CAROLA CONCES BINDER

Political Pressure on Central Banks

I construct a quarterly data set on political pressure faced by 118 central banks from 2010 to 2018 using country-level reports. I code whether each central bank is reportedly succumbing to pressure or resisting pressure. About 10% of central banks reportedly face political pressure in an average year. Even central banks with high legal independence frequently face pressure—nearly always for looser monetary policy. Pressure on the central bank is associated with higher inflation and inflation persistence. Pressure is more likely to come from governments with left-wing or nationalist executives, few checks and balances, or weak electoral competition.

OVER THE PAST FEW DECADES, central banks around the world have been granted greater independence (Dincer and Eichengreen 2014). Central bank independence (CBI) reforms initially aimed to shield monetary policymakers from political influence and reduce inflationary bias (Kydland and Prescott 1977, Barro and Gordon 1983, Rogoff 1985). As inflation stabilized in the Great Moderation, the delegation of monetary policy to a politically independent central bank came to be accepted as a principle of good governance (Fernandez-Albertos 2015). But following the global financial crisis, CBI has been subject to increased criticism, for several reasons (Issing 2018).

First, in countries struggling with inflation that is too low, rather than too high, the traditional arguments for CBI are less relevant (Summers 2017). Second, in a crisis or liquidity trap, the benefits of central bank coordination with the Treasury are

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greater (Blinder 2012, Summers 2017). Third, the crisis "made monetary policy decisions extremely salient politically" (Kuttner and Posen 2013, p. 2), as central banks experimented with policies with more notable distributional consequences (Issing 2018).[1] Moreover, some central banks have been delegated broader powers and responsibilities, including for financial stability, raising concerns about legitimacy and accountability (Goodhart and Lastra 2018).

The crisis not only eroded public support for CBI, but also broadened the gap between *de jure* and *de facto* CBI (Blinder 2012). As Walsh (2005, p. 10) notes, "legal measures of Central Bank independence may not reflect the relationship between the Central Bank and the government that actually exists in practice." Forder (1996) describes the extreme case of a central bank that is "independent by statute, and it is nevertheless accepted—on all sides—that the government will have its wishes implemented." But even without clear acceptance that the central bank will accommodate the government's wishes, perceived or actual pressure on the central bank may be relevant for monetary policy outcomes and credibility (Cukierman 1993, Cargill and O'Driscoll Jr. 2013). For example, President Donald Trump's criticism of the Federal Reserve in July 2018 was widely reported by the press, despite Fed Chair Jerome Powell's insistence that "We don't take political considerations into account."[2] *Politico* noted that "Now that the president has openly criticized the Fed, every action it takes might be viewed through the lens of a reaction to him."[3]

In this paper, I use a narrative approach to study political pressure on central banks since 2010. I search country reports from the Economist Intelligence Unit (EIU) and Business Monitor International (BMI) for discussions of political pressure on or government interference with the central bank. For each country (or monetary union) in each quarter, I code whether: there is no mention of government pressure on the bank, there is report of pressure but the central bank is resisting it, or the bank is reportedly succumbing to pressure. I also record details about the nature of the pressure (e.g., whether the pressure is to ease or to tighten policy). I believe that the data—which I have made publicly available and will update[4]—will be useful for a wide range of applications in monetary policy and politics, but focus in this paper on establishing several key results about political pressure, legal CBI, and inflation dynamics.

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1. In a survey, Blinder et al. (2017) found that 72% of academics and 31% of central bank governors think that central banks received criticism for "crossing the line into the political realm" in the crisis, and added that "crossing the line in one direction invites reciprocal crossings in the opposite direction, to wit, political interference with monetary policy."

2. President Trump told CNBC that "I don't like all of this work that we're putting into the economy and then I see rates going up." See Cox, Jeff, "Trump lays into the Federal Reserve, says he's 'not thrilled' about interest rate hikes," July 19, 2018. Accessed August 28, 2018 at https://www.cnbc.com/2018/07/19/trump-lays-into-the-fed-says-hes-not-thrilled-about-interest-rate-.html.

3. Guida, Victoria, "How the Fed's Powell prepared for Trump's criticism," *Politico*, July 20, 2018.

4. The data can be accessed in Excel or Stata format at https://osf.io/kjcfh.

My approach is most similar to that of Havrilesky (1988, 1993) and Froyen, Havrilesky, and Waud (1997), who construct measures of political pressure on the Federal Reserve by classifying *Wall Street Journal* articles about politicians arguing for more or less restrictive monetary policy. Maier, Sturm, and de Haan (2002) adopt a similar approach to study political pressure on the German Bundesbank, as do Maier and Bezoen (2004) for the ECB, and Gersl (2006) for the Czech National Bank. Ehrmann and Fratzscher (2011) code news commentaries about ECB monetary policy decisions according to whether a head of government expresses preference for lower or higher rates. Politicians tend to favor lower interest rates than the ECB. Similarly, I find that in nearly all cases, the reports note pressure to ease monetary policy.

While the above studies use newspapers and focus on a single central bank, I instead use country reports. Romer and Romer (2017) note the benefits of using a consistent, real-time (as opposed to retrospective) narrative source, in their case to construct a panel measure of financial distress.[5] The benefits are similar in my context. Newspapers may not report on the monetary policy or politics of smaller countries or economies that are of less interest to their readership, and domestic newspapers in different countries devote varying attention to economic topics.[6] Of course, country reports omit pressure that is hidden or deemed to minor to report, but at least, in contrast with newspapers, the reports are designed to give equal attention to each economy and to report at consistent frequency on monetary policy-related developments, allowing for comparability across many countries and over time.

The new narrative measure of pressure on central banks also has benefits compared to several existing proxies for de facto CBI. For example, Cukierman, Webb, and Neyapti (1992) suggest that a high turnover rate of the central bank governor can indicate low de facto CBI. But turnover can be low if the governor is willing to do what the politician wants, and governors may also be replaced for poor performance (Dreher, Sturm, and de Haan 2008). Other measures are cross-sectional (Cukierman, Webb, and Neyapti 1992, Alpanda and Honig 2010); my data set has both a panel dimension and a larger sample of countries.

Overall, the political pressure measures are uncorrelated with legal CBI indices of Arnone et al. (2007) and Garriga (2016) and their subcomponents. In lower income countries, legal CBI is associated with slightly less frequent political pressure. Political pressure rather than legal CBI is associated with higher inflation in cross-sectional and panel analysis. This corroborates case study evidence in Cargill (1995) and Cargill and O'Driscoll, Jr. (2013) about the relevance of de facto independence for inflation outcomes. Political pressure is also associated with higher inflation

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5. Romer and Romer (2017) use the OECD Economic Outlook semiannual reports. I also searched these reports for discussions of political pressure on central banks, but found less than 10 results, so I chose to use the EIU and BMI reports that cover more countries and have more detailed discussions of central banking.

6. See Binder (2017) for more on newspaper coverage of monetary policy.

persistence, suggesting lower monetary policy credibility, weaker anchoring of inflation expectations, and higher output costs of disinflation (Altissimo, Ehrmann, and Smets 2006, Mishkin 2007).

Given these results, it is important to understand the political institutions and movements that lead to or reduce political pressure on the central bank. I show that democracies and countries with stronger electoral competition or more checks and balances have less frequent reports of pressure. Executives from left-leaning and especially nationalist parties are more likely to pressure the central bank. I also collect new data on International Monetary Fund recommendations to show that global governance institutions may help moderate government pressure on central banks. My results are consistent with some predictions in the political science literature (Moser 1999, Broz 2002) and provide novel empirical substantiation for recent commentaries, suggesting that public support for independent central banks may have eroded with the financial crisis and rise of populist movements (Buiter 2016, de Haan and Eijffinger 2017, Goodhart and Lastra 2018, Issing 2018)

1. NEW DATA ON POLITICAL PRESSURE

I have developed a new data set on political pressure on central banks using country reports from the Economist Intelligence Unit (EIU) and Business Monitor International (BMI). This section describes the reports and coding scheme and construction of the panel data set. I summarize some basic properties of the data and, as a validation check, compare it to existing de facto CBI measures.

1.1 Coding the Reports

The EIU reports are available for 195 countries at monthly or quarterly frequency. The EIU is a division of the Economist Group that produces independent research and analysis pertaining to business, finance, and political affairs. All reports are prepared by research analysts with postgraduate degrees in economics or business. The EIU reports are indexed in the Nexis Uni database from January 2010 to June 2018. The BMI reports are available for 153 countries at quarterly frequency and are indexed in LexisNexis Academic from 2008 to June 2018. These reports very frequently discuss monetary policy. Nearly half (42%) of EIU country reports mention one of the phrases "central bank," "monetary policy," "reserve bank," or "national bank," and the reports typically discuss the result of any monetary policy committee meeting that has occurred, even if policy rates are not changed.

I collect all reports that include the phrase "central bank," "monetary policy," "reserve bank," or "national bank"[7] and at least one of the following phrases: "political pressure," "political interference," "government interference," "threat to independence," "independence threatened," "print money," "money printing," "monetize," or

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7. We found that it was unnecessary to search for specific central bank names. Reports listing the name of a particular central bank identify it as "the central bank of [country name]."

"monetise." Research assistants and I read each report to determine whether the report indeed discusses actual or perceived political pressure on a central bank. This is the case for 447 EIU reports from 2010 to 2018 and 62 BMI reports from 2008 to 2018.[8] In the remainder of the paper, I only include the reports from 2010 to 2018, when both EIU and BMI reports are available, though I code the 13 BMI reports from 2008 to 2009 and data are available on request.[9]

For each relevant report, I code whether the bank is resisting or succumbing to pressure. This categorization is based on what the EIU and BMI analysts know or expect at the time of the report about what the central bank is currently doing or will do in the future. Category 1 ("resisting") reports note that the central bank is resisting or attempting to resist actual, potential, or perceived government pressure, or that the effects of the pressure on the bank are not yet known. For example, the EIU report for Japan on July 12, 2012 notes, "Political pressure in favour of continued quantitative easing has been mounting for some time, but in July the central bank reiterated that the lack of strong signs of GDP growth mean that an extension of the quantitative easing programme is not being considered at this time." The EIU Egypt report on February 5, 2013, notes that "A meeting between [the new Central Bank governor] the prime minister…prompted suspicions that the government may be exerting political pressure over monetary and exchange-rate policy-although the visit could well have been merely a courtesy call to the newly installed governor."

Category 2 ("succumbing") reports say that political pressure or government interference affects or will affect central bank policy, or imply that the government directly controls the central bank or money supply. That is, the characterization is about the certainty that the central bank is succumbing or will succumb, even if it has not succumbed yet. For example, the EIU Turkey report on June 24, 2014, notes, "On June 24th, the Central Bank of Turkey cut its key interest rate, the one-week repurchase (repo) lending rate, by 75 basis points to 8.75%, easing for the second consecutive month…The bank is under intense pressure from the government to lower rates rapidly." The EIU Venezuela report on May 4, 2018, says that "The government's financing needs will continue to force the Banco Central de Venezuela (the central bank) to print money." The search phrases "print money," "money printing," "monetize," or "monetise" are intended to turn up the types of cases in which the government interferes with monetary policy but the central bank lacks legal independence, so the interference may not be referred to as pressure or a threat to independence.

Table 1 summarizes the number of reports in each category from each source. The EIU reports tend to have more detailed coverage of monetary policy in general than

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8. An example of an irrelevant report that would appear in our search results is one with a discussion of the central bank and a separate discussion of political pressure on the courts. Around a third of reports containing the search terms were irrelevant.

9. Countries with at least one category 2 report from BMI in 2008 or 2009 include Japan (3 reports), Zimbabwe (2 reports), Venezuela, Sri Lanka, and Iran. Countries with at least one category 1 report but no category 2 reports include Chile, Estonia, and Korea.

TABLE 1

PRESSURE REPORTS BY SOURCE

Category	EIU reports	BMI reports	Percent
1: Resisting or potentially resisting pressure	279	30	62.3
2: Succumbing to pressure	168	19	37.7

NOTES: Data coded from country reports from Economist Intelligence Unit (EIU) and Business Monitor International (BMI), 2010Q1 through 2018Q2.

the BMI reports, so the majority of the data come from the EIU reports. Appendix A.2 summarizes the concordance between the EIU and BMI reports as well as two other sources of country reports. Since these other reports are only available for shorter time periods, I use them for validation purposes only. The BMI and other sources are far more likely to mention pressure when the EIU does compared to when the EIU does not.

I code whether the pressure is for monetary ease (to lower interest rates, avoid raising rates, or allow higher inflation) or for tightening. In several cases, there was some other type of pressure, such as in Venezuela in late 2013 and early 2014, when the bank was pressured to alter or delay the release of inflation statistics. Pressure to ease policy is by far most prevalent; 91% of reports of political pressure describe pressure to ease and 3% pressure to tighten. Some of the search terms (print money, money printing, monetize, and monetise) naturally refer to pressure to ease. These account for 13% of the coded reports, and even excluding them, 90% of reports describe pressure to ease. This is consistent with standard theories—politicians may pressure the central bank to loosen monetary policy to stimulate the economy or finance increases in government spending or tax cuts, especially near an election (26% of the relevant reports mention elections) or when the government's borrowing capacity is limited (Alpanda and Honig 2009). Ehrmann and Fratzscher (2011) find that politicians favor looser monetary policy than ECB officials. The Federal Reserve is one of only six central banks in our sample to have faced pressure to tighten, in 2011 and 2012, when the EIU reports pressure from politicians in Congress concerned about stoking inflation. See details in Section 2 of the online Appendix.

I record whether the report mentions actual or potential changes to central bank legislation. As Broz (2002) notes, governments may pressure central banks by threatening to revoke some of their legal independence. Such discussion occurs in 4% of reports of pressure, while 15% mention recent, upcoming, or threatened replacement of a central banker.

1.2 Constructing the Panel

I construct a quarterly panel data set that includes all quarters and central banks covered by both the EIU and the BMI. Note that 41 of the countries (39 covered by EIU and 38 covered by BMI) are members of four monetary unions (see Appendix A.1 for details). Thus, while EIU covers 195 countries, it covers 160

TABLE 2

COUNTRY AND CENTRAL BANK COVERAGE

	EIU	BMI
Countries covered	195	153
Members of monetary unions	39	38
BCEAO	8	8
BEAC	6	6
ECB	19	16
ECCB	6	8
Total central banks covered	160	119
Dates covered	2010Q1–18Q2	2008Q1–18Q2
Total central banks covered by both: 118		
Total quarters covered by both: 34		
Total country-quarter observations in main analysis: 4,012		

NOTES: Monetary unions are the Bank of West African States (BCEAO), Bank of Central African States (BEAC), European Central Bank (ECB), and Eastern Caribbean Central Bank (ECCB). See Appendix A.1 for lists of countries in the monetary unions.

central banks, and 118 central banks are covered by both the EIU and BMI. Table 2 summarizes this coverage.[10]

If there are multiple reports about pressure on central bank i in quarter t (e.g., from multiple countries in the same union, or from multiple months in the same quarter), I record the maximum category value. That is, the pressure measure P_{it} for central bank i in quarter t takes value 2 if there are any category 2 reports for central bank i in quarter t. Otherwise $P_{it} = 1$ if there are any category 1 reports for i in t, and otherwise $P_{it} = 0$.

1.3 Summary Statistics, Variation, and Persistence

Figure 1 summarizes the number of central banks in each quarter for which there is any report of pressure ($P_{it} = 1$ or $P_{it} = 2$) and for which there is report of succumbing to pressure ($P_{it} = 2$). There are at least 2 and at most 13 central banks facing reported political pressure each quarter, with the maximum in 2011Q4.

For each central bank, I compute the maximum of P_{it}, denoted by $P_i^{\max}$, and the share of periods for which $P_{it} > 0$. Table A3 lists the 72 central banks for which $P_i^{\max} = 0$, 22 for which $P_i^{\max} = 1$, and 24 for which $P_i^{\max} = 2$. The table also summarizes the number of quarters for which $P_{it} = 1$ and $P_{it} = 2$ for each central bank. Turkey was the most frequent "succumber," with 17 category 2 and 3 category 1 reports. Next most frequent were Myanmar (Burma), Venezuela, Angola, and Argentina. The share of periods for which $P_{it} > 0$, denoted by $\hat{P}_i$, is highest for Angola (0.85), followed by Turkey (0.59), Argentina (0.5), Myanmar (0.47), Venezuela

10. Only one country, Panama, has no central bank for part of the sample. However, Garriga (2016) and others code the legal independence of the Panamanian National Bank even though it is not "strictly" a central bank. Following them, I include Panama in the data set. Data for central banks only covered by EIU and not by BMI are available upon request. I find category 2 reports for Eritrea and Tunisia and a category 1 report for Madagascar.
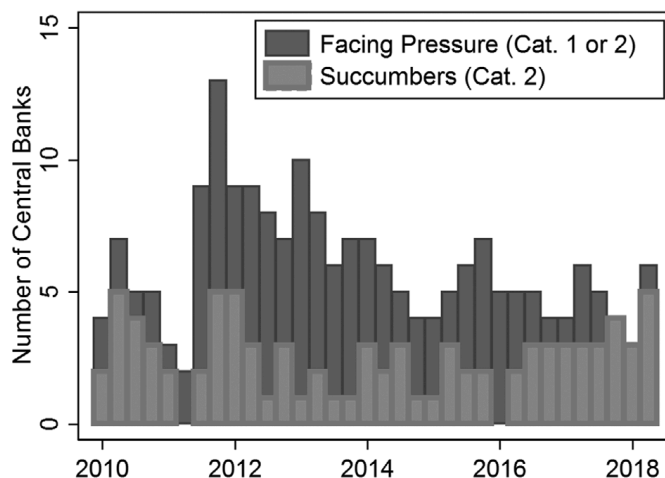
Fig 1. Central Bank Pressure Measures over Time.

NOTES: Data from EIU and BMI. Figure shows the number of central banks per quarter for which an EIU or BMI country report mentions that there is political pressure on the bank.

TABLE 3

POLITICAL PRESSURE TRANSITION MATRIX

	No mention $(t+1)$	Resist $(t+1)$	Succumb $(t+1)$	Total
No mention (t)	97.9	1.5	0.7	100.0
Resist (t)	43.1	48.3	8.6	100.0
Succumb (t)	33.3	6.2	60.5	100.0

NOTES: Transition probability matrix for P_{it} at the quarterly frequency, based on 3,894 observations.

(0.44), Syria (0.32), and Japan (0.23). It has mean 0.05 and standard deviation 0.13. Pressure is reported at least once for 36% of central banks in Asia and the Pacific, 52% in Africa, 37% in Europe, and 33% in the Americas.

The online Appendix summarizes the variation in the political pressure measures between central banks, over time, and overall. The variation over time is greater than the variation across central banks, though both are on the same order of magnitude. The substantial variation along both the time and central bank dimensions implies that the panel structure of this data set is valuable, as a purely cross-sectional or time-series data set would miss important variations.

Note that when a report mentions political pressure on a central bank, unless the situation is quickly resolved, the subsequent report also discusses the pressure, often in the exact same words. The online Appendix provides a histogram of the length of spells of pressure. The longest was 26 quarters, in Angola. Myanmar, Syria, Turkey, and Venezuela have all had pressure spells of at least 2 years. Table 3 shows, for each value of P_{it}, the probability of each value of P_{it+1}. When $P_{it} = 0$, P_{it+1} is nearly always also 0. But if the bank faces pressure in quarter t, it is likely to face pressure again the

next quarter. A resister at time t has a 48% chance of facing and resisting pressure again at $t + 1$, and a 9% chance of succumbing to pressure in $t + 1$. A succumber in t has a 61% chance of succumbing again in $t + 1$.

1.4 Comparison with Alternative Measures

Cukierman, Webb, and Neyapti (1992) use high frequency of irregular turnover of central bank governors as a proxy for low de facto CBI. Studies of the determinants or effects of central bank governor turnover rate include Cukierman and Webb (1995), Sturm and de Haan (2001), Dreher, Sturm, and de Haan (2008, 2010), and Artha and de Haan (2015). Turnover data through 2015 are publicly available from the KOF Swiss Economic Institute website for 107 of the central banks in my sample. The mean yearly irregular turnover rate for 2010 to 2015 is 0.11. Cukierman, Webb, and Neyapti (1992) also conduct a survey of monetary policy specialists in 23 central banks to develop a questionnaire-based index of de facto CBI (see their Table A2). This measure refers to the 1980s, but to the extent that de facto CBI is persistent, it may also proxy for de facto CBI in recent years. Alpanda and Honig (2010) assert that cross-country variation in the severity of political monetary cycles in democracies is primarily the result of differences in de facto CBI. They construct a regression-based estimate of de facto CBI, which captures the extent to which the election cycle explains M1 growth (an indicator of the ease of monetary policy) for 52 countries (see Table 3, p. 1013).[11]

The turnover, survey-based, and regression-based measures are positively but not statistically significantly correlated with each other, and negatively correlated with $\hat{P}$. The correlation between $\hat{P}$ and Alpanda and Honig's measure is statistically significant at the 10% level. Figure 2 summarizes the mean of Alpanda and Honig's measure of de facto CBI, irregular turnover, and the questionnaire-based CBI measure for the three categories of $P_i^{\max}$. Each of these measures has been normalized to have mean zero and standard deviation one, and signed so that higher values correspond to higher de facto CBI.[12] The "succumber" countries with $P^{\max} = 2$ score lower in de facto CBI by all three measures, especially the Alpanda and Honig measure. Countries that face but resist political pressure ($P^{\max} = 1$) tend to have better de facto CBI scores. Alpanda and Honig's measure is designed to reflect the extent to which the money supply actually responds to likely political pressure.

11. This is similar to the approach used earlier by Alesina, Cohen, and Roubini (1992) and Johnson and Siklos (1996). Johnson and Siklos (1996) estimate central bank reaction functions for 17 OECD countries from 1960 to 1990, including elections and changes in the governing party as independent variables. They find only small differences between these 17 central banks in this measure of responsiveness to political influence, and that these differences are unrelated to several legal measures of CBI.

12. The turnover data are reported at the central bank level, while the Alpanda and Honig and Questionnaire measures are at the country level. For the Alpanda and Honig and Questionnaire measures, the graph and reported correlations omit countries that are now members of the Eurozone. These data sets do not include members of the other monetary unions.
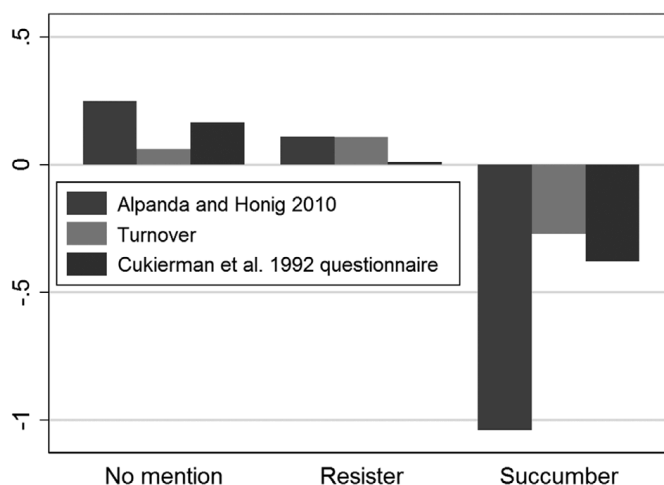
Fig 2. Comparison with De Facto CBI Measures.

NOTES: Each measure is normalized and signed so that higher values correspond to higher de facto CBI.

2. POLITICAL PRESSURE AND CBI

Cukierman (1993), Forder (1996), and Walsh (2005) have suggested that the distinction between de jure and de facto CBI may be quite large. To study the relationship between political pressure and legal CBI, I use data from Garriga (2016), who uses the coding scheme of Cukierman, Webb, and Neyapti (1992) to construct a CBI index that is the weighted average of four subindices: independence of the chief executive, policy independence, objective independence, and limits on government ability to borrow from the central bank.[13] Garriga's data set is yearly through 2012 and includes 110 of the central banks in my sample.

I also use data from Arnone et al. (2007), who update the Grilli, Masciandaro, and Tabellini (1991) data set, providing indices of political autonomy and economic autonomy for 113 of the banks in my sample. Political autonomy, or the ability to select monetary policy objectives, is higher if the central bank governor and board members are not appointed by government and have long-term lengths, there is no government representative on the board or government approval for monetary policy, monetary stability is a primary objective, and there are provisions to strengthen the central bank in case of conflict with the government. Economic (or operational) autonomy is higher if there is no automatic procedure for the government to obtain direct credit from the central bank, direct credit facilities are extended to the government at market interest rates with limits on amount and time, the central bank does

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13. Cukierman, Webb, and Neyapti (1992) use the written information from central bank charters to code legal CBI for 72 countries. For more discussion of the CBI measures used by Cukierman, Webb, and Neyapti (1992) and others, see Cukierman (1993), Forder (1999), and Siklos (2008).

TABLE 4

CORRELATION BETWEEN LEGAL CBI INDICES AND POLITICAL PRESSURE MEASURES

Variable	$\hat{P}_i > 0$	$\hat{P}_i$	$\hat{P}_i^{cat1}$	$\hat{P}_i^{cat2}$
Garriga index	−0.12	0.00	−0.10	0.07
	−0.21	−0.97	−0.32	−0.44
Objective independence	−0.11	0.00	−0.06	0.05
	−0.26	−0.96	−0.52	−0.64
CEO independence	−0.03	0.05	−0.04	0.11
	−0.76	−0.59	−0.70	−0.27
Political independence	−0.04	0.09	−0.05	0.17
	−0.65	−0.36	−0.61	−0.08
Limits on lending	−0.11	−0.05	−0.09	0.01
	−0.23	−0.62	−0.34	−0.95
Arnone et al.'s index	−0.02	−0.07	−0.11	−0.01
	−0.84	−0.49	−0.25	−0.96
Political autonomy	−0.06	−0.05	−0.06	−0.02
	−0.54	−0.62	−0.52	−0.82
Economic autonomy	0.05	−0.06	−0.13	0.02
	−0.58	−0.55	−0.19	−0.81

NOTES: This table shows correlation coefficients between legal CBI indices or subindices and measures of political pressure on central banks. Below each correlation coefficient is the p-value for the test that the correlation coefficient is statistically significantly different than zero. Legal CBI data are from Garriga (2016) (averaged over 2010–2012) and Arnone et al. (2007) (for 2003). First column ($\hat{P}_i > 0$) is an indicator that there are any reports of political pressure for the central bank. $\hat{P}_i$ is the fraction of quarters for which there is pressure on the bank. $\hat{P}_i^{cat1}$ and $\hat{P}_i^{cat2}$ are the fraction of quarters for which there are reports of category 1 and category 2 pressure, respectively, on the central bank.

not participate in the primary market for public debt, the central bank sets the policy rate, and the central bank has no responsibility for overseeing the banking sector (see Arnone et al.'s Box 1). Unlike Garriga's data set, Arnone et al.'s is not a yearly panel: the indices are for 2003. However, Balls, Howat, and Stansbury (2018) use this data as a proxy for current CBI, citing evidence that legal CBI has not changed much since then (Arnone and Romelli 2013, Masciandaro and Romelli 2015).

2.1 Raw Correlations

Table 4 shows that neither the Garriga nor the Arnone et al.'s indices nor any of their subindices are statistically significantly correlated with the political pressure variables. Indeed, some of the banks facing the most frequent political pressure have relatively high legal CBI, such as Turkey (*CBI* = 0.90 according to Garriga) and Argentina (*CBI* = 0.78). Moreover, political pressure changes more frequently than legal CBI, and only about 1% of central banks experience a legal reduction in CBI in a given year, while around 10% experience reported political pressure.[14]

2.2 Nonlinearity and Subsample Analysis

One possible concern with the results in Table 4 is that the authors of the country reports may not discuss political pressure on central banks that lack legal independence.

14. From 2010 to 2012, only 13 central banks experienced legislative changes to CBI. Reforms that increased CBI occurred in Serbia, Algeria, South Africa, Montenegro, Uruguay, Israel, Ukraine, and Belarus. Reforms that reduced CBI occurred in Argentina, Nicaragua, Kenya, Macedonia, and Turkmenistan.

TABLE 5

REGRESSIONS OF POLITICAL PRESSURE ON CBI

	(1) $\hat{P}$	(2) $\hat{P}$	(3) $\hat{P}$	(4) $\hat{P}$	(5) $\hat{P}cat1$	(6) $\hat{P}cat2$	(7) $\hat{P}$
CBI	−0.00 (0.06)	−0.24 (0.31)		0.12 (0.10)	0.02 (0.04)	0.10 (0.08)	
CBI^2		0.21 (0.30)					
ln(CBI)			−0.00 (0.03)				
CBI*low inc.				−0.24** (0.11)	−0.09* (0.05)	−0.16* (0.08)	
Low income				0.13** (0.06)	0.04 (0.03)	0.09** (0.04)	0.32** (0.15)
Economic autonomy							0.10 (0.07)
Political autonomy							0.04 (0.05)
Econ. autonomy*low inc.							−0.40** (0.18)
Pol. autonomy*low inc.							−0.11* (0.06)
Constant	0.05 (0.03)	0.11 (0.07)	0.04* (0.02)	−0.02 (0.05)	0.01 (0.02)	−0.04 (0.04)	−0.04 (0.04)
N	110	110	110	108	108	108	112
R^2	0.00	0.01	0.00	0.05	0.03	0.05	0.11

NOTES: Robust standard errors in parentheses. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$. CBI is the legal CBI index from Garriga (2016). Economic autonomy and political autonomy measures are from Arnone et al. (2007). Low income means below-median real per capita GDP.

This could bias the observed correlation toward zero. This concern has been partially addressed by including phrases such as "monetize" and "print money" in the search terms to turn up cases in which the government takes direct control of monetary policy, more common among banks with low legal CBI.[15] Another way to address this concern is to consider the correlation between legal CBI and political pressure only above some threshold level of legal CBI. Even for central banks with above-median CBI or above the 75th percentile of CBI, there is no statistically significant correlation between legal CBI or any subindices and the political pressure measures.

It is also possible that the relationship is nonlinear or depends on the sample of countries. Table 5 shows regressions of political pressure on legal CBI. The dependent variable is the share of periods in which the central bank faces political pressure. The first three columns show a linear specification, a specification including a quadratic term, and a specification including the log of CBI (using the Garriga measure). In no case are the coefficients statistically significant. These results are unchanged if I include controls for current or past log real GDP per capita, continent dummies, and/or inflation (not shown).

15. These search terms appear most frequently for Syria and Myanmar, which both have below-median CBI.

In column (4), I interact CBI with a dummy variable indicating below-median income. The coefficient on the interaction term is negative and statistically significant, and larger in magnitude than the coefficient on CBI. Columns (5) and (6) are similar, but the dependent variable is the share periods in which the central bank faces category 1 or category 2 pressure, respectively, and in column (7), I use the Arnone et al.'s economic and political autonomy subindices in place of the Garriga index. In each of these specifications, the coefficient on the interaction of low income and CBI, political autonomy, or economic autonomy is negative and statistically significant. So, legal CBI is associated with less frequent political pressure in lower-income countries, though note that the magnitude is relatively small—a one standard deviation increase in legal CBI is associated with an 0.2 standard deviation reduction in pressure frequency for low-income countries, and the R^2 in columns (4)–(7) is at most 0.11. It may be that the adoption of legal CBI was driven by different forces in lower- versus higher-income countries, such that in lower-income countries, legal CBI is more associated with inflation aversion or external mechanisms that impose costs on the government for violating legal CBI provisions (see, e.g., Section 4.2).

3. POLITICAL PRESSURE AND INFLATION

A large literature examines the association of legal CBI and inflation. Many of these find a negative relationship between CBI and average inflation (Cukierman, Webb, and Neyapti 1992, Alesina and Summers 1993, Klomp and Haan 2010). The relationship may depend on the sample of countries, measure of CBI, and empirical specification used (Cukierman 1994, Campillo and Miron 1997, Balls, Howat, and Stansbury 2018). Earlier studies find that high legal CBI is associated with low inflation in developed countries, while in developing countries, a low turnover rate of the central bank governor is a better predictor of low inflation (Cukierman, Webb, and Neyapti 1992).

Posen (1993, p. 46, 56) notes that while central bank decisionmakers "form their policies in part in response to statutory constraints, they also simultaneously respond to the risks that anti-inflationary policies could lead to alterations in the autonomy and powers of the CB itself…CBs designed with similar degrees of statutory independence will offer significantly differing degrees of protection from inflation over time as the political situation alters." Similarly, Cargill and O'Driscoll, Jr. (2013, p. 3) argue that "central bank *de jure* independence is far too uncritically accepted as a foundation for a stable financial and monetary environment…Its widespread acceptance permits central banks to engage in suboptimal policy with political undertones under the cover of independence." These statements suggest that political pressure may influence inflation outcomes, regardless of the legal protections on the central bank. Indeed, Weise (2012) shows that pressures from Congress and the executive branch on the Fed contributed to the rise of U.S. inflation in the 1970s.

While inflation is generally low in my time sample—the mean is 5% and the median is 3.5%—high inflation is still a concern for at least some of the countries,

TABLE 6

REGRESSION OF INFLATION TAX ON CBI AND POLITICAL PRESSURE

	(1)	(2)	(3)	(4)
CBI	0.08	−0.07	−0.05	
	(0.11)	(0.10)	(0.10)	
$\hat{P}$	0.49***	0.39***		0.45**
	(0.18)	(0.13)		(0.20)
Lagged inflation tax		0.82***	0.81***	
		(0.10)	(0.11)	
Turnover		0.04	0.06	0.19
		(0.13)	(0.14)	(0.19)
$P^{max} = 1$			0.04	
			(0.05)	
$P^{max} = 2$			0.09**	
			(0.04)	
Economic independence				−0.19
				(0.13)
Political independence				0.01
				(0.09)
N	108	101	101	104
R^2	0.04	0.50	0.50	0.07

NOTES: Robust, standard errors in parentheses. Dependent variable is the inflation tax averaged over 2010–2017. ***$p < 0.01$, **$p < 0.05$, *$p < 0.10$. CBI is legal central bank independence (2010–12 average) from Garriga (2016); lagged CBI is 2000–2009 average. Turnover is rate of irregular turnover of central bank governor from 2010 to 2015. Lagged inflation tax is average inflation tax from 2000 to 2009.

including several with frequent reports of political pressure. For example, CPI inflation averaged 14.3% in Angola and 8.3% in Turkey.

3.1 Cross-Sectional Analysis

The unconditional correlation of GDP deflator inflation (averaged over 2010 to 2017, from World Development Indicators) and $\hat{P}$ is 0.26, which is statistically significant with $p < 0.01$. Countries with no reports of pressure have an average inflation rate of 5.5%; those with any report of pressure have an average rate of 7.4%, and those with at least one category 2 report have an average rate of 9.1%.

Table 6 presents regression analysis of the relationship between inflation, political pressure, and CBI. Following Albanesi (2007) and others, I use a transformation of inflation, called the inflation tax, as the dependent variable. The inflation tax is defined $y = \frac{\pi}{1+\pi}$, where π is inflation.[16] This prevents extreme values of inflation from dominating the estimation. In column (1), the dependent variables are CBI_i and $\hat{P}_i$. Only the coefficient on $\hat{P}$ is statistically significant. That is, political pressure on the central bank is associated with higher average inflation, while legal CBI is not.

Of course, this relationship is not necessarily causal. Since we see few instances of pressure to tighten, it does not appear to be the case that high inflation leads to

16. My data set includes a few instances of deflation. In these cases, I use the transformation $y = \frac{\pi}{1+|\pi|}$ so that y is a monotone transformation of π and is negative when π is negative.

pressure on the central bank to tighten policy. But in countries with greater infla-tion aversion, the government may be less likely to pressure the central bank, and the inflation aversion may lead to lower inflation through other channels. Control-ling for legal CBI partially addresses this, as Posen (1993, 1995) and Pollard (1993) argue that legal CBI is adopted in societies with greater inflation aversion, for ex-ample, due to a strong financial sector that dislikes inflation. In column (2), I con-trol for the average inflation tax over the previous decade, since inflation aversion and other cultural or institutional features associated with both inflation and polit-ical pressure tend to be persistent (Roland 2004). Indeed, this shrinks the coeffi-cient on $\hat{P}$, though it is still statistically significant. I also control for the rate of irregular turnover of the central bank governor, but the coefficient is statistically insignificant.

The third column replaces $\hat{P}$ with dummy variables indicating that $P^{\max} = 1$ or $P^{\max} = 2$. The coefficient on each indicator is positive, but only that on $P^{\max} = 2$ is statistically significant. This confirms the distinction between reports that countries are resisting versus succumbing to pressure. In column (4), I replace Garriga's CBI index with the Arnone et al.'s political and economic autonomy indices.[17] Again, the coefficient on $\hat{P}$ is positive. The coefficient on economic independence is negative (though not statistically significant) and that on political independence is near zero, consistent with Debelle and Fischer (1994) and Balls, Howat, and Stansbury (2018).[18]

Note that in each of these specifications, if I include an interaction of the pressure variable(s) and legal CBI, the interaction term is not statistically significant. That is, political pressure does not have a different relationship with inflation at different lev-els of legal CBI. The online Appendix shows that results are robust to the inclusion of various control variables including log real GDP per capita, polity score, inequal-ity,[19] lagged CBI, central bank transparency, and the four subcomponents of Garriga's CBI index.

3.2 Panel Analysis

The panel dimension of the data set facilitates analysis of the response of infla-tion to political pressure over time. I run panel regressions of quarterly annualized inflation (π) on unemployment (U), the growth rate of industrial production (IP), category 1 and 2 pressure dummies (P^{cat1} and P^{cat2}), and lagged inflation, with coun-try fixed effects. I use the Jorda (2005) local projection method that entails sequential

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17. I do not control for lagged inflation in this column since the Arnone et al.'s indices are from 2003.

18. Debelle and Fischer (1994) find that economic or operational autonomy is negatively associated with inflation, and political autonomy unrelated to inflation, in the 1970s and 1980s. Balls, Howat, and Stansbury (2018) verify that there is no association between political autonomy and inflation in advanced economies more recent decades and determine that the relationship between economic autonomy and in-flation in developed and emerging economies is inconclusive.

19. See Crowe (2006), Albanesi (2007), and Binder (2018) for more on the relationship between in-equality, inflation, and democratization.
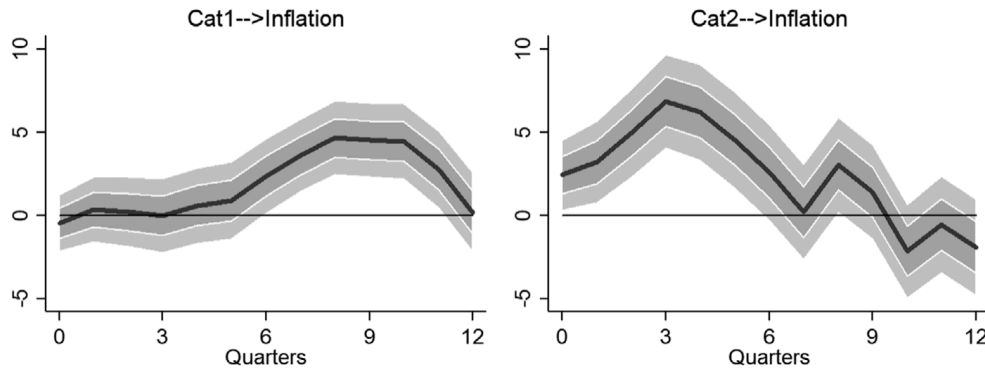
Fig 3. Response of Inflation to Political Pressure.

NOTES: Response of inflation to category 1 or category 2 political pressure estimated using Jorda (2005) local projection method. Shown with 90% and 95% confidence intervals.

regressions with the dependent variable shifted a quarter ahead at each step.[20] I run 13 regressions for steps $j = 0, \ldots, 12$:

$$\pi_{i,t+j} = \beta_0^j + \beta_1^j P_{it}^{cat1} + \beta_2^j P_{it}^{cat2} + \beta_3^j IP_{it} + \beta_4^j U_{it} + \beta_5^j \pi_{i,t-1} + v_i^j + \epsilon_{it}^j. \quad (1)$$

Figure 3 plots the sets of estimates $\{\beta_1^j\}$ and $\{\beta_2^j\}$ that show, respectively, the response of inflation to category 1 and category 2 pressure. For table of estimates and standard errors, see online Appendix. For category 1 pressure (pressure with resistance), there is no response of inflation on impact. The point estimate gradually rises, becoming statistically significantly positive after six quarters and peaking (at 4.6 percentage points) 2 years after the first report of pressure. This could reflect a gradual erosion of central bank credibility as the public becomes aware of the pressure. When a report of a central bank succumbing to pressure (category 2) comes out, inflation is 2.4 percentage points higher, rising to 6.9 percentage points after 3 quarters and remaining elevated for around 2 years. The online Appendix shows that inflation *rises* following pressure to ease and *falls* following pressure to tighten, as we should expect if the central bank responds to the politician's desires.

The interpretation of these results requires some care, as the political pressure may reflect some omitted variable causing both higher inflation and more pressure, or may

20. Quarterly data on inflation, industrial production, and unemployment are from the World Bank Global Economic Monitor. This part of the analysis uses seasonally adjusted CPI inflation because of better availability at quarterly frequency. Inflation is the annualized quarter-over-quarter percent change in the CPI. The cross-sectional analysis used GDP deflator inflation, because of greater availability at the annual frequency (available for 115 central banks in our sample, while CPI is available for 104). However, the correlation between $\hat{P}_i$ and CPI inflation is even greater: 0.45, versus 0.26 if GDP deflator inflation is used. For multicountry monetary unions, I use the average of inflation, unemployment, or IP growth across the countries in the union for which data are available. However, results are robust to omitting the multicountry unions.

reflect EIU and BMI analysts' selective reporting on pressure that is consequential for inflation. As Weise (2008) notes, interest group signals to the central bank may respond to information about macroeconomic conditions. One possibility, for example, is that knowledge or expectations of low inflation would prompt political pressure for easier monetary policy. In the online Appendix, I repeat the analysis only for instances of political pressure associated with an election or debt monetization.[21] Inflation rises following this type of pressure, even though this pressure is less likely to reflect information about future inflation. The online Appendix also includes similar analysis using changes in the monetary policy rate as the dependent variable, for a subset of countries with available data. This analysis shows that central banks are significantly more likely to cut rates and less likely to raise rates in the quarter of and three quarters following pressure to ease, even controlling for macroeconomic conditions to which they respond. These results suggest that political pressure itself prompts a central bank response and thus affects inflation.

3.3 Inflation Persistence

Political pressure on the central bank may be related to not only the level of inflation, but also its persistence, or the "speed with which inflation returns to baseline after a shock" (Willis 2003). High inflation persistence increases the output costs of disinflation (Mishkin 2007). A strong willingness of the central bank to stabilize inflation should reduce inflation persistence, while imperfect credibility or poorly anchored expectations should increase persistence (Ball 1995, Erceg and Levin 2003, Altissimo, Ehrmann, and Smets 2006, Benati 2008, Fuhrer 2010, Beechey and Osterholm 2012). Thus, if political interference erodes the bank's credibility or weakens its resolve to stabilize inflation, we should observe higher inflation persistence in countries with reports of pressure. A first autocorrelation coefficient for inflation near 1 implies high persistence, and near 0 low persistence (Fuhrer 2010).

I run panel regressions of inflation on lagged inflation, interacting the lagged inflation term with measures of political pressure faced by the central bank. If political pressure is associated with higher persistence, the coefficient on the interaction term should be positive. The regressions include central bank fixed effects to allow for differences in mean inflation across countries.[22] In the first column of Table 7, with no interaction term, the autoregressive coefficient (constrained to be the same across all countries) is 0.62.[23]

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21. Recall that in the construction of the data set, I recorded whether each report of pressure mentioned an upcoming election and whether it included the search terms "print money," "money printing," "monetize," or "monetise."

22. Results are similar using a population-averaged estimator with an AR(1) within-panel correlation structure. The coefficients on the interaction terms of lagged inflation with indicators for $P^{\max} = 1$ and $P^{\max} = 2$ and with $\hat{P}$ are 0.13, 0.22, and 0.52, respectively.

23. The 95% confidence interval contains neither 0 nor 1. Using a Levin, Lin, and Chu (2002) test, I reject the null hypothesis that all panels contain a unit root with $p < 0.001$. Using a Hadri (2000) test, I also reject the null hypothesis that all panels are stationary with $p < 0.001$.

TABLE 7

Political Pressure and Inflation Persistence

	(1) π_t	(2) π_t	(3) π_t
π_{t-1}	0.62***	0.47***	0.45***
	(0.01)	(0.02)	(0.02)
π_{t-1}*Resister		0.15***	
		(0.05)	
π_{t-1}*Succumber		0.28***	
		(0.03)	
$\pi_{t-1} * \hat{P}_i$			0.93***
			(0.06)
Constant	1.88***	1.98***	2.23***
	(0.12)	(0.12)	(0.12)
N	3,386	3,386	3,386
R^2	0.36	0.38	0.40

Notes: Fixed effects panel regressions with standard errors in parentheses. ***$p < 0.01$, **$p < 0.05$, *$p < 0.10$. Quarterly CPI inflation.

The second column includes interactions of lagged inflation with dummy variables, indicating that the central bank is a resister (i.e., $P^{max} = 1$) or a succumber ($P^{max} = 2$). The coefficients on both interaction terms are positive and statistically significant, suggesting that inflation is least persistent for central banks with no reports of pressure, more persistent for those facing but resisting pressure, and most persistent for those succumbing to pressure. In the third column, lagged inflation is interacted with $\hat{P}$. The coefficient on the interaction term is positive and statistically significant. Columns (2) and (3) both imply an autoregressive coefficient of around 0.45 for the group with no reports of political pressure on the bank.

4. WHO PRESSURES?: GOVERNANCE AND POLITICS

There is substantial literature on political institutions and characteristics and CBI. It focuses on the institutional arrangements that make the provision of legal CBI more credible or increase its potential benefits, and on the political or interest group preferences that lead to the adoption of CBI. For example, democracy, electoral competition, and checks and balances are associated with greater openness and transparency, so they make it easier for interest groups or political opposition to observe "informal transgressions" of CBI (Broz 2002, p. 861) and make it less feasible for the executive to interfere with the central bank (Lohmann 1998, Moser 1999). Federalism increases the potential benefits of CBI, since there is greater potential for conflict over monetary policy, as politicians respond to regional economic differences and run for office at different times (Bernhard 2002, Lohmann 1998, Farvaque 2002, Pistoresi, Salsano, and Ferrari 2011).

TABLE 8
POLITICAL CHARACTERISTICS AND PRESSURE ON THE CENTRAL BANK

	N	$P = 1$	$P = 2$	$P > 0$ (%)	t-stat	Code
Polity score < 4	1,160	56	46	8.8	6.3	polity 2 < 4
Polity score ≥ 4	2,188	56	23	3.6		polity 2 ≥ 4
Low electoral competitiveness	540	40	25	12.0	7.5	eiec < 4
High electoral competitiveness	2,956	76	48	4.2		eiec ≥ 4
No checks and balances	772	42	29	9.2	7.5	checks = 1
Checks and balances	2,648	74	43	4.4		checks > 1
Exec. party does not control houses	1,496	33	9	2.8	6.6	allhouse = 0
Exec. party controls all houses	1,512	71	55	8.3		allhouse = 1
State govt. not locally elected	1,184	18	24	3.5	3.7	state = 0
State govt. locally elected	1,728	83	32	6.7		state = 1 or 2
Presidential	2,160	91	48	6.4	3.5	system = 0
Parliamentary	1,088	20	20	3.7		system = 2
Executive left	1,020	45	23	6.7	3.9	execrlc = 3
Executive center	240	5	1	2.5		execrlc = 2
Executive right	612	15	3	2.9		execrlc = 1
Executive nationalist	484	48	14	12.8	7.7	execnat = 1
Executive not nationalist	2,968	68	59	4.3		execnat = 0
Largest party nationalist	408	44	14	14.2	8.8	gov1nat = 1
Largest party not nationalist	2,968	65	54	4.0		gov1nat = 0
Executive military	396	24	11	8.8	3.2	military = 1
Executive not military	3,108	92	62	5.0		military = 0

NOTES: The polity score, from Polity IV Project, ranges from −10 (most autocratic) to 10 (most democratic) and is available for 106 countries in my sample through 2017. DPI data (with variable names indicated in Code column) are available for 110 countries in my sample through 2017. Unit of observation is country-quarter. Multicountry monetary unions excluded. The t-statistic refers to the test for difference in means difference between the two groups (e.g., between polity score < 4 and polity score ≥ 4. Differences are all statistically significant with $p < 0.001$ except for executive military ($p = 0.01$). For the executive left, executive right, and executive center categories, the difference between left and nonleft is significant with $p < 0.001$ and the difference between center and right is significant with $p = 0.06$.

Leftist parties are traditionally more tolerant of inflation than center or right parties (Hibbs 1977, Havrilesky 1987). Bernhard (2002) notes that left-leaning politicians, who place more emphasis on employment and wealth redistribution than on inflation, should favor more dependent central banks, while Goodhart (1997) argues that left-leaning politicians may actually have more to gain by imposing legal CBI. Saeki and Shull (2003) study political influences on U.S. monetary policy from 1953 to 2000, and find that presidential political ideology influences Federal Reserve policy decisions more than the Senate Banking Committee Chair's ideology.

I supplement this literature by documenting the types of politicians and governments that are most likely to apply political pressure on the central bank, using data from the Polity IV Project from the Center for Systemic Peace and the Database of Political Institutions (DPI), developed by the World Bank Research Group and hosted at the Inter-American Development Bank.[24]

4.1 Political Characteristics and Pressure on the Central Bank

As shown in Table 8, pressure is more prevalent in less democratic countries and when there is low electoral competitiveness. As an indicator of federalism, the DPI

24. I exclude the four multicountry monetary unions from the analysis in this section since political characteristics vary across the member countries.

records whether there are direct local elections for the highest level of subnational government. This feature is associated with more prevalent pressure on the central bank, consistent with Bernhard's discussion of the greater potential for conflict with diverging policy incentives in federalist systems. Pressure on the bank is also more frequent in presidential than in parliamentary systems. This is consistent with findings that presidential systems have more pronounced electoral cycles (Persson and Tabellini 2003) and are associated with higher and more volatile inflation (McManus and Ozkan 2018). A possible explanation is that parliamentary systems increase the potential for punishment by party legislators and coalition partners when a government official tries to interfere with monetary policy (Bernhard 2002).

Pressure on the bank is most common when the executive is from the left, and slightly more common from the right than from the center (the difference between right and center is statistically significant with p-value of 0.06).[25] Politicians may attempt to influence monetary policy to suit their preferences by pressuring the bank without outright changing the law. Pressure is also more common when the executive is from a military background. Finally, pressure is more prevalent when the executive or largest political party is nationalist. Goodhart and Lastra (2018) and Agur (2018) argue that populist movements and national identity politics—such as those thriving in the aftermath of the global financial crisis—erode support for CBI. Erosion of public support for CBI may enable politicians to more blatantly pressure the central bank without fear of public retribution.

4.2 International Monetary Fund Advocacy for CBI

The IMF has influenced many countries to adopt CBI reforms, often as part of stabilization programs. The IMF and a country's government typically agree to a program of economic policies before the IMF will lend to the country.[26] This "policy conditionality" can include legal measures to strengthen CBI. In addition, as part of the Article IV consultations, IMF officials provide advice on monetary policy on an at-most-yearly basis. This advice sometimes includes recommendations to strengthen or safeguard CBI. For example, a press release following the 2013 Article IV Consultation with Yemen states that "Directors saw a need to improve the monetary policy framework and enhance central bank independence."[27]

I search the IMF database of Mission Concluding Statements and press releases for the phrase "central bank independence" and record the date and country or monetary union for all results in which the IMF made any type of recommendation about

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25. Left includes communist, socialist, social democratic, or left-wing parties. Right includes conservative, Christian democratic, or right-wing parties.

26. See "IMF Lending," International Monetary Fund Factsheet, March 8, 2018. Accessed September 30, 2018 at https://www.imf.org/en/About/Factsheets/IMF-Lending.

27. "Press Release: The IMF Concluded 2013 Article IV Consultation with the Republic of Yemen," International Monetary Fund, July 31, 2013 Press Release No. 13/291.

strengthening, protecting, or enhancing CBI. I find 52 such cases from January 2010 through June 2018; 27 different central banks received at least one such recommendation.[28]

IMF recommendations regarding CBI do *not* appear to follow or come concurrently with reports of political pressure on the central bank, nor do they follow adverse inflation, unemployment, or debt dynamics—see online Appendix for regression evidence. Since the Article IV consultations are scheduled well in advance,[29] and hence not in direct response to monetary policy developments, this is not too surprising. Rather, the recommendations appear to be related to timing: only one appears before 2013 (for Ukraine in 2010), while there were six and eight such recommendations in 2015 and 2016, respectively. This seems to reflect general concern from IMF officials (and others) about CBI in the so-called "New Normal" postcrisis. IMF Managing Director Christine Lagarde, for example, made a number of remarks to this effect in 2014 and 2015, such as:

> Finally, as countries step up their macroprudential policies, worries are surfacing about central bank independence. If central banks receive broader mandates and use more instruments, will they come under greater political pressure? Could this undermine their independence in pursuing price stability?[30]

I run panel regressions of the political pressure indicator on a dummy variable IMF_{t-1}, indicating that the IMF made CBI-related recommendations in the previous year. Given the predetermined timing of Article IV consultations and the dependence of IMF recommendations on timing, the IMF recommendations are plausibly exogenous. To strengthen the causal interpretation, regressions include central bank fixed effects, to absorb relatively time-invariant country characteristics like level of development, type of IMF program in the country, and financial sector characteristics that may influence both political pressure on the bank and recommendations by the IMF. The first column of Table 9 shows that political pressure on a central bank in year t is about 13 percentage points less likely following such an IMF recommendation.[31] Column (2) excludes countries for which the Article IV consultations have been delayed more than 18 months due to political or security situations or failure to come to agreement on mission dates. The countries with delayed Article IV consultations do have substantially more prevalent reports of political pressure on the central bank,

28. These central banks are: Albania, Argentina, BEAC, Barbados, Bolivia, Bosnia-Herzegovina, Brazil, Croatia, Fiji, Gambia, Georgia, Kazakhstan, Kenya, Kyrgyzstan, Liberia, Mongolia, Nicaragua, Pakistan, Slovenia, Tajikistan, Tunisia, Turkey, Uganda, Ukraine, United Arab Emirates, Uzbekistan, and Yemen. I also tried a search for the regular search terms ("central bank," "monetary policy," "reserve bank," or "national bank" and at least one of the following phrases: "political pressure," "political interference," "government interference," "threat to independence," "independence threatened," "print money," "money printing," "monetize," or "monetise."), but this resulted in only five mission concluding statements and five press releases, of which only three (two for the Bahamas in 2018 and one for Tuvalu in 2012) were relevant.

29. I confirmed this with two IMF staff economists.

30. "Monetary Policy in the New Normal," March 22, 2015, China Development Forum Panel Discussion.

31. In other specifications, not displayed, I also include IMF_t and IMF_{t-2}, and both have negative but not statistically significant coefficients, while only IMF_{t-1} has a negative and statistically significant coefficient. All central banks in my political pressure database are members of the IMF.

TABLE 9

Political Pressure Following IMF Recommendations about CBI

	(1) $P_t > 0$	(2) $P_t > 0$	(3) $P_t > 0$	(4) $P_t > 0$
IMF_{t-1}	−0.13** (0.06)	−0.11** (0.06)	−0.12** (0.06)	−0.12** (0.06)
$P_{t-1} > 0$			0.16*** (0.03)	0.14*** (0.03)
Inflation Tax$_{t-1}$				0.01 (0.02)
Unemployment$_{t-1}$				0.02* (0.01)
Constant	0.10*** (0.01)	0.09*** (0.01)	0.09*** (0.01)	−0.04 (0.07)
N	944	896	944	911
R^2	0.006	0.005	0.034	0.034

Notes: Standard errors in parentheses. ***$p < 0.01$, **$p < 0.05$, *$p < 0.10$. Dependent variable is a dummy variable indicating a report of political pressure on the central bank in year t. IMF_{t-1} is a dummy variable indicating that an IMF Mission Concluding Statement or press release in year $t - 1$ recommended that the central bank strengthen, protect, or enhance CBI. Second column excludes countries with a delay of over 18 months in completion of Article IV consultations. Linear probability model used for ease of interpretation.

but this is not the main driver of my results—the coefficient estimate on IMF_{t-1} remains similar even when these countries are excluded. Columns (3) and (4) show that results are robust to including lagged political pressure, inflation, and unemployment as controls.

An interpretation of these results is that global governance institutions like the IMF can discipline national governments by surveilling and reporting on governance issues that are otherwise difficult for the public to observe. This is similar to Broz's (2002) rationale for why transgressions of CBI are less likely in democracies with transparency-promoting institutions. These IMF recommendations related to CBI may serve as a warning to politicians that political interference with the central bank will not go unnoticed.

5. CONCLUSION

This paper has introduced a new panel data set on political pressure on 118 central banks from 2010 to 2018. The data are constructed using country reports from the Economist Intelligence Unit and Business Monitor International. An advantage of this approach is that the reports provide coverage at consistent frequency on monetary policy-related developments for a large and diverse sample of countries.

About 10% of central banks reportedly face political pressure or government interference in an average year, and 39% do so at some point in the time sample. The pressure is almost always for easier monetary policy. Political interference with central banks is a global phenomenon, occurring in all regions and in both developing and developed economies, and is more likely to come from governments with

left-wing or nationalist executives, few checks and balances, or weak electoral competition. Even central banks with high *de jure* CBI are susceptible to government pressure. In fact, the new political pressure measures are uncorrelated with several indices of legal CBI.

The political pressure data cover a critical period in central bank governance. Commentators suggest that CBI is under threat following the global financial crisis (Buiter 2016, de Haan and Eijffinger 2017, Issing 2018, Goodhart and Lastra 2018). Stubbornly, low inflation in many countries has weakened traditional arguments for CBI, while concerns about central bank legitimacy and accountability have intensified. Still, political pressure for easier monetary policy continues to be prevalent in a number of developing economies with high inflation, where conventional arguments about CBI and inflation bias are still relevant. Overall, political pressure is associated with higher inflation and inflation persistence over this time period.

In an early study of CBI and macroeconomic performance, Cukierman (1993, p. 272, 275) noted that "it is hard to find systematic indicators of actual independence when it diverges from legal independence," since political influence on central banks can be "subtle and largely hazy." While I have been as systematic as possible in the construction of my data, the subtle and hazy nature of the subject at hand remains a challenge. In particular, the data set only captures what experts perceive to be notable instances of political pressure on central banks. It is possible that the analysts writing the country reports are more likely to observe and report on pressure that is associated with unexpectedly high inflation or easy monetary policy. Unreported pressure may indeed differ substantially its sources and effects from reported cases. For example, it may have less deleterious effects on credibility, at least in the short run. Thus, my findings should be considered results about *reported* political pressure on central banks.

This paper has primarily aimed to introduce the data set and describe key empirical associations that are hopefully interesting in their own right, but should also prompt further research into causal mechanisms. Future work may also examine how political pressure responds to more specific central banking laws, monetary policy frameworks, or communication strategies, or may focus on the response of international capital flows, exchange rates, or real activity to political pressure.

DECLARATIONS OF INTEREST

None.

APPENDIX A: CONSTRUCTION AND VALIDATION OF DATA SET

A.1 Monetary Unions

Several of the countries included in the EIU or BMI reports are members of monetary unions.

TABLE A1

COMPARISON OF DISCUSSIONS OF POLITICAL PRESSURE BY EIU AND BMI

	BMI in $t-1$	BMI in t	BMI in $t+1$
EIU reports pressure in quarter t	0.09	0.10	0.10
EIU no mention in quarter t	0.008	0.008	0.008

NOTES: First row shows share of central banks for which Economist Intelligence Unit mentions political pressure in quarter t that are also mentioned by Business Monitor International as experiencing pressure in quarter $t-1$, t, or $t+1$. Second row shows share of central banks for which Economist Intelligence Unit does not mention political pressure in quarter t that are mentioned by Business Monitor International as experiencing pressure in quarter $t-1$, t, or $t+1$. Difference between rows 1 and 2 is statistically significant in all columns.

1. Eastern Caribbean Central Bank (ECCB): Anguilla, Antigua and Barbuda, Grenada, Montserrat, St. Lucia, and St. Vincent and the Grenadines
2. European Central Bank (ECB): Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland*, Italy, Latvia, Lithuania, Luxembourg*, Malta*, Netherlands, Portugal, Slovakia, Slovenia, Spain
3. Bank of West African States (BCEAO): Benin, Burkina Faso, Guinea-Bissau, Ivory Coast, Mali, Niger, Senegal, Togo
4. Bank of Central African States (BEAC): Cameroon, Central African Republic, Chad, Congo (Republic of), Equatorial Guinea, Gabon

*Not included in BMI

A.2 Comparison of EIU, BMI, and Alternative Data

Nexus Uni also indexes country reports from IHS Global Insights from 2010 to 2016 and from Financial Services Monitor Worldwide from 2015 to 2018. Since these are available for shorter time periods, I do not include them in the main analysis, but use them as a validation check. Table A2 shows that for central banks with at least one report of political pressure by the EIU, 23% also have at least one report of pressure by BMI, 33% by IHS Global Insights, and 28% by Financial Services Monitor. For central banks with no report of political pressure by the EIU, only 9%, 13%, and 5% have at least one report of pressure from BMI, IHS, and Financial Services Monitor, respectively.

TABLE A2

COMPARISON OF DISCUSSIONS OF POLITICAL PRESSURE BY SOURCE

	Business monitor	IHS global insights	Financial services monitor
EIU reports pressure	0.23	0.33	0.28
EIU no mention	0.09	0.13	0.05

NOTES: Unit of observation is the central bank. First row shows the share of central banks with at least one mention of political pressure in the EIU reports that also have at least one mention in the other sources. Second row shows share of central banks with no mention of pressure in the EIU reports that have at least one mention in the other sources. In each column, the difference between rows 1 and 2 is statistically significant.

TABLE A3

COUNTRIES OR MONETARY UNIONS BY TYPE OF PRESSURE

No mention (Type 0)		Resist (Type 1)	Quarters resist	Succumb (Type 2)	Quarters resist	Quarters succumb
Afghanistan	Jordan	Syria	11	Turkey	3	17
Albania	Kazakhstan	Zimbabwe	7	Myanmar	3	13
Armenia	Kenya	Yemen	6	Venezuela	2	13
Australia	Kuwait	Libya	4	Angola	17	12
Azerbaijan	Kyrgyzstan	Brazil	4	Argentina	12	5
BCEAO	Lebanon	Czech Rep.	3	Vietnam	2	4
Bahamas	Macedonia	Korea	2	BEAC	0	3
Bahrain	Malaysia	Ethiopia	2	Japan	6	2
Barbados	Mauritius	Poland	2	Bangladesh	0	2
Belarus	Mongolia	India	2	USA	5	1
Bolivia	Montenegro	Thailand	2	Russia	3	1
Bosnia-Herzeg.	Morocco	Iran	1	Guinea	3	1
Botswana	Mozambique	Mexico	1	China	1	1
Bulgaria	Namibia	Pakistan	1	Nigeria	1	1
Cambodia	New Zealand	Philippines	1	Ecuador	1	1
Canada	Norway	Egypt	1	Sri Lanka	1	1
Chile	Oman	Colombia	1	Sudan	1	1
Congo	Palestine	Costa Rica	1	Nicaragua	0	1
Croatia	Panama	Hungary	1	Serbia	0	1
Cuba	Peru	Laos	1	Algeria	0	1
Denmark	Qatar	South Africa	1	ECB	0	1
Dominican Rep.	Romania	Switzerland	1	Zambia	0	1
ECCB	Rwanda			Uganda	0	1
El Salvador	Saudi Arabia			UK	0	1
Georgia	Singapore					
Ghana	South Sudan					
Guatemala	Sweden					
Guyana	Taiwan					
Haiti	Tajikistan					
Honduras	Tanzania					
Hong Kong	Trin. and Tob.					
Iceland	Turkmenistan					
Indonesia	Ukraine					
Iraq	UAE					
Israel	Uruguay					
Jamaica	Uzbekistan					

Political pressure on the central banks of Turkey, Russia, and Sri Lanka is reported at least once by all four sources. Pressure is reported by three of the four sources for the central banks of Japan, Venezuela, the United States, Zimbabwe, Iran, Argentina, the ECB, and Nigeria. Around half (62 central banks) have no report of pressure from any of the four sources.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.