2008). Notably, none of the results displayed in Table A.10 contradict the hypothesized opportunistic PMC. Furthermore, the main model is estimated without any measure of central bank independence in Table A.6 and A.7. Comparing these results to the main estimation, presented in Table 4 reveals no significant changes. This suggest that the inclusion or exclusion of CBI measures does not substantially affect the findings of the study.

3.1.5. Fixed exchange rate regime

As discussed in Section 2, it is widely understood that a country with a fixed exchange rate regime is not expected to face PMCs (Clark and Hallerberg, 2000; Hallerberg et al., 2002). This conclusion stems from Mundell's (1960) political trilemma, which states that free capital flows and fixed exchange rate regime are incompatible with monetary autonomy. Therefore, it is crucial to identify countries operating under a fixed exchange rate regimes. Moreover, in developing countries, a fixed exchange rate regime has been found to be more effective than high CBI in reducing inflation (Strong, 2021). Hence, the choice of an exchange rate regime emerges as an important factor influencing the presence of PMC in these countries.

Contrary to Alpanda and Honig (2009) findings, this study finds a positive and significant relationship between money growth and the adoption of a fixed exchange rate regime. However, this result is primarily driven by developing countries, as proved by the positive and significant correlation between *Fix* and *M1_Growth* in Table 3.[21] The correlation can be imputable to political circumstances stemming from the 2007–2008 financial crisis, which disrupted Mundell's (1960) trilemma. More precisely, it turned the trilemma into a dilemma (Rey, 2015) excluding the exchange rate regime from the relationship in a high number of countries.[22] Furthermore, the crisis triggered a surge in nationalism and populism (Hadiz and Chryssogelos, 2017) which have detrimental effect on CBI and capital mobility. Indeed, nationalism and populism have a negative effect on CBI (Agur, 2018; Goodhart and Lastra, 2018) but also on capital mobility (Jones, 2021; Mansfield and Pevehouse, 2022). Consequently, the implementation of a fixed exchange rate regime no longer prevent the appearance of PMCs, as both CBI and capital mobility are weakened by the rise of nationalism and populism. Moreover, the relationship between economic growth and the adoption of a fixed exchange rate regime is intricately linked to the level of financial development (Aghion et al., 2009; Slavtcheva, 2015). Countries with limited financial development tend to experience positive effect on economic growth when adopting a fixed exchange rate regime. Given that the dataset is mainly composed of developing countries with relatively low financial development, the adoption of a fixed exchange rate regime may result in higher average economic growth rates. In response to the increased money demand stemming from economic growth, central banks must increase their money supply (*i.e.* M0, M1 and M2). These arguments collectively explain the observed positive coefficient for the *Fix* variable in the estimations.

To take into account the exchange rate regime, the variable *Fix* is introduced within the model. It represents a dummy that takes a value of 1 if the country is classified as a *de facto* fixed exchange rate regime, and 0 otherwise. The use of a *de facto* classification is preferred over a *de jure* classification due to concerns regarding potential biases in countries' declarations on their exchange rate regime (Obstfeld and Rogoff, 1995; Calvo and Reinhart, 2002). Information on the *de facto* exchange rate regime is obtained through the dataset developed by Levy-Yeyati and Sturzenegger (2016).[23] When a country is classified as a fixed exchange rate regime according to Levy-Yeyati and Sturzenegger's (2016) classification, the dummy *Fix* takes the value 1; otherwise it is equal to 0.[24] However, one can argue that the significance or insignificance of the *Fix* variable in the estimations may be influenced by the fact that it represents a *de facto* classification. As pointed out by Couharde and Grekou (2021), differences between *de jure* and *de facto* classifications of exchange rate regimes can be significant. To ensure the robustness of the main specification, the model is estimated without *Fix* in Tables A.6 and A.7 available in the Appendix A section. Additionally, in Table A.8, *Fix* is replaced by a

[20] For instance, *CBIE* is augmented with a measure of the financial independence of the central bank. A complete review of information added to this new index is available in Table 1 of Romelli (2022), see page 8.

[21] A comparable link is observable between *Fix* and *M0_Growth* but also between *Fix* and *M2_Growth*.

[22] More precisely, as stated by Rey (2015), CBI is only achievable if capital mobility is managed, whether the exchange rate is flexible or fixed.

[23] For missing values, the variable has been completed using the work of Ilzetzki et al. (2017).

[24] More precisely, every observation coded as *Fix* † *Fix 2*, *Fix 3* or *Fix U* in Levy-Yeyati and Sturzenegger's (2016) dataset is considered as a fixed exchange rate regime. For more information see Appendix C in Levy-Yeyati and Sturzenegger (2016) (pp. 24–26). In addition, countries for which Ilzetzki et al. (2017) work is used are considered as fixed exchange rate regimes if the variable *Change* is equal to 1, 2 or 3.

de jure measure called *Fix_[de jure]*.[25] Moreover, estimations of the main model are conducted only on countries characterized by a floating exchange rate regime in Table A.9. These tables demonstrate no significant differences compared to main results presented in Table 4.

3.1.6. Output gap and inflation

The inclusion of output gap and inflation rate in the model serves primarily to control for cyclical variations in the economic context. While it is true that a significant number of countries in the sample not follow the Taylor rule (Carporale et al., 2018), monetary policy is still heavily influenced by the overall macroeconomic conditions in both developed and developing countries. Furthermore, introducing the output gap into the model remains essential to control for potential endogenous election timing,[26] and the significant number of countries that have adopted inflation targeting.

The variable *Ygap* represents the log-difference between real GDP and its trend component obtained through the use of a Hamilton (2018) filter. Data on real GDP and inflation are provided by the WDI dataset.

3.2. Summary statistics

Table 1 presents summary statistics for each variable used in the different specifications. As mentioned earlier, the sample is composed of 110 countries over the period 1985–2016, resulting in a total of 2099 observations. The summary statistics encompass the available number of observations in the database. To ensure that the analysis avoids economic situations directly influencing election timing, extreme values of *M1_Growth* and *Inflation* were excluded from the sample as discussed in Section 3.1.2. Specifically, 24 observations that were outliers based on these two variables were excluded from the sample. This adjustment leads to *M1_Growth* and *Inflation* values ranging between −75% and 75%. It is important to mention that this threshold may be more constraining; however, more limited values could have necessitated the exclusion of additional countries from the sample. To assure the reader of the validity of the results, Table A.11 in the Appendix A presents estimations of the main model using different thresholds for *M1_Growth* (100% and 50% in absolute terms), and the results remain consistent.

The sample includes a total of 478 elections. Since the study examines both pre- and post-electoral periods, elections occurring in 1984 and 2017 are indirectly introduced in the electoral measures. As a reminder, only countries with a minimum of two pre- or post-electoral periods were included in the sample to ensure sufficient data. Additionally, it iq worth mentioning that the average values of *de jure* CBI indexes are relatively high, exceeding 0.6 on average (out of 1). This relatively homogeneous distribution of CBI measures helps explain the unexpected insignificance of *CBIE* variable in the main specifications.

3.2.1. Mean differences

Table 2 presents the summary statistics of the six main variables divided into different sub-samples. The upper part of the table separates the sample into pre-electoral periods (when $ElectionIpre > 0$) and non pre-electoral periods ($ElectionIpre = 0$). The last column of the table computes the difference in means between these sub-samples for each variable, and their significance using several t-tests.[27] Moving on the second and third sections of Table 2, the sample is further divided between developed and developing countries. Given the large number of in the sample, a significant proportion consists of developing countries. To classify developed countries, the study utilizes the 2020 World Bank classification.[28] considering high-income economies as developed. Consequently, the dataset is composed of 39 developed countries.[29] For the sake of simplicity, all countries not classified as developed are considered developing countries. As previously explained, the study also provides the significance of mean differences between developed and developing.

On average, there is no significant difference observed in *M1_Growth* between pre- and non pre-electoral periods. Similarly, no significant differences are found for *CBIE*, *Ygap* and *Fix* between these periods. However, *Inflation* is significantly lower during pre-electoral and post-electoral periods in the overall sample. This finding aligns with the hypothesis of an opportunistic political cycle in monetary policy, suggesting higher inflation following national elections (Alesina et al. 1992, 1997). Among the explained variables, (*M0_Growth*, *M1_Growth*, *M2_Growth* and *ΔPR*), some differences emerge between post-electoral and non post-electoral periods. In the overall sample, the mean *M1_Growth* is significantly lower after an election compared to non post-electoral periods, supporting the opportunistic PMC hypothesis (Alesina et al. 1992, 1997). However, there is a puzzling effect when examining the mean of the growth rate of *M0_Growth* specifically in developed economies (see second part of Table 2). It appears that the mean growth rate of the monetary base is significantly higher in a post-electoral context, which contradicts the expected PMC pattern. Several factors may explain this significance: (i) the low number of countries considered (24 countries representing 480 observations); (ii) the misspecification of *PreElection* and *PostElection*; (iii) country specific characteristics not taken into account in mean differences or (iv) untreated endogeneity issues. Furthermore, more sophisticated estimation techniques render these post-electoral results insignificant, and this, further interpretation is not pursued in this study. Furthermore, Table 2 highlights a significantly higher credit to GDP

[25] This measure is provided by the IMF through the *Annual Report on Exchange Arrangements and Exchange Restrictions* database.

[26] As underlined by Alpanda and Honig (2009) in parliamentary regimes, a high inflation rate increases the probability of an early election. See Inoguchi (1981) and the concept of "political surfing" for more information. This issue is investigated further in Section 5.3.

[27] Using Welch's (1947) methodology enables a comparison of the means of samples with unequal variances.

[28] The complete classifications of countries used by the World Bank are available here: https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups.

[29] See Table A.2 in the Appendix A for a complete list of these developed countries.

Table 1
Summary statistics.

Variable	Mean	Std. Dev.	Min.	Max.	N
M0_Growth	10.988	12.587	−48.593	97.981	968
M1_Growth	13.385	12.224	−28.958	74.605	2099
M2_Growth	14.027	11.788	−21.937	69.915	1734
ΔPR	−0.429	4.081	−48	34.5	787
Election	0.228	0.419	0	1	2099
ElectionDpre	0.23	0.421	0	1	2099
ElectionDpost	0.234	0.424	0	1	2099
ElectionIpre	0.225	0.314	0	1	2099
ElectionIpost	0.228	0.316	0	1	2099
ElectionIpre_[2years]	0.415	0.428	0	1	2099
ElectionIpost_[2years]	0.42	0.426	0	1	2099
ElectionIpre_[Endogenous]	0.065	0.203	0	1	2099
ElectionIpre_[Exogenous]	0.133	0.263	0	1	2099
ElectionIpre_[Running]	0.127	0.259	0	1	2099
ElectionIpre_[Not Running]	0.098	0.238	0	1	2099
PreElection	0.444	0.497	0	1	2099
PostElection	0.448	0.497	0	1	2099
CBIE	0.608	0.177	0.147	0.929	2099
Ygap	0.029	0.206	−1.525	1.552	2099
Inflation	5.906	7.187	−10.067	73.528	2099
Credit	55.838	44.356	0.491	221.288	2099
Fix	0.347	0.476	0	1	2099
Fiscal Deficit	−1.855	4.926	−32.124	43.304	1805
CreationYearCB	1939.624	59.499	1668	2001	2099
CEI	0.646	0.286	0	0.983	1539

Variables *M1_Growth*, *M2_Growth* and *Inflation* are expressed as percentage change and limited to values between −75% and 75%.
Variables *M0_Growth* is expressed as percentage change and limited to values between −100% and 100%.
Variable *ΔPR* represents the first difference of the policy rate implemented by the central bank.

ratio before national elections. As established in Section 3.1.3, this result may influence *M1_Growth* even under a stable monetary policy. However, since *Credit* consistently appears significant with a negative sign throughout this study, it seems that this is not the case. Nonetheless, the impact of the credit to GDP ratio is further explored by computing the variable *Multiplier* which represents the ratio between *M1_Growth* and *M0_Growth*. For more information, see Table A.3 and Figs. A.12 to A.14 in Appendix A.

3.2.2. Average treatment effect

Since the mean differences in Table 2 do not provide clear evidence of a significantly different monetary mass during pre-electoral periods, Fig. 1 presents a computation of an estimation of the average pre- and post-treatment effects of a pre-electoral period. The study employs a generalized version of the difference-in-difference estimator developed by Cerulli and Ventura (2019). This methodology allows for a graphical representation of the pre- and post-ATEs using a binary treatment variable. In this case, the treatment variable used is *PreElection* as *ElectionIpre* is non binary. As a reminder, *PreElection* is a dummy variable that takes a value of 1 when *ElectionIpre* differs from 0. Fig. 1, demonstrates that *M1_Growth* is significantly higher during pre-electoral periods (year t in Fig. 1 corresponds to periods where $PreElection = 1$). However, the significance of *PreElection* alone does not justify the existence of an opportunistic manipulation of monetary mass. Nonetheless, Fig. 1 underlines a significantly different growth of monetary mass near a national electoral episode when considering country fixed-effects and controlling for potential heteroscedasticity among the error term. Despite the low number of observation, the same methodology is applied to examine variations in *M2_Growth* (Figs. A.3–A.5 in the Appendix A), *M0_Growth* (Figs. A.6–A.8 in the Appendix A), *ΔPR* (Figs. A.9–A.11 in the Appendix A) and *Multiplier* representing the ratio *M1_Growth/M0_Growth* (Figs. A.12–A.14 in the Appendix A). These ATEs are presented for the overall sample (Figs. 1, A.3, A.6, A.9 and A.12), only developed countries (Figs. A.1, A.4, A.7, A.10 and A.13) and only developing countries (Figs. A.2, A.5, A.8, A.11 and A.14).

The exact ATE coefficients estimated using Cerulli and Ventura's (2019) methodology are available in Table A.3 in the Appendix A section. These estimations provide puzzling results. Near an election, *M0_Growth* and *M2_Growth* exhibit similar behavior to *M1_Growth* in the overall sample, *i.e.* there are higher in pre-electoral periods on average. Similarly, as expected, *ΔPR* is lower prior to a national election. However, the only significant effect is observed in the case of *M2_Growth*. This significance in the overall sample appears to be driven by developing countries. Moreover, *ΔPR* shows a significant increase in pre-electoral periods when considering developed countries, which is inconsistent with the existence of an opportunistic PMC. This puzzling result may attributed to potential untreated endogeneity and autocorrelation issues. When the difference-GMM estimator (Arellano and Bond, 1991) is used, *ΔPR* becomes significant with the expected negative sign (see Table 6), which is consistent with the hypothesized PMC. Lastly, one can argue that the increase in monetary mass is imputable to a component of *M1_Growth* not directly under the control of the central bank. To verify the validity of this claim, Figures A12 to A14 show that *Multiplier* (*M1_Growth/M0_Growth*) remains significantly stable before a national election. In other words, an increase in *M1_Growth* can be attributed to an increase in *M0_Growth*, which is directly influenced by monetary policy orientation, as confirmed in Table 6.

Table 2
Summary statistics on different sub-samples.

Variable	PreElection = 1†					PreElection = 0†					
	Mean	Std. Dev.	Min.	Max.	N	Mean	Std. Dev.	Min.	Max.	N	Mean Differences
M0_Growth	10.49	12.924	−48.593	97.981	438	11.399	12.299	−20.413	79.831	530	0.9094
M1_Growth	13.213	11.723	−16.522	74.605	933	13.522	12.615	−28.958	71.429	1166	0.3082
M2_Growth	13.823	11.377	−5.943	67.324	762	14.187	12.105	−21.937	69.915	972	0.3642
ΔPR	−0.691	4.091	−48	18.44	349	−0.22	4.065	−28	34.5	438	0.4709
CBIE	0.604	0.182	0.147	0.929	933	0.61	0.173	0.147	0.929	1166	0.0057
Ygap	0.026	0.199	−0.977	1.552	933	0.031	0.211	−1.525	1.452	1166	0.0053
Inflation	5.523	6.459	−3.704	58.451	933	6.212	7.71	−10.067	73.528	1166	0.6884**
Credit	59.204	45.591	1.201	221.288	933	53.145	43.173	0.491	218.088	1166	−6.0589***
Fix	0.331	0.471	0	1	933	0.36	0.48	0	1	1166	0.0290
Variable	**PostElection = 1‡**					**PostElection = 0‡**					
	Mean	**Std. Dev.**	**Min.**	**Max.**	**N**	**Mean**	**Std. Dev.**	**Min.**	**Max.**	**N**	**Mean Differences**
M0_Growth	10.655	12.676	−20	97.981	448	11.275	12.515	−48.593	68.47	520	0.6203
M1_Growth	12.687	11.582	−15.43	74.605	941	13.952	12.699	−28.958	71.429	1158	1.2647**
M2_Growth	13.524	11.556	−13.05	66.537	769	14.428	11.961	−21.937	69.915	965	0.9037
ΔPR	−0.496	4.285	−28	34.5	358	−0.372	3.906	−48	30	429	0.1242
CBIE	0.607	0.182	0.147	0.929	941	0.608	0.173	0.147	0.929	1158	0.0018
Ygap	0.027	0.193	−0.852	0.871	941	0.03	0.216	−1.525	1.552	1158	0.0035
Inflation	5.486	6.811	−8.975	58.451	941	6.247	7.464	−10.067	73.528	1158	0.7609**
Credit	59.669	45.502	2.083	212.269	941	52.725	43.172	0.491	221.288	1158	−6.9436***
Fix	0.337	0.473	0	1	941	0.356	0.479	0	1	1158	0.0189
Developed countries											
Variable	**PreElection = 1†**					**PreElection = 0†**					
	Mean	**Std. Dev.**	**Min.**	**Max.**	**N**	**Mean**	**Std. Dev.**	**Min.**	**Max.**	**N**	**Mean Differences**
M0_Growth	7.18	12.153	−48.593	97.981	226	7.788	10.352	−20	79.831	243	0.6083
M1_Growth	9.801	9.17	−16.522	55.896	399	9.710	9.436	−20.864	54.192	405	−0.0911
M2_Growth	9.023	7.853	−5.943	43.152	276	9.303	8.368	−10.313	44.99	281	0.2796
ΔPR	−0.363	1.591	−7.75	3	151	−0.254	1.676	−7.5	6.3	155	0.1087
CBIE	0.601	0.212	0.147	0.929	399	0.627	0.209	0.147	0.929	405	0.0262*
Ygap	0.011	0.186	−0.977	0.864	399	0.011	0.202	−1.013	0.714	405	−0.0002
Inflation	3.111	3.738	−2.302	44.736	399	3.431	4.372	−4.478	42.248	405	0.3205
Credit	89.203	45.79	6.59	221.288	399	84.114	44.815	6.627	218.088	405	−5.0883
Fix	0.313	0.464	0	1	399	0.383	0.487	0	1	405	0.0697**
Variable	**PostElection = 1‡**					**PostElection = 0‡**					
	Mean	**Std. Dev.**	**Min.**	**Max.**	**N**	**Mean**	**Std. Dev.**	**Min.**	**Max.**	**N**	**Mean Differences**
M0_Growth	8.484	12.474	−20	97.981	234	6.511	9.805	−48.593	50	235	−1.9734*
M1_Growth	9.593	9.212	−13.15	55.896	406	9.92	9.396	−20.864	54.192	398	0.3267
M2_Growth	9.268	8.184	−7.464	43.07	280	9.06	8.048	−10.313	44.99	277	−0.2083
ΔPR	−0.147	1.716	−7.5	6.3	153	−0.468	1.534	−7.75	3	153	−0.3212*
CBIE	0.606	0.211	0.147	0.929	406	0.623	0.21	0.147	0.929	398	0.0177
Ygap	0.018	0.19	−0.811	0.714	406	0.004	0.198	−1.013	0.864	398	−0.0143
Inflation	3.203	4.379	−2.302	44.736	406	3.342	3.734	−4.478	28.342	398	0.1387
Credit	88.718	45.896	7.265	212.269	406	84.519	44.735	6.59	221.288	398	−4.1984
Fix	0.347	0.477	0	1	406	0.349	0.477	0	1	398	0.0020
Developing countries											
Variable	**PreElection = 1†**					**PreElection = 0†**					
	Mean	**Std. Dev.**	**Min.**	**Max.**	**N**	**Mean**	**Std. Dev.**	**Min.**	**Max.**	**N**	**Mean Differences**
M0_Growth	14.019	12.814	−18.788	63.749	212	14.457	12.986	−20.413	68.47	287	0.4384
M1_Growth	15.763	12.739	−15.43	74.605	534	15.55	13.592	−28.958	71.429	761	−0.2128
M2_Growth	16.549	12.147	−5.415	67.324	486	16.174	12.811	−21.937	69.915	691	−0.3754
ΔPR	−0.941	5.244	−48	18.44	198	−0.201	4.906	−28	34.5	283	0.7398
CBIE	0.607	0.156	0.303	0.863	534	0.601	0.15	0.326	0.863	761	−0.0059
Ygap	0.037	0.208	−0.871	1.552	534	0.042	0.215	−1.525	1.452	761	0.00052
Inflation	7.326	7.41	−3.704	58.451	534	7.691	8.640	−10.067	73.528	761	0.36555
Credit	36.789	29.862	1.201	158.505	534	36.663	31.725	0.491	160.125	761	−0.1259
Fix	0.345	0.476	0	1	534	0.348	0.477	0	1	761	0.0037

(*continued on next page*)

Table 2 (*continued*).

Variable	PostElection = 1‡					PostElection = 0‡					
	Mean	Std. Dev.	Min.	Max.	N	Mean	Std. Dev.	Min.	Max.	N	Mean Differences
M0_Growth	13.028	12.496	−18.788	63.749	214	15.204	13.143	−20.413	68.47	285	2.1754*
M1_Growth	15.034	12.609	−15.43	74.605	535	16.063	13.663	−28.958	71.429	760	1.0284
M2_Growth	15.962	12.471	−13.05	66.537	489	16.59	12.586	−21.937	69.915	688	0.6279
ΔPR	−0.757	5.457	−28	34.5	205	−0.319	4.737	−48	30	276	0.4382
CBIE	0.607	0.155	0.303	0.863	535	0.6	0.15	0.303	0.863	760	−0.0067
Ygap	0.033	0.195	−0.852	0.871	535	0.044	0.223	−1.525	1.552	760	0.0109
Inflation	7.218	7.756	−8.975	58.451	535	7.768	8.42	−10.067	73.528	760	0.5500
Credit	37.624	30.309	2.083	150.974	535	36.075	31.412	0.491	160.125	760	−1.549
Fix	0.329	0.47	0	1	535	0.359	0.48	0	1	760	0.0302

Significance tests on the mean differences were performed following Welch (1947).
† *PreElection* is a dummy equals to 1 when *ElectionIpre* is positive and 0 otherwise.
‡ *PostElection* is a dummy equals to 1 when *ElectionIpost* is positive and 0 otherwise.
Variables *M1_Growth*, *M2_Growth* and *Inflation* are expressed as percentage changes and limited to values between −75% and 75%.
Variables *M0_Growth* is expressed as percentage changes and limited to values between −100% and 100%.
Variable *ΔPR* is expressed as first difference.
A complete list of developed countries within our sample is available in Table A.2 in the Appendix A.
*Significance level $p < 0.10$.
**Significance level $p < 0.05$.
***Significance level $p < 0.01$.

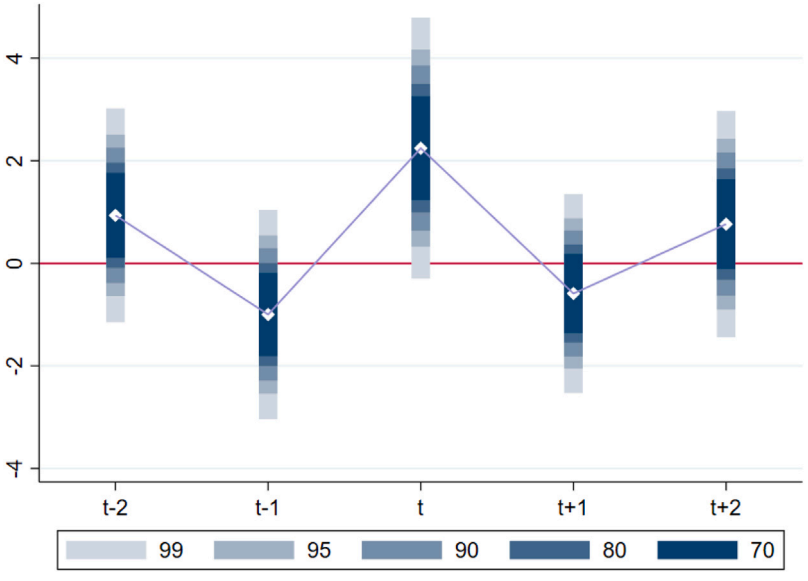

Fig. 1. Pre- and post-treatment estimation of the ATE of *PreElection* on *M1_Growth* (% of growth).
Outcome variable: *M1_Growth*; *Treatment variable*: *PreElection*†; *X variables*: *M1_Growth(t-1)*, *CBIE*, *Ygap*, *Inflation*, *Credit* & *Fix*; *Parallel trend test:* passed ($F(2, 109) = 1.89$; $Prob > F = 0.1566$); *Nbr. observations:* 1516; *Nbr. countries:* 110.
† *PreElection* represents a dummy variable equal to 1 when *ElectionIpre* is positive and 0 otherwise. It means that period *t* displayed in this figure corresponds directly to a pre-electoral period and not to an electoral period. See Section 3.1.2 for more information.
The figure legend represents confidence intervals of each ATE estimated using Cerulli and Ventura (2019) methodology.
This figure displays an estimation performed with a standard fixed-effects estimator (country-level fixed-effects) and robust standard errors.
M1_Growth and *Inflation* are limited to values below 75% in absolute terms.

Nevertheless, it is crucial to emphasize that the estimated ATEs remain affected by untreated issues as mentioned earlier. Specifically, the ATE estimates are biased due to the misspecification of *PreElection* and the untreated endogeneity of *M1_Growth*, *Inflation* and *Ygap*. To address these specific issues, a difference-GMM estimator (Arellano and Bond, 1991) is used, which is further discussed in Section 3.3.

3.2.3. Correlograms

Finally, Table 3 presents the correlation coefficients between the nine main variables, along with their significance levels for the overall sample, the developed countries sub-sample and the developing countries sub-sample. Notably, the comparison between developed and developing countries reveals several significant differences. In developing countries, there is higher correlation

Table 3
Correlograms.

Overall Sample									
	M0_Gr.	M1_Gr.	M2_Gr.	ΔPR	CBIE	Ygap	Inflation	Credit	Fix
M0_Gr.	1								
M1_Gr.	0.3588*	1							
M2_Gr.	0.3299*	0.7871*	1						
ΔPR	−0.1129*	−0.0735*	0.0094	1					
CBIE	−0.0046	0.0541*	−0.0310*	−0.0363*	1				
Ygap	0.0312*	0.0995*	0.1584*	0.1748*	0.0635*	1			
Inflation	0.3245*	0.2024*	0.3484*	−0.0421*	−0.1006*	−0.0206	1		
Credit	−0.1120*	−0.2667*	−0.2877*	0.0503*	−0.2228*	−0.1221*	−0.3020*	−1	
Fix	−0.0143	−0.0589*	−0.0856*	0.0014	−0.0377*	0.0497*	−0.1523*	0.0225	1
Developed countries									
	M0_Gr.	M1_Gr.	M2_Gr.	ΔPR	CBIE	Ygap	Inflation	Credit	Fix
M0_Gr.	1								
M1_Gr.	0.1636*	1							
M2_Gr.	0.1422*	0.4934*	1						
ΔPR	−0.0242	−0.2202*	0.0322	1					
CBIE	0.1264*	0.0650*	0.0678*	−0.0225	1				
Ygap	0.0604*	0.0967*	0.2514*	0.3255*	−0.0076	1			
Inflation	−0.0553*	0.1238*	0.3835*	−0.0395*	−0.1126*	0.0135	1		
Credit	0.0380	−0.3177*	−0.2811*	0.0616*	−0.1419*	−0.1290*	−0.3509*	1	
Fix	0.1381*	−0.0797*	−0.0490*	0.0232	−0.0269*	0.0942*	0.0224	0.1458*	1
Developing countries									
	M0_Gr.	M1_Gr.	M2_Gr.	ΔPR	CBIE	Ygap	Inflation	Credit	Fix
M0_Gr.	1								
M1_Gr.	0.4406*	1							
M2_Gr.	0.3948*	0.8153*	1						
ΔPR	−0.1538*	−0.0542*	0.0178	1					
CBIE	−0.1504*	−0.0084	−0.0678*	−0.0392*	1				
Ygap	−0.0048	0.0851*	0.1326*	0.1623*	0.0814*	1			
Inflation	0.4252*	0.1522*	0.2721*	−0.0366*	−0.2047*	−0.0535*	1		
Credit	−0.0611*	−0.1349*	−0.1289*	0.0508*	−0.1337*	−0.0939*	−0.1424*	1	
Fix	−0.1358*	−0.0355*	−0.0573*	−0.0052	−0.0236	0.0375*	−0.1969*	−0.1668*	1

*Denotes a significance at 5%.

The correlogram is calculated using the sample that was used to conduct regressions on *ΔPR*, which consists of a relatively smaller number of observations (787 observations).

coefficients associated with *Inflation*, while *Ygap* exhibits lower correlation coefficients. Additionally, developing countries exhibit stronger correlation between monetary aggregates compared to developed countries.

3.3. Econometric specification

To investigate the potential presence and extent of PMCs, the main econometric specification used in this study draws inspiration from the approach introduced by Alpanda and Honig (2009).[30] The main specification of the model is as follows:

$$M1\_Growth_{i,t} = \beta_1 M1\_Growth_{i,t-1} + \beta_2 Election_{i,t} + \beta_3 X_{i,t} + \varepsilon_{i,t} \quad (1)$$

where $M1\_Growth_{i,t}$ denotes the annual growth rate of monetary aggregate M1 in country i for year t ($M2\_Growth_{i,t}$, $M0\_Growth_{i,t}$ and $\Delta PR_{i,t}$ are also used as robustness[31]); $Election_{i,t}$ represents one of the pre-electoral or post-electoral measure(s); $X_{i,t}$ stands for a vector of explanatory variables; and $\varepsilon_{i,t}$ is an error term. In the main specification, $X_{i,t}$ is composed of $CBIE_{i,t}$ (an extended measure of *de jure* CBI), $Inflation_{i,t}$ (annual inflation rate measured as consumer price index), $Ygap_{i,t}$ (output gap), $Credit_{i,t}$ (amount of domestic credit available to the private sector as a percentage of GDP), and $Fix_{i,t}$ (a dummy variable that takes a value of 1 if a country is characterized by a fixed exchange rate regime).

[30] As stated in Section 3.1 several differences are observed between the work of Alpanda and Honig (2009) and the current study. First, the current estimations are performed using a difference-GMM estimator contrary to the system-GMM one. Second, this study uses different variables. In a nutshell, *CBIE* is the Cukierman et al. (1992) measure that is similar to that of Alpanda and Honig (2009) but augmented with institutional characteristics (Romelli, 2022). Moreover, *Ygap* is obtained by applying a different filter to the GDP series (Hamilton, 2018) and *ElectionIpre* is designed to measure 12 months pre-electoral periods, whereas Alpanda and Honig (2009) consider 24 months. Finally, the sample used in the current study is characterized by a large number of countries (110 against 63) and a more recent period (1985–2016 versus 1972–2001).

[31] Due to stationarity issues, *ΔPR* is introduced within the model as its first difference. On the contrary, *M0_Growth M1_Growth* and *M2_Growth* are introduced in levels.

As previously mentioned, the study uses a dynamic model throughout its analysis. This choice is motivated by four main arguments: (i) the high correlation between *M1_Growth* and its past values as previously detailed, (ii) the existence of endogenous variables (mainly *Inflation* and *Ygap*), (iii) the presence of time invariant country characteristics in the error term (country fixed-effects), and (iv) a dataset subject to the Nickell (1981) bias (*i.e.*, a dataset with a small T [32 periods] and a large N [110 countries]). The main estimation method used in this study is the difference-GMM estimator (Arellano and Bond, 1991). The choice of this model instead over the system-GMM is supported by the fact that the coefficient associated with the lagged explained variable (*M1_Growth(t-1)*) in the difference-GMM estimation (0.132, Table 4) surpasses its estimated value in a fixed-effects model (0.064, Table A.5 in the Appendix A section) and falls below its estimated value in a pooled ordinary least squares (OLS) estimator (0.160).[32]

To ensure the reliability of the GMM estimators used in the study and to address potential biases, the implementation of GMM is carefully explained and certain precautions are taken. One crucial consideration is the number of instruments used in the estimations, as GMM estimations are highly sensitive to this factor. Following Roodman (2009), this study gives a high level of attention to the number of instruments and provides the information in each regression. In addition, the study considers three variables (*M1_Growth(t-1)*, *Inflation* and *Ygap*) as potentially endogenous, while considering other variables as exogenous.[33] Furthermore, the number of instrument is constantly kept lower than the number of countries in each estimation. This decision is of high importance as instrument proliferation can severely bias the estimations. To address concerns regarding instrument proliferation, the study presents Hansen J-statistics and Sargan C-statistics for each estimation. These statistics, proposed by Anderson and Sørenson (1996) and Bowsher (2002) respectively, help assess the validity of the instruments used in the model. Moreover, every instrument set in every regression is collapsed to reduce the risk of the use of an excessive number of instruments. Finally, to mitigate potential biases and compute unbiased standard errors, the study applies Windmeijer's (2005) finite-sample correction to every regression. This correction implies that all models are estimated in a two-step procedure, which is considered more efficient and reliable than one-step estimates, as suggested by Roodman (2009, p. 97).

4. Main results

Table 4 implements a methodology similar to the one used by Mink and de Haan (2006). In their study, the authors estimated their model by sequentially introducing electoral variables from general to specific. Likewise, this study first begins by introducing the variable *Election*, followed by *ElectionDpre* and ElectionIpre, to investigate the hypothesis of an opportunistic PMC. The potential post-electoral impact is also explored by including the variables *ElectionDpost* and *ElectionIpost*. However, the results indicate that these two variables not statistically significant, and thus further investigation of post-electoral effect is abandoned. Building upon the findings of Mink and de Haan (2006), the estimations in this study reveal higher growth rates of monetary mass during pre-electoral periods. In regressions (2) and (3), *Election* and *ElectionDpre* exhibit statistical significance. However, in model (5), *ElectionDpre* does not appear significant, which could be due to the limited precision of simple dummies. Notably, the introduction of the pre-electoral index (*ElectionIpre*) displays a strong and positive relationship with the growth of monetary mass, as expected. Based on *ElectionIpre*, the average growth of M1 is estimated to be higher by 1.13% to 1.24% in the 12 months preceding a national election.[34] To ensure that variables with limited within-variation such as *CBIE* and *Fix*, do not drive the results, the main model is estimated without them (Table A.6 for the difference-GMM estimator and Table A.7 for the fixed-effects estimator in the Appendix A section). Additional estimation are also conducted, including a *de jure* classification of the exchange rate regime (Table A.8), only countries characterized by a floating exchange rate regime (Table A.9) and a *de facto* measure of CBI called *Turnover* (Table A.10). These supplementary results align with the estimations presented in Table 4, demonstrating consistency. Moreover, alternative thresholds for the variable *M1_Growth* are employed in Table A.11 to confirm the robustness of the results (see the Appendix A). Furthermore, when introducing post-electoral dummies or indexes (*ElectionDpost* or *ElectionIpost*), no significant effects are observed, possibly due to the construction of the electoral index. Indeed, the index is designed as a 12 month period, however, it is conceivable that the pre-electoral effect may occur within a longer or shorter timeframe. This aspect is further investigated in Table 8, where two pre- and post-electoral indexes spanning two years are introduced into the model.

Second, it is of high importance to discuss the significance of the different explanatory variables. In Table 4, *M1_Growth(t-1)*, *Inflation* and *Credit* appear significant and exhibit the expected signs, as outlined in Section 3. Additionally, Table 4 shows the expected negative sign for *Ygap*, although the estimated coefficients are not significantly different from zero. This contrasts with the positive coefficient observed in the fixed-effects version of the model, which as limited ability to address expected endogeneity (see Table A.5). Furthermore, *CBIE* is found to be insignificant in both GMM (Table 4) and fixed-effects estimations (Table A.4). This puzzling relationship between the orientation of monetary policy and CBI can be explained through several arguments. First, it relates to the substantial differences between *de jure* and *de facto* measures of CBI, whereas the implementation of monetary policy is more likely influenced by *de facto* CBI. Second, the increased interaction between central bankers and incumbent governments (Section 2) has introduced a new policy mix in both developed and developing countries. Third, the positive sign of *CBIE* in the GMM model may be attributed to the correction of potential endogeneity in the CBI measure.[35] Lastly, the non-linear statistical relationship between the orientation of monetary policy and CBI will be further explored as a potential explanation.

[32] The estimation of the main model with the pooled OLS estimator is available upon request.

[33] On this point, the specification does not differ from that of Alpanda and Honig (2009).

[34] This result is obtained by multiplying the coefficients of *ElectionIpre* in Table 4 (respectively 1.683 and 1.534) by its average value when the dummy *ElectionDpre* takes a value of 1 (0.736).

[35] For instance, this endogeneity may be due to potential measurement errors.

Table 4
Main Results with difference-GMM estimator.

M1_Growth (% of growth)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
M1_Growth(t-1)	0.132**	0.131**	0.131**	0.136**	0.134**	0.131**	0.136**	0.136**
	(0.056)	(0.056)	(0.055)	(0.056)	(0.056)	(0.055)	(0.055)	(0.055)
CBIE	0.793	0.913	0.984	0.782	0.938	1.061	0.831	1.049
	(2.006)	(2.051)	(2.052)	(1.962)	(2.012)	(2.096)	(1.968)	(2.049)
Ygap	−0.412	−0.226	−0.306	−0.495	−0.395	−0.211	−0.520	−0.331
	(3.012)	(2.967)	(2.965)	(3.109)	(3.070)	(2.945)	(3.085)	(3.023)
Inflation	0.703***	0.714***	0.703***	0.699***	0.702***	0.707***	0.700***	0.705***
	(0.132)	(0.131)	(0.128)	(0.132)	(0.129)	(0.128)	(0.132)	(0.129)
Credit	−0.054**	−0.053**	−0.055**	−0.056**	−0.056**	−0.054**	−0.055**	−0.055**
	(0.024)	(0.024)	(0.024)	(0.026)	(0.025)	(0.023)	(0.025)	(0.024)
Fix	2.221*	2.203*	2.124*	2.268*	2.165*	2.154*	2.255*	2.189*
	(1.206)	(1.202)	(1.182)	(1.222)	(1.207)	(1.168)	(1.213)	(1.180)
Election		1.053**						
		(0.525)						
ElectionDpre			1.009*		0.751			
			(0.523)		(0.554)			
ElectionDpost				−0.989	−0.761			
				(0.634)	(0.659)			
ElectionIpre						1.683**		1.534**
						(0.679)		(0.690)
ElectionIpost							−1.355	−1.171
							(0.856)	(0.847)
Nbr. observations	1870	1870	1870	1870	1870	1870	1870	1870
Nbr. instruments	62	63	63	63	64	63	63	64
AR(1) test	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AR(2) test	0.518	0.520	0.559	0.537	0.555	0.552	0.535	0.543
Sargan *C*-test	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Hansen *J*-test	0.314	0.347	0.372	0.286	0.329	0.386	0.293	0.355

Unless otherwise noted, all of our regressions are computed using dynamic a difference-GMM estimator.
Robust standard errors are provided in parenthesis. Statistics shown are *p*-values.
M1_Growth and *Inflation* are limited to values below 75% in absolute terms.
*Significance level $p < 0.10$.
**Significance level $p < 0.05$.
***Significance level $p < 0.01$.

To explore this result further, the study adopts a similar approach to Alpanda and Honig (2009) by introducing various interaction terms among *CBIE*, *Credit*, *Fix* and the pre-electoral index. As underlined by the aforementioned authors, the effect of elections on *M1_Growth* can be highly dependent on CBI, financial development and/or the exchange rate regime. Table 5 presents the estimations incorporating these interaction terms. When *Credit X Elec.* and *Fix X Elec.* are introduced, they are found to be non-significant and *ElectionIpre* continues to be seemingly significant (columns 13 and 14). This implies that although pre-electoral financial development or pre-electoral fixed exchange rate regime may have an impact on PMCs, they do not alter the overall results on average. However, when the interaction term *CBIE X Elec.* is included, it is found to be non-significant, and the significance of *ElectionIpre* disappears. This result is expected because the more independent the central bank, the more difficult it is to implement PMCs. Nevertheless, this situation is primarily explained by a non-linear relationship between CBI and the effectiveness of monetary policy (Baumann et al., 2021). It is unlikely that the statistical relationship between the two variables is linear.[36] To address this, *CBIE* is split into four quartiles in columns 10 to 13: *CBIE_[Q1]* representing the 25% less independent central banks, *CBIE_[Q2]* representing the second quartile in terms of CBI and so on. These estimations demonstrate a significant electoral cycle, which is more pronounced in countries with highest levels of CBI (column 13). However, the countries with a high level of CBI presented in column 13 have a monetary policy that actively combats counter PMCs. The interaction term *CBIE_[Q4] X Elec.* is significant and negative (−2.938), outweighting the significance and positive coefficient of *ElectionIpre* (2.258). The only CBIE quartile that does not lead to a significant PMC is the third quartile, as presented in column 12.

Finally, in columns 16 and 17, the study introduces a measure of fiscal deficit (*Fiscal Deficit*) and its interaction term with *ElectionIpre* (*Fiscal Deficit X Elec.*) into the model. Measuring the potential impact of fiscal policy on PMCs is crucial because a significant number of authors (Allen, 1986; Beck, 1987; Drazen, 2005) suggest that political cycles in monetary policy result from debt monetization or the use of monetary policy to counter the negative effects of increasing public expenditure. However, incorporating the orientation of fiscal policy in the model does not impact the significance of the pre-electoral measure, even though an increase in the public deficit leads to a higher growth of the monetary mass.

[36] In general, see Section 3.3 of Cukierman (2008) on the non-linearities of the reaction functions of central banks.

Table 5
Main Results with Interaction Terms.

M1_Growth (% of growth)									
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
M1_Growth(t-1)	0.132**	0.130**	0.129**	0.131**	0.134**	0.131**	0.128**	0.158***	0.157***
	(0.055)	(0.055)	(0.055)	(0.055)	(0.056)	(0.055)	(0.055)	(0.058)	(0.058)
ElectionIpre	2.380	1.626*	1.655**	1.029	2.258***	2.151*	1.849**	1.543*	1.500*
	(2.234)	(0.858)	(0.803)	(0.778)	(0.769)	(1.211)	(0.907)	(0.832)	(0.850)
CBIE	1.318					1.032	1.048	0.187	0.120
	(2.297)					(2.132)	(2.133)	(2.594)	(2.594)
CBIE X Elec.	−1.154								
	(3.545)								
CBIE_[Q1]		−0.943							
		(2.946)							
CBIE_[Q1] X Elec.		0.331							
		(3.855)							
CBIE_[Q2]			0.124						
			(2.232)						
CBIE_[Q2] X Elec.			0.060						
			(3.918)						
CBIE_[Q3]				−0.183					
				(1.482)					
CBIE_[Q3] X Elec.				3.619					
				(2.529)					
CBIE_[Q4]					0.930				
					(0.960)				
CBIE_[Q4] X Elec.					−2.938*				
					(1.702)				
Ygap	−0.254	−0.224	−0.156	−0.308	−0.361	−0.090	−0.242	−2.540	−2.594
	(2.958)	(2.920)	(2.973)	(2.918)	(2.996)	(2.942)	(2.956)	(3.280)	(3.340)
Inflation	0.705***	0.704***	0.699***	0.702***	0.692***	0.707***	0.705***	0.513***	0.509***
	(0.128)	(0.125)	(0.126)	(0.127)	(0.128)	(0.128)	(0.128)	(0.179)	(0.179)
Credit	−0.054**	−0.054**	−0.053**	−0.053**	−0.053**	−0.052**	−0.055**	−0.091**	−0.091**
	(0.023)	(0.022)	(0.022)	(0.022)	(0.022)	(0.024)	(0.024)	(0.043)	(0.043)
Credit X Elec.						−0.007			
						(0.014)			
Fix	2.153*	2.152*	2.207*	2.227*	2.191*	2.140*	2.202*	3.519***	3.494***
	(1.170)	(1.163)	(1.168)	(1.179)	(1.160)	(1.157)	(1.210)	(1.254)	(1.270)
Fix X Elec.							−0.475		
							(1.524)		
Fiscal Deficit								0.230**	0.232**
								(0.104)	(0.109)
Fiscal Deficit X Elec.									−0.012
									(0.163)
Nbr. observations	1870	1870	1870	1870	1870	1870	1870	1594	1594
Nbr. instruments	64	64	64	64	64	64	64	49	50
AR(1) test	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AR(2) test	0.548	0.560	0.561	0.556	0.533	0.558	0.588	0.214	0.216
Sargan *C*-test	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.004	0.004
Hansen *J*-test	0.386	0.385	0.381	0.388	0.387	0.376	0.366	0.331	0.326

Unless otherwise noted, all of our regressions are computed using dynamic a difference-GMM estimator.
Robust standard errors are provided in parenthesis. Statistics shown are *p*-values.
M1_Growth and *Inflation* are limited to values below 75% in absolute terms.
*Significance level $p < 0.10$.
**Significance level $p < 0.05$.
***Significance level $p < 0.01$.

According to this baseline specification, *ElectionIpre* remains significant and positive on average on the overall sample. This result supports the existence of an opportunistic PMC and this hypothesis appears to be robust across different estimators. In other words, central banks allow more accommodative monetary policies in the 12 months prior to a national election, either consciously or unconsciously. However, this result is only observable lack adequate independence. Specifically, when a central bank is among the 25% most independent ones, independence is sufficient to counteract PMCs. As previously mentioned, a potential explanation of the existence of PMCs is the will of a central banker to back up conservative incumbents because they share preferences for a conservative monetary policy (Clark and Arel-Bundock, 2013; Menuet et al., 2021). However, data on central banker ideology are unavailable on a large scale. Hence, the investigation of partisan effects is limited to the impact of incumbent partisanship (Section 5.2). The absence of significant PMC reported by Alpanda and Honig (2009) may stem from their pre-electoral measure itself. As noted by Haynes and Stone (1990, 1994) or Franzese (2002a), the lack of pre-electoral variations in economic policy can be attributed to imprecise electoral measures. Additionally, the difference in findings could be attributed to the use of a more recent

Table 6
Main Results on M2_Growth, M0_Growth & ΔPR.

	M0_Growth (%)			M2_Growth (%)			ΔPR		
	$(6)^{M0}$	$(7)^{M0}$	$(8)^{M0}$	$(6)^{M2}$	$(7)^{M2}$	$(8)^{M2}$	$(6)^{\Delta PR}$	$(7)^{\Delta PR}$	$(8)^{\Delta PR}$
M0_Growth(t-1)	0.085	0.081	0.081						
	(0.095)	(0.096)	(0.095)						
M2_Growth(t-1)				0.374***	0.379***	0.376***			
				(0.056)	(0.056)	(0.055)			
ΔPR							−0.066	−0.040	−0.054
							(0.213)	(0.213)	(0.214)
CBIE	9.542*	10.050*	9.896*	−5.461	−5.251	−5.487	−1.077	−0.828	−1.152
	(5.454)	(5.460)	(5.308)	(3.606)	(3.661)	(3.632)	(3.165)	(3.049)	(3.131)
Ygap	−0.121	0.096	0.281	5.251**	5.633**	5.355**	7.760***	7.719***	7.766***
	(3.369)	(3.627)	(3.540)	(2.431)	(2.486)	(2.447)	(1.873)	(1.902)	(1.880)
Inflation	0.958***	0.975***	0.967***	0.431***	0.446***	0.434***	−0.216**	−0.211*	−0.215**
	(0.187)	(0.185)	(0.186)	(0.113)	(0.113)	(0.112)	(0.107)	(0.108)	(0.107)
Credit	−0.030	−0.029	−0.029	−0.038	−0.036	−0.036	0.015*	0.014*	0.015*
	(0.020)	(0.020)	(0.019)	(0.027)	(0.026)	(0.026)	(0.008)	(0.008)	(0.008)
Fix	1.595	1.801	1.657	1.510	1.576	1.530	0.136	0.234	0.189
	(1.219)	(1.249)	(1.217)	(0.941)	(0.972)	(0.953)	(0.636)	(0.627)	(0.622)
ElectionIpre	1.622*		1.635*	1.382**		1.338**	−0.594*		−0.601*
	(0.905)		(0.881)	(0.679)		(0.661)	(0.312)		(0.330)
ElectionIpost		0.682	0.884		−0.340	−0.197		−0.012	−0.099
		(1.123)	(1.117)		(0.742)	(0.713)		(0.298)	(0.319)
Nbr. observations	862	862	862	1537	1537	1537	672	672	672
Nbr. instruments	29	29	30	45	45	46	20	20	21
AR(1) test	0.001	0.001	0.001	0.000	0.000	0.000	0.120	0.111	0.118
AR(2) test	0.738	0.749	0.759	0.318	0.323	0.320	0.850	0.787	0.823
Sargan C-test	0.007	0.007	0.007	0.000	0.000	0.000	0.000	0.000	0.000
Hansen J-test	0.894	0.900	0.907	0.271	0.235	0.263	0.658	0.644	0.665

As every estimation is performed on a different sample, the number of instrument is chosen using both Sargan and Hansen statistics.
Unless otherwise noted, all of our regressions are computed using dynamic a difference-GMM estimator.
Robust standard errors are provided in parenthesis. Statistics shown are p-values.
In regressions $(6)^{M0}$ to $(8)^{M0}$, *M0_Growth* and *Inflation* are limited to values below 100% in absolute terms.
In regressions $(6)^{M2}$ to $(8)^{PR}$*M2_Growth* and *Inflation* are limited to values below 75% in absolute terms.
*Significance level $p < 0.10$.
**Significance level $p < 0.05$.
***Significance level $p < 0.01$.

time period (1985–2016) in which PMCs are more likely to be observed. Finally, the identification of potential PMCs in this study may be explained by the increasing number of developed countries that are prone to experiencing PMCs (Block, 2002; Dreher and Vaubel, 2009).

5. Heterogeneity and robustness

5.1. Alternative measures of monetary policy orientation

To ensure the robustness of the hypothesis regarding opportunistic PMCs, the study conducts estimations of the main model using alternative measures of monetary policy orientation. As developed in Section 3.1.1, *M1_Growth* is chosen as the main dependent variable to maximize the number of country included in the dataset. While *M0_Growth* or *ΔPR* could be used for a larger number of countries, merging them with other data sources results in a relatively smaller sample size (65 and 52 countries respectively). Therefore, Table 6 presents regressions results using three alternative explained variables. Specifically, regressions (6), (7) and (8) from Table 4, which employs *ElectionIpre* and *ElectionIpost* as electoral measures, are now reported with *M2_Growth*, *M0_Growth* and *ΔPR* as dependent variables. Consistent with the findings for *M1_Growth*, these nine estimations provide further evidence supporting the existence of a PMC, as hypothesized throughout the paper.

The significant pre-electoral increase in *M0_Growth* (2.783) observed in regression $(8)^{M0}$) in Table 6 is larger than that increases measured for *M1_Growth* (1.534 in regression (8); Table 4) and *M2_Growth* (1.338 in regression $(8)^{M2\_Growth}$). Similarly, when *ΔPR* is used as the interest variable in the third part of the table, the findings support this result, with *ElectionIpre* significantly and negatively impacting the policy rate set by the central bank. Thus, regardless of the variable used to capture the orientation of monetary policy, it appears that the central bank implements a looser monetary policy in the 12 months prior to a national election.

Furthermore, an important issue arises when examining the results presented in Table 6. Surprisingly, *CBIE* has a significant and positive impact on *M0_Growth*. This result is unexpected since greater central bank independence is typically associated with less important growth rate of the monetary base, as independence helps mitigate inflationary bias (Kydland and Prescott, 1977; Barro and Gordon, 1983). As discussed earlier, this result could be attributed to the intricate relationship between CBI and the effectiveness

of monetary policy (Baumann et al., 2021). An additional explanation could be the limited number of countries included in these specific regressions, which might affect the robustness of the findings.

5.2. Heterogeneity

Then, the model is estimated on various sub-samples to conduct a detailed investigation into the presence and dynamics of PMCs. As stated in the Introduction, recent papers (Bodea, 2013; Balls et al., 2018; Hofmann et al., 2021) have shown an increasing relationship between central banks and incumbents since the 2008–2009 financial crisis. This situation has potentially heightened political pressure faced by central bankers (Binder, 2021), thereby facilitating the influence of incumbents on monetary policy. Table 7 examines the presence of PMCs before and after the crisis. On average, a PMC is observed prior to the crisis (column 18). However in column 19, the coefficient of *ElectionIpre* is found to be statistically insignificant and negative following in the post-crisis period. This outcome may be attributed to the relatively small sample size of 657 observations used in the estimation. It could be argued that the absence of post-crisis PMCs can be explained by: (i) the inclusion of *Fiscal Deficit* as an explanatory variable, (ii) the application of a threshold to *M1_Growth* and *Inflation* values, or (iii) the use of two sub-samples (1985–2006 and 2009–2016). However, when *Fiscal Deficit* is excluded; *M1_Growth* and *Inflation* values are not restricted; or when *ElectionIpre* is separated into pre-crisis and post-crisis elections indexes on the overall sample, there is no clear evidence of greater PMCs after the crisis.[37] Table 7 underlines the growing interactions between fiscal and monetary authorities, as reflected by the significance of *Fiscal Deficit* (column 19), which partially supports the findings of de Haan and Eijffinger (2016), Balls et al. (2018) or de Haan et al. (2018).

Moreover, it is widely agreed hypothesized that PMCs are more prevalent in developing countries (Dreher and Vaubel, 2009). Nevertheless, columns 20 and 21 in Table 7 illustrate that the pre-electoral increase in the monetary mass is present in both developed and developing countries. It is important to interpret this result with caution due to the low number of observations in these regressions. However, it suggests that PMCs are a political phenomenon that extends to countries with varying levels of institutional quality and economic development. Additionally, the first half of Table 7 highlights the main differences between the findings of the current study and those of Alpanda and Honig (2009), apart from technical considerations (see Section 3.3). As emphasized by de Haan and Eijffinger (2016) and de Haan et al. (2018), the shift from a situation of monetary dominance to fiscal dominance in recent years serves as the primary explanation for the occurrence of PMCs. In other words, since the financial crisis, PMCs have been more likely to be observed in developed countries. This phenomenon, coupled with the increased adoption of forward guidance (McKay et al., 2015), the emergence of new political leadership within central banks (Tortola and Pansardi, 2019), and the inclusion of a significant number of developing countries in the current study, largely account for the obtained results.

Another notable outcome in Table 7 is the lack of significant PMCs when the sample is divided between parliamentary and presidential regimes (columns 22 and 23). Despite the expectation that PMCs would be more prevalent in presidential regime (Persson and Tabellini, 2003), no discernible differences are observed between these two political systems. Furthermore, the final columns (columns 24 and 25) highlight that monetary policy is less likely to favor left-wing incumbents. In other words, PMCs are not evident when the incumbent belongs to a left-wing party (column 25). Clark and Arel-Bundock (2013) and Menuet et al. (2021) provide a straightforward explanation for this phenomenon. They suggest that central bankers, as technocrats, share certain economic preferences with conservative politicians. Consequently, a conservative central banker may exhibit a bias towards a conservative incumbent by implementing a PMC (whether consciously as shown in column 24). However, when the incumbent does not align with these conservative preferences, monetary policy would not exhibit significant deviations prior to a national election.

5.3. Timing of elections

Further explorations of the characteristics of elections and their impact on the presence and magnitude of PMCs is of high importance. Like any electoral phenomenon, PMCs are likely to be influenced by various factors, including the length of the pre-electoral period, the timing of the electoral agenda, the incumbent's probability of winning, and the degree of electoral freedom and fairness. Table 8 tackles these issues. In columns 26 to 28, a two-year pre-electoral period is considered. This measurement, akin to the one used by Alpanda and Honig (2009), yields results similar to those obtained with the one-year index. However, the effect is somewhat diminished and less statistically significant. While the coefficient associated with *ElectionIpre* is approximately 1.5 (as observed in columns 6 and 8 of Table 4), it decreases to approximately 1 when employing the *ElectionIpre_[2 years]* measure. One plausible explanation for this decline is that the closer the election date, the more accommodating the monetary policy becomes (Tufte, 1978). In other words, extending the pre-electoral period leads to a smaller average manipulation over the overall period, as the manipulation becomes more concentrated near the election date.

The study proceeds to investigate the influence of election timing, distinguishing between endogenously and exogenously timed elections, as proposed by Brender and Drazen (2005). Endogenously times elections occur in a period different from the one specified constitutionally. For instance, if an incumbent's term is expected to last five years, an election held before or after this five-year period is considered endogenous. Additionally, an election occurring on a date that differs from the

[37] The mentioned robustness checks are not presented in the paper. They are available upon request.

Table 7
Heterogeneity.

M1_Growth (% of growth)	(18) Pre-crisis period (1985–2006)	(19) Post-crisis period (2009–2016)	(20) Developed Countries	(21) Developing countries	(22) Presidential regimes	(23) Parliamentary regimes	(24) Right-wing & center incumbents	(25) Left-wing incumbents
M1_Growth(t-1)	0.157*	0.124*	0.276***	0.094	0.155**	0.136*	0.160**	0.087
	(0.083)	(0.068)	(0.079)	(0.057)	(0.063)	(0.077)	(0.063)	(0.078)
ElectionIpre	2.754**	−0.639	1.650*	1.331*	0.961	1.091	1.908**	1.405
	(1.099)	(1.012)	(0.936)	(0.785)	(1.032)	(0.861)	(0.802)	(1.262)
CBIE	2.512	−7.935	1.196	0.384	1.145	2.884	2.962	−2.390
	(2.925)	(8.151)	(1.863)	(3.336)	(3.813)	(2.149)	(2.551)	(3.063)
Ygap	5.112	−9.028**	−2.392	2.976	1.255	0.438	−2.852	13.169**
	(4.336)	(3.905)	(3.135)	(3.454)	(3.809)	(3.840)	(3.122)	(6.350)
Inflation	0.791***	−0.453*	0.178	0.668***	0.494***	0.722***	0.566***	0.712***
	(0.169)	(0.265)	(0.212)	(0.147)	(0.152)	(0.253)	(0.157)	(0.166)
Credit	−0.050	−0.241**	−0.049*	−0.141***	−0.139***	−0.029	−0.086***	−0.007
	(0.030)	(0.102)	(0.029)	(0.030)	(0.049)	(0.024)	(0.024)	(0.029)
Fix	1.849*	1.952	0.449	3.587**	1.749	2.447*	1.529	2.217
	(1.019)	(1.506)	(1.148)	(1.537)	(1.452)	(1.456)	(1.276)	(1.819)
Fiscal Deficit	0.132	0.258*						
	(0.122)	(0.142)						
Nbr. observations	819	657	721	1149	874	996	1347	523
Nbr. instruments	17	17	37	60	30	29	55	39
AR(1) test	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AR(2) test	0.687	0.169	0.160	0.682	0.035	0.380	0.439	0.855
Sargan *C*-test	0.004	0.035	0.007	0.005	0.000	0.027	0.005	0.001
Hansen *J*-test	0.375	0.156	0.451	0.569	0.222	0.182	0.362	0.434

As every estimation is performed on a different sample, the number of instrument is chosen using both Sargan and Hansen statistics. Moreover, the number of instrument is always lower than the number of countries in each sample.
Unless otherwise noted, all of our regressions are computed using dynamic a difference-GMM estimator.
Robust standard errors are provided in parenthesis. Statistics shown are *p*-values.
M1_Growth and *Inflation* are limited to values below 75% in absolute terms.
*Significance level $p < 0.10$.
**Significance level $p < 0.05$.
***Significance level $p < 0.01$.

one stipulated by the constitution is considered as endogenously timed.[38] To classify election dates, the study constructed the variables *ElectionIpre_[Endogenous]* and *ElectionIpre_[Exogenous]* using the *yrcurnt* variable from the DPI database.[39] When introducing exogenous electoral periods (*ElectionIpre_[Exogenous]*), PMCs are observable. On the contrary, when considering endogenous electoral periods (*ElectionIpre_[Endogenous]*), PMCs are not observed. This findings aligns with expectations, as incumbents and the central bankers lack the incentive to manipulate voters through fiscal or monetary policy when they have already manipulated political agendas to their advantage (Inoguchi, 1981).

In addition, the re-election process of the incumbent is expected to have a significant impact on the presence of PMCs. An incumbent who knows that their probability of re-election is null lacks the incentive to stimulate fiscal and/or monetary policies prior to national scrutiny. Generally, if a politician is aware tat their chances of winning are nonexistent, they will not seek re-election in the next electoral cycle. Therefore, if the incumbent is not running for re-election, no PMC should be observable (Bohn and Veiga, 2021). To investigate this phenomenon, the study introduces two variables: *ElectionIpre_[Running]* and *ElectionIpre_[Not Running]*. *ElectionIpre_[Running]* is equal to *ElectionIpre* only when the incumbent leader (*e.g.* president, prime minister) is running in the subsequent election.[40] On the other hand, the variable *ElectionIpre_[Not Running]* is equal to *ElectionIpre* when the incumbent is not running in the subsequent election. The idea behind this approach is that an election in which the incumbent is not running cannot be characterized by a PMC, and *vice versa*. When these measures are introduced into the model, PMCs are observed only when the incumbent is running for re-election. Therefore, it is evident that when the incumbent will not participate in the subsequent election, PMCs are not implemented.

Moreover, this study posits that the obtained results are influenced by countries where governments have a higher capacity to manipulate electoral results. The database used in this study is composed of democratic and non-democratic countries. To tackle this issue, an interaction term between pre-electoral periods and electoral competitiveness is introduced in column 35 (*CEI X Elec.*).

[38] Every election is then classified as endogenous or exogenous and cannot be considered under both of these categories.

[39] *yrcurnt* measures the number of years prior to the next constitutionally planned national election. When information was unavailable, the study referred to each country electoral laws. Within the dataset, 155 elections out of the 478 are considered endogenously timed.

[40] In the case of a presidential regime, defining which election the incumbent president is running or not is easy. On the contrary, certain difficulties can be encountered for parliamentary regimes. For the sake of simplicity, a political party is considered running if it is part of the previous ruling majority.

Table 8
Elections' characteristics.

M1_Growth (% of growth)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)†
L.M1	0.135**	0.130**	0.132**	0.133**	0.128**	0.128**	0.133**	0.132**	0.132**	0.187***
	(0.055)	(0.056)	(0.057)	(0.056)	(0.056)	(0.056)	(0.055)	(0.056)	(0.055)	(0.061)
CBIE	1.015	0.866	0.945	0.910	0.918	1.024	1.082	0.842	1.142	−0.280
	(2.098)	(2.032)	(2.059)	(2.029)	(2.055)	(2.077)	(2.070)	(2.020)	(2.084)	(2.696)
Ygap	−0.031	−0.465	−0.429	−0.385	−0.237	−0.178	−0.212	−0.334	−0.132	−1.101
	(2.875)	(3.032)	(3.016)	(2.960)	(3.010)	(2.960)	(2.869)	(3.020)	(2.874)	(3.488)
Inflation	0.676***	0.708***	0.683***	0.700***	0.690***	0.685***	0.710***	0.709***	0.715***	0.661***
	(0.128)	(0.131)	(0.130)	(0.130)	(0.129)	(0.128)	(0.130)	(0.133)	(0.130)	(0.144)
Credit	−0.056**	−0.054**	−0.054**	−0.055**	−0.051**	−0.051**	−0.052**	−0.054**	−0.052**	−0.047
	(0.027)	(0.024)	(0.024)	(0.024)	(0.023)	(0.023)	(0.023)	(0.025)	(0.023)	(0.029)
Fix	2.365**	2.233*	2.193*	2.198*	2.093*	2.075*	2.263*	2.226*	2.248*	2.550*
	(1.143)	(1.189)	(1.189)	(1.209)	(1.187)	(1.191)	(1.152)	(1.208)	(1.152)	(1.426)
ElectionIpre_[2years]	0.905*		0.976*							
	(0.526)		(0.559)							
ElectionIpost_[2years]		0.038	0.385							
		(0.658)	(0.691)							
ElectionIpre_[Endogenous]				0.628		0.802				
				(0.827)		(0.803)				
ElectionIpre_[Exogenous]					1.228**	1.297**				
					(0.560)	(0.552)				
ElectionIpre_[Running]							2.686***		2.709***	
							(0.852)		(0.851)	
ElectionIpre_[No Running]								0.099	0.390	
								(1.103)	(1.094)	
ElectionIpre										4.672**
										(1.961)
CEI X Elec.										−4.501*
										(2.603)
Nbr. observations	1870	1870	1870	1870	1870	1870	1870	1870	1870	1361
Nbr. instruments	63	63	64	63	63	64	63	63	64	47
AR(1) test	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AR(2) test	0.461	0.539	0.492	0.501	0.534	0.518	0.531	0.528	0.545	0.117
Sargan *C*-test	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000
Hansen *J*-test	0.344	0.299	0.306	0.298	0.352	0.334	0.383	0.317	0.390	0.409

† As regression (35) is estimated on a different sample, the number of instrument is chosen using both Sargan and Hansen statistics.
Unless otherwise noted, all of our regressions are computed using dynamic a difference-GMM estimator.
Robust standard errors are provided in parenthesis. Statistics shown are *p*-values.
M1_Growth and *Inflation* are limited to values below 75% in absolute terms.
*Significance level $p < 0.10$.
**Significance level $p < 0.05$.
***Significance level $p < 0.01$.

The competitive election index (*CEI*) is derived from the *Varieties of Democracy* (V-Dem) database. This variable is an index ranging from 0 to 1, where lower scores indicate free and fair electoral processes. As anticipated, when elections are more free and fair, the scope of electioneering in monetary policy becomes narrower. Nevertheless, the study still observed PMCs on average, even below a certain threshold of electoral competitiveness.

5.4. Institutional framework of monetary policy

Finally, the study further explores the institutional framework of monetary policy int Table 9. In column 36, the age of the central bank is introduced into the model. Given that a central bank is an institution, it is plausible that the length of its existence may correspond to a learning effect in conducting monetary policy. As hypothesized, younger central banks exhibit a greater impact of pre-electoral periods on the variation of *M1_Growth*. Conversely, older monetary authorities are subject to more moderate PMCs on average. One possible explanation for this pattern is a direct association between the seniority of the monetary institution and its organizational efficiency. Hence, an established central bank may effectively withstand political pressure (Mantzavinos et al., 2004). Another explanation could be the concentration of certain specific institutional characteristics in countries with relatively new central banks.

Institutional arrangements such as inflation targeting (*IT*), or participation in a monetary union can impose constraints on monetary authorities and manifest in the behavior of central banks. First, the study examines the introduction of a dummy variable (*IT*) that takes a value of 1 if a country is implementing IT (column 37). Surprisingly, countries that target inflation do not avoid the significant and positive impact of pre-electoral periods on *M1_Growth*. Contrary to the conventional beliefs, it appears that IT is

Table 9
Central Bank and Monetary Policy Characteristics.

M1_Growth (% of growth)	(36)	(37)	(38)†	(39)†	(40)†	(41)†	(42)†
M1_Growth(t-1)	0.132**	0.133**	0.130**	0.132**	0.132**	0.132**	0.131**
	(0.054)	(0.055)	(0.055)	(0.055)	(0.055)	(0.055)	(0.055)
ElectionIpre	2.657**	1.720**	1.676**	1.558**	1.568**	1.889***	1.749**
	(1.026)	(0.761)	(0.774)	(0.741)	(0.699)	(0.687)	(0.689)
CBIE	1.612	1.209	1.065	1.030	1.051	1.448	1.036
	(2.069)	(2.019)	(2.126)	(2.068)	(2.095)	(1.987)	(2.101)
Ygap	−0.155	−0.113	−0.195	−0.155	−0.242	−0.280	−0.231
	(2.861)	(2.940)	(2.960)	(2.936)	(2.882)	(2.953)	(2.952)
Inflation	0.661***	0.736***	0.704***	0.707***	0.706***	0.704***	0.707***
	(0.138)	(0.160)	(0.128)	(0.128)	(0.129)	(0.128)	(0.128)
Credit	−0.045*	−0.055**	−0.054**	−0.053**	−0.054**	−0.055**	−0.054**
	(0.024)	(0.023)	(0.024)	(0.023)	(0.023)	(0.024)	(0.024)
Fix	2.112*	2.195*	2.139*	2.157*	2.160*	2.145*	2.145*
	(1.162)	(1.163)	(1.165)	(1.164)	(1.173)	(1.160)	(1.165)
CreationCB	−0.042						
	(0.051)						
CreationCB X Elec.	−0.016*						
	(0.009)						
IT		1.084					
		(1.557)					
IT X Elec.		−0.109					
		(1.665)					
MonetaryUnion X Elec.			−0.082				
			(1.750)				
ECCB X Elec.				1.445			
				(2.259)			
CEMAC X Elec.					3.644		
					(2.652)		
WAEMU X Elec.						−3.782	
						(2.804)	
ESCB X Elec.							−1.541
							(2.545)
Nbr. observations	1870	1870	1870	1870	1870	1870	1870
Nbr. instruments	65	65	64	64	64	64	64
AR(1) test	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AR(2) test	0.508	0.558	0.556	0.533	0.532	0.571	0.555
Sargan *C*-test	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Hansen *J*-test	0.428	0.426	0.374	0.392	0.380	0.391	0.387

† In these models, dummies measuring the membership in a monetary union *MonetaryUnion*, *ECCB*, *CEMAC*, *WAEMU* and *ESCB* were dropped due to collinearity. Unless otherwise noted, all of our regressions are computed using dynamic a difference-GMM estimator.
Robust standard errors are provided in parenthesis. Statistics shown are *p*-values.
M1_Growth and *Inflation* are limited to values below 75% in absolute terms.
ECCB: Eastern Caribbean Central Bank.
CEMAC: Economic and Monetary Community of Central African States.
WAEMU: West African Economic and Monetary Union.
ESCB: European System of Central Banks.
*Significance level $p < 0.10$.
**Significance level $p < 0.05$.
***Significance level $p < 0.01$.

not effective in countering the influence of PMCs. Similar findings emerge when considering monetary union membership within estimations. The introduction of the interaction term *MonetaryUnion X Elec.* into column 38 does not lead to the disappearance of PMCs.

Additionally;, in columns 39 to 42, each monetary union in the database is individually introduced alone to explore potential variations. The dataset is composed of countries from the Eastern Caribbean Central Bank (ECCB), the Economic and Monetary Community of Central African States (CEMAC), the West African Economic and Monetary Union (WAEMU) and the European System of Central Banks (ESCB).[41] Nonetheless, the study does not observe any significant impact exerted by any of the introduced monetary union in the model.

[41] For European countries, they are only included in the dataset before their entry in the euro zone. Subsequently, the dummy *ESCB* takes the value 1 only when a country is actively engaged in a converging process aiming at joining the euro zone.

6. Conclusion

This study contributes to the ongoing debate regarding the influence of elections on monetary policy. The findings provide substantial evidence in support of the hypothesized opportunistic PMCs. On average, a noticeable increase in the growth of monetary mass prior to elections is observed in both developed and developing countries. These results remain robust even when different econometric models and variables are used to measure variations in monetary mass. Furthermore, several aspects of political and institutional frameworks directly impact the magnitude of these PMCs. Factors such as endogenously timed elections and incumbents who are not running in the subsequent election tend to reduce the amplitude of PMCs. Additionally, certain characteristics of the central banking process, such as the seniority of central banks, can contribute in reducing political cycles within monetary policy. This study demonstrates that the level of electoral competitiveness is inversely related to the severity of electioneering in monetary policy. Interestingly, the data seems to indicate the presence of PMCs not only in developing countries but also in developed countries, which contrasts with previous findings in the existing literature. This highlights the significance of examining potential links between fiscal and monetary authorities, particularly in recent times. Although, this study does not establish a clear increase in PMCs since the global financial crisis, it emphasizes the need to move away from the notion that monetary policy is solely implemented by independent experts only focused on inflation. These findings underscore the key differences between the results of this study and those of Alpanda and Honig (2009). The current study benefits from a larger sample size of 110 countries and a more recent study period from 1985 to 2016. Consequently, it enables the examination of various policy mixes inherited from the 2008–2009 crisis is possible. The shock of the Great Recession, the rise of political populism and the recent reassessment of CBI have significantly restructured the landscape of monetary policy. Central bankers now find themselves increasingly assuming the role of political actors who must navigate national and international political dynamics (Fernández-Albertos, 2015).

In this new context, the presence of PMCs takes on a significant role in the theoretical modeling of central bank behavior. The findings of this study provide evidence that elections impact monetary policy, underlying the need to incorporate the influence into macroeconomic studies. It is crucial to acknowledge that the main result of this study indicates the existence of a relationship between elections and M1 growth, but caution must be exercised in inferring causality from these findings. Furthermore, the observed effect is rather small (between 1% and 2% extra money growth). Consequently, generalizing the results requires careful consideration, and further research is necessary to better understand the determinants of this phenomenon.

In summary, this study highlights that, on average, there is a higher growth rate of monetary mass in the 12 months preceding a national election. However, further investigation with higher degree of precision is necessary to validate the existence (or non-existence) of this phenomenon in countries based on specific characteristics. Exploring the transmission channels through which political events may impact modern central banking represents an interesting avenue for investigation. Additionally, analyzing the potential mutually reinforcing effects of fiscal and monetary policies in terms of electorally induced manipulation could provide valuable insights. To fully understand PMCs, data collection on the ideology, preferences and past positions of central bankers is essential in examining potential partisan explanations that may strengthen opportunistic outcomes. This paper serves as an ice-breaker to the topic, encouraging new investigations into the interaction between politics and monetary policy. Given the significant changes in the policy mix in recent years, it is important to recognize the disparity between the theoretical behavior of central bankers and their actual behavior, as emphasized by Adolph (2013). Thus, reevaluating the concept of PMCs could be the initial step in addressing this research gap.

Declaration of competing interest

None

Data availability

Data will be made available on request

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Appendix A. Additional results

(See Figs. A.1–A.14, Tables A.1–A.11).

Appendix B. Supplementary data

Supplementary material related to this article can be found online at https://doi.org/10.1016/j.ejpoleco.2023.102437.

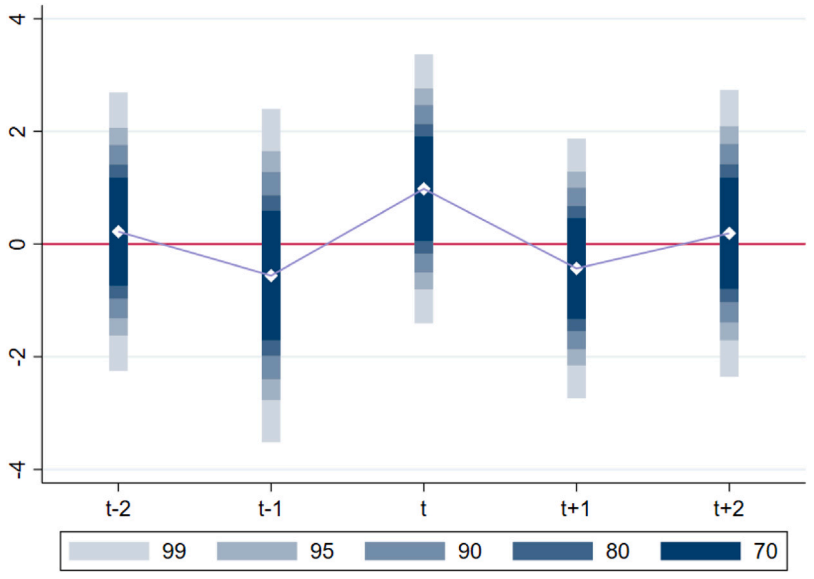

Fig. A.1. Pre- and post-treatment estimation of the ATE of *PreElection* on *M1_Growth* for developed countries.
Outcome variable: *M1_Growth*; *Treatment variable*: *PreElection*†; *X variables*: *M1_Growth(t-1)*, *CBIE*, *Ygap*, *Inflation*, *Credit* & *Fix*; *Parallel trend test:* passed ($F(2, 38) = 0.19$; $Prob > F = 0.8292$); *Nbr. observations:* 591; *Nbr. countries:* 39.
† *PreElection* represents a dummy variable equal to 1 when *ElectionIpre* is positive and 0 otherwise. It means that period *t* displayed in this figure corresponds directly to a pre-electoral period and not to an electoral period. See Section 3.1.2 for more information.
The figure legend represents confidence intervals of each ATE estimated using Cerulli and Ventura (2019) methodology.
This figure displays an estimation performed with a standard fixed-effects estimator (country-level fixed-effects) and robust standard errors.
M1_Growth and *Inflation* are limited to values below 75% in absolute terms.
A complete list of developed and developing countries is available in Table A.2 in the Appendix A.

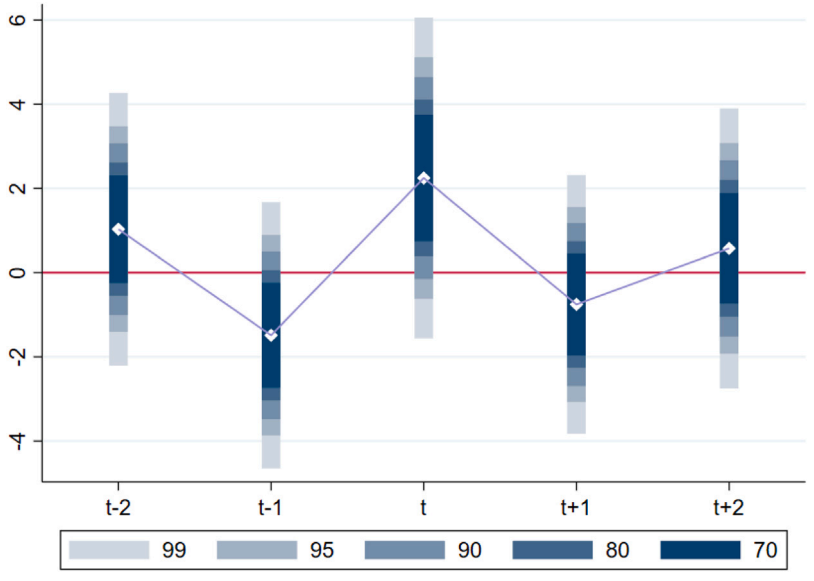

Fig. A.2. Pre- and post-treatment estimation of the ATE of *PreElection* on *M1_Growth* for developing countries.
Outcome variable: *M1_Growth*; *Treatment variable*: *PreElection*†; *X variables*: *M1_Growth(t-1)*, *CBIE*, *Ygap*, *Inflation*, *Credit* & *Fix*; *Parallel trend test:* passed ($F(2, 70) = 1.34$; $Prob > F = 0.2689$); *Nbr. observations:* 925; *Nbr. countries:* 71.
† *PreElection* represents a dummy variable equal to 1 when *ElectionIpre* is positive and 0 otherwise. It means that period *t* displayed in this figure corresponds directly to a pre-electoral period and not to an electoral period. See Section 3.1.2 for more information.
The figure legend represents confidence intervals of each ATE estimated using Cerulli and Ventura (2019) methodology.
This figure displays an estimation performed with a standard fixed-effects estimator (country-level fixed-effects) and robust standard errors.
M1_Growth and *Inflation* are limited to values below 75% in absolute terms.
A complete list of developed and developing countries is available in Table A.2 in the Appendix A.

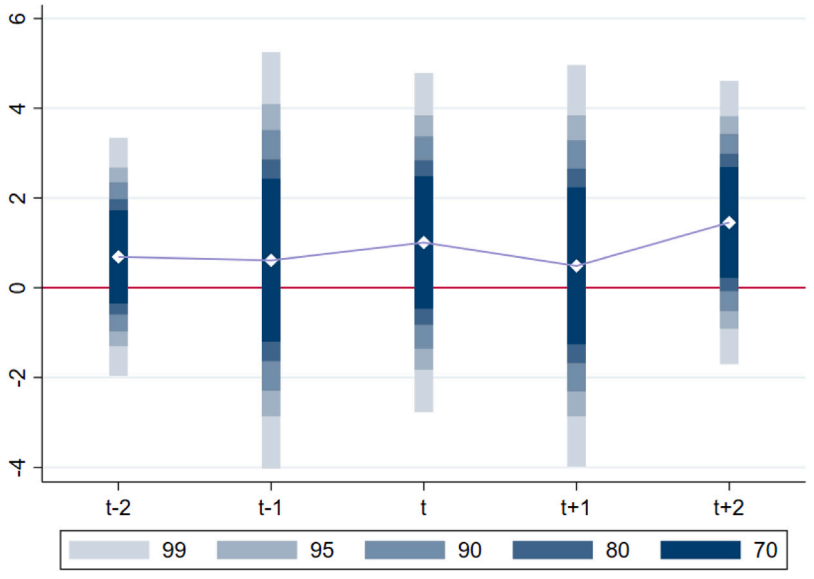

Fig. A.3. Pre- and post-treatment estimation of the ATE of *PreElection* on *M0_Growth*.
Outcome variable: *M0_Growth*; *Treatment variable*: *PreElection*†; *X variables*: *M0_Growth(t-1)*, *CBIE*, *Ygap*, *Inflation*, *Credit* & *Fix*; *Parallel trend test:* passed ($F(2, 49) = 0.25$; $Prob > F = 0.7764$); *Nbr. observations:* 693; *Nbr. countries:* 50.
† *PreElection* represents a dummy variable equal to 1 when *ElectionIpre* is positive and 0 otherwise. It means that period *t* displayed in this figure corresponds directly to a pre-electoral period and not to an electoral period. See Section 3.1.2 for more information.
The figure legend represents confidence intervals of each ATE estimated using Cerulli and Ventura (2019) methodology.
This figure displays an estimation performed with a standard fixed-effects estimator (country-level fixed-effects) and robust standard errors.
M0_Growth and *Inflation* are limited to values below 100% in absolute terms.

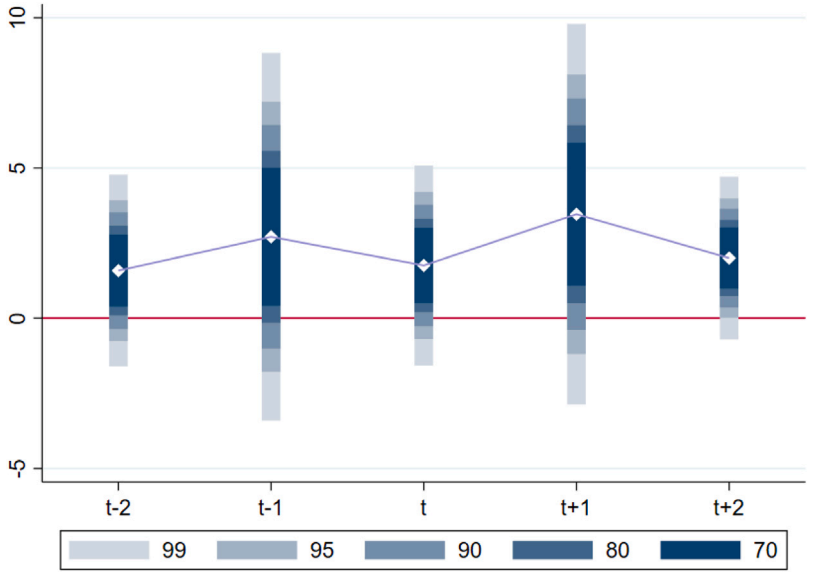

Fig. A.4. Pre- and post-treatment estimation of the ATE of *PreElection* on *M0_Growth* for developed countries.
Outcome variable: *M0_Growth*; *Treatment variable*: *PreElection*†; *X variables*: *M0_Growth(t-1)*, *CBIE*, *Ygap*, *Inflation*, *Credit* & *Fix*; *Parallel trend test:* passed ($F(2, 21) = 1.20$; $Prob > F = 0.3205$); *Nbr. observations:* 334; *Nbr. countries:* 22.
† *PreElection* represents a dummy variable equal to 1 when *ElectionIpre* is positive and 0 otherwise. It means that period *t* displayed in this figure corresponds directly to a pre-electoral period and not to an electoral period. See Section 3.1.2 for more information.
The figure legend represents confidence intervals of each ATE estimated using Cerulli and Ventura (2019) methodology.
This figure displays an estimation performed with a standard fixed-effects estimator (country-level fixed-effects) and robust standard errors.
M0_Growth and *Inflation* are limited to values below 100% in absolute terms.
A complete list of developed and developing countries is available in Table A.2 in the Appendix A.

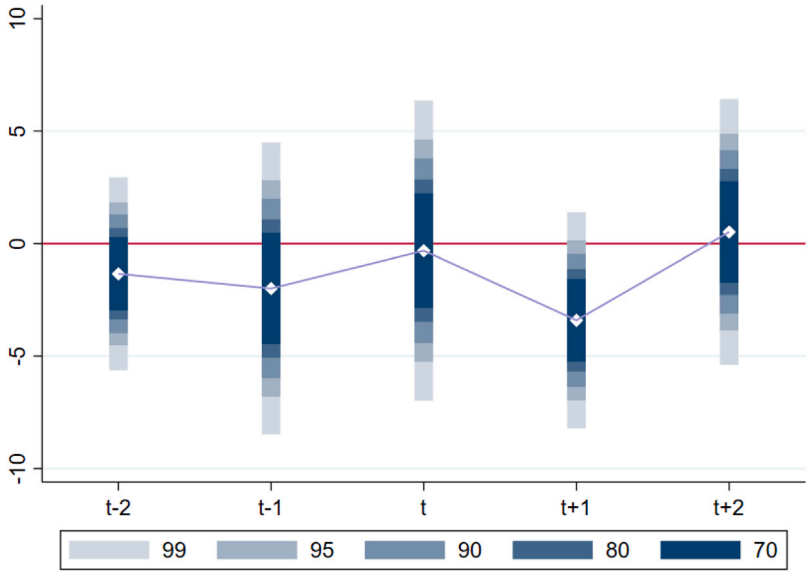

Fig. A.5. Pre- and post-treatment estimation of the ATE of *PreElection* on *M0_Growth* for developing countries.
Outcome variable: *M0_Growth*; *Treatment variable*: *PreElection*†; *X variables*: *M0_Growth(t-1)*, *CBIE*, *Ygap*, *Inflation*, *Credit* & *Fix*; *Parallel trend test:* passed ($F(2, 27) = 0.76$; $Prob > F = 0.4771$); *Nbr. observations:* 349; *Nbr. countries:* 28.† *PreElection* represents a dummy variable equal to 1 when *ElectionIpre* is positive and 0 otherwise. It means that period t displayed in this figure corresponds directly to a pre-electoral period and not to an electoral period. See Section 3.1.2 for more information.
The figure legend represents confidence intervals of each ATE estimated using Cerulli and Ventura (2019) methodology.
This figure displays an estimation performed with a standard fixed-effects estimator (country-level fixed-effects) and robust standard errors.
M0_Growth and *Inflation* are limited to values below 100% in absolute terms.
A complete list of developed and developing countries is available in Table A.2 in the Appendix A.

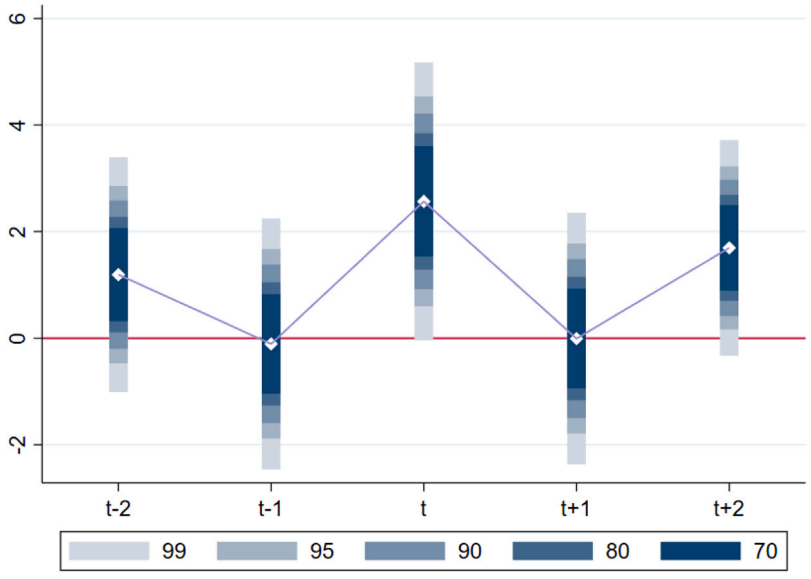

Fig. A.6. Pre- and post-treatment estimation of the ATE of *PreElection* on *M2_Growth*.
Outcome variable: *M2_Growth*; *Treatment variable*: *PreElection*†; *X variables*: *M2_Growth(t-1)*, *CBIE*, *Ygap*, *Inflation*, *Credit* & *Fix*; *Parallel trend test:* passed ($F(2, 94) = 1.01$; $Prob > F = 0.3672$); *Nbr. observations:* 1235; *Nbr. countries:* 95.
† *PreElection* represents a dummy variable equal to 1 when *ElectionIpre* is positive and 0 otherwise. It means that period t displayed in this figure corresponds directly to a pre-electoral period and not to an electoral period. See Section 3.1.2 for more information.
The figure legend represents confidence intervals of each ATE estimated using Cerulli and Ventura (2019) methodology.
This figure displays an estimation performed with a standard fixed-effects estimator (country-level fixed-effects) and robust standard errors.
M2_Growth and *Inflation* are limited to values below 75% in absolute terms.

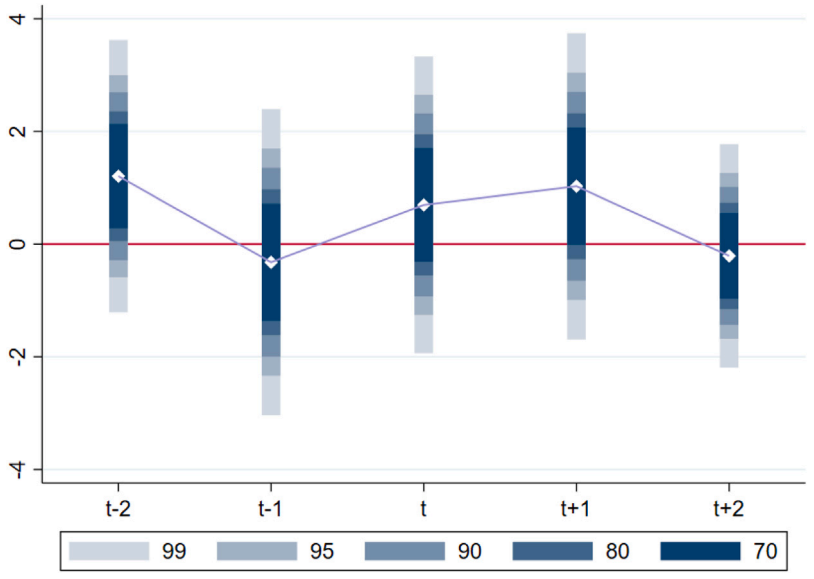

Fig. A.7. Pre- and post-treatment estimation of the ATE of *PreElection* on *M2_Growth* for developed countries.
Outcome variable: *M2_Growth*; *Treatment variable*: *PreElection*†; *X variables*: *M2_Growth(t-1)*, *CBIE*, *Ygap*, *Inflation*, *Credit* & *Fix*; *Parallel trend test:* passed ($F(2, 29) = 1.01$; $Prob > F = 0.3766$); *Nbr. observations:* 402; *Nbr. countries:* 30.
† *PreElection* represents a dummy variable equal to 1 when *ElectionIpre* is positive and 0 otherwise. It means that period t displayed in this figure corresponds directly to a pre-electoral period and not to an electoral period. See Section 3.1.2 for more information.
The figure legend represents confidence intervals of each ATE estimated using Cerulli and Ventura (2019) methodology.
This figure displays an estimation performed with a standard fixed-effects estimator (country-level fixed-effects) and robust standard errors.
M2_Growth and *Inflation* are limited to values below 75% in absolute terms.
A complete list of developed and developing countries is available in Table A.2 in the Appendix A.

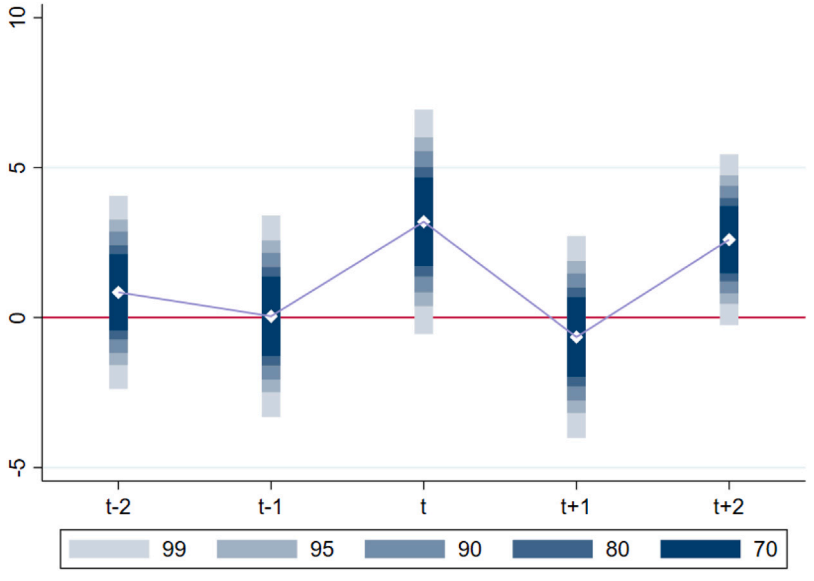

Fig. A.8. Pre- and post-treatment estimation of the ATE of *PreElection* on *M2_Growth* for developing countries.
Outcome variable: *M2_Growth*; *Treatment variable*: *PreElection*†; *X variables*: *M2_Growth(t-1)*, *CBIE*, *Ygap*, *Inflation*, *Credit* & *Fix*; *Parallel trend test:* passed ($F(2, 64) = 0.25$; $Prob > F = 0.7832$); *Nbr. observations:* 833; *Nbr. countries:* 65.
† *PreElection* represents a dummy variable equal to 1 when *ElectionIpre* is positive and 0 otherwise. It means that period t displayed in this figure corresponds directly to a pre-electoral period and not to an electoral period. See Section 3.1.2 for more information.
The figure legend represents confidence intervals of each ATE estimated using Cerulli and Ventura (2019) methodology.
This figure displays an estimation performed with a standard fixed-effects estimator (country-level fixed-effects) and robust standard errors.
M2_Growth and *Inflation* are limited to values below 75% in absolute terms.
A complete list of developed and developing countries is available in Table A.2 in the Appendix A.

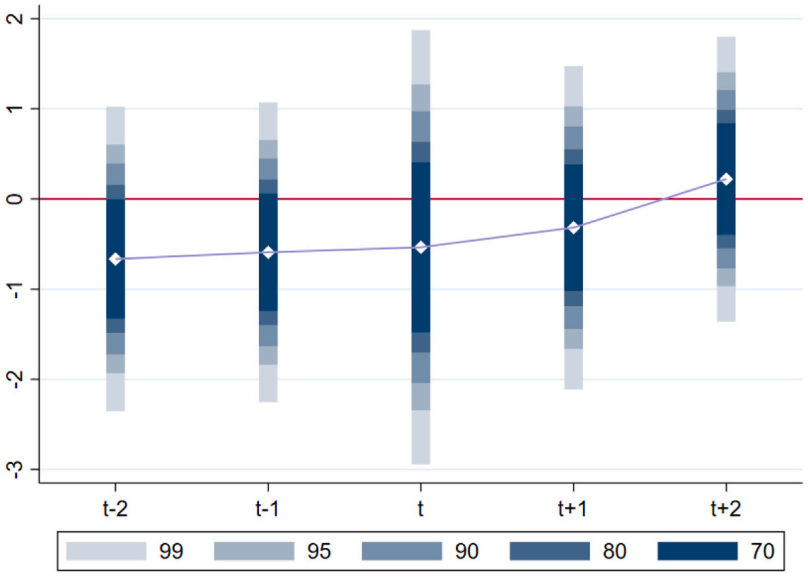

Fig. A.9. Pre- and post-treatment estimation of the ATE of *PreElection* on *ΔPR*.
Outcome variable: *ΔPR*; *Treatment variable*: *PreElection*†; *X variables*: *ΔPR(t-1)*, *CBIE*, *Ygap*, *Inflation*, *Credit* & *Fix*; *Parallel trend test:* passed ($F(2, 51) = 0.62$; $Prob > F = 0.5417$); *Nbr. observations:* 499; *Nbr. countries:* 52.
† *PreElection* represents a dummy variable equal to 1 when *ElectionIpre* is positive and 0 otherwise. It means that period *t* displayed in this figure corresponds directly to a pre-electoral period and not to an electoral period. See Section 3.1.2 for more information.
The figure legend represents confidence intervals of each ATE estimated using Cerulli and Ventura (2019) methodology.
This figure displays an estimation performed with a standard fixed-effects estimator (country-level fixed-effects) and robust standard errors.
Inflation are limited to values below 75% in absolute terms.
ΔPR represents the first difference of the policy rate.

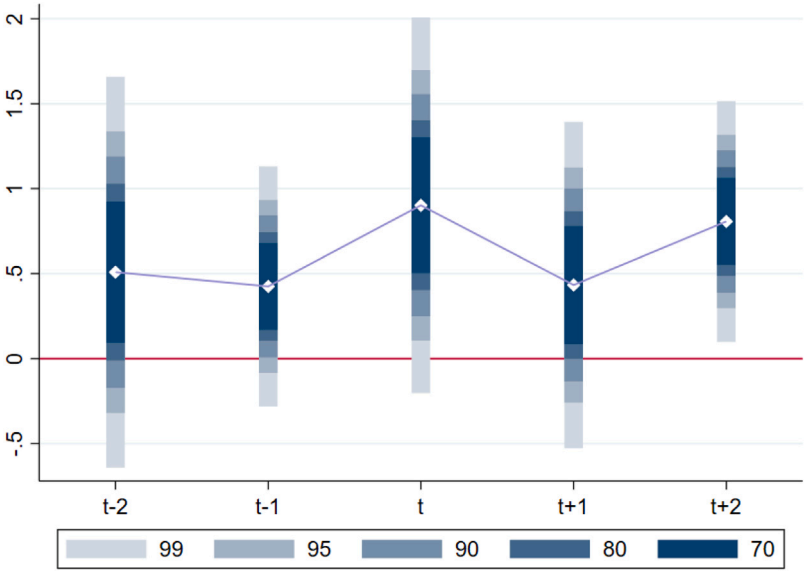

Fig. A.10. Pre- and post-treatment estimation of the ATE of *PreElection* on *ΔPR* for developed countries.
Outcome variable: *ΔPR*; *Treatment variable*: *PreElection*†; *X variables*: *ΔPR(t-1)*, *CBIE*, *Ygap*, *Inflation*, *Credit* & *Fix*; *Parallel trend test:* passed ($F(2, 14) = 1.66$; $Prob > F = 0.2248$); *Nbr. observations:* 223; *Nbr. countries:* 15.
† *PreElection* represents a dummy variable equal to 1 when *ElectionIpre* is positive and 0 otherwise. It means that period *t* displayed in this figure corresponds directly to a pre-electoral period and not to an electoral period. See Section 3.1.2 for more information.
The figure legend represents confidence intervals of each ATE estimated using Cerulli and Ventura (2019) methodology.
This figure displays an estimation performed with a standard fixed-effects estimator (country-level fixed-effects) and robust standard errors.
Inflation are limited to values below 75% in absolute terms.
ΔPR represents the first difference of the policy rate.
A complete list of developed and developing countries is available in Table A.2 in the Appendix A.

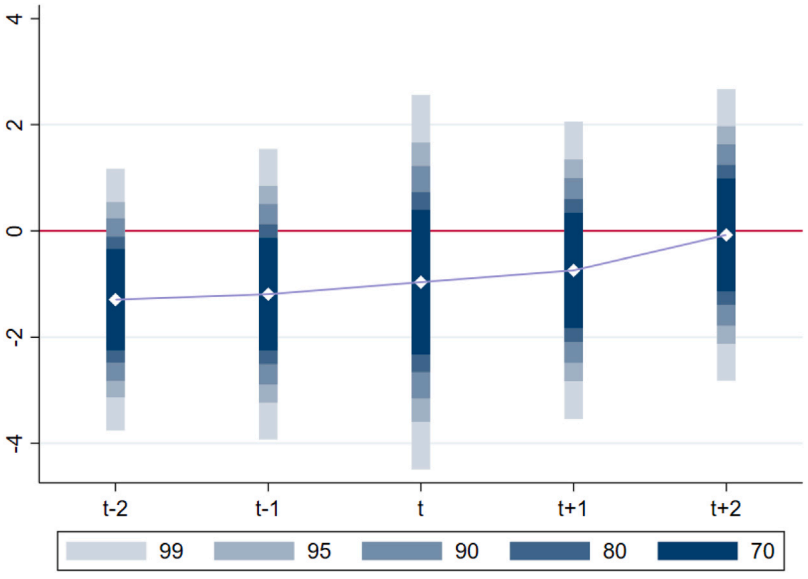

Fig. A.11. Pre- and post-treatment estimation of the ATE of *PreElection* on *ΔPR* for developing countries.
Outcome variable: *ΔPR*; *Treatment variable*: *PreElection*†; *X variables*: *ΔPR(t-1)*, *CBIE*, *Ygap*, *Inflation*, *Credit* & *Fix*; *Parallel trend test:* passed ($F(2, 36) = 1.16$; $Prob > F = 0.3236$); *Nbr. observations:* 276; *Nbr. countries:* 37.
† *PreElection* represents a dummy variable equal to 1 when *ElectionIpre* is positive and 0 otherwise. It means that period *t* displayed in this figure corresponds directly to a pre-electoral period and not to an electoral period. See Section 3.1.2 for more information.
The figure legend represents confidence intervals of each ATE estimated using Cerulli and Ventura (2019) methodology.
This figure displays an estimation performed with a standard fixed-effects estimator (country-level fixed-effects) and robust standard errors.
Inflation are limited to values below 75% in absolute terms.
ΔPR represents the first difference of the policy rate.
A complete list of developed and developing countries is available in Table A.2 in the Appendix A.

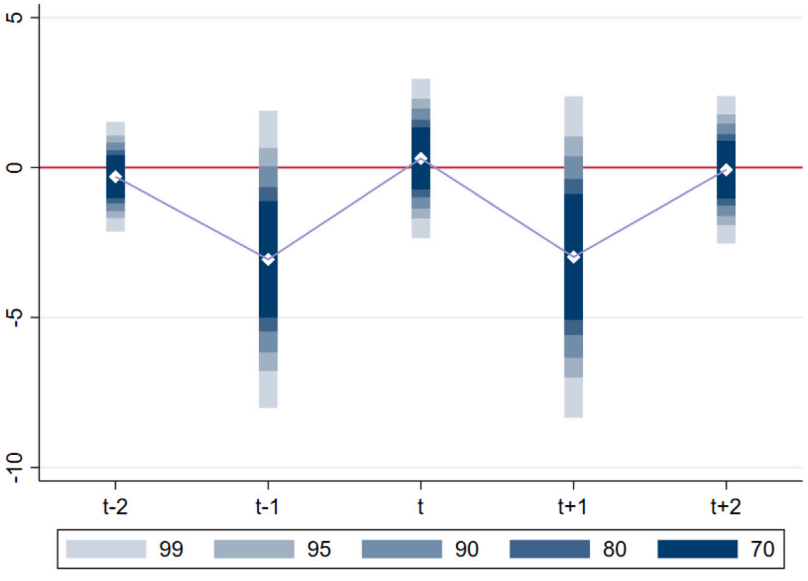

Fig. A.12. Pre- and post-treatment estimation of the ATE of *PreElection* on *Multiplier* (*M1_Growth/M0_Growth*).
Outcome variable: *Multiplier (M1_Growth/M0_Growth)*; *Treatment variable*: *PreElection*†; *X variables*: *Multiplier(t-1)*, *CBIE*, *Ygap*, *Inflation*, *Credit* & *Fix*; *Parallel trend test:* passed ($F(2, 51) = 0.2502$; $Prob > F = 0.9068$); *Nbr. observations:* 762; *Nbr. countries:* 52.
† *PreElection* represents a dummy variable equal to 1 when *ElectionIpre* is positive and 0 otherwise. It means that period *t* displayed in this figure corresponds directly to a pre-electoral period and not to an electoral period. See Section 3.1.2 for more information.
The figure legend represents confidence intervals of each ATE estimated using Cerulli and Ventura (2019) methodology.
This figure displays an estimation performed with a standard fixed-effects estimator (country-level fixed-effects) and robust standard errors.
Multiplier represents the ratio between *M1_Growth* and *M0_Growth*

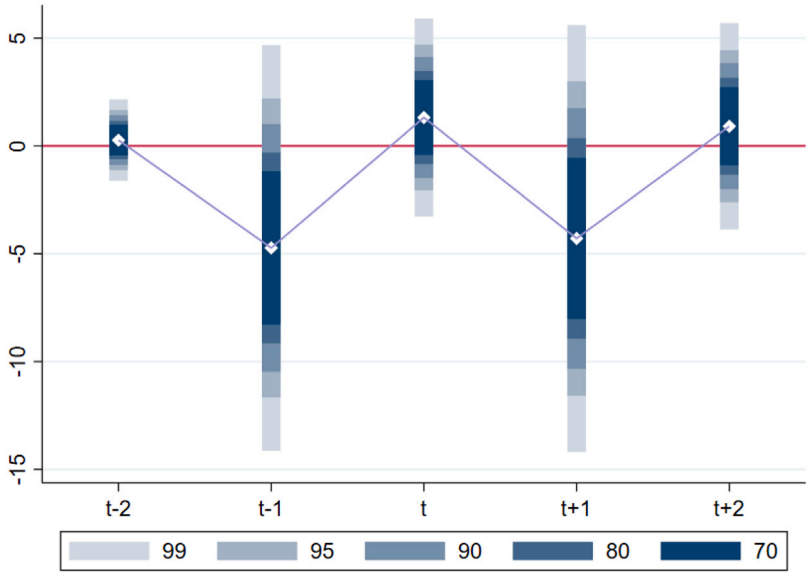

Fig. A.13. Pre- and post-treatment estimation of the ATE of *PreElection* on *Multiplier* (*M1_Growth/M0_Growth*) for developed countries.
Outcome variable: *Multiplier* (*M1_Growth/M0_Growth*); *Treatment variable*: *PreElection*†; *X variables*: *Multiplier(t-1)*, *CBIE*, *Ygap*, *Inflation*, *Credit* & *Fix*; *Parallel trend test:* passed ($F(2, 23) = 1.00$; $Prob > F = 0.3840$); *Nbr. observations:* 383; *Nbr. countries:* 24.
† *PreElection* represents a dummy variable equal to 1 when *ElectionIpre* is positive and 0 otherwise. It means that period *t* displayed in this figure corresponds directly to a pre-electoral period and not to an electoral period. See Section 3.1.2 for more information.
The figure legend represents confidence intervals of each ATE estimated using Cerulli and Ventura (2019) methodology.
This figure displays an estimation performed with a standard fixed-effects estimator (country-level fixed-effects) and robust standard errors.
Multiplier represents the ratio between *M1_Growth* and *M0_Growth*.
A complete list of developed and developing countries is available in Table A.2 in the Appendix A.

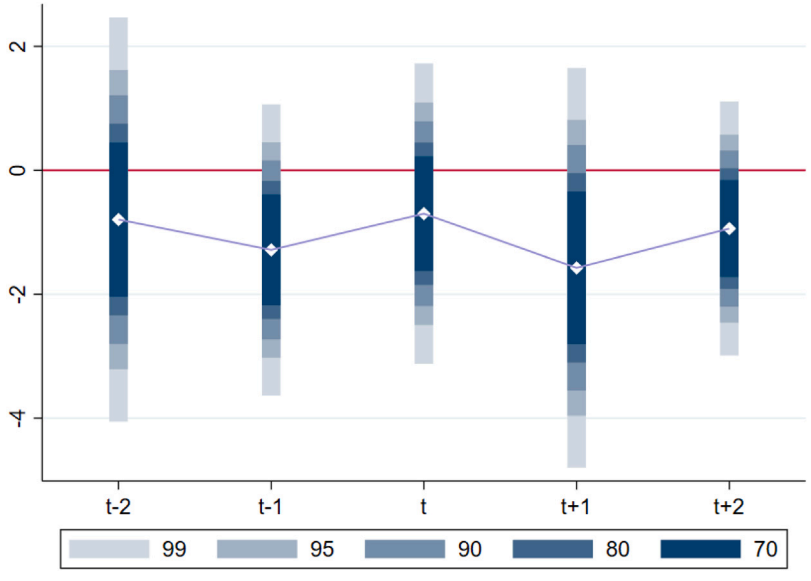

Fig. A.14. Pre- and post-treatment estimation of the ATE of *PreElection* on *Multiplier* (*M1_Growth/M0_Growth*) for developing countries.
Outcome variable: *Multiplier* (*M1_Growth/M0_Growth*); *Treatment variable*: *PreElection*†; *X variables*: *Multiplier(t-1)*, *CBIE*, *Ygap*, *Inflation*, *Credit* & *Fix*; *Parallel trend test:* passed ($F(2, 27) = 1.39$; $Prob > F = 0.2656$); *Nbr. observations:* 379; *Nbr. countries:* 28.
† *PreElection* represents a dummy variable equal to 1 when *ElectionIpre* is positive and 0 otherwise. It means that period *t* displayed in this figure corresponds directly to a pre-electoral period and not to an electoral period. See Section 3.1.2 for more information.
The figure legend represents confidence intervals of each ATE estimated using Cerulli and Ventura (2019) methodology.
This figure displays an estimation performed with a standard fixed-effects estimator (country-level fixed-effects) and robust standard errors.
Multiplier represents the ratio between *M1_Growth* and *M0_Growth*.
A complete list of developed and developing countries is available in Table A.2 in the Appendix A.

Table A.1
Data sources.

Variable	Sources
M0_Growth, M1_Growth & M2_Growth	*International Financial Statistics* (IFS) database - International Monetary Fund
ΔPR	Monetary and Financial Statistics (MFS) database - International Monetary Fund
CBIE	Data computed by Romelli (2022)
Turnover	Data computed by Dreher et al. (2008) 2017 version
Ygap, Inflation & Credit	*World Development Indicators* (WDI) database - World Bank
Fix	Data computed by Levy-Yeyati and Sturzenegger (2016) Completed using the work of Ilzetzki et al. (2017)
Fix_[de jure]	Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) database - International Monetary Fund
Election measures	*Database of Political Institutions* (DPI) - Beck et al. (2001) 2017 version *Election Guide* - International Foundation for Electoral Systems (IFES) *Voter Turnout Since 1945* database - Institute for Democracy and Electoral Assistance (IDEA) Data computed by Nohlen et al. (1999, 2001a,b, 2005a,b, 2010) National Elections Across Democracy and Autocracy (NELDA) - Hyde and Marinov (2012) 2015 version Free and Fair Elections - Bishop and Hoeffler (2016) 2016 version
Fiscal Deficit	Government Finance Statistics (GFS) - International Monetary Fund
CEI	Variable *v2xel_frefair* - *Varieties of Democracy* (V-Dem) database Version 9 (2019)
CreationCB, IT & Monetary union membership	Data computed using the central bank hub - Bank for International Settlements (BIS)
Developed/Developing Countries	World Bank classification available here: https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups (2020 version)
Political regime Government ideology & yrcurnt	*Database of Political Institutions* (DPI) - Beck et al. (2001) 2017 version

Table A.2
List of Countries.

Countries		
Albania	Gabon	Niger
Algeria	Gambia	Nigeria
Angola	**Germany**	**Oman**
Antigua & Barbuda	Ghana	Pakistan
Argentina	**Greece**	Paraguay
Australia	Grenada	Peru
Austria	Guatemala	Philippines
Bahamas	Haiti	**Poland**
Bahrain	**Hungary**	**Portugal**
Belarus	India	Russia
Belgium	Indonesia	Rwanda
Benin	Iran	Senegal
Bolivia	Iraq	**Seychelles**
Botswana	**Ireland**	**Singapore**
Brazil	**Italy**	**Slovenia**
Bulgaria	Ivory Coast	South Africa
Burkina Faso	Jamaica	South Korea
Burundi	**Japan**	**Spain**
Cambodia	Kenya	Sri Lanka
Cameroon	**Kuwait**	**St. Kitts and Nevis**
Canada	Kyrgyzstan	St. Lucia
Central Afr. Rep.	**Latvia**	St. Vincent & the Gren.
Chad	Liberia	**Sweden**
Chile	**Lithuania**	**Switzerland**
China	**Luxembourg**	Tanzania
Colombia	Macedonia	Togo
Comoros	Malawi	Tunisia
Costa Rica	Malaysia	Turkey
Czech Republic	Mali	Uganda
Dem. Rep. of the Congo	**Malta**	Ukraine
Denmark	Mauritius	**United Kingdom**
Dominica	Mexico	**United States of Am.**
Dominican Republic	Moldova	**Uruguay**
Egypt	Morocco	Zambia
Estonia	Namibia	
Ethiopia	Nepal	
Finland	**Netherlands**	
France	**New Zealand**	

Countries in bold letters are considered as developed countries following World Bank Classification (see Table A.1).

Table A.3
Dummies used in Table 9 regressions.

Dummies	Countries
Inflation Targeting (IT)	Albania, Australia, Brazil, Canada, Chile, Colombia, Czech Republic, Dominican Republic, Ghana, Guatemala, Hungary, India, Indonesia, Japan, Mexico, Moldova, New Zealand, Paraguay, Peru, Philippines, Poland, Russia, South Africa, South Korea, Sweden, Turkey, Uganda, United Kingdom, Uruguay
Economic and Monetary Community of Central African States (CEMAC)	Cameroon, Central Afr. Rep., Chad, Gabon
Eastern Caribbean Central Bank (ECCB)	Antigua & Barbuda, Dominica, Grenada, St. Kitts & Nevis, St. Lucia, St. Vincent & the Gren.
European System of Central Banks (ESCB)	Bulgaria, Czech Republic, Denmark, Hungary, Poland, Sweden
West African Economic and Monetary Union (WAEMU)	Benin, Burkina Faso, Ivory Coast, Mali, Niger, Senegal, Togo

Table A.4
Results of estimations of ATEs of *PreElection* using Cerulli and Ventura's (2019) methodology.

Figure	Explained variable used	Sub-sample considered in the estimation	Coefficient of *PreElection*† (standard error)	Location
Fig. 1		Overall	2.244** (0.970)	
Fig. A.1	*M1_Growth*	Developed countries	0.980 (0.880)	Appendix A
Fig. A.2		Developing countries	2.248 (1.439)	Appendix A
Fig. A.3		Overall	1.006 (1.410)	Appendix A
Fig. A.4	*M0_Growth*	Developed countries	1.755 (1.175)	Appendix A
Fig. A.5		Developing countries	−0.315 (2.408)	Appendix A
Fig. A.6		Overall	2.333* (1.221)	Appendix A
Fig. A.7	*M2_Growth*	Developed countries	0.695 (0.986)	Appendix A
Fig. A.8		Developing countries	3.194** (1.408)	Appendix A
Fig. A.9		Overall	−0.536 (0.900)	Appendix A
Fig. A.10	*ΔPR*	Developed countries	0.903** (0.371)	Appendix A
Fig. A.11		Developing countries	−0.965 (1.030)	Appendix A
Fig. A.12		Overall	0.301 (0.992)	Appendix A
Fig. A.13	*Multiplier*	Developed countries	1.317 (1.636)	Appendix A
Fig. A.14		Developing countries	−0.700 (0.874)	Appendix A

Significance levels are: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.
Every estimation is performed using the main specification defined by Eq. (1).
This table displays coefficients estimated with a standard fixed-effects estimator (country-level fixed-effects) and robust standard errors. Variables *M0_Growth*, *M1_Growth*, *M2_Growth* and *Multiplier* are expressed as percentage change and limited to values between −75% and 75%.
Variable *ΔPR* is expressed as first difference.

Table A.5
Main Results with a fixed-effects estimator.

M1_Growth (% of growth)	$(1)^{FE}$	$(2)^{FE}$	$(3)^{FE}$	$(4)^{FE}$	$(5)^{FE}$	$(6)^{FE}$	$(7)^{FE}$	$(8)^{FE}$
M1_Growth(t-1)	0.064	0.063	0.064	0.064*	0.065*	0.064	0.065*	0.065*
	(0.039)	(0.039)	(0.039)	(0.039)	(0.039)	(0.039)	(0.038)	(0.039)
CBIE	−1.222	−1.225	−1.237	−1.218	−1.229	−1.215	−1.228	−1.221
	(2.281)	(2.288)	(2.283)	(2.274)	(2.275)	(2.290)	(2.267)	(2.274)
Ygap	5.615***	5.640***	5.636***	5.571***	5.591***	5.639***	5.568***	5.595***
	(1.546)	(1.547)	(1.548)	(1.544)	(1.546)	(1.550)	(1.544)	(1.548)
Inflation	0.224***	0.228***	0.226***	0.223***	0.224***	0.227***	0.223***	0.225***
	(0.075)	(0.075)	(0.075)	(0.075)	(0.076)	(0.075)	(0.075)	(0.076)
Credit	−0.092***	−0.091***	−0.091***	−0.092***	−0.091***	−0.091***	−0.091***	−0.091***
	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)
Fix	2.161**	2.180**	2.156**	2.165**	2.162**	2.157**	2.149**	2.147**
	(1.048)	(1.049)	(1.046)	(1.046)	(1.045)	(1.043)	(1.045)	(1.040)
Election		0.676						
		(0.498)						
ElectionDpre			0.591		0.396			
			(0.481)		(0.483)			
ElectionDpost				−0.788	−0.674			
				(0.551)	(0.558)			
ElectionIpre						1.169*		1.054*
						(0.624)		(0.621)
ElectionIpost							−1.176	−1.064
							(0.737)	(0.735)
Cons.	16.181***	15.986***	16.024***	16.364***	16.232***	15.862***	16.453***	16.140***
	(1.941)	(1.939)	(1.954)	(1.942)	(1.963)	(1.950)	(1.941)	(1.953)
Nbr. observations	1980	1980	1980	1980	1980	1980	1980	1980
R2 overall	0.147	0.148	0.148	0.148	0.148	0.149	0.148	0.149

Regressions are computed using a classic-fixed effects estimator.
Robust standard errors are provided in parenthesis.
M1_Growth and *Inflation* are limited to values below 75% in absolute terms.
*Significance level $p < 0.10$.
**Significance level $p < 0.05$.
***Significance level $p < 0.01$.

Table A.6
Main Results without *CBIE* and/or *Fix*.

M1 growth (% of growth)	(6)′	(7)′	(8)′	(6)″	(7)″	(8)″	(6)‴	(7)‴	(8)‴
	No *CBIE*			No *Fix*			No *CBIE* and no *Fix*		
M1_Growth(t-1)	0.129**	0.135**	0.134**	0.135**	0.140**	0.139**	0.131**	0.138**	0.137**
	(0.055)	(0.056)	(0.055)	(0.056)	(0.056)	(0.055)	(0.055)	(0.056)	(0.055)
CBIE				1.048	0.803	1.022			
				(2.042)	(1.880)	(1.988)			
Ygap	−0.214	−0.540	−0.338	−0.229	−0.543	−0.346	−0.222	−0.538	−0.332
	(2.936)	(3.073)	(3.012)	(3.006)	(3.151)	(3.085)	(3.032)	(3.149)	(3.083)
Inflation	0.700***	0.693***	0.698***	0.710***	0.702***	0.707***	0.676***	0.698***	0.702***
	(0.124)	(0.129)	(0.125)	(0.129)	(0.133)	(0.130)	(0.119)	(0.130)	(0.127)
Credit	−0.053**	−0.054**	−0.054**	−0.055**	−0.056**	−0.056**	−0.056**	−0.055**	−0.055**
	(0.022)	(0.024)	(0.023)	(0.024)	(0.026)	(0.025)	(0.023)	(0.024)	(0.023)
Fix	2.187*	2.286*	2.220*						
	(1.171)	(1.217)	(1.184)						
ElectionIpre	1.678**		1.530**	1.661**		1.527**	1.579**		1.524**
	(0.677)		(0.686)	(0.697)		(0.708)	(0.693)		(0.704)
ElectionIpost		−1.341	−1.164		−1.294	−1.100		−1.287	−1.098
		(0.852)	(0.843)		(0.859)	(0.851)		(0.856)	(0.848)
Nbr. observations	1870	1870	1870	1870	1870	1870	1870	1870	1870
Nbr. instruments	62	62	63	62	62	63	61	61	62
AR(1) test	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AR(2) test	0.561	0.541	0.552	0.568	0.548	0.558	0.563	0.559	0.571
Sargan *C*-test	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.001	0.001
Hansen *J*-test	0.380	0.286	0.349	0.368	0.287	0.344	0.346	0.282	0.340

Unless otherwise noted, all of our regressions are computed using dynamic a difference-GMM estimator.
Robust standard errors are provided in parenthesis. Statistics shown are *p*-values.
M1_Growth and *Inflation* are limited to values below 75% in absolute terms.
*Significance level $p < 0.10$.
**Significance level $p < 0.05$.
***Significance level $p < 0.01$.

Table A.7
Main Results with a fixed-effects estimator without *CBIE* and/or *Fix*.

M1 growth (% of growth)	$(6)^{FE'}$	$(7)^{FE'}$	$(8)^{FE'}$	$(6)^{FE''}$	$(7)^{FE''}$	$(8)^{FE''}$	$(6)^{FE'''}$	$(7)^{FE'''}$	$(8)^{FE'''}$
	No *CBIE*			No *Fix*			No *CBIE* and no *Fix*		
M1_Growth(t-1)	0.064	0.065*	0.065*	0.064	0.065*	0.065*	0.064	0.065*	0.065*
	(0.039)	(0.038)	(0.039)	(0.039)	(0.038)	(0.039)	(0.039)	(0.038)	(0.039)
CBIE				−1.524	−1.536	−1.529			
				(2.250)	(2.220)	(2.232)			
Ygap	5.623***	5.552***	5.579***	5.695***	5.623***	5.649***	5.675***	5.604***	5.630***
	(1.549)	(1.543)	(1.547)	(1.566)	(1.560)	(1.564)	(1.565)	(1.558)	(1.562)
Inflation	0.230***	0.226***	0.228***	0.228***	0.224***	0.226***	0.232***	0.228***	0.230***
	(0.074)	(0.074)	(0.074)	(0.076)	(0.076)	(0.076)	(0.074)	(0.074)	(0.075)
Credit	−0.092***	−0.093***	−0.092***	−0.093***	−0.093***	−0.093***	−0.094***	−0.095***	−0.094***
	(0.023)	(0.023)	(0.023)	(0.024)	(0.024)	(0.024)	(0.023)	(0.023)	(0.023)
Fix	2.175**	2.167**	2.165**						
	(1.040)	(1.041)	(1.037)						
ElectionIpre	1.170*		1.055*	1.174*		1.057*	1.174*		1.058*
	(0.624)		(0.620)	(0.632)		(0.630)	(0.632)		(0.629)
ElectionIpost		−1.176	−1.064		−1.192	−1.080		−1.192	−1.079
		(0.737)	(0.735)		(0.734)	(0.733)		(0.734)	(0.733)
Constant	15.172***	15.756***	15.446***	16.892***	17.484***	17.169***	16.035***	16.620***	16.309***
	(1.696)	(1.724)	(1.723)	(1.815)	(1.802)	(1.817)	(1.607)	(1.632)	(1.634)
Nbr. observations	1980	1980	1980	1980	1980	1980	1980	1980	1980
R2 overall	0.148	0.148	0.149	0.162	0.161	0.162	0.161	0.161	0.162

Regressions are computed using a classic-fixed effects estimator.
Robust standard errors are provided in parenthesis.
M1_Growth and *Inflation* are limited to values below 75% in absolute terms.
*Significance level $p < 0.10$.
**Significance level $p < 0.05$.
***Significance level $p < 0.01$.

Table A.8
Main Results with *Fix_[de jure]*.

M1 growth (% of growth)	(1)$^{d.j.}$	(2)$^{d.j.}$	(3)$^{d.j.}$	(4)$^{d.j.}$	(5)$^{d.j.}$	(6)$^{d.j.}$	(7)$^{d.j.}$	(8)$^{d.j.}$
M1_Growth(t-1)	0.158***	0.157***	0.163***	0.161***	0.164***	0.161***	0.162***	0.164***
	(0.058)	(0.057)	(0.057)	(0.058)	(0.057)	(0.057)	(0.058)	(0.057)
CBIE	−2.573	−2.764	−2.825	−2.652	−2.874	−2.868	−2.571	−2.870
	(2.380)	(2.426)	(2.412)	(2.362)	(2.401)	(2.427)	(2.370)	(2.412)
Ygap	−1.236	−1.085	−1.378	−1.383	−1.454	−1.162	−1.441	−1.295
	(3.446)	(3.412)	(3.404)	(3.540)	(3.486)	(3.374)	(3.518)	(3.437)
Inflation	0.537**	0.549**	0.541**	0.526**	0.532**	0.553**	0.526**	0.541**
	(0.210)	(0.215)	(0.209)	(0.208)	(0.208)	(0.211)	(0.206)	(0.209)
Credit	−0.099***	−0.097***	−0.099***	−0.101***	−0.101***	−0.099***	−0.102***	−0.102***
	(0.035)	(0.035)	(0.034)	(0.036)	(0.035)	(0.034)	(0.036)	(0.035)
Fix_[de jure]	2.069**	2.106**	2.141**	2.129**	2.171**	2.153**	2.139**	2.204**
	(1.012)	(1.010)	(1.000)	(1.018)	(1.008)	(1.010)	(1.025)	(1.024)
Election		0.852						
		(0.610)						
ElectionDpre			1.006*		0.828			
			(0.588)		(0.585)			
ElectionDpost				−0.802	−0.550			
				(0.820)	(0.821)			
ElectionIpre						1.500*		1.378*
						(0.761)		(0.760)
ElectionIpost							−1.207	−0.963
							(1.082)	(1.072)
Nbr. observations	1435	1435	1435	1435	1435	1435	1435	1435
Nbr. instruments	62	63	63	63	64	63	63	64
AR(1) test	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AR(2) test	0.292	0.293	0.287	0.299	0.287	0.298	0.300	0.299
Sargan *C*-test	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Hansen *J*-test	0.344	0.343	0.379	0.323	0.358	0.362	0.328	0.345

Unless otherwise noted, all of our regressions are computed using dynamic a difference-GMM estimator.
Robust standard errors are provided in parenthesis. Statistics shown are *p*-values.
M1_Growth and *Inflation* are limited to values below 75% in absolute terms.

*Significance level $p < 0.10$.

**Significance level $p < 0.05$.

***Significance level $p < 0.01$.

Table A.9
Main Results with floating exchange rate regimes.

M1 growth (% of growth)	(1)^{float}	(2)^{float}	(3)^{float}	(4)^{float}	(5)^{float}	(6)^{float}	(7)^{float}	(8)^{float}
M1_Growth(t-1)	0.187***	0.184***	0.185***	0.203***	0.202***	0.182***	0.200***	0.198***
	(0.058)	(0.058)	(0.056)	(0.057)	(0.056)	(0.056)	(0.057)	(0.054)
CBIE	1.388	1.142	1.093	0.908	0.585	1.215	1.103	0.820
	(2.371)	(2.404)	(2.435)	(2.349)	(2.432)	(2.488)	(2.374)	(2.475)
Ygap	−5.228	−5.229	−4.782	−6.209*	−5.885	−4.637	−5.791	−5.413
	(3.301)	(3.191)	(3.234)	(3.581)	(3.597)	(3.105)	(3.483)	(3.341)
Inflation	0.591***	0.599***	0.590***	0.551***	0.559***	0.592***	0.563***	0.566***
	(0.162)	(0.165)	(0.158)	(0.151)	(0.153)	(0.159)	(0.152)	(0.150)
Credit	−0.082***	−0.076***	−0.075***	−0.086***	−0.077***	−0.074***	−0.084***	−0.074***
	(0.026)	(0.026)	(0.026)	(0.026)	(0.027)	(0.027)	(0.026)	(0.026)
Election		1.275**						
		(0.561)						
ElectionDpre			1.396**		1.009			
			(0.636)		(0.649)			
ElectionDpost				−1.466**	−1.100			
				(0.689)	(0.723)			
ElectionIpre						1.963**		1.845**
						(0.934)		(0.901)
ElectionIpost							−1.140	−0.644
							(0.952)	(0.951)
Nbr. observations	1092	1092	1092	1092	1092	1092	1092	1092
Nbr. instruments	48	49	49	49	50	49	49	50
AR(1) test	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AR(2) test	0.174	0.178	0.223	0.159	0.177	0.217	0.153	0.171
Sargan *C*-test	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001
Hansen *J*-test	0.658	0.700	0.722	0.683	0.745	0.677	0.673	0.722

Unless otherwise noted, all of our regressions are computed using dynamic a difference-GMM estimator.
Robust standard errors are provided in parenthesis. Statistics shown are *p*-values.
M1_Growth and *Inflation* are limited to values below 75% in absolute terms. Countries characterized as fixed exchange rate regimes according to *Fix* are dropped.
*Significance level $p < 0.10$.
**Significance level $p < 0.05$.
***Significance level $p < 0.01$.

Table A.10
Main Results with *Turnover*.

M1 growth (% of growth)								
	(1)$^{turn.}$	(2)$^{turn.}$	(3)$^{turn.}$	(4)$^{turn.}$	(5)$^{turn.}$	(6)$^{turn.}$	(7)$^{turn.}$	(8)$^{turn.}$
M1_Growth(t-1)	0.121**	0.174***	0.130**	0.129**	0.135**	0.131**	0.132**	0.140**
	(0.056)	(0.060)	(0.055)	(0.057)	(0.056)	(0.055)	(0.055)	(0.055)
Turnover	2.101	−0.566	2.085	2.310	2.233	1.934	2.240	2.072
	(2.330)	(4.898)	(2.316)	(2.361)	(2.355)	(2.317)	(2.365)	(2.366)
Ygap	−0.195	−0.575	−0.296	−0.464	−0.479	−0.264	−0.456	−0.458
	(2.957)	(2.860)	(2.900)	(3.063)	(3.005)	(2.886)	(3.046)	(2.968)
Inflation	0.611***	0.591***	0.606***	0.602***	0.600***	0.604***	0.602***	0.596***
	(0.116)	(0.109)	(0.111)	(0.116)	(0.113)	(0.110)	(0.117)	(0.112)
Credit	−0.056**	−0.054**	−0.055**	−0.056**	−0.055**	−0.054**	−0.055**	−0.054**
	(0.022)	(0.022)	(0.021)	(0.022)	(0.022)	(0.021)	(0.022)	(0.022)
Fix	1.573*	1.391	1.550*	1.715*	1.672*	1.509*	1.694*	1.620*
	(0.869)	(0.858)	(0.831)	(0.890)	(0.860)	(0.814)	(0.891)	(0.840)
Election		1.023*						
		(0.523)						
ElectionDpre			1.288***		0.969*			
			(0.490)		(0.527)			
ElectionDpost				−1.225**	−0.941			
				(0.586)	(0.616)			
ElectionIpre						1.955***		1.754***
						(0.632)		(0.653)
ElectionIpost							−1.559*	−1.336
							(0.814)	(0.810)
Nbr. observations	1693	1693	1693	1693	1693	1693	1693	1693
Nbr. instruments	62	63	63	63	64	63	63	64
AR(1) test	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AR(2) test	0.917	0.509	0.918	0.924	0.890	0.881	0.895	0.840
Sargan *C*-test	0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.001
Hansen *J*-test	0.546	0.590	0.636	0.539	0.603	0.646	0.545	0.622

Unless otherwise noted, all of our regressions are computed using dynamic a difference-GMM estimator.
Robust standard errors are provided in parenthesis. Statistics shown are *p*-values.
M1_Growth and *Inflation* are limited to values below 75% in absolute terms.

*Significance level $p < 0.10$.

**Significance level $p < 0.05$.

***Significance level $p < 0.01$.

Table A.11
Main Results on M1 with different thresholds on *M1_Growth* values.

M1_Growth (% of growth)	|M1_Growth| < 100%			|M1_Growth| < 50%		
	$(6)^{100\%}$	$(7)^{100\%}$	$(8)^{100\%}$	$(6)^{50\%}$	$(7)^{50\%}$	$(8)^{50\%}$
M1_growth(t-1)	0.121**	0.123**	0.147***	0.147***	0.147***	0.147***
	(0.047)	(0.048)	(0.049)	(0.049)	(0.049)	(0.049)
CBIE	1.509	1.348	0.070	0.009	0.011	0.070
	(2.010)	(1.904)	(1.975)	(2.010)	(1.956)	(1.975)
Ygap	−0.539	−0.765	−1.242	−1.191	−1.240	−1.242
	(3.001)	(3.183)	(2.336)	(2.321)	(2.340)	(2.336)
Inflation	0.792***	0.786***	0.566***	0.562***	0.567***	0.566***
	(0.127)	(0.131)	(0.140)	(0.139)	(0.142)	(0.140)
Credit	−0.058**	−0.061**	−0.053**	−0.053**	−0.053**	−0.053**
	(0.025)	(0.027)	(0.025)	(0.025)	(0.026)	(0.025)
Fix	2.108*	2.196**	1.694	1.703	1.741	1.694
	(1.071)	(1.108)	(1.094)	(1.088)	(1.107)	(1.094)
ElectionIpre	1.466**		1.175*	1.204*		1.175*
	(0.686)		(0.664)	(0.647)		(0.664)
ElectionIpost		−1.500*	−0.462		−0.627	−0.462
		(0.877)	(0.729)		(0.718)	(0.729)
Nbr. observations	1883	1883	1883	1816	1816	1816
Nbr. instruments	63	63	64	63	63	64
AR(1) test	0.000	0.000	0.000	0.000	0.000	0.000
AR(2) test	0.953	0.938	0.416	0.409	0.407	0.416
Sargan *C*-test	0.001	0.001	0.002	0.002	0.002	0.002
Hansen *J*-test	0.449	0.353	0.517	0.518	0.491	0.517

Unless otherwise noted, all of our regressions are computed using dynamic a difference-GMM estimator.
Robust standard errors are provided in parenthesis. Statistics shown are *p*-values.
Inflation is limited to values below 75% in absolute terms.
*Significance level $p < 0.10$.
**Significance level $p < 0.05$.
***Significance level $p < 0.01$.

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