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Price Stability and Central Bank Independence: Discipline, Credibility, and Democratic Institutions

Cristina Bodea and Raymond Hicks

Abstract Despite mixed empirical evidence, in the past two decades central bank independence (CBI) has been on the rise under the assumption that it ensures price stability. Using an encompassing theoretical approach and new yearly data for de jure CBI (seventy-eight countries, 1973–2008), we reexamine this relationship, distinguishing the role of printing less money (discipline) from the public's beliefs about the central bank's likely actions (credibility). Democracies differ from dictatorships in the likelihood of political interference and changes to the law because of the presence of political opposition and the freedom to expose government actions. CBI in democracies should be directly reflected in lower money supply growth. Besides being more disciplinarian, it also ensures a more robust money demand by reducing inflation expectations and, therefore, inflation. Empirical results are robust and support a discipline effect conditioned by political institutions, as well as a credibility effect.

Since the 2007 economic crisis, central bank independence (CBI) has again become a topical issue. Jens Weidmann, the president of the Bundesbank, defended the European Union's lack of reflationary policy by stressing the need for central bank credibility: "Delivering on its primary goal to maintain price stability is the prerequisite for safeguarding the most precious resource a central bank can command: credibility."[1] The European Union (EU) also denied a bailout package to Hungary until the government restored the central bank's independence to EU standards. By contrast, after decades of moderate deflation, Japan's politicians are questioning the Bank of Japan's independence, debating whether politicians need to be more active in monetary policy. The underlying assumption is that CBI effectively ensures price stability.

Historically, such stable prices have not been easy to accomplish. Across time periods, developed and developing nations alike have struggled to restore confidence in their currencies. Examples stretch from the United States and Western Europe in the 1970s to Latin America in the 1970s and 1980s and postcommunist countries

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1. Jens Weidmann, "Monetary Policy Is No Panacea for Europe," *Financial Times* (Internet ed.), 8 May 2012.

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in the 1990s. Because delegating monetary policy to an independent central bank has been a key institutional mechanism believed to help achieve low inflation,[2] bank independence has increased worldwide since the 1990s.[3]

Despite this trend, few studies examine whether reforms contribute to price stability and, if so, how. Existing research focuses on a single region[4] or two points in time.[5] In this study we update the Cukierman, Webb, and Neyapti index of central bank independence for seventy-eight countries from the end of the Bretton Woods system until the present.[6] The result is an original data set that codes independence annually and covers legislation changes in the past twenty-five years. We also take the opportunity provided by the central bank reforms over the past decades to reevaluate and extend the political economy literature on CBI. Specifically, we investigate the mechanisms through which bank independence affects price stability, and we explore whether CBI's effect on monetary outcomes is conditional on a country's political institutions.

From its inception, the CBI literature has been concerned with the divergence of de facto independence from legal provisions.[7] In some countries, governments circumvent the legal delegation of monetary policy because they can easily replace bank governors or credibly threaten to change the central bank law. As measures of de facto independence, the economics literature looks at turnover rates of bank governors or central bank surveys. Because long governor tenures can suggest either independence or subservience, and surveys cover few countries and periods, much of the political economy literature has focused instead on the conditions that provide legal central bank independence with a de facto bite.[8]

The political economy work has yielded theoretical approaches and empirical results that barely speak to each other. Broz argues that in political systems where decision making is transparent (that is, democracies), independent central banks can contribute to low inflation.[9] The empirical evidence strongly supports this hypothesis, yet the likely mechanisms that contribute to the democratic transparency—"the attentive public or the political opposition"—remain unaddressed.[10] Keefer and Stasavage, on the other hand, focus solely on the narrower role of meaningful political opposition in enhancing the credibility of legally independent central banks.[11] Their evidence

2. Rogoff 1985.
3. See Arnone et al. 2007; and Crowe and Meade 2008.
4. See Cukierman, Miller, and Neyapti 2002; Arnone et al. 2007; Jacome and Vasquez 2008; and Bodea 2014.
5. See Arnone et al. 2007; and Crowe and Meade 2008.
6. Cukierman, Webb, and Neyapti 1992.
7. Ibid.
8. Alpana and Honig 2010 derive de facto CBI from monetary aggregates' behavior during elections.
9. Broz 2002.
10. Ibid., 861. Consistent with Broz, Stasavage 2003 shows that central banks vary in the transparency of their operations and transparent banks have an easier time lowering inflation.
11. See Keefer and Stasavage 2002 and 2003.

shows that legal independence reduces inflation only in the presence of multiple constitutional checks and balances.[12]

Our study provides a unifying approach to previous political economy research. Democracies and dictatorships differ significantly in their application of the rule of law and the process of changing laws. The strong constitutional constraints and greater transparency prevailing in democracies enhance the de facto enforcement of the law and make threats and actual legislative amendments more difficult and less reflective of short-term interests. We argue that the process of law implementation and amendment in democracies has implications for the binding effect of central bank legislation both on government behavior and on public expectations. First, delegation of monetary policy to an independent central bank in democracies allows the bank to actually behave in a conservative fashion that is reflected directly in lower rates of money supply growth. That is, the central bank can increase interest rates or target the exchange rate or money supply to ensure, most prominently, price stability, regardless of short-term government pressure. Moreover, with multiple veto players and a press that can report freely on the position of the government, the opposition, the central bank, and other key constituencies, the central bank is likely to be more credible. This will ensure a more robust money demand by reducing public inflation expectations, leading to lower inflation above and beyond the decline in money supply.

We test our argument on a sample of seventy-eight democracies, mixed regimes, and dictatorships from 1973 to 2008. The empirical results are robust to different estimation techniques and specifications, and broadly conform to expectations. There is a strong interactive effect between CBI and democracy and its mechanisms. In democracies and in countries with constitutional checks and balances and a free media, CBI has a strong negative effect on money supply growth rates. Inflation results support our theory as well: CBI has a strong, stand-alone, negative effect on inflation beyond the central bank's control of the money supply and this effect is not driven by Organisation for Economic Cooperation and Development (OECD) countries. The marginal effect of independence is, however, negative and statistically significant only for democracies and countries with constraints on the government and a press that can report freely.

Our research note makes several contributions. Theoretically we have a unifying framework linking CBI to price stability across political regimes. Also, more than earlier research, our theory accurately reflects the sources of inflation and distinguishes the role of simply printing less money (discipline) from the public belief about what the monetary authority is likely to do (credibility). We are most innovative in theorizing and evaluating the interactive effect of CBI and domestic political institutions on rates of money growth—the discipline effect. Although parts of our credibility hypothesis have been derived in earlier work,[13] we test such hypotheses

12. Keefer and Stasavage 2003 find that multiple constitutional checks and balances reduce the bank governor's risk of being fired. Treisman 2000 shows that federal states preserve to a larger degree the existing pattern of central bank executive turnover. See also Lohmann 1998a.

13. See Broz 2002; and Keefer and Stasavage 2002 and 2003.

by accounting for the theoretical sources of inflation, thus getting closer to capturing the notion of credibility. Very importantly, we test our hypotheses with new author-coded data on yearly central bank independence. These data identify more precisely the relationship between price stability and the central bank than the period averages prevalent in previous research.

Background and Theory

In the past twenty years, countries have reformed the legislation governing their central banks, delegating monetary policy to a greater extent. This trend coincides with the publication of studies showing a correlation between CBI and lower inflation in developed countries. Figure 1 compares central bank independence in 1980 and 2008, using a score on the Cukierman, Webb, and Neyapti CBI index of 0.4 or above as the independence cutoff.[14] As it shows, although governments in a few large countries, notably, Brazil, India, and Australia, have retained control over their central banks, countries in most regions have made their banks more independent. The only region lagging behind is Africa.

Theoretically CBI keeps inflation in check because it reduces the risk of time inconsistency in monetary policy.[15] Time inconsistency emerges because governments have incentives to generate economic growth through surprise inflation. Therefore, government announcements about monetary policy and its commitment to price stability have little credibility. Independent central bankers, on the other hand, are much less sensitive to the political electoral cycle, and are, on average, more concerned about risks to price stability than elected politicians are.[16]

The time-inconsistency approach has been critiqued in developed countries because, presumably, monetary policy has been delegated to the central bank in these countries and the bank has no incentives to create surprise inflation.[17] Also, more recent explanations for monetary policy delegation to independent central banks focus on information asymmetries between ministers and backbench legislators and coalition partners;[18] diverse political coalitions;[19] more checks and balances;[20] federal systems and party veto players;[21] the presence of powerful coalitions in favor of price stability;[22] or a more transparent political system.[23]

14. Cukierman, Webb, and Neyapti 1992.
15. See Kydland and Prescott 1977; and Barro and Gordon 1983.
16. Rogoff 1985.
17. Blinder 1998.
18. Bernhard 1998.
19. Crowe 2008.
20. Moser 1999.
21. See Treisman 2000; and Hallerberg 2002.
22. See Goodman 1991; and Treisman 1998.
23. Broz 2002.

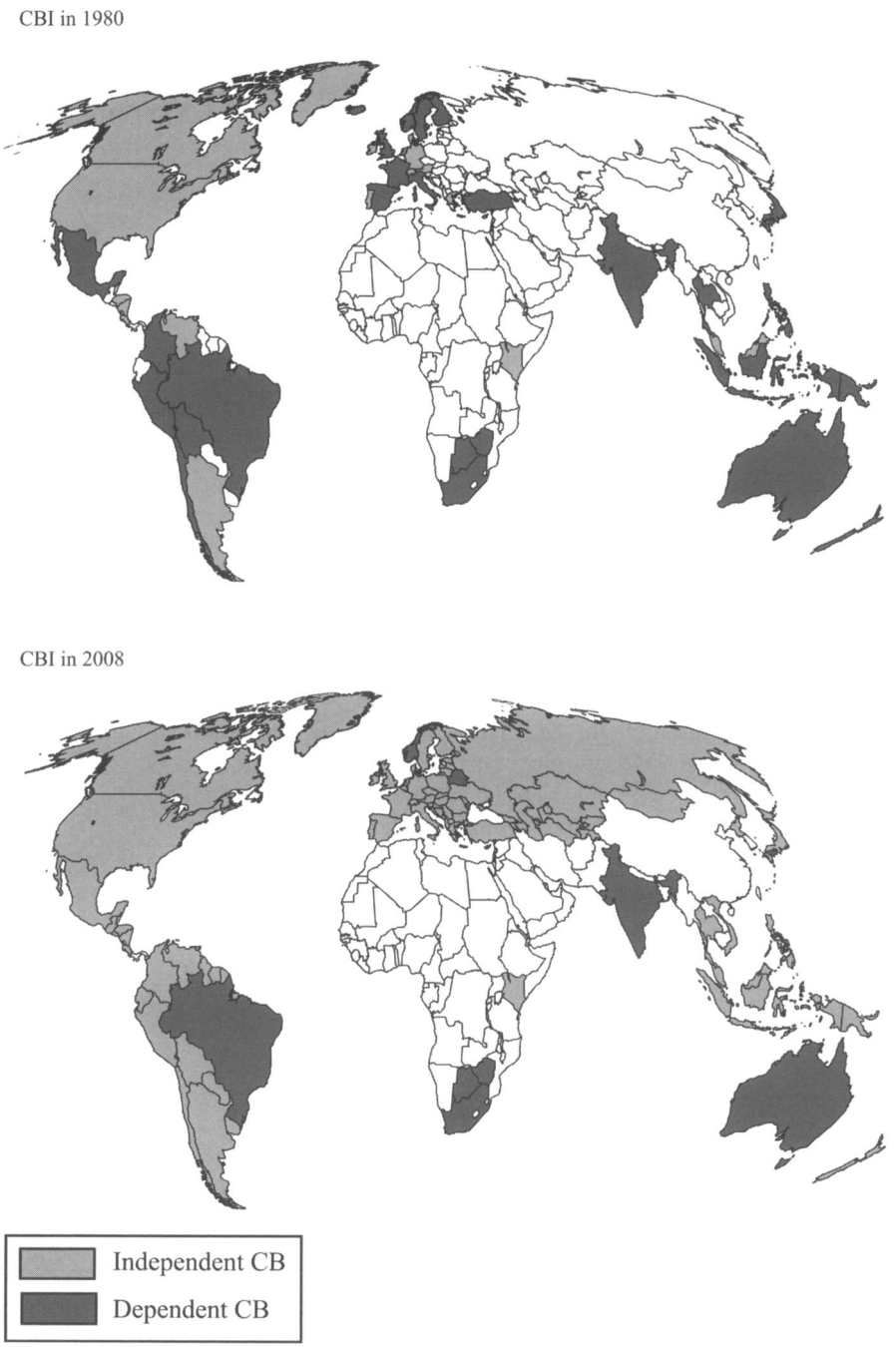


FIGURE 1. *CBI in 1980 and 2008*

Reflecting the potentially multiple causal arguments for delegation of monetary policy, the evidence for an association between CBI and inflation has been mixed with a particularly weak relationship in developing countries.[24] The early work on the topic shows a strong negative relationship between inflation and CBI in developed countries.[25] This relationship lacks robustness in some of the later work.[26] On the other hand, Crowe and Meade, using data as recent as 2003, account for country heterogeneity and potential endogeneity of CBI and find a robust negative relationship across developed and developing countries.[27]

The political economy literature suggests that political institutions significantly influence the extent to which an independent bank will reduce inflation. In addition to the Broz and Keefer and Stasavage research we cited,[28] Franzese shows that the effect of central bank independence on inflation depends on features of the political environment in which banks operate, including government partisanship and labor market organization.[29] Similarly, other work shows that strong institutional checks and balances[30] or the quality of political institutions[31] affect the ability of independent central banks to keep inflation low.

Although these explanations all point to the importance of political institutions, they highlight different aspects of these institutions that make it difficult to distinguish their interrelatedness. Our argument provides a unifying approach to previous research by explicitly focusing on the role of political interference. Because monetary policy has distributional effects, politicians can use it to influence the economy in the short run. Therefore, delegation is costly and will be continuously contested in the political arena. Early on in the CBI literature, Cukierman, Webb, and Neyapti argue that "first, the laws are incomplete in that they cannot specify explicitly the limits of authority between the central bank and the political authorities under all contingencies. These voids are filled by tradition at best and by power politics at worst. Second, even when the law is quite explicit, actual practice may deviate from it."[32] Political interference has been an issue even for the Bundesbank, the most acclaimed independent central bank after World War II. For example, Lohmann notes that the "behavioral independence of the German central bank fluctuates over time with the party control of federalist veto points."[33] After the 1957 central bank law reform, the Bundesbank undertook an active role in the political system, trying to consolidate

24. For a recent survey, see Arnone et al. 2007.
25. See Grilli, Masciandaro, and Tabellini 1991; Cukierman, Webb, and Neyapti 1992; and Alesina and Summers 1993.
26. See de Haan and Kooi 2000; Daunfeldt and de Luna 2008; and Jacome and Vasquez 2008.
27. Crowe and Meade 2008.
28. See Broz 2002; and Keefer and Stasavage 2002 and 2003.
29. Franzese 1999.
30. See Moser 1999; and Hayo and Voigt 2008.
31. Hielscher and Markwardt 2012.
32. Cukierman, Webb, and Neyapti 1992, 355.
33. Lohmann 1998a, 401.

its conservative reputation and publicly debating the government on the sources of inflation.[34]

Democracies and dictatorships differ significantly in their enforcement of the rule of law and the process of law amendment, with implications for the central bank law's effect on restraining government behavior and anchoring public expectations. Specifically, the broad rule of law is stronger in democracies than in other states because of *ex post* constraints and greater transparency regarding the government's actions. These distinctive characteristics of democracies are likely to have two effects. First, delegation of monetary policy to an independent central bank in democracies allows the bank to be more conservative, which is reflected directly in lower rates of growth for the money supply. In addition to being directly more disciplinarian, a central bank whose credibility is enhanced by institutions that limit political interference is also likely to ensure a more robust money demand via lower inflation expectations, leading to stable prices.

At the most basic level, in democracies the prevalence of the rule of law generates confidence in contract enforcement broadly and, especially, when the government is a party to the contract, as is the case with central bank legislation.[35] In democracies, the government realizes that its tenure in office depends partly on the perception that it is playing by the rules and excessive violations may lead to removal from office. The political opposition, or "leading rivals of the administration in power,"[36] has an interest in the enforcement of the law granting independence to the central bank because it denies the incumbent the opportunistic use of monetary policy. Indeed, in a system with two or more veto players there is a low probability that the central bank will be overridden on any of its decisions.[37] In addition, government coalition partners, backbench legislators, and the opposition have an interest in the enforcement of the law and a de facto independent bank because such an institution provides balanced information, solving the problem of asymmetric information.[38] Thus, the presence of a strong opposition will allow the central bank greater leeway in conducting policy and one would expect a stronger relationship between CBI and control of the money supply and price stability.[39]

34. Berger 1997.
35. Olson 1993.
36. Ibid., 572.
37. Keefer and Stasavage 2003.
38. Bernhard 1998.
39. The constraints argument should work even for conservative governments facing a weak left-wing opposition. Lohmann 1998b argues that CBI can be expected to reduce inflation even if governments have low inflation preferences. Even for such right-leaning governments, election periods may increase temptation to increase money supply and CBI ensures consistency between *ex ante* and *ex post* inflation preferences. While partisanship is a key component for defining meaningful political constraints, partisanship by itself need not be systematically related to the process of law enforcement and change. As such, it is not crucial to our theory to address how partisanship may directly relate to CBI. For example, in postcommunist countries the early transition saw few actors with an appetite for conservative monetary and fiscal polices. For us, this translates to few constraints on government. Still, partisanship may affect price stability on its own and, therefore, empirically, we test whether our results are robust to accounting directly for partisanship.

Second, enforcement of the central bank law is helped by the fact that in democracies individuals as well as the key contenders to power have significant freedom of speech and the press is free to report on the government's actions. Central banks often lack a high degree of transparency with respect to internal decision making and it is difficult to determine directly their "true" independence.[40] However, freedom of speech allows the opposition to blow the whistle on government interference in central bank decisions. It also allows the bank to use the media to publicize conflicts with the government, attribute the sources of the inflationary phenomenon to expansionary fiscal policy, and consolidate and expand constituencies favorable to price stability.[41] Ultimately, freedom of speech allows voters to be better informed and to eventually punish at the ballot box government transgressions against the law, including central bank law.[42] Both the presence of an opposition and a free press, therefore, make the central bank law more enforceable by making it more difficult for a government to interfere with the central bank.

The direct consequence of a central bank law that has a de facto bite is that the bank can be disciplinarian and use the instruments of monetary policy to achieve the legal mandate in the delegation contract, most prominently low inflation. This may mean an independent setting of the interest rates at which the central bank lends directly to financial institutions or an independent determination of the quantity of government securities to be sold or bought on secondary markets. Changes in monetary policy instruments directly affect the amount of liquidity available in the financial system and the supply of money. Therefore, countries with independent central banks and institutional configurations that guarantee the rule of law will have lower rates of growth of the money supply, reflecting the preference of the central bank for price stability.[43] From this, we derive our first hypothesis:[44]

H1: (Discipline): Money growth rates are lower when the central bank is independent and the country is a democracy; there are multiple veto players; and the press is free.

Although central bank actions have a relatively direct effect on the money supply, the bank has only imperfect control of inflation.[45] Inflation is a result of money supply

40. See Broz 2002; and Bodea 2010.

41. See Goodman 1991; Berger 1997; and Bernhard 1998.

42. Leeson 2008 shows that media freedom is linked to citizen political knowledge and involvement in politics.

43. Clark and Hallerberg 2000 use money supply growth rates to test for electoral cycles in monetary policy.

44. We bring the most value added by deriving and testing H1. However, based on our framework we are able to derive hypotheses similar to earlier work on the behavior of inflation (see H2). From a normal science perspective, we find it reassuring to have predictions conforming to previous work as well as novel implications and to test them in a research design matching our theory and using our new data.

45. This applies particularly to developing countries, where there is an imperfect understanding of monetary policy transmission mechanisms, money demand functions are unstable, and inflation forecasting

increases that in the longer run exceed demand for cash balances. An independent central bank that is credibly conservative ensures a more robust money demand that reduces the inflationary effects of a monetary expansion.[46] This moderates broad public inflation expectations, in particular, inflationary expectations negotiated in wage contracts. Thus, workers are likely to renounce frequent renegotiation of contracts and forego demands of indexation to past inflation and the public will want to hold relatively more of the money controlled by a trusted central bank. How much the public trusts the central bank depends not only on the government interfering directly in central bank decisions as we discussed, but also on the likelihood that the central bank law will be changed randomly, within short time spans and without proper public debate.

Again, the institutional mechanisms that ensure application of the rule of law will limit changes to the law. The veto player literature argues that a larger number of relevant veto points (with distinct preferences) increases policy stability.[47] Central bank independence that is granted through regular legislation cannot be amended in a sweeping manner when the political system has many different actors who can veto a policy proposal. Keefer and Stasavage show that in the presence of multiple veto players, central bank independence always lowers inflation expectations.[48] Treisman finds that fiscal decentralization and, implicitly, federal veto points perpetuate either low or high inflation in part by preserving existing institutions.[49]

Freedom of speech and a free media are also likely to contribute to higher legislative predictability. Free media are likely to present competing views of any proposed changes to the central bank law. Even in countries with legislative majorities for the executive, due process is likely longer when differing views on the central bank can be expressed and different public constituencies need to be convinced that law changes act in their favor. Thus, even if law changes pass the legislature, free speech and press freedom can at least postpone or prevent changes driven by

remains inaccurate. IMF 2006. Fiscal policy also drives inflation expectations. See Ardagna, Caselli, and Lane 2004; and Treisman 2000.

46. See Stockman 1996; Ghosh et al. 1997; and Levy-Yeyaty and Sturzenegger 2001. Evidence for post-communist states is in Bodea 2014. Other research suggests that adoption of specific (optimal) contracts like inflation targets can generate credibility and improve inflation performance. Walsh 1995. In practice inflation targeting (IT) may not be a silver bullet because targeting has a medium-term horizon and some of the developing countries with IT have problems reliably forecasting inflation. See Svensson 1997; and IMF 2006. Other work also argues that an independent central bank is a precondition for successful IT. See Eichengreen et al. 1999; and Agénor 2001. Empirically, the Cukierman, Webb, and Neyapti 1992 index includes a component looking at the central bank's objective, giving maximum scores to those banks pursuing exclusively price stability and having final word in resolution of conflict with the government.

47. Tsebelis 1995.

48. Keefer and Stasavage 2003. In their model inflation results only from changes in public expectations about the interaction between an independent central bank and one agenda-setting veto player and a second non-agenda-setting veto player. Walsh 1998 has a more complex model showing that inflation results both from money growth rates and inflation expectations used in negotiated wage contracts. Empirical work has found a long-run relationship between money and inflation in the United States and globally. See Lucas 1980; McCandless and Weber 1995; and Treisman 2000.

49. Treisman 2000.

short-term interests. In addition, the central bank itself can use the public arena to make the case for its independence, as can the political opposition and conservative circles, including the banking industry or the financial press.

The role of both veto players and freedom of the media is illustrated in the 1957 change in the Federal Republic of Germany's Bundesbank law. Although "many members of the CDU [Christian Democratic Union] government were intent upon making the Bundesbank more responsive to government preferences, and after the 1957 elections they arguably had the votes to do so,"[50] two key factors contributed to the preservation (in large part) of the Bundesbank's independence. A first was German federalism and the veto power of the upper chamber of parliament, the Bundesrat, representing the states.[51] Because the Social Democratic Party controlled several of the state governments and the CDU was split internally on the issue of making the central bank more dependent on the federal government, negotiations for the passage of the 1957 law lasted for several years. This prolonged negotiation allowed the central bank to utilize the media to forge its position on price stability and explain the contribution of government policies to inflation.[52] In the run-up to the 1957 elections, for example, the Bundesbank raised interest rates several times, publicly linking their actions to the threat of inflation that election-related fiscal overspending posed. Goodman cites a German central banker as saying that "we have established such credibility that anytime there is a conflict with the government, at least 70 percent of the financial writers in the country would be on our side."[53] Moreover, the central bank forged alliances with conservative government ministers and contributed actively to plans for a federal-level stabilization program.

With this in mind, we derive the following second hypothesis:[54]

H2: (Credibility): Inflation (controlling for money supply growth) is lower when the central bank is independent and the country is a democracy; there are multiple veto players; and the press is free.

Data, Operationalization, and Methods

Despite the popularity of CBI measures, there have been few attempts to code independence annually, directly identify reform years, or even, beyond a handful of countries, to code the reforms of the past twenty-five years. Our data accomplish exactly this. Cukierman, Webb, and Neyapti's original data cover seventy-two

50. Goodman 1991, 338.
51. Lohmann 1998a.
52. Berger 1997.
53. Goodman 1991, 339.
54. Similar to our empirical approach, Levy-Yeyaty and Sturzenegger 2001 and Ghosh et al. 1997 attempt to capture a credibility effect on inflation (in their case of fixed exchange rates) by controlling for changes in money supply (M2). While this is a reasonable approach, a more complete analysis of credibility involves looking at output sacrifice ratios during disinflation periods, an area for future research.

countries for four decades (1950–59, 1960–72, 1973–79, and 1980–89). The annual coverage of CBI has been extended to the central banks of postcommunist countries from 1990 to 2002[55] and to twenty-four Latin American and Caribbean countries for 1989 to 2002.[56] We update the CBI scores for seventy-eight countries for 1973 to 2008. Appendix 1 lists the countries and reform years.

The core dependent variables are the change in money supply (M2) and the inflation rate. M2 is an intermediate monetary aggregate (currency in circulation and short-term deposits);[57] data are from the International Monetary Fund's International Financial Statistics (IFS), supplemented with the World Bank's World Development Indicators (WDI). We use the log of M2 growth rates, taking the log of 1 plus the absolute value. For the eighty-one negative values of M2 change, we then add a minus sign to the logged value.[58] The inflation measure is the yearly change in the consumer price index (WDI, OECD statistics, IFS). We use the logged inflation rate as the dependent variable, and, for consistency we treat negative values (twenty-five observations) similar to negative M2 changes.[59]

The key explanatory variables operationalize the independence of the central bank and features of countries' political regime. We code the level of central bank independence based on the Cukierman, Webb, and Neyapti original index. The CBI scores are based on a weighted aggregated calculation of sixteen indicators in four categories: the Chief Executive Officer, Policy Formation, Objectives, and Limitations on Lending to the Government (see Appendix 2 for more details). The CBI index ranges from 0 to 1, with 1 representing the most independent central bank. A bank has more legal independence when the governor's term in office is longer; the appointment and dismissal procedures are insulated from the government; the bank's mandate is focused on price stability; the formulation of monetary policy is in the hands of the central bank; and the terms on central bank lending to the government are more restrictive.

Our main measure for democracy is the Polity 2 score from the Polity IV database (0 to 20 range). We supplement the Polity 2 score with Freedom House data. This measure is the average of a country's political rights and civil liberties score. Originally, lower Freedom House scores indicated democracies but we reverse the scale so that a value of 7 is most democratic and a value of 1 is least democratic.

We use several variables to determine whether the presence of meaningful opposition or press freedom increases the effectiveness of legal CBI. Although our key

55. See Cukierman, Miller, and Neyapti 2002; and Bodea 2013.

56. Jacome and Vazquez 2008.

57. The central bank has more direct control of narrow money or M1, but such data suffer severely from missing values.

58. Results hold when dismissing the eighty-one negative value observations, however, for our discipline argument, it is important to retain negative growth rates. Results also hold when we dismiss the twenty-five negative inflation values.

59. Because expectations about monetary policy become unanchored in high-inflation environments (see Ghosh et al. 1997; and Levy-Yeyaty and Sturzenegger 2001), we discuss robustness to restrict the sample to M2 changes and inflation rates of less than 150 percent, losing seventy-four and eighty-two observations.

conditioning variable is democracy, testing the posited causal mechanisms strengthens the support for our theory and reduces concern that CBI is conditioned by other factors such as economic development (which is highly correlated with democracy but less so with constraints). A first measure is executive constraints from Polity IV that measures "the extent of institutionalized constraints on the decision-making powers of chief executives, whether individuals or collectivities."[60] Scores on the variable range from 1 (no limits to an executive power) to 7 (other political actors are as equally strong or stronger than the executive). A second measure is the checks variable from the Database of Political Institutions (DPI), which measures the checks and balances in the political system. As with executive constraints, the more places in the political system where legislation can be blocked, the higher the value of the variable.[61] Our final measure of checks and balances is political constraints.[62] This ranges from 0 to 1 and quantifies the feasibility of policy change by tracking the number of independent veto players in the executive and legislative chambers. Again, a higher score represents stronger constraints. To measure media freedom, we use Freedom House's Freedom of the Press measure available since 1980, with values of 0 (not free), 1 (partially free), and 2 (fully free).

In addition, all models include: the lagged logged value of gross domestic product (GDP; WDI); lagged trade openness (WDI); a dummy variable for a fixed exchange rate regime based on the IMF's official classification;[63] the lagged value of a country's fiscal budget deficit/surplus relative to GDP;[64] and indicator variables for presidential and legislative election years.[65]

For the main models, we use ordinary least squares (OLS) regressions with country fixed effects and a lagged dependent variable.[66] The lagged dependent variable controls for the backward indexation of inflation and potentially serially correlated error terms.[67] For the inflation models, we also include the lag log of the change in M2 to control for the disciplinarian effect of central bank on inflation. This way, the CBI index coefficient more likely reflects an additional credibility effect via a robust money demand and anchored inflation expectations.[68] To control for time-specific factors, we include decade dummies in the M2 models and the lagged change of

60. Marshall, Jaggers, and Gurr 2013, 24.
61. Following Keefer and Stasavage 2003 we use the log of CHECKS.
62. Henisz 2002.
63. Ilzetzki, Reinhart, and Rogoff 2009. A fixed regime is coded if the observation is a 1 under the IMF's coarse coding.
64. Data are based on Brender and Drazen 2005, updated with additional information from: IMF IFS, EBRD transitional reports, and OECD statistics.
65. Data from Hein Goemans, Election Dates data set, available at <www.rochester.edu/college/faculty/hgoemans/data.htm>. Accessed 4 April 2012.
66. Hausman tests reject a random effects specification.
67. Beck and Katz 1995.
68. See Levy-Yeyaty and Sturzenegger 2001; and Ghosh et al. 1997.

the world GDP deflator in the inflation models.[69] The fixed effects estimation controls for time-invariant country characteristics not captured by our regressors. Using country fixed effects in an OLS regression with a lagged dependent variable may introduce bias,[70] a problem aggravated by the short time duration for some countries in the sample, which does not allow for shocks to fixed effects to diminish over time.[71] Our robustness section therefore presents models with panel-corrected standard errors that include the lagged dependent variable and regional and decade dummies.

Results and Discussion

In Table 1, we examine whether CBI, democracy, and democratic mechanisms affect a central bank's control of the money supply and inflation. The dependent variable is the logged rate of growth of money supply (Models 1 to 4), and the logged inflation rate (Models 5 to 8). In Model 1 we include a country's Polity score and the CBI INDEX as stand-alone variables. The Polity score by itself does not significantly affect the growth rate of M2, while central bank independence does have a negative and statistically significant effect.[72] Across all models, the only other sometimes-significant factor is economic growth: positive growth decreases the growth rate of M2.

Although CBI appears to have an independent effect on money growth rates, Models 2 to 4 test our first hypothesis by considering the conditional effect of the CBI INDEX on money growth rates. Model 2 introduces the interaction between the CBI INDEX and POLITY. To facilitate interpretation, we transform the POLITY score by subtracting 20 from each value. This does not change the substantive impact of the variables or the interaction;[73] it changes the interpretation of the CBI coefficient only. With the original POLITY variable, the CBI coefficient is the effect of a one-unit change in CBI when POLITY is equal to 0, or a dictatorship. With the transformed data, the coefficient is the effect when POLITY is still at 0, but 0 now represents full democracies.

Brambor, Clark, and Golder prescribe that for multiplicative interaction models such as ours, inference should involve meaningful marginal effects and standard errors to determine the conditions when the key variables have a statistically significant effect.[74] Consequently, we focus our discussion on the graphs in Figures 2 to 5, showing the marginal effect of the CBI index (and the 90 percent confidence interval)

69. The interconnectedness of the global economy suggests that inflation rates may trend together so it is important to control for this eventuality. Using decade dummies instead, similar to the M2 models, does not alter the findings.

70. Nickell 1981.

71. Wooldridge 2002.

72. Surprisingly, CBI is negative and significant for non-OECD countries but insignificant for OECD countries.

73. Brambor, Clark, and Golder 2006.

74. Ibid.

TABLE 1. *Effect of CBI contingent on democratic mechanisms*

	Model 1 *b/se*	*Model 2* *b/se*	*Model 3* *b/se*	*Model 4* *b/se*	*Model 5* *b/se*	*Model 6* *b/se*	*Model 7* *b/se*	*Model 8* *b/se*
CBI	−0.584** (0.279)	−0.832** (0.323)	−1.394*** (0.497)	−0.741** (0.339)	−0.465*** (0.143)	−0.612*** (0.150)	−0.690*** (0.251)	−0.646*** (0.149)
POLITY 2	0.002 (0.011)	0.036* (0.021)			−0.003 (0.004)	0.019* (0.011)		
CBI × POLITY 2		−0.090 (0.054)				−0.056* (0.029)		
POLITICAL CONSTRAINTS			1.097* (0.566)				0.164 (0.285)	
CBI × POLITICAL CONSTRAINTS			−2.615** (1.076)				−0.816 (0.559)	
FREEDOM OF PRESS				0.082 (0.180)				0.145 (0.091)
CBI × PRESS				−0.332 (0.299)				−0.369** (0.145)
LAG LOG INFLATION					0.615*** (0.041)	0.609*** (0.042)	0.621*** (0.043)	0.614*** (0.043)
LAG LOG CHANGE IN M2	0.297*** (0.056)	0.292*** (0.057)	0.292*** (0.057)	0.273*** (0.059)	0.125*** (0.024)	0.124*** (0.024)	0.127*** (0.025)	0.120*** (0.023)
LAG LOG GDP	0.010 (0.173)	−0.037 (0.171)	−0.012 (0.169)	0.397* (0.225)	−0.060 (0.074)	−0.075 (0.071)	−0.075 (0.070)	0.017 (0.107)
LAGGED GDP GROWTH	−1.199 (0.736)	−1.271* (0.716)	−1.229* (0.718)	−1.045 (0.811)	0.422 (0.506)	0.317 (0.510)	0.489 (0.519)	0.249 (0.480)
LAG OPENNESS	0.003 (0.002)	0.003 (0.002)	0.003 (0.002)	0.005* (0.003)	−0.000 (0.001)	−0.000 (0.001)	−0.000 (0.002)	0.001 (0.002)
DE JURE EXCHANGE RATE REGIME	−0.106 (0.119)	−0.103 (0.117)	−0.127 (0.109)	−0.009 (0.155)	−0.030 (0.079)	−0.030 (0.078)	−0.050 (0.076)	−0.000 (0.102)
FISCAL BALANCE	−0.015 (0.010)	−0.015 (0.010)	−0.013 (0.010)	−0.017 (0.012)	−0.025** (0.010)	−0.024** (0.010)	−0.024** (0.010)	−0.027** (0.011)
PRES. ELECTION	−0.033 (0.122)	−0.032 (0.119)	−0.044 (0.114)	−0.047 (0.135)	−0.025 (0.075)	−0.024 (0.075)	−0.032 (0.072)	−0.030 (0.076)
LEGIS. ELECTION	−0.088 (0.072)	−0.086 (0.071)	−0.080 (0.071)	−0.105 (0.080)	0.018 (0.035)	0.018 (0.035)	0.019 (0.035)	0.030 (0.038)
BOTH ELECTIONS	−0.208 (0.134)	−0.196 (0.135)	−0.198 (0.136)	−0.153 (0.132)	0.052 (0.051)	0.060 (0.052)	0.054 (0.052)	0.069 (0.051)
LAG WORLD INFLATION					0.019** (0.008)	0.018** (0.008)	0.018** (0.008)	0.034*** (0.011)
CONSTANT	1.637 (4.320)	2.946 (4.249)	2.524 (4.188)	−8.186 (5.544)	2.014 (1.786)	2.478 (1.715)	2.419 (1.703)	−0.010 (2.616)
N	1,803	1,803	1,826	1,536	1,769	1,769	1,792	1,520
Countries	78	78	79	79	78	78	79	79
R2	0.179	0.182	0.187	0.167	0.659	0.660	0.664	0.669

Notes: ** $p < .05$; *** $p < .01$. The dependent variable is Models 1 to 4 is the log of the change in M2. In Models 5 to 8 it is the log of inflation. Decade dummies are included in Models 1 to 4, but not shown.

as the conditioning variables change. Figure 2 shows the marginal effect of CBI as POLITY and FREEDOM HOUSE democracy vary.[75] The graphs confirm our expectations; the marginal effect of CBI is downward sloping but it is negative and statistically significant at high levels of democracy only (POLITY scores above 16). At low levels of POLITY, the marginal effect of CBI is positive but statistically insignificant. Similarly, the marginal effect of CBI is negative and significant only when the FREEDOM HOUSE score is greater than about 5.

Models 3 and 4 interact the CBI index with the different operationalizations of democratic mechanisms.[76] Model 3 includes Henisz's political constraints and Model 4 includes press freedom. The democratic mechanisms are recoded so that the highest values are converted to a 0, as with the democracy score transformations. Again, the results conform to expectations. The coefficient on the CBI index is negative and significant and the interaction is negative and significant for political constraints. For both models, CBI has a strong effect on changes in M2 at the highest values of the democratic mechanisms. The marginal effect of CBI at different levels of each of the democratic mechanisms is shown in Figure 3.

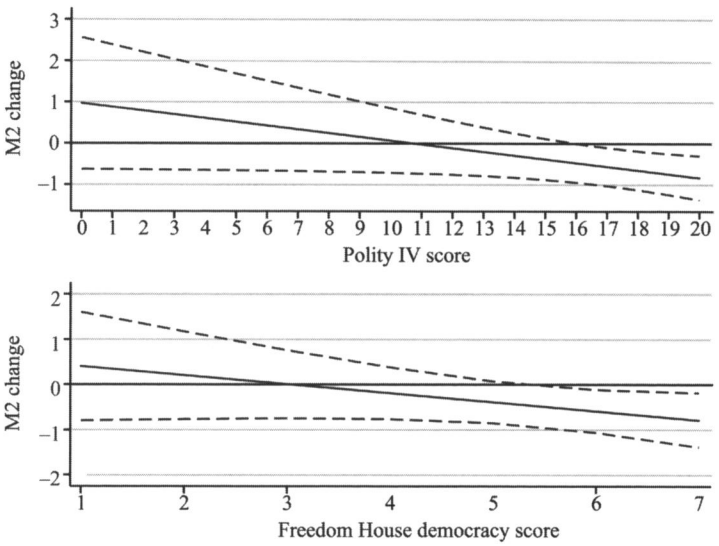
For all the conditioning variables except the log of checks, the slope of the marginal effect is downward and, when significant, is negative. The CBI index has a significant effect on changes in M2 only at the highest levels of EXECUTIVE CONSTRAINTS, POLITICAL CONSTRAINTS, and FREEDOM OF THE PRESS. CHECKS has a significant effect for logged values between 1 and 2, corresponding to values of about 3 to 7 of the non-logged measure, which represents most of the range of CHECKS. Overall, then, legal CBI influences M2 changes when there are constraints on government's power and the press is free.

Next, we use the log of inflation as the dependent variable, showing the results in Models 5 to 8 and Figures 4 and 5. All models include the lagged inflation rate and the lagged change in M2, both logged. As shown in Model 5, CBI has an independent effect on inflation. Greater central bank independence leads to lower inflation, even controlling for the lagged change in M2 and political institutions. When we run the analysis separately for OECD and non-OECD countries, we find a significant and negative effect in both samples. Also, the results continue to hold if instead of the consumer price inflation we use the GDP deflator to measure overall price changes. With regard to the control variables, only fiscal deficits are shown to consistently contribute to domestic inflation.

Unlike the M2 models, with inflation we are concerned about the possible reverse causality between inflation and CBI. In countries such as Bulgaria in 1997 or Argentina in 1992, the central bank was given more legal independence during larger stabilization efforts aimed at controlling rampant inflation. We perform

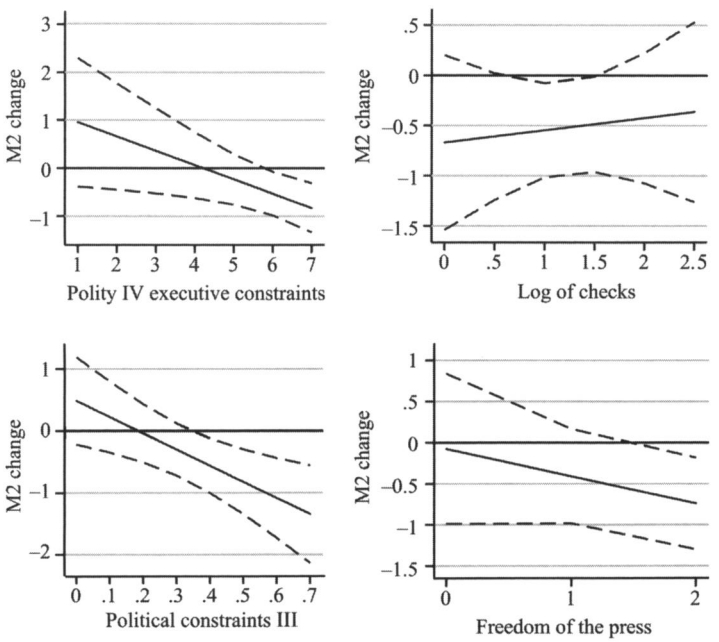
75. The figures retain the original scale of Polity and Freedom House. Results with Freedom House scores are available in the online appendix.

76. Table 1 shows the results using only Political Constraints and Freedom of the Press. We show graphically all four mechanisms in Figures 3 and 5. The full results are available in the online appendix.



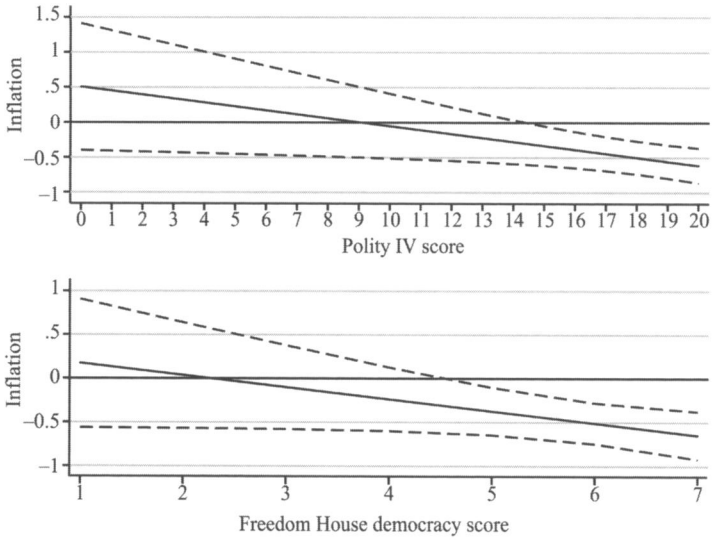
Note: 90 percent confidence intervals.

FIGURE 2. *Marginal effect of CBI on change in M2*



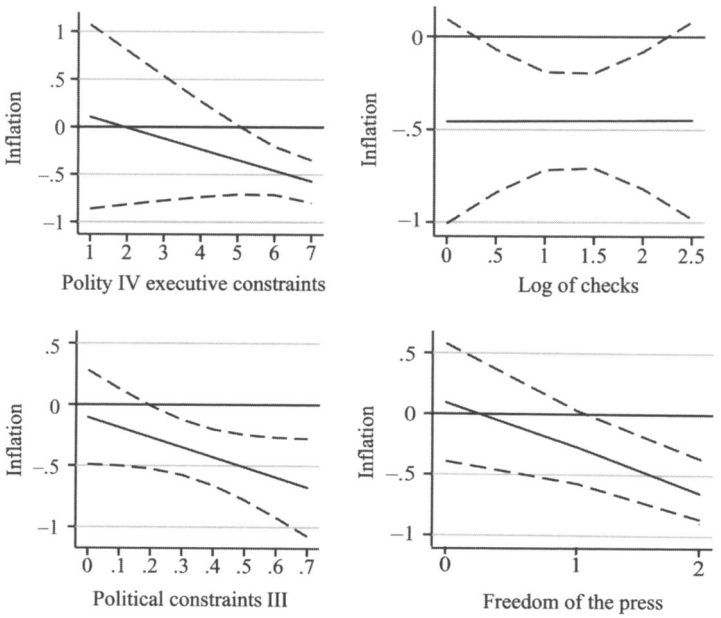
Note: 90 percent confidence intervals.

FIGURE 3. *Marginal effect of CBI on change in M2*



Note: 90 percent confidence intervals.

FIGURE 4. *Marginal effect of CBI on inflation*



Note: 90 percent confidence intervals.

FIGURE 5. *Marginal effect of CBI on inflation.*

several tests to ameliorate such concerns. First, we use lagged values of the CBI index up to the third lag and our results do not change. Unsurprisingly, the size of the effect is smaller the farther we go with the lags, but the effect remains negative and statistically significant.[77] Additionally, we exclude from the estimation observations for the two years preceding the reform of the central bank law, or the reform year and the following two years—the results remain similar. We also ran a seemingly unrelated regression for the inflation and M2 change models and findings do not change.

Models 6 to 8 test the effect of CBI conditional on democracy and democratic mechanisms. Again, the coefficient of the CBI index is negative and significant at the highest levels of democracy. The interaction effect of the CBI index with POLITY (Model 6) is negative and statistically significant. Figure 4 shows, however, that the marginal effect of CBI is significant only at high levels of Polity and FREEDOM HOUSE. The marginal effect line is downward sloping, suggesting that only for Polity scores greater than about 14 (FREEDOM HOUSE scores greater than about 4.5) does CBI significantly reduce inflation. As with the M2 growth rates, there is evidence that the combination of democratic mechanisms and CBI has a strong effect on inflation, as Figure 5 illustrates. The marginal effect of CBI is negative and significant at higher levels for all four of the democratic mechanisms.

Based on extant work specifications[78] we attempt to capture empirically the credibility effect of CBI on inflation by controlling for changes in M2. We find that money supply changes significantly contribute to inflation, but that CBI has an additional important effect mediated by domestic political institutions. However, it is worth mentioning that if we place our autoregressive distributed lag model in an error-correction model framework, inflation has a relatively low speed of adjustment to equilibrium (1 minus the coefficient on the lagged dependent variable).[79] Compared with inflation, for M2 changes, the speed of adjustment is considerably faster, telling us that inflation tends to react slowly to more discipline from the central bank, as well as to legal CBI and the domestic configuration of institutions.

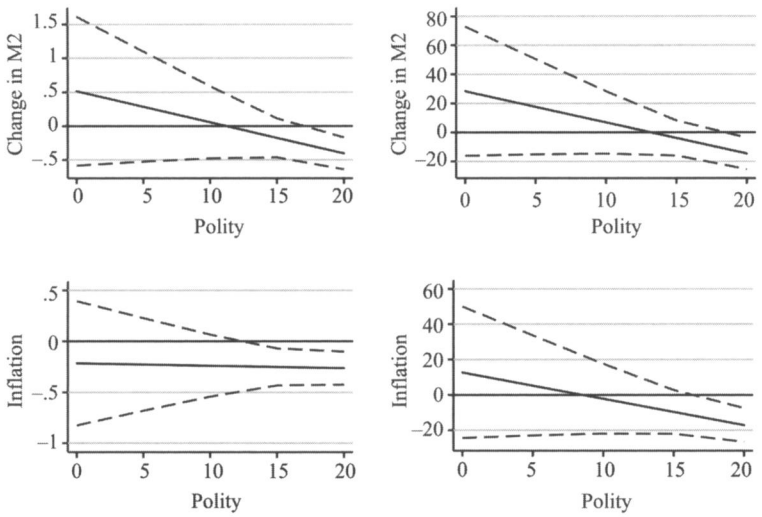
Finally, we perform other analyses to determine the robustness of the findings. First we use panel-corrected standard errors with region dummies instead of the country fixed effects. Second, we limit the sample to observations with money growth rates or inflation rates lower than 150 percent. Our results (the marginal effect of CBI when democracy scores vary) are shown in Figure 6 and are robust to both changes, for M2 changes and inflation.[80]

77. Similar to our approach, Jacome and Vasquez 2008 use lagged values of the CBI index as instruments.

78. See Levy-Yeyaty and Sturzenegger 2001; and Ghosh et al. 1997.

79. De Boef and Keele 2008. In the large number of inflation models that verify the robustness of the findings, the coefficient on the lagged dependent variable ranges around 0.5 or 0.6.

80. Our findings may differ across time. Inflation has been substantially lower since 1990, and for this period the marginal effect of CBI continues to be negative and significant at higher levels of Polity. For the period 1973 to 1989, the marginal effect of CBI on inflation is insignificant and the effect has a slight upward slope. Limiting the sample to OECD countries and using panel-corrected standard errors (because CBI did not change much in this period), we find the expected negative slope significant only



Note: 90 percent confidence intervals. Column (1) uses panel-corrected standard errors; column (2) uses country fixed effects and nonlogged dependent variable.

FIGURE 6. *Marginal effect of CBI*

Because omitted variable bias is a valid concern, we use additional controls in our models, including a dummy variable for membership in the EU; dummy variables for countries with proportional representation electoral systems (DPI); dummy variables indicating government partisanship (DPI); a measure of polarization (DPI); and indicator variables for riots, antigovernment demonstrations, and strikes (cross-national time-series); and per-capita GDP. Our key findings do not change. We also include a measure for the direct targeting of inflation by the central bank[81] and our findings are robust. Furthermore, our model of inflation is based on a money demand function, so inflation should be a function of interest rates and parts of M2 should also respond to interest rates. Including the deposit interest rate (WDI) makes us lose 16 percent of the sample, while the key results remain robust and the deposit rate is statistically significant both for M2 change and inflation models.

Finally, democracy and economic development are highly correlated. Although it is possible that economic development and not democracy is driving the conditional results,[82] additional tests bolster our confidence that it is democracy at the wheel.

for democracies. This suggests that when inflation is high, political processes in democracies may have competing effects on inflation expectations. Many checks and balances lead to deadlock in areas other than monetary policy (stabilization policy or fiscal consolidation) which may increase inflation expectations.

81. IT coding is based on Roger 2009. IT is not significant in the M2 change models but does have a significant negative effect on inflation.

82. We thank an anonymous reviewer for pushing us to think harder about this topic. Including interactions of the CBI index with both Polity scores and GDP/capita yields no results.

First, although we see a similar marginal effect between GDP per capita and CBI on inflation, there is not one for change in M2. For M2 changes the marginal effect is significant only for the midrange values of GDP per capita and upward sloping, contrary to expectations. Second, for both M2 changes and inflation our results hold for the subsample of non-OECD countries. That is, even for countries with lower levels of economic development where we have significant variation in Polity scores, we continue to obtain a downward-sloping marginal effect of CBI that is statistically significant only for democracies. Finally, the checks and balances and press freedom mechanisms we use are more highly correlated with Polity than with economic development.[83] Because we find a similar effect with these democratic mechanisms, we have greater confidence that democracy drives the results. Nevertheless, we cannot completely rule out an economic development argument.

Conclusion

We use new yearly data on de jure central bank independence and examine whether CBI has a greater effect on price stability when a country has institutional mechanisms that limit political interference in central banks' activities. Institutions such as checks and balances or freedom of the press differ significantly across political regimes and allow the central bank to highlight and resist attempts by the government to influence it. This should have two consequences. First, by limiting interference, these institutions allow a central bank to be more disciplinarian, leading to lower rates of money growth. Second, if the public believes that the central bank is free from interference and that the law is unlikely to change swiftly and without debate, it will also lower inflationary expectations, leading to price stability above and beyond the control of the money supply. We use different estimation techniques, multiple operationalizations of the dependent variables, and a large number of controls to test the empirical implications. The results show strong support for our argument.

Prompted by the IMF or the EU, but also driven by competition in international trade and investment,[84] countries have delegated monetary policy to independent bureaucrats. This trend has caught on not just in countries with rule of law, a free press, and meaningful opposition. Nondemocracies such as Venezuela, Kazakhstan, or Russia have also adopted legislation giving their central banks nominal independence. Our results show that for such countries, the central bank cannot be expected to discipline the government and have lower rates of money growth. This finding is novel and important, given the imperfect control that

83. The correlations between Polity and the executive constraints measures and press freedom are around 0.7 (except for xconst that is 0.95), while their correlation with the logged GDP per capita are between 0.4 and 0.5, with a high of 0.6 with freedom of the press.

84. Polillo and Guillén 2005.

central banks have on inflation. Our results also strengthen and extend the findings of the political economy literature.[85] With new data and a research design reflecting the sources of inflation, we show that the effect of CBI on inflation expectations is unlikely to hold in nondemocratic countries. Additional research is needed to understand the credibility effect of central banks, including careful examination of the costs of disinflation. Moreover, as we noted, our results on either inflation or M2 changes are not driven by the OECD sample, extending our knowledge beyond that of CBI's effect on inflation in developed countries.

Future work needs to better understand whether there are other benefits for nondemocracies from de jure delegation to the central bank (such as access to credit and foreign direct investment)[86] or whether dictatorships enjoy political benefits from delegation (that is, longer survival and less need to manipulate elections). Our research has additional implications for democracies that have delegated monetary policy only partially (Uruguay, South Africa, Mongolia, and South Korea). For such countries further reform of the central bank law is likely to aid price stability with both a discipline and a credibility effect.

Supplementary Material

An appendix with replication data is available at http://dx.doi.org/10.1017/S0020818314000277 and on the authors' websites: <www.princeton.edu/~rhicks/> and <http://polisci.msu.edu/index.php/people/faculty/item/faculty/cristina-bodea>.

TABLE A1. *Central bank years covered and years of reform*

	Central bank years	*Reforms*
Albania	1992–2008	1997
Argentina	1972–2008	1975, 1992, 2002
Armenia	1993–2008	1996, 2001
Australia	1972–2008	–
Austria	1972–1998	1984
Azerbaijan	1992–2008	1996, 2004
Belarus	1992–2008	2001
Belgium	1972–1998	1993
Bolivia	1972–2008	1977, 1995
Botswana	1975–2008	–
Brazil	1972–2008	–
Bulgaria	1991–2008	1997, 2005

Continued

85. See Broz 2002; and Keefer and Stasavage 2002 and 2003.

86. For a more general treatment of the effects of reputation on investor perceptions, see Gray 2009 and 2013.

TABLE A1. *Continued*

	Central bank years	*Reforms*
Canada	1972–2008	–
Chile	1972–2008	1975, 1989
Colombia	1972–2008	1993
Costa Rica	1972–2008	1996
Croatia	1992–2008	2001, 2002, 2008
Czech Republic	1992–2008	2001
Denmark	1972–2008	–
Dominican Republic	1990–2008	2002
El Salvador	1994–2008	–
Estonia	1993–2008	2006
European Union	1999–2008	
Finland	1972–1998	1998
France	1972–1998	1972, 1993
Georgia	1995–2008	
Germany	1972–1998	–
Greece	1972–2000	1995
Guatemala	1990–2008	2002
Guyana	1990–2008	1998
Honduras	1972–2008	1997
Hungary	1991–2008	2001
Iceland	1972–1998	–
India	1972–2008	–
Indonesia	1972–2008	1998
Ireland	1972–1998	–
Israel	1972–2008	–
Italy	1972–1998	1994
Jamaica	1993–2008	–
Japan	1972–2008	1998
Kazakhstan	1993–2008	1995, 1997, 2003, 2006
Kenya	1972–2008	1985, 1996
Korea, Republic of	1972–2008	1998
Kyrgyz Republic	1992–2008	1997
Latvia	1992–2008	1998, 2001, 2002
Lithuania	1991–2008	1996
Macedonia, FYR	1995–2008	2002
Malaysia	1972–2008	–
Mexico	1972–2008	1985, 1994
Moldova	1991–2008	1995, 2006
Mongolia	1991–2008	1996
Netherlands	1972–1998	–
New Zealand	1972–2008	1990
Nicaragua	1972–2008	1992, 1999
Norway	1972–2008	1972, 2003
Paraguay	1990–2008	1995, 2003
Peru	1972–2008	1993
Philippines	1972–2008	1993
Poland	1991–2008	1997
Portugal	1972–1998	1975, 1980,1990, 1995, 1998
Romania	1991–2008	1998, 2004
Russian Federation	1993–2008	1995, 2002
Singapore	1972–2008	–
Slovak Republic	1992–2008	1999, 2002
Slovenia	1991–2007	2002, 2007
South Africa	1972–2008	1989, 1996
Spain	1972–1998	1980, 1994
Sweden	1972–2008	1998
Switzerland	1972–2008	1979, 2003

Continued

TABLE A1. *Continued*

	Central bank years	*Reforms*
Tajikistan	1993–2008	1996
Thailand	1972–2008	2008
Trinidad and Tobago	1990–2008	–
Turkey	1972–2008	1990, 2001
Turkmenistan	1992–2008	1994
Ukraine	1991–2008	1999
United Kingdom	1972–2008	1997
United States	1972–2008	–
Uruguay	1972–2008	1995, 1997, 2008
Uzbekistan	1992–2008	1995
Venezuela, RB	1972–2008	1975, 1987, 1993, 2001
Zimbabwe	1972–2008	1984, 1999

TABLE A2. *Components of the Cukierman, Webb, and Neyapti Index*

Chief Executive Officer (weight = .20)
- (a) Term of office (six categories)
- (b) Who appoints CEO? (six categories)
- (c) Dismissal (seven categories)
- (d) May CEO hold other offices in government (three categories)

Policy Formation (weight = .15)
- (a) Who formulates monetary policy? (four categories)
- (b) Resolution of conflict (six categories)
- (c) Role in government's budgetary process (two categories)

Objectives (weight = .15; six categories)

Limitations on Lending to the Government

Part 1 (weight = .40)
- (a) Advances (weight = .15; four categories)
- (b) Securitized lending (weight = .10; four categories)
- (c) Terms of lending (weight = .10; four categories
- (d) Potential borrowers from bank (weight = .05; four categories)

Part 2 (weight = .10)
- (e) Limits on central bank lending determined by? (weight = .025; four categories)
- (f) Maturity of loans (weight = .025; four categories)
- (g) Interest rates on loans must be? (weight = .025; five categories)
- (h) Is central bank prohibited from buying or selling government securities in primary market? (weight = .025; two categories)

TABLE A3. *Summary statistics*

	N	*Mean*	*Standard deviation*	*Minimum*	*Maximum*
INFLATION	2433	14900	33.307	−9.629	1,076.000
CHANGE IN M2	2416	21132	29.050	−55.170	829.310
CBI	2141	.500	0.210	0.091	0.960
LAG LOG GDP	2461	24.667	2.011	19.907	30.088
LAG CHANGE IN GDP	2459	0.035	0.046	−0.321	0.345
LAG OPENNESS	2449	75.463	50.080	7.829	445.911
POLITY 2	2442	6.122	5.561	−9	10
FREEDOM HOUSE	2479	2.543	1.557	1	7
XCONST	2415	5.763	1.836	1	7
LOG CHECKS	2309	1.123	0.533	0	2.890
POLITICAL CONSTRAINTS	2237	0.365	0.187	0	0.718
FREEDOM OF PRESS	1939	1.386	0.746	0	2
DE JURE EXCHANGE RATE	2154	0.338	0.473	0	1
FISCAL BALANCE	2299	−1.961	5.361	−60.975	26.132
PRES. ELECTION	2484	0.051	0.219	0	1
LEGIS. ELECTION	2484	0.167	0.373	0	1
BOTH ELECTIONS	2484	0.053	0.224	0	1
LAG WORLD INFLATION	2474	6.935	2.948	1.912	16.668

Notes: Includes observations where inflation < 150 or change in M2 < 150.

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