

Does Central Bank Independence Lead to Deregulation and Financialization?*

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Abstract

Central bank independence (CBI) solves the time inconsistency problem faced by policymakers with respect to monetary policy. However, it does not solve their underlying incentives to manipulate the economy for political gains. Unable to use monetary policy, and often limited in their ability to use fiscal spending, governments can resort to financial deregulation to generate short term economic benefits. Drawing on case studies, fixed effects models, and an instrumental variable approach, we show that governments systematically weaken financial regulations in the aftermath of CBI. The financialization of the economy and the political power of the financial industry could therefore be a by-product of central bank independence.

Keywords: central bank independence, financial deregulation, financialization, political business cycle

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1 Introduction

In 1997, Gordon Brown decided to grant the Bank of England independent control over its interest rates. Brown “*emphasised the need to make interest rate policy ‘free of political manipulation’.*”¹ Governments that control monetary policy might be tempted to use this power to surprise markets and inflate the economy for electoral purposes (Hibbs, 1977; Alesina and Stella, 2010). Central bank independence (CBI) offers a solution to this time inconsistency problem (Blinder, 1998).² In this light, Brown’s move was statesmanlike. And indeed, he was lavishly praised for doing so. The *Economist*, for instance, described the decision as an “*astonishingly bold start for the new chancellor.*”³ The conventional wisdom, then, is that CBI is desirable because it leads to price stability (Alesina and Summers, 1993). Blinder (1998, 75) summarizes the conventional wisdom: “[CBI] *is a fine institution that ought to be preserved where it exists and emulated where it does not.*”

This paper challenges this conventional wisdom. We do not question the benign effect of CBI on inflation. Instead, we ask whether granting a central bank more independence triggers undesirable policy responses. The motivation for this question is the following. While CBI solves the problem of (ab)using monetary policy to inflate the economy, it does not on its own remove the underlying incentives for policymakers to manipulate the economy to their advantage. To be certain, CBI eliminates a tempting tool from a government’s arsenal. Even better (or worse, depending on one’s perspective), CBI also weakens fiscal policy because a pro-active central bank will offset the effects of deficit spending by increasing interest rates. The last major weapon remaining in such a situation is to foster financial deregulation. By deregulation, we mean policies and reforms that allow for laxer lending standards and encourage less oversight of the financial sector. As weaker financial regulations allow banks and financial institutions to increase leverage positions and enhance credit creation – independent of the monetary policy stance – it can generate political benefits that are similar to public spending or lax monetary policies (Rajan, 2010).

¹“Brown gives Bank independence to set interest rates” *The Guardian*, May 7, 1997.

²Blinder (1998, 43) discusses (and mostly dismisses) competing solutions to the problem, such as hiring conservative central bankers or making their salaries contingent on inflation.

³“Labour’s good start,” *The Economist*, May 8, 1997.

Our large-N analysis offers support to this hypothesis. We find that CBI is consistently followed by a weakening of financial regulations. Banks are privatized, entry for foreign banks is made easier, liabilities are transferred from the banking to the public sector, and capital openness is increased. While the point estimates vary, an increase of CBI by one standard deviation generally increases the main deregulation index by one quarter of its standard deviation.

Admittedly, the correlation between CBI and financial deregulation could be caused by an ideological shift. For instance, CBI and financial liberalization might be implemented during a wave of deregulation, such as the one that followed the Thatcher-Reagan era. We do not dispute that such mechanisms existed. However, we show that CBI has its own separate effect on deregulation. To show that this is the case, we conducted two additional tests.

In the first test, we capitalize on an additional prediction from our theory: CBI should only lead to deregulation if the government has control over banking supervision. If, instead, the central bank is in charge of this task, then we expect CBI not to influence liberalization. This prediction would not hold if the driver of liberalization was a general ideological shift towards deregulation, because it should happen regardless of who is in charge of regulating banks. And indeed, we find support for our argument: the effect of CBI only materializes in countries in which the central bank does *not* control banking regulation. This reduces concerns that we are capturing a more general trend towards deregulation. The effects are extremely robust and more pronounced for democracies.

In the second test, we use an instrumental variable approach to identify the effect of CBI. Since the main effect of CBI is to decrease interest rates, governments that unexpectedly have to rely on sovereign debt will be more likely to grant their independence to their central bank, because CBI will reduce refinancing costs of debt. On the other hand, countries that can rely on other revenues, such as natural resources, should be less likely to implement CBI. Since rents from natural resources are plausibly exogenous (commodity prices are determined on international markets), and since they affect the need for debt, we use these rents as an instrument for CBI and find similar results.

We then more closely examine the causal implication of our theory, namely that CBI will lead to financialization. A central assumption behind our line of reasoning is that once a central bank

is independent, governments cannot print money to engineer growth spurts or redistribute wealth. This should also be reflected in a drop in inflation and a slowing of monetary growth rates. We show that this is the case.⁴ At the same time, private credit growth increases slightly. We find substantial evidence that CBI positively affects ‘*hot money*’ inflows and financial innovation. The very reason is that a weakening of financial regulation allows easier access to foreign capital and encourages financial innovations. By relying more heavily on international capital and by increasing their leverage, financial institutions become less dependent on monetary policy to create credit (Lowe and Borio, 2002).

To provide more detailed evidence in support of our argument, we make extensive use of qualitative evidence from Europe, the US, and Latin America. European and Latin American countries have both undergone phases in which higher degrees of CBI were granted by authorities over a fairly short period of time. We show that this was systematically followed by attempts to weaken financial regulation to maintain the support of key constituencies. In the case of the US, with its relatively independent central bank, we show that lawmakers loosened financial regulation when the Fed’s policy stance was hurting key political stakeholders.

Our immediate contribution is to the literature on the costs and benefits of CBI. Macroeconomists have long argued that independent central banks have all kinds of desirable properties such as lowering inflation (Cukierman, 2008). Critical voices on CBI were came from those who worried about the democratic deficiency of independent central banks (Eijffinger and De Haan, 1996; McNamara, 2002). More recently, political scientists and economists have begun to look more carefully at the way central banks – whether independent or not – function in practice (Keefer and Stasavage, 2003; Bodea and Hicks, 2015; Adolph, 2013). Our analysis embeds the effect of CBI in a greater political game and shows a whack-a-mole effect: curbing monetary and fiscal policy does not solve the political business cycle problem. Specifically, our findings contribute to solving an important puzzle in financial studies: why have many countries aggressively liberalized their financial markets while at the same time been so negligent towards strengthening their regulatory frameworks (Rodrik, 2006; Birdsall, De la Torre, and Valencia Caicedo, 2010). This suggests a para-

⁴See appendix, Section A2.

dox: countries that adopt the supposedly soundest monetary institution (CBI) remain vulnerable to financial crisis (Haggard, 2000; Lowe and Borio, 2002).

The second specific contribution is to add to the literature on the financialization of the economy (Tomaskovic-Devey and Lin, 2011). Banks play an increasingly important role in the welfare of citizens and voters, especially through the provision of credit such as mortgages (Mian and Sufi, 2009; Jordà, Schularick, and Taylor, 2016). In parallel to their growing economic role, banks have also become important political actors. Johnson and Kwak (2011) document how the banking sector through enhancing its lobbying efforts critically shapes policymaking in the US. The reasons why policymakers would allow for excess financial deregulation, however, remain unclear. Rajan (2010) claims that policymakers accepted deregulation because it would boost credit and therefore hide stagnating wages. Tomaskovic and Devey, Rajan, as well as Johnson and Kwak all focus on the US. But similar processes occurred in many countries as well. We need therefore a more general theory that helps us to better understand a very diverse set of cases. Our view is that deregulation and subsequent financialization is at least partly a side-effect of taking monetary policy away from governments. In sum, this paper documents a major transformation of our economies from money to credit.

2 Theory

Our starting point is the assumption that governments are intrinsically motivated to manipulate the economy to generate political gains. In democracies, these gains are generally electoral. By improving economic conditions in the short run, an incumbent may increase her chances to stay in power. This line of thought is related to the well-known theory of political business cycles (Nordhaus, 1975; Alesina, Roubini, and Cohen, 1997; Drazen, 2001). But a similar logic applies – probably less systematically – to many autocracies as well: the government, regardless of the exact kind of regime, has typically an incentive to increase the wealth and the income of its core constituents (Bueno de Mesquita et al., 2003).

The perverse effects arising from enhanced CBI rest on the main assumption that a policymaker has three instruments at her disposal to stimulate the economy and to redistribute wealth. She

can print money, she can run fiscal deficits (by borrowing on sovereign debt markets), or she can weaken financial regulation. An expansionary monetary policy can be used to create short term gains in growth and employment (Bernhard, Broz, and Clark, 2002). Fiscal policy is useful to provide targeted transfers to and/or tax cuts for key supporters. And financial deregulation may encourage risk-taking and laxer credit by banks (Rajan, 2010). In all cases, the economic well-being of key constituents is boosted in the short-run, possibly at the cost of detrimental downside effects such as rising inflation over the long-run.

CBI takes away control over monetary policy from the government. This loss of control implies that the government cannot engage in populist monetary expansions and directly lend or transfer money to key constituents. In addition, governments lose an important instrument to shield key constituencies from the undesirable effects of monetary tightening. The government (so the argument goes) can only recover these at a prohibitively high cost, which is why CBI is an effective institutional reform. Therefore, monetary policy becomes unavailable to the government under CBI.

CBI also means that the effects of fiscal spending are muted, because the central bank can engage in monetary tightening to offset inflationary pressures (Clark and Hallerberg, 2000; Demertzis, Hallett, and Viegi, 2004; Bodea and Higashijima, forthcoming).⁵ If governments use fiscal deficits to boost the economy, then the central bank should counter this by increasing interest rates. This would cancel out the effect of fiscal spending. In fact, Bodea and Higashijima (forthcoming) find that enhanced CBI also puts additional constraints on fiscal policymakers effectively limiting the available fiscal space. Therefore, fiscal policy becomes ineffective under CBI.

But CBI on its own does not change the policymakers' underlying motives to bolster economic performance and to appease their key constituents. In fact, even though the constitutional mandate of the central bank changes, political and economic players are not likely to change their interests and preferences (Acemoglu et al., 2008). In particular, groups that have been benefiting from distortionary monetary policies will try to maintain their *status quo* and demand the government

⁵There is considerable debate about the effectiveness of fiscal policy under CBI. Central banks are unlikely to offset fiscal policy (by increasing interest rates) in times of crises, but can quite plausibly do so during good times (DeLong and Summers, 2012).

to deliver on envisioned targets.

Given limitations using monetary policy, we argue that governments will try to override, circumvent, and innovate around newly introduced constraints to meet their constituents demands (Rajan, 2010). There are multiple ways of achieving this goal. Policymakers have in several instances tried to undermine CBI through appointing politically close allies onto the governing board of the central bank (Adolph, 2013). They can also exercise parliamentary pressure to change the course of monetary policy, such as the US in 2015.⁶ A more radical step is to revoke the central bank's constitutional mandate as in the Hungarian case in 2010 (IMF, 2012).

However, there are far more sophisticated and less contentious ways to restore political support among those constituencies that lost because of CBI. The most effective of these is by directly manipulating financial market outcomes. Studying several instances of central bank reform, we find that regulatory interventions in combination with targeted fiscal policies in credit markets have widely been implemented when granting central banks a greater degree of political independence. This kind of strategic financial market manipulation works simultaneously on the supply and demand side of credit markets and has been highly effective in neutralizing negative downside effects of monetary interventions.

On the supply side, financial deregulation, such as the removal of entry barriers, leads to an increase in the supply of private credit. For example, the Hungarian government removed remaining capital controls on international capital flows at the same time when it granted greater independence to its monetary authorities in 2001. The same year, private credit increased by 54% (Quintyn, 2002). A somewhat similar pattern can be observed in Colombia, where banks specializing in consumer loans were *de facto* exempt from meeting even minimum regulatory standards from the outset of the financial reform process (Uribe and Vargas-Herrera, 2002). The UK is another case in point. Granting the Bank of England independence in 1998, the newly elected UK government also chose to further soften the existing 'light-touch' regulation (Daripa, Kapur, and Wright, 2013).⁷

⁶For a more detailed exposition, see Binder and Spindel (2016).

⁷In the UK, 'light-touch' regulation refers to a risk-based approach to financial market regulation where supervisory and regulatory authorities have substantial degrees of discretion when assessing financial risks. Many commentators associate 'light-touch' regulation with less active and stringent regulatory practices that set the stages excessive risk taking (Davies, 2010).

Interestingly, “*non-banks through some conduits, SIVs and hedge funds [...] were not regulated*” even though they “*were essentially providing banking type functions*” (BoE, 2007, 38). It is well established that these financial institutions and financial innovations substantially contributed to excessive risk-taking leading up to the financial crisis in 2008 (House of Commons, 2008; Hodson and Mabbett, 2009).

Often, regulatory interventions are accompanied by implicit or explicit bailout guarantees that breed the grounds for moral hazard. Lending is essentially insured against downside risks, protecting lenders from losses (Lucas, 2014). These guarantee schemes are politically attractive as they do not need to be accounted for in budget balances. For example, Lucas (2014) finds that credit backed by the US federal government amounts to approximately \$20 trillion in 2013, which is more than one year of GDP or approximately 1.5 times the direct US federal government debt in 2015 (CBO, 2016). Admittedly these numbers appear to be exaggerated. However, accounting for these guarantees at face value, actual US debt would stand beyond 200% of GDP. The US is not an exception. Although somewhat smaller in size, Hawkesworth (2010) estimates the amount of direct loans and loan guarantees among OECD countries to about \$2.5 trillion. The largest share of this figure (\$2.3 trillion) is allocated to loan guarantee schemes, whereby 76% of these guarantees are absorbed by the financial sector. These loan guarantee schemes have also widely been applied to foster financial market development in Latin American countries in the early 1990s, shortly after central banks gained independence (Melo, 2001).

An important assumption underlying our line of argument is that there is sufficient demand to meet increasing credit supply. First, an enhanced degree of CBI is reflected in falling risk premia, interest rates, and overall lower inflation, which makes borrowing more attractive. In fact, a more stable macroeconomic environment is conducive for more stable lending relationships and fosters credit demand (Mian, Sufi, and Trebbi, 2010). Second, governments often use a whole host of fiscal incentives to spur credit demand. In many instances, credit subsidies have been used to achieve redistributive goals or to buy popular support from different political constituencies. Particularly, credit subsidies or mortgage deductibility rates that reduce the ‘effective’ cost of borrowing have been widely applied to stimulate housing markets in the US, Europe, Latin America, and elsewhere

(Lucas, 2014; Ansell, 2014; Cerutti, Dagher, and Dell’Ariccia, 2015). For example, for many Eastern European policy makers, the key motivation for subsidizing mortgage lending was to buy popular support from middle-class households, who were hoping to improve their living conditions and buy similar houses as can be found in the US or Western Europe (Struyk, 2000).⁸ For this reason the IMF urged several countries in the region to remove distortions from the tax system – especially the generous treatment of capital gains – and to tighten regulatory standards to curtail rapidly rising credit (IMF, 2007). Similar patterns have also been observed in Ireland, Spain and several other Eurozone countries (Fernandez-Villaverde, Garicano, and Santos, 2013).

We summarize our theoretical argument and our core hypothesis in Figure 1. CBI leads governments to deregulate the financial sector because they lose one of their main policy tools to increase their chances to stay in power. They lose direct control over monetary policy. And fiscal policy also loses its strength because independent central banks are likely to engage in monetary offset. Our main prediction, therefore, is that CBI is likely to be followed by financial deregulation.

We can also make a second prediction. The effect of CBI on deregulation is more likely to materialize when the government is also the main banking regulator. Banking regulation is often under the control of the central bank, the government, and sometimes some other independent authority. If financial deregulation is indeed a political tool (as we claim), then it should only be implemented if the regulatory power is in the hands of the government (or government-related institutions). Instead, if deregulation results from a shift in ideology and beliefs about regulations, then it should happen regardless of the institution in charge of banking regulation.

We believe that our theory is particularly likely to hold in democracies. Democratic governments may have stronger incentives to provide short term growth (Bueno de Mesquita et al., 2003; Rajan, 2010). In fact, most of the literature on political business cycles focuses on democratic countries. However, we see no reason why our basic rationale could not hold in a broader set of countries. Therefore, we provide the results of our analysis both for all countries and for democracies (either in the manuscript or in the appendix).

⁸In Estonia the state agency, Kredex granted loan guarantees to households and firms that allowed for a reduction of down payments from 34% to 10% of the property value. These initiatives were accompanied by generous mortgage interest deductibility rulings on personal income taxes (Shelburne and Palacin, 2005).

[Figure 1 about here.]

3 Statistical Analysis

We are claiming (a) that CBI is followed by the adoption of laxer financial regulations to compensate for a government’s inability to inflate the economy, and (b) that this will be the case especially for countries in which the central bank is not controlling banking regulation. A powerful test to demonstrate the offsetting effect of these laxer financial regulations on monetary policy is to show that (c) although money growth decreases after an increase in CBI, credit growth increases, effectively offsetting monetary policy interventions.

Testing these claims is a difficult task, because there are few financial policies that can easily be compared across a large set of countries. Nonetheless, we provide a number of ways to get at this point. We built a dataset containing economic outcomes and policy indicators. Given the paucity of data for some variables, our sample size varies considerably. The exact sample varies, but up to 78 countries from 1973-2009 are included in the analysis.

We use the CBI measure built by Bodea and Hicks (2015). This is the latest version of a series of CBI measures going back to Cukierman, Miller, and Neyapti (2002). A distinctive advantage of using this index in comparison to other measures is that it covers 81 countries during the time span between 1972 and 2008, and thus allows us to systematically analyze the effects arising from enhanced central bank independence.⁹ Quoting from Bodea and Hicks (2015), a central 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; when the formulation of monetary policy is in the hands of the central bank; and when the terms on central bank lending to the government are more restrictive.”* CBI ranges between zero and 1, with higher values denoting a more independent central bank. This and all other main variables are summarized in Table 1.

[Table 1 about here.]

⁹For an in-depth overview of other competing central bank indexes, see Bodea and Hicks (2015).

In the appendix (Section A2), we check whether markets react to CBI. Because a large literature argues that this is the case (and we share this view), finding that markets are responsive to CBI increases our trust in the quality of our data and our model specifications. We examine the effect of CBI on inflation, measured through yearly increases in the consumer price index (CPI). We then estimate its effect on lending interest rates (measured in percent). If CBI indeed credibly solves the time inconsistency problem, then we should see inflation and interest rates to decrease; indeed, this is what we find. So far, these are not contentious claims.

The main set of results goes to the core of our theory, which is that CBI should be followed by the dismantling of financial regulations. The policies we consider here come from various sources, including Abiad, Detragiache, and Tressel (2008). We start with an aggregate measure of financial liberalization that ranges from 0 to 21.¹⁰ Higher values indicate a higher level of liberalization. We then consider two relevant sub-components of this index. As an increase in CBI implies that governments are restricted in printing money and/or have a limited ability to use fiscal instruments, we argue that policymakers will try to mobilize other sources of funding. A potential source of funding for private consumption and investment that is also available during times of domestic monetary restraint are multinational banks (see, for instance, Wu, Luca, and Jeon (2011)). For this reason, we look at the ease with which foreign banks can enter the domestic credit market. We predict entry into domestic banking should become easier after CBI is implemented. Similarly, we examine whether banks are increasingly privatized in the aftermath of CBI.

Besides banking regulation, we look at the creation of a deposit insurance system. A deposit insurance transfers liabilities from banks to the domestic government, and therefore enables banks to take greater risks (Dam and Koetter, 2012). This variable is a dummy coded 1 when a deposit insurance is in place and 0 otherwise.

Finally, we estimate the effect of CBI on capital account openness. We predict that CBI leads to more openness, as foreign capital inflows are a powerful instrument to boost the economy in the short run and at the same are less reliant on domestic monetary conditions. Capital account openness data come from Karcher and Steinberg (2013); it ranges from -2 to 2, with higher values

¹⁰For a detailed description on the construction of the financial liberalization index, see, (Abiad, Detragiache, and Tressel, 2008).

indicating higher levels of openness.

We estimate various models. Their general form is:

$$\text{Policy}_{i,t+1} = \alpha_i + \gamma_t + \beta(\text{CBI})_{i,t} + \lambda' \mathbf{X}_{i,t} + \varepsilon_{i,t},$$

where i denotes countries, t years, α are country fixed effects, γ are either year fixed effects or a quadratic time trend, and \mathbf{X} is a vector of control variables. We control for GDP, GDP per capita (both in log form), and the level of democracy. All independent variables are lagged by one year. Throughout, we report heteroskedastic-robust standard errors. Sometimes, we present the estimates for all countries and for the subset of countries that are democratic. In line with conventions, we use a *Polity* score of 6 and above as our cutoff point.

3.1 Results: Policy Changes

The results are reported in Table 2 (for all countries) and A13 (for democracies). We find overwhelming evidence that CBI is followed by financial liberalization. Throughout all models, the point estimates are statistically different from zero and substantively meaningful. A one-standard deviation increase in CBI increases the financial reform index to go up by about 1 point (a bit less than a quarter of its standard deviation). Entry barriers to foreign banks are removed and national banks are privatized. The effects are not trivial; for instance, a one standard deviation increase in CBI increases the degree of privatization by 0.23 (on a three-point scale) or one-fifth of a standard deviation. The likelihood of a deposit insurance system being adopted increases by about 7 percentage points. And capital openness increases as well (by one-sixth of a standard deviation), opening the floodgates for foreign capital inflows.

[Table 2 about here.]

As importantly, we find that the effects also materialize and are generally stronger for the subset of countries that are democratic. In virtually all cases, the point estimates increase (in absolute values). The only exception are the results for deposit insurances, which become indistinguishable

from zero. This is partly due to smaller point estimates and to lower statistical power. But in all other cases, CBI accelerates the trend toward financial liberalization.

3.2 Why It Isn't Just Ideology

Our estimates could be biased by an omitted variable. The most likely competing explanation for our results is that governments underwent an ideological change that encouraged both CBI and financial liberalization. Possibly, this could have happened during the Thatcher-Reagan era. We take this challenge seriously and offer two analyses that suggest that CBI has an independent effect, possibly in addition to an ideological shock.

First, our theory leads us to predict that the effect of CBI on deregulation is most likely to materialize when a government controls banking supervision. That is when governments can compensate the loss of monetary policy power through implementing weaker regulation. If, however, bank regulation is outside of its reach, then we expect CBI to have no effect on financial deregulation. If, instead, the ideological theory is the correct one, then the effect of CBI should be independent of *who* is in charge of banking regulation. We use data on bank regulation and supervision from Čihák et al. (2012).

The results are reported in Table 3. The first four columns are based on the sample of countries in which the government is in charge of banking supervision. The last four columns draw on cases in which the central bank is in charge. The models are the same as before, except that we use a linear time trend instead of year fixed effects. The reason is that we only have two to three years of observations for each country, and therefore year fixed effects are too demanding given the data. We do however include country fixed effects and the same control variables as before. Note, however, that the number of observations is very small and the estimates should be read with caution.

[Table 3 about here.]

We find that the effect of CBI only materializes when the government is managing banking supervision. Since the models are not exactly identical to those previously estimated, direct point estimates comparisons are tricky. However, they are generally comparable in magnitude. When

banking supervision is kept under the control of the central bank, however, we find that the effect disappears. Our interpretation is that the government cannot deregulate (even though it would like to) and the central bank does not want to (even though it could).

Second, we use an instrumental variable approach to address concerns about endogeneity. As the literature and our own results show, CBI decreases interest rates. Therefore, CBI is particularly appealing for governments that rely on debt (Maxfield, 1997). For example, Maxfield (1997, 4) argues that “politicians use central bank independence to signal their nation’s creditworthiness.” The converse holds true as well: governments that do not rely on debt are less likely to implement CBI because it deprives them of a possibly convenient policy tool (monetary policy). The question, then, is: Who doesn’t need debt? States that have reliable access to natural resources, as shown by the comparably low levels of debt of resource-rich countries. As long as these rents suffice, a government will not need tap into debt markets, and therefore has no particular interest in the benefits of CBI (i.e., lower interest rates). On the other hand, if rents go down, a government would need to start raising debt in financial markets to meet its obligations. At this stage, a government would be more likely to value the positive consequences of CBI.

Using natural resource rents has the distinct advantage of being plausibly exogenous since the price of commodities is set in international markets. The value of the rents increases or decreases depending on external factors that are not under the direct control of the government. Similar identification strategies are common in development economics (e.g., Dube and Vargas, 2013). One concern regarding this instrument is that the exclusion restriction may or may not be met. This assumption states that the effect of the instrument (resource rents) operates through the instrumented variable (CBI) and the control variables, but not through any other un-modeled channel. Such an assumption cannot be tested. However, we rely on Conley, Hansen, and Rossi (2010), who offer a test of the reliability of the instrument if the exclusion restriction assumption is mildly violated. The robustness of the instrument varies depending on the model; we report the results in Figure A1. Note that the inclusion of year fixed effects controls for variation in prices, while country fixed effects control for the stock of available resources. What remains is country-year-specific variation. Our instrument therefore is resource rents per capita. We use data from the

World Bank to capture resource rents. The instrument is based on oil, natural gas, coal, mineral, and forest rents. Rents are defined as the gross revenue from these resources based on international market prices, minus extraction costs. Decreasing resources imply stronger demand for low interest rates, and we therefore expect the instrument to be negatively correlated to CBI.

The instrumental variable estimation is implemented through two-stage least squares (2-SLS):

$$\text{CBI}_{i,t} = \psi_i + \tau_t + \delta \text{Resource Rents per Capita} + \phi' \mathbf{X}_{i,t} + \epsilon_{i,t} \quad (1\text{st stage})$$

$$\text{Policy}_{i,t+1} = \alpha_i + \gamma_t + \beta \widehat{\text{CBI}}_{i,t} + \lambda' \mathbf{X}_{i,t} + \varepsilon_{i,t}. \quad (2\text{nd stage})$$

We alternatively include either a quadratic time trends or year fixed effects. We report the results for both the sample of all countries and of democracies in Table 4, Panel A and B respectively. The F statistic for the excluded instrument is well above 10 in all cases (slightly above 30 for the former, slightly below 30 for the latter). We are therefore unconcerned about the risk of bias due to weak instruments (Staiger and Stock, 1997). The effect of the instrument on CBI is negative, as predicted: the more revenues a country generates from natural resources, the less pressing the need for CBI.

[Table 4 about here.]

We find strong effects of CBI in almost all cases. When considering all countries, we find that CBI increases liberalization and financial deregulation. We also find that CBI increases the likelihood of creating a deposit insurance scheme. Capital openness is the only case that contradicts our earlier findings. We now find that CBI decreases capital openness. Although this finding is not consistent with an explanation based on ideological shifts, a potential reason for this effect to occur is that resource rich economies use capital controls to buffer terms of trade shocks (Eichengreen and Rose, 2014). This has two implications. One is that the exclusion restriction might not be met in the case of capital controls. Another is that we need to distinguish restrictions on inflows from restrictions on outflows of capital. Following our theoretical predictions, we should observe that outflow restrictions are still in place whereas inflow restrictions are lifted once CBI is implemented. Taking this alternative approach, we are able to confirm our initial results. We report the results

of these estimations in the appendix. Looking at democracies, the picture is similar, although the estimate for financial reform is now statistically insignificant.

Note that the point estimates are larger in absolute terms than earlier. This could be due to two reasons. First, OLS estimates could suffer from attenuation bias. Second, OLS and the 2-SLS estimates measure different quantities of interest. OLS provides an estimate of the average treatment effect whereas 2-SLS are estimates of the local average treatment effect. The two will be different if the effect of CBI varies across countries.

3.3 CBI and the Financialization of the Economy

What happens after CBI? One of our main claims is that once a government loses control over monetary policy, it will try to enhance credit growth and boost the financialization of the economy. We propose several ways to show that this is the case. We report our findings in Table 5.

[Table 5 about here.]

First, we show that although the growth rate of M2 slows, the growth rate of private credit increases. Our results indicate that credit growth increases slightly, whereby at the same time the M2 growth rate falls. This finding supports the notion that risk taking in financial markets appears not to be driven by expansionary monetary policy. This effect has been known as (monetary) “decoupling,” during which financial market activity decouples from monetary activity (Lowe and Borio, 2002; Jordà, Schularick, and Taylor, 2013). A potential reason for this effect to occur is that financial market deregulation allows for easier access of foreign funds or more liquid interbanking markets that effectively make banks and financial players less reliant on monetary policy action for enhancing credit growth.

For example, Latin American and Eastern European banks competing for market share during the post CBI phase were aggressively accumulating international deposits to fund their expansions after central banks got independent (IMF, 2012). In the UK and US, unregulated financial innovations such as asset backed securities allowed banks and financial intermediaries to leverage up their portfolios and expand credit, even during times of monetary tightening (Claessens, Ratnovski, and Singh, 2012).

If these activities are funded by foreign investors with short-term capital injections, these can leave these economies vulnerable to external macroeconomic shocks. For this reason, we analyze the effects of CBI on these ‘*hot money*’ inflows and external indebtedness of these economies. Although Bodea and Hicks (2015) find that CBI leads to increasing foreign direct investment, our findings reveal that an enhanced degree of CBI also leads to a higher degree of portfolio debt inflows and a higher overall level of foreign indebtedness. Put differently, external macrofinancial vulnerabilities are more pronounced once a central bank is independent. This effect is particularly relevant for small open economies, which do not have the financial means to weather sudden capital flow reversals once foreign investors expectations turn sour (Reinhart and Rogoff, 2009; Claessens et al., 2010).

Second, an additional indication in support of our hypothesis is that asset prices should increase even when overall inflation decreases. This is to say, if CBI leads to arbitrating credit market interventions, inflation should be pushed into asset and equity markets. The reason is that financial liberalization and enhanced credit growth allow for the build-up of asset price hikes that do not necessarily impact overall inflation (Mendoza and Terrones, 2012). We show that this is the case and present our results in Table 6.

[Table 6 about here.]

In particular, our findings reveal that even though inflation decreases, asset prices measured as annual change on the returns on assets and equity investments as well as the financial market capitalization of firms increase substantially. For example, a one standard deviation increase in the CBI Index leads to a jump in the growth rate of stock market returns by up to 6.8 percentage points. Even when including additional control variables, the effect remains pretty sizable at approximately 5 percentage points.

In line with our theoretical predictions we also show that besides the fact that more companies are listed on the stock exchange, households enjoy a greater degree of financial access. The number of ATMs per 100.000 inhabitants increases by 16.8 per cent for a one standard deviation increase of the CBI Index – when all control variables are included – indicating that enhanced CBI is conducive

for broader financial access. We find very similar results for the number of listed companies that also increases significantly.

Our results overall support the notion that central bank independence is conducive to greater degree of financialization and for subsequent asset price inflation. Interestingly, overheating or inflationary pressures appear to be hidden in asset price dynamics without significantly impacting inflation outcomes. These findings underscore an important aspect that has been extensively discussed in the literature on credit booms where asset price inflation is masking inflationary dynamics (Aghion, Bacchetta, and Banerjee, 2004; Obstfeld and Rogoff, 2009; Mendoza and Terrones, 2012).¹¹ Taking these effects together, it appears that governments have been effective in offsetting the tightening effects of CBI, which might fuel the build-up of macrofinancial vulnerabilities.

4 Case Studies

We complement our statistical analysis with four case studies. Three are individual cases (Hungary, UK, and US) and one directly compares different countries (Latin America). The cases vary in terms of countries' level of economic development, ranging from wealthy industrialized countries (UK, US) to mid-income countries (Hungary, Latin America). They also vary geographically and across time.

The case studies each strengthen the case for our theory. The US illustrates that policymakers are particularly likely to engage in financial deregulation and credit market manipulation when they are unable to rely on monetary policy to boost economic growth and employment; this was the case, for instance, in the late 1960s when the Fed started to fight inflation in light of rising budget deficits. The UK captures of how financial deregulation can lead to excessive financial innovation and risk taking under the auspices of an independent central bank. Finally, the cases of Hungary and Colombia show the temptation faced by policymakers who lose access to monetary policy and showcase their creativity in circumventing an independent central bank.

¹¹Asset price inflation in itself might have important distributional consequences where an asset holding class disproportionately benefits from these dynamics (Ansell, 2014). We leave an in-depth analysis to future research.

4.1 United States

Taking a historical view, the Federal Reserve's independence from the Federal government has been widely viewed as a blueprint institutional configuration for politically independent monetary policymaking. Concentrating on the post World War II period, we show how episodes of monetary tightening have been strategically offset by well timed policy induced credit market interventions and financial deregulation.

During the Vietnam War, the Fed was trying to strike a balance between providing sufficient funding for an expansionary economy and curtailing inflationary pressures (Burger, 1969). Introducing several measures to curb credit growth in 1966, these policies accidentally produced a credit crunch, particularly burdening the household sector (MacLaury, 1973). Although by the end of 1966, the Fed loosened its monetary policy stance again, policymakers' top priority became to isolate key constituencies from these adverse effects of monetary tightening. Given limitations on using monetary policy and existing budgetary pressures, policymakers' were particularly keen on finding "*a way that leverages the Federal budget dollar*" (MacLaury, 1973, 211). In fact, MacLaury goes on further to argue that "*since direct loans were not removed from the unified budget, they stopped growing entirely, and all of the growth in federally assisted credit took the form of loan guarantees, or loans by sponsored agencies which are practically invisible in the budget documents*" (MacLaury, 1973, 212). As President Lyndon B. Johnson puts it in his 1967 State of the Union:¹²

"I pledge the American people that I will do everything in a President's power to lower interest rates and to ease money in this country. The Federal Home Loan Bank Board tomorrow morning will announce that it will make immediately available to savings and loan associations an additional \$1 billion, and will lower from 6 percent to 5 3/4 percent the interest rate charged on those loans."

Shortly after, the US administration began to roll out an arsenal of credit-stimulating initiatives impacting the demand and supply side of credit markets. Chief among these initiatives was the *Participation Sales Act* in 1966 and the *Fair Housing Act* in 1968,¹³ which laid the grounds for

¹²President Lyndon B. Johnson, State of the Union 1967.

¹³Besides the Federal National Mortgage Association (FNMA), the Act entitles almost all other government

the emergence of asset backed securities trade (Junk and Nickles, 1970). Similar to more modern forms of asset backed securities – which entered financial markets in 1970 – private investors could buy participation certificates, which covered a pool of assets that resulted from government lending activities. By definition the federal government guaranteed for the revenue from these pools and thus *de facto* covered all down side risks.

Besides providing risk free assets for investors, these financial pools allowed the administration to lend to targeted groups without accumulating immediate fiscal debt obligations (Green and Wachter, 2005). For example, federal insurance of mortgages allows low income individuals to access credit even though under normal market conditions these applicants would be deemed not creditworthy (Kane, 1977; Calomiris, Hubbard, and Stock, 1986). Until today, an entire web of government programs exists to redistribute wealth through enhanced credit growth (Fligstein and Goldstein, 2012). A distinct advantage of these programs is that these do not appear directly in the Federal Budget. To date private debt guarantees and similar instruments account for almost \$20 trillion or close to one and a half times the reported federal debt burden, underscoring the importance of these programs (Lucas, 2014).

One of the factors initially limiting the effectiveness of these credit market policies was the fact that the Fed capped interest rates on demand deposits and thus constrained banks to rapidly expand their balance sheets to accommodate rising credit demand through so-called Regulation Q.¹⁴ Starting a more restrictive monetary policy path in 1979, the Fed's new policy paradigm became a true game changer.

Responding to negative consequences of monetary tightening, it is hardly surprising that the US Congress responded with massive financial deregulation to offset these adverse effects (Sherman, 2009). Importantly, legislation dismantling Regulation Q and liberalizing the mortgage lending market were passed in several steps (Fligstein and Goldstein, 2012). A corner stone of these

agencies such as the Farmers Home Administration (FmHA), the Department of Housing and Urban Development, and the Export-Import Bank to sell asset backed securities through the FNMA. It is noteworthy that by mid 1985, approximately 50 per cent of FmHA's loan portfolio was consisting of non-performing loans (Calomiris, Hubbard, and Stock, 1986).

¹⁴Under 'Regulation Q,' which was the building block of the Banking Act of 1933, banks' interest rates on deposit accounts was restricted to 5.25% on savings accounts, a band between 5.75 and 7.75% for time deposits (depending on maturity of deposit contracts), and 0% for checking accounts (Sherman, 2009).

reforms were the *Depository Deregulation and Monetary Control Act* in 1980 and the *Garn-St. Germain Act* in 1981, effectively removing Regulation *Q* and allowing particularly S&L banks to diversify their portfolios while still being under government protection. This initiative was flanked by the *Alternative Mortgage Transaction Parity Act* in 1982 (McCoy, Pavlov, and Wachter, 2009). Given the fact that credit subsidy schemes and federal guarantee programs were not removed, it is hardly surprising that these pieces of legislation effectively led to soaring household debt and ‘bullish’ stock markets during the 1980s, marking the onset of rapid financialization in the US.

Although several commentators attribute the rise of the financial industry to financial deregulation since the 1970s, which was critically shaped by the lobbying forces of Wall Street (Witko, 2015), we outlined how the empowerment of the financial markets has been primarily rooted in policymakers’ budgetary innovations to appease their key constituencies in the late 1960s. From this perspective, the Democratic Party Platform of 1912 nicely summarizes the situation in the US that “*banks exist for the accommodation of the public.*”¹⁵ Put bluntly, bankers’ and policymakers’ incentives in the US are strongly aligned, as credit has become an important political instrument in achieving policy goals.

4.2 United Kingdom

Turning to the poster-child of central bank independence, the United Kingdom is of particular interest. In this case, we illustrate how regulatory loosening can offset monetary policy independence without raising any red flags, especially when loose regulations lead to enhanced financial innovation and liquidity creation outside of the control of monetary authorities (Adrian and Shin, 2008).

After coming to power in 1997, the New Labor government announced its desire to strengthen the operational independence for the Bank of England (BoE).¹⁶ An integral part of this central bank reform was the creation of the Financial Stability Authority (FSA) that has been outlined in

¹⁵The document was retrieved from the *Democratic Party Platform of 1912*, <http://www.presidency.ucsb.edu/ws/?pid=29590> (accessed on September 1, 2016).

¹⁶Although the BoE had full instrument authority, the Treasury had the final say in setting the inflation target for the economy. This is to say that the BoE had no goal independence, neither in choosing the inflation rate nor concerning the actual inflation target. This decision laid exclusively with the Treasury, so that it left the BoE with only operational independence (Clementi, 2000).

the *Financial Services and Markets Act*.¹⁷

In addition, the BoE, the FSA, and Treasury agreed to form a Tripartite System that met on a monthly basis to discuss issues related to financial stability. Interestingly, however, the responsibility concerning the stability of the financial system rested with the BoE. In fact, the BoE implicitly assumed a lender of last resort role without any regulatory oversight mandate and thus provided an implicit bail-out guarantee for troubled financial institutions as there was no other mechanism in place. According to calculations of the BoE, the implicit funding subsidy for systematically important financial institutions – arising from this arrangement – amounted up to £100 billion (BoE, 2010).

Implementing these reforms, the newly elected British government chose to not only hold onto the existing ‘light-touch’ regulation, but to further soften it (Daripa, Kapur, and Wright, 2013). Strikingly, non-bank financial institutions such as hedge funds and their financial innovations were partially exempt from stringent regulatory oversight. Even, at the outset of the financial crisis in the UK, the FSA’s view was that “*hedge funds were not a contributory factor in the current market turmoil*” (BoE, 2007, 38). The aim of ‘light-touch’ was to sustain the City’s global competitive advantage, to establish a pro-market reputation for the New Labor government and to maintain strong growth of the industry (which is to date one of the key employers in the UK economy) (Hodson and Mabbett, 2009). This even ‘lighter’ approach also translated into a chronic underfunding and limited oversight power of the FSA.¹⁸

For example, Daripa, Kapur, and Wright (2013) find that the regulatory budget for supervising a portfolio amounting \$1 billion was £18,000 for the UK in comparison to \$247,000 in the United States, limiting its effectiveness to oversee a rapidly growing financial industry. To illustrate this point, it is hardly surprising that the failure of Northern Rock in 2007 was attributed to the FSA

¹⁷The New Labour government also chose to consolidate all regulators of different financial market segments and assemble the main supervisory and regulatory oversight of these institutions under one roof, the FSA (Daripa, Kapur, and Wright, 2013). This reform also implied a substantial reduction in staff within the BoE’s financial stability department that was assigned part of this role prior to the reforms. A large share of the 450 personnel was relocated to the FSA (Clementi, 2000).

¹⁸Several recently published minutes of the Bank of England illustrate the intimate relationship between the City, the UK government, and supervisory authorities. For example, these documents reveal that ironically ‘for the government, Goldman Sachs had been employed to represent taxpayers’ interests’ for the resolution of Northern Rock” (BoE, 2007).

missing to follow through on its assigned regulatory duties (House of Commons, 2008). Ironically, only few months before Northern Rock ran into liquidity problems in August 2007, the FSA even allowed Northern Rock to weaken its liquidity position through waving the Basel II requirements and to increase dividend payments to its shareholders (House of Commons, 2008).

Given the economic and financial performance of the UK in the early 2000s, financial deregulation was incredibly successful in fueling economic growth without inducing rising fiscal deficits and/or inflationary pressures. It most certainly also helped the financial industry to maintain its position as a prime global financial hub. In particular, the case of the UK illustrates how banking regulation through allowing for excessive financial innovation can offset monetary policy interventions and thus push inflation into asset markets.

4.3 Hungary

Until the early 2000s, almost no European central bank was independent with respect to funding government deficits (Cukierman, Miller, and Neyapti, 2002; Bodea, 2014). Integrating into the European System of Central Banks, however, governments loosened their grip on central banks and were increasingly facing pressure to curtail public spending. Particularly, the Hungarian case is illustrative for showing how well timed regulatory loosening in combination with targeted credit market interventions can offset monetary policy independence.

During the 1990s and early 2000s, Hungary undertook several regulatory and monetary reforms. Most importantly, in June 2001, the Hungarian Parliament amended the *Act on the Central Bank* (Act LVIII), granting the Magyar Nemzeti Bank (MNB) more political independence. A cornerstone of the amendment is a clause prohibiting authorities from any type of budgetary financing (Ministry of Finance, 2001).¹⁹ At the same time household credit jumped by 54% in 2001 and continued to grow at double digit rates until the onset of the financial crisis in 2008 (Quintyn, 2002). This raises the question as to how and through which channels the Hungarian government was able to fuel private credit growth and thus effectively undermine monetary independence.

First, the government lifted remaining controls on international capital movements the same

¹⁹In addition, the Act induces the MNB to adopt an inflation targeting regime, so that in May 2001, the MNB widened the exchange rate band from +/- 2.5% to +/- 15% against the Euro.

month of the Act on the Central Bank. In particular, it removed restrictions on direct foreign borrowing for Hungarian banks and citizens (Quintyn, 2002).²⁰ Previously a small fraction of household borrowing in 2001, Swiss Francs-denominated household debt soared. Rózsavölgyi and Kovács (2005) find that foreign currency loans increased by 400% in the time span between December 2003 and September 2004. Given free access to foreign funding, foreign currency borrowing of households peaked at 21% of GDP (IMF, 2012). Unsurprisingly, at the same time, individual savings declined, the current account deficit widened and external debt increased, fueling short run economic growth at the expense of leaving the economy more vulnerable to financial shocks.

Second, the Hungarian government implemented several modifications to its existing housing subsidy scheme. Since 1999, Hungary operated a combination of a direct interest rate subsidy and personal income tax exemptions that allowed for mortgage payment deductions. Due to very narrow access criteria and existing credit constraints for targeted groups, the subsidy scheme was seen as largely ineffective during the first years of operation (Dobricza, 2004). However, in light of rising constraints on monetary policy, the government expanded the program in several steps. By the end of 2001, the effective interest rate on these subsidized loans was 6%, which could be reduced to an effective rate of 4%. The interest rate on a comparable loan without subsidy was approximately 18%. Inflation standing at annual rate of 10%, this subsidy implied that borrowers could access financing at an effective real interest rate around -4%. In July 2001 – the same month of the modified MNB Act – personal tax exemptions related to the housing loan programs were additionally extended, so that approximately 40% of the loan repayment could be deducted from the tax base (Dobricza, 2004; Rózsavölgyi and Kovács, 2005). A particularly intriguing feature of the subsidy scheme was that all interest rate risk on these loans was borne by the Hungarian government. Due to mounting budgetary pressures, these initiatives were step-wise phased out after general elections in 2002 and foreign denominated loans became the main vehicle fueling the credit boom.

In light of these developments, the Hungarian Financial Supervisory Agency (HFSA, the agency

²⁰In fact, the Act on the Central Bank was embedded in a whole battery of financial reforms such as an amendment to the *Capital Markets Act* of 2001 (Act CXX) that restricted the MNB's mandate to monetary aspects (Quintyn, 2002).

supervising domestic financial institutions) did very little. Private debt was growing at a fast pace, and yet HFSA did not intervene. Besides lacking the proper tools to alter lending dynamics, it was still under the control of the Ministry of Finance (Quintyn, 2002). In fact, running for re-election in 2002 and knowing about the popularity of its housing finance program, the government did not have any incentives to slow credit growth. More importantly, authorities had the widespread belief that monetary stability would be sufficient to safeguard financial stability. Incidentally, this policy mix of deregulation and targeted subsidy intervention was so successful that it offset monetary tightening during the same period. Similar patterns can be observed in a number of other European countries.

4.4 Latin America

Historically, central banks in Latin America have been the primary funders of key (and politically well-connected) industries as well as the government (Hausmann and Rojas-Suarez, 1996). This convenient situation was disrupted in the 1980s, after a series of fiscal crises swept the continent. One important reform that was widely adopted was a greater degree of CBI (Carstens, Hardy, and Pazarbasioglu, 2004). In most cases, legal independence implied that governments lost access to direct funding from their respective central banks (Carstens and Jácome, 2005).²¹

Although these reforms were incremental for short-run macroeconomic stabilization, central bank reform was largely ineffective in securing overall macrofinancial stability. Instead, CBI was soon followed by unprecedented credit boom bust cycles in the region (Tornell and Westermann, 2005). There are several country case studies indicating as to why and how legal central bank independence has been undermined through a multitude of policy instruments. Regulatory reforms, state-owned banks and traditional expansionary fiscal policy all effectively undermined monetary policy independence. To depict these mechanisms, we refer to the Colombian experience.

The Central Bank of Colombia gained political and legal independence in 1991. The reform prohibited the central bank to extend direct loans to the government and subsidized loans to specific sectors (Lozano, 2000). At the same time, the government announced a 5% per cent economic

²¹Notable exceptions include the cases of Venezuela, Honduras, and Paraguay. For example in Venezuela, revaluation profits for international reserves had to be transferred to the government whereas in Honduras and Paraguay, the annual budget plans require the central bank to fund parts of the budget (Carstens and Jácome, 2005).

growth target (Uribe and Vargas-Herrera, 2002). A cornerstone of the strategy to achieve this target consisted of a battery of financial regulatory reforms. These aimed at easing entry conditions for foreign investors, promoting more competition in the financial system, and at the same time granted banks more freedom in setting their interest rates (Gomez-Gonzalez and Kiefer, 2006).²²

Increasing demand for loans in combination with enhanced competition and access to foreign capital forced banks into engaging in riskier lending practices. For instance, the *Corporaciones de Ahorro y Vivienda* (CAVs) started relying more on inflation indexed and later on peso dominated deposits to accommodate rising demand for loan products.²³ Similar to state owned banks, CAVs and consumer loan granting institutions enjoyed favorable regulatory treatment allowing for the built-up of unsustainable balance sheet positions. In general, financial regulation was weak, as even supervised banks were not effectively punished for fraudulent behavior, opening the door for excessive risk taking. A World Bank Report on regulatory practices (even) in 2003 finds that concerning violations of accounting and auditing requirements “*effective punitive actions are rarely taken; the strongest sanction to date has been the issuance of a letter of reprimand*” (Rahman and Schwarz, 2003, 8).

Unsurprisingly, “*the ratio of intermediated assets (loans plus bonds) to GDP increased from 31 percent in 1990 to 47 percent in 1996,*” constituting an unseen credit boom in private credit (Gomez-Gonzalez and Kiefer, 2006). However, the rapid expansion in private credit led to a substantial increase in housing prices, fueling inflation. Fighting rising inflationary pressures and counteracting the fiscal vows around the 1994 elections,²⁴ the central bank responded with several rounds of monetary tightening. These led to a sharp appreciation of the exchange rate. To fight rising discontent with the course of monetary policy, the Colombian government introduced its National Competitiveness Strategy in 1995 (Melo, 2001).

Similar to other cases in Latin America, a corner stone of this strategy consisted of a whole arse-

²²The process was supported by the laws 45 of 1990 and 9 of 1991.

²³CAVs were introduced during the early 1970s in Colombia. Their primary mandate was to serve the construction and housing sector by providing inflation-indexed loans (Uribe and Vargas-Herrera, 2002).

²⁴After the uncovering of President Samper’s engagement with the Cali drug cartel supporting his presidential campaign in 1994, substantial wage increases for public employees and a doubling of military expenditures in 1995 were implemented to buy off key political constituencies as monetary policy was not an option (Acemoglu et al., 2008)

nal of direct lending instruments and credit subsidies (Schrank and Kurtz, 2005). Besides, receiving subsidized loans, firms could even access liability consolidation loans (for detailed description, see Melo 2001). Although primarily aimed at firms located in the export sector, these initiatives even covered the Colombian film industry (Melo, 2001).

Colombia by no means is an exception. We believe that the Colombian case illustrates a common policy response of governments once they cannot force central banks to follow suit in achieving economic development goals. Comparing countries in Latin America, we show in Table 7 that these credit market interventions were relatively more popular among those countries with an independent central bank. Specifically, we look at a range of policy instruments that have been widely implemented across Latin America. We caution against reading too much into these correlations; the sample size is extremely small.

[Table 7 about here.]

Looking at a simple cross section, we find that CBI is systematically associated with stronger support. An increase of the CBI index by one standard deviation increases the likelihood of financing loan capital by 30 percentage points. The probability that the government offers loans to finance fixed investments goes up by about 14 percentage points. Summarizing our findings reveals that governments in the region – as in most of our case studies – have been extremely creative in designing and implementing programs to effectively circumvent legally independent central banks. For this reason, it is also hardly surprising that *actual policy implementation in Latin America was much more aggressive precisely with respect to financial liberalization*” (Birdsall, De la Torre, and Valencia Caicedo, 2010, 8), as regulatory reforms and targeted credit market interventions can offset unwanted monetary policy interventions, even if it comes at the expense of undermining financial stability.

5 Conclusion

The political economy literature has praised central bank independence (CBI) as an institutional safeguard for macroeconomic stability. Unsurprisingly, observers have typically lauded policymak-

ers who grant more independence to their central banks. The experiences of several countries in Eastern Europe, the Eurozone, and Latin America indicate that enhanced central bank independence has been associated with uncontrolled financial liberalizations that made these economies more vulnerable to financial shocks.

According to traditional political economy approaches, loose financial oversight is the result of special interest group interference. It is widely believed that these manipulate or simply buy policymakers to squeeze rents out of financial markets. This, however, raises the question: why policymakers would give in to these special interest group pressures? Although we do not challenge the importance of special interest group interference in financial regulation, we argue that central bank independence creates an environment where the interests of financial players and policymakers become aligned. In a constrained setting, in which policymakers cannot simply print money or drive up fiscal deficits to buy off important political supporters, we show that fostering the growth of the financial industry through deregulation becomes a politically desirable option.

Does a return to government-controlled central banks make sense? We are doubtful. Such a return would not on its own re-regulate the financial system. And few policymakers would see an incentive to push for financial repression at a time of sluggish growth. As credit has turned into a political drug, it is quite likely that CBI is a one-way path. Our conclusion is therefore twofold. First, much more attention should be placed on the conditions under which regulations *improve*. Possibly, a better understanding of international efforts such as those related to the Basel Accords could be fruitful (Wilf, 2016). Second, and more generally, our results offer a stark reminder that tweaking the design of monetary institutions cannot solve all woes resulting from the pursuit of political self-interest.

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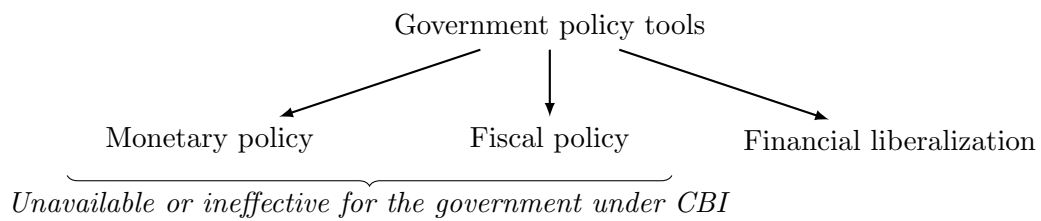


Figure 1: Stylized economic policy options available to governments. Governments that control the central bank can choose expansionary fiscal or monetary policy (within other the bounds of other constraints, such as international capital markets). Under CBI, the government loses the control of monetary policy (because the independence of the central bank itself) and of fiscal policy (because of monetary offset).

Summary Statistics

	Mean	Median	S.D.	Min.	Max	Obs.
Financial Reform Index	11.74	12	5.91	0	21	1599
Banking Sector Entry Liberalization	1.83	2	1.14	0	3	1599
Bank Liberalization	1.49	2	1.16	0	3	1599
Deposit Insurance	0.45	0	0.50	0	1	1482
Capital Openness	0.50	-0	1.58	-2	2	1464
CBI	0.46	0	0.20	0	1	1599
GDP (log)	25.47	26	1.78	21	30	1560
GDP/Cap (log)	8.73	9	1.39	6	11	1560
Democracy	5.98	9	5.75	-9	10	1583

Table 1: Summary statistics of the main variables used below.

Policy Reaction to CBI: All Countries

	Financial Reform			Bank. Entry Barriers			Bank. Liberalization			Deposit Insurance			Capital Openness		
	(1) FE	(2) FE	(3) FE	(4) FE	(5) FE	(6) FE	(7) FE	(8) FE	(9) FE	(10) FE	(11) FE	(12) FE	(13) FE	(14) FE	(15) FE
CBI	3.96*** (1.14)	3.57*** (1.15)	3.13*** (1.15)	0.77*** (0.29)	0.76** (0.31)	0.67** (0.30)	1.15*** (0.37)	1.04*** (0.33)	0.97*** (0.35)	0.34** (0.15)	0.28* (0.14)	0.28* (0.15)	1.17** (0.53)	0.93* (0.48)	0.55 (0.48)
GDP (log)		-2.05 (2.12)	-2.41 (2.19)		0.01 (0.70)	-0.08 (0.71)		-0.03 (0.51)	-0.09 (0.52)		-0.45 (0.28)	-0.43 (0.29)	-2.09** (1.04)	-2.42** (1.04)	
GDP/Cap (log)		1.21 (1.96)	1.56 (2.00)		0.03 (0.72)	0.13 (0.72)		-0.75 (0.53)	-0.71 (0.54)		0.51* (0.31)	0.48 (0.32)	1.95* (1.04)	2.30** (1.05)	
Democracy		-0.01 (0.05)	-0.00 (0.05)		-0.00 (0.01)	-0.00 (0.01)		-0.01 (0.01)	-0.01 (0.01)		0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.02)	0.01 (0.02)
Country FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year FE															
Quadratic Time	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	1599	1544	1544	1599	1544	1544	1599	1544	1544	2083	1983	1983	2009	1936	1936
R ²	0.78	0.79	0.81	0.64	0.65	0.66	0.28	0.31	0.32	0.38	0.39	0.39	0.21	0.23	0.27
$\hat{\sigma}$	2.13	2.12	2.04	0.53	0.53	0.52	0.59	0.57	0.57	0.29	0.28	0.29	0.93	0.91	0.89
# Countries	66	63	63	66	63	63	66	63	63	75	73	73	80	78	78

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2: The dependent variable is listed at the top of the models. All countries are included in the sample. Robust standard errors reported in parentheses. *Financial Reform* is an index (from 0 to 21) where higher values denote higher levels of financial liberalization. *Bank. Entry Barriers* is an index (from 0 to 5) where higher values denote that banking entry barriers are laxer. *Bank. Liberalization* is an index (from 0 to 3) where higher values denote that the banking sector is more liberalized/privatized. *Deposit Insurance* is a dummy variable that is equal to 1 if a country-year has a national deposit insurance. *Capital Openness* is an index (from -2 to 2) that denotes the degree of capital openness, with higher values denoting more open systems.

Policy Reaction to CBI: Bank Supervision Authorities

	Bank Regulation: Gov.				Bank Regulation: CB			
	All		Democracies		All		Democracies	
	(1) OLS	(2) FE	(3) OLS	(4) FE	(5) OLS	(6) FE	(7) OLS	(8) FE
CBI	5.31*** (1.67)	3.07* (1.73)	5.46*** (1.66)	3.42* (1.91)	1.59 (1.78)	1.88 (2.16)	2.61 (1.88)	4.01 (2.44)
GDP (log)	-0.12 (0.22)	-0.35 (0.30)	-0.11 (0.22)	-0.31 (0.29)	-0.62** (0.30)	-0.60 (0.36)	-0.52 (0.31)	-0.42 (0.37)
GDP/Cap (log)	1.00*** (0.33)	1.45*** (0.36)	0.87** (0.32)	1.22*** (0.41)	1.61*** (0.25)	1.66*** (0.34)	1.50*** (0.30)	1.58*** (0.47)
Democracy	0.56* (0.32)	0.11 (0.11)	0.86*** (0.29)	0.46 (0.38)	0.14 (0.11)	0.12 (0.14)	0.09 (0.31)	0.07 (0.40)
Country FE		✓		✓		✓		✓
Linear Time	✓	✓	✓	✓	✓	✓	✓	✓
Observations	40	40	39	39	52	52	37	37
R^2	0.55		0.60		0.49		0.46	
$\hat{\sigma}$	1.69	0.53	1.62	0.55	2.22	0.97	2.21	0.89
# Countries		24		24		33		24

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3: The dependent variable is *financial reform*, which is an index (from 0 to 21) where higher values denote higher levels of financial liberalization. Models 1-4 use the sample of countries in which the government (or related institutions) supervise banks; models 5-8 use the sample of countries in which the central bank supervises banks. The democratic sample consists of country-years with a *Polity* score of 6 or greater. Robust standard errors reported in parentheses.

Instrumental Variable Approach

Panel A: All Countries

	Fin. Reform		Entry Barriers		Bank. Lib.		Dep. Ins.		Cap. Contr.	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	IV	IV	IV	IV	IV	IV	IV	IV	IV	IV
2nd Stage										
CBI	19.72*** (5.95)	10.43** (4.71)	7.96*** (1.49)	6.84*** (1.23)	6.20*** (1.66)	5.56*** (1.48)	3.19*** (0.64)	3.00*** (0.64)	-2.55 (1.56)	-3.46** (1.38)
Control Var.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Country FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year FE		✓		✓		✓		✓		✓
Quadratic Time	✓		✓		✓		✓		✓	
1st Stage										
Resource Rents/Cap	-0.02*** (0.00)	-0.02*** (0.00)	-0.02*** (0.00)	-0.02*** (0.00)	-0.02*** (0.00)	-0.02*** (0.00)	-0.02*** (0.00)	-0.02*** (0.00)	-0.02*** (0.00)	-0.02*** (0.00)
F-Test (1st Stage)	31.47	33.76	31.47	33.76	31.47	33.76	31.47	33.76	31.47	33.76
Observations	1262	1262	1262	1262	1262	1262	1262	1262	1262	1262
# Countries	57	57	57	57	57	57	57	57	57	57

Panel B: Democracies

	Fin. Reform		Entry Barriers		Bank. Lib.		Dep. Ins.		Cap. Contr.	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	IV	IV	IV	IV	IV	IV	IV	IV	IV	IV
2nd Stage										
CBI	9.81** (4.56)	1.50 (4.67)	6.02*** (1.25)	5.03*** (1.01)	4.96*** (1.29)	4.46*** (1.23)	3.06*** (0.70)	3.23*** (0.78)	-3.73** (1.53)	-4.25*** (1.40)
Control Var.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Country FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year FE		✓		✓		✓		✓		✓
Quadratic Time	✓		✓		✓		✓		✓	
1st Stage										
Resource Rents/Cap	-0.02*** (0.00)	-0.02*** (0.00)	-0.02*** (0.00)	-0.02*** (0.00)	-0.02*** (0.00)	-0.02*** (0.00)	-0.02*** (0.00)	-0.02*** (0.00)	-0.02*** (0.00)	-0.02*** (0.00)
F-Test (1st Stage)	27.14	27.55	27.14	27.55	27.14	27.55	27.14	27.55	27.14	27.55
Observations	917	917	917	917	917	917	917	917	917	917
# Countries	50	50	50	50	50	50	50	50	50	50

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Instrumental variable approach. Instrument: natural resources rents (USD per thousand inhabitant). Robust standard errors in parentheses.

M2 vs. Credit Growth and Debt: All Countries

	M2 Growth (%)			Credit Growth (%)			Portfolio Inflows			Debt Inflows		
	(1) FE	(2) FE	(3) FE	(4) FE	(5) FE	(6) FE	(7) FE	(8) FE	(9) FE	(10) FE	(11) FE	(12) FE
CBI	-20.63** (8.04)	-16.28* (8.37)	-14.66* (8.30)	0.13* (0.07)	0.13** (0.06)	0.12** (0.06)	2.85*** (0.77)	2.69*** (0.81)	2.72*** (0.78)	0.76*** (0.26)	0.71** (0.28)	0.66** (0.28)
GDP (log)	19.31** (8.63)	19.28** (8.55)	19.28** (8.55)	-0.18** (0.07)	-0.18** (0.07)	-0.19** (0.07)	-0.84 (1.69)	-0.84 (1.69)	-0.84 (1.67)	1.95 (1.92)	1.95 (1.92)	1.96 (1.94)
GDP/Cap (log)	-18.75** (8.87)	-20.08** (8.76)	-20.08** (8.76)	0.26*** (0.07)	0.26*** (0.07)	0.26*** (0.07)	2.11 (1.81)	2.11 (1.81)	2.11 (1.76)	-1.97 (1.95)	-1.97 (1.95)	-1.81 (1.95)
Democracy	-0.62* (0.32)	-0.62* (0.32)	-0.62* (0.32)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.06 (0.05)	0.06 (0.05)	0.07 (0.05)	0.02 (0.01)	0.02 (0.01)	0.02 (0.01)
Country FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Quadratic Time	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	1898	1805	1805	2054	2007	2007	1350	1297	1297	240	229	229
R ²	0.12	0.13	0.16	0.01	0.02	0.06	0.50	0.53	0.54	0.08	0.11	0.13
$\hat{\sigma}$	17.15	16.84	16.67	0.23	0.23	0.22	1.21	1.16	1.17	0.28	0.28	0.28
# Countries	72	70	70	78	76	76	73	71	71	40	39	39

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5: The dependent variable is listed at the top of the models. Robust standard errors reported in parentheses. All countries included in the sample. We restrict the sample concerning our M2 growth rate to growth rates that do not exceed annual rate of 140% per cent to remove outliers. The credit variable captures annual change in per cent concerning lending from the bank and non-bank financial sector in a country. Portfolio refers to portfolio debt liabilities per GDP. The data comes from (Lane and Milesi-Ferretti, 2007). Debt refers to short-term debt as a percentage of exports of goods and services. The data comes from WDI. All dependent variables are the natural log of their original value. We restrict the sample concerning our short-term debt variable to a maximum of 200% to remove outliers. The data for the dependent variables come from WDI.

Asset Price Inflation and Financialization: All Countries

	S&P Growth Rate (%)			Market Capitalization (log)			Listed Companies			Financial Access		
	(1) FE	(2) FE	(3) FE	(4) FE	(5) FE	(6) FE	(7) FE	(8) FE	(9) FE	(10) FE	(11) FE	(12) FE
CBI	34.60** (13.82)	25.76** (12.65)	25.27** (12.46)	0.86*** (0.27)	0.58** (0.28)	0.57** (0.28)	1.11*** (0.39)	1.01*** (0.36)	0.98*** (0.35)	1.10** (0.42)	0.76*** (0.26)	0.78*** (0.26)
GDP (log)		-8.12 (38.70)	18.27 (37.86)		-1.28 (0.87)	-1.21 (0.87)		-0.38 (1.11)			-0.39 (1.00)	-0.40 (1.04)
GDP/Cap (log)		14.51 (37.10)	23.44 (38.70)		1.69* (0.87)	1.63* (0.87)		0.87 (1.01)	0.87 (1.01)		2.47** (1.05)	2.56** (1.08)
Democracy		3.55*** (1.09)	3.30*** (0.98)		0.03 (0.02)	0.03 (0.02)		0.01 (0.01)	0.01 (0.01)		0.00 (0.02)	0.00 (0.02)
Country FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year FE			✓			✓			✓			✓
Quadratic Time	✓	✓		✓	✓		✓	✓		✓	✓	
Observations	798	777	777	1295	1266	1266	1328	1286	1286	498	481	481
R ²	0.03	0.05	0.43	0.37	0.39	0.46	0.10	0.11	0.13	0.56	0.68	0.69
$\hat{\sigma}$	39.13	38.87	30.57	0.49	0.48	0.46	0.57	0.56	0.56	0.23	0.20	0.20
# Countries	57	57	57	75	73	73	75	73	73	67	66	66

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6: The dependent variable is listed at the top of the models. Robust standard errors reported in parentheses. All countries included in the sample. The S&P growth rate captures the annual change of the S&P Global Equity Indices. In order to account for extreme outliers, we remove values above 200%. Market capitalization captures the natural log of market capitalization of listed domestic companies as a per cent of GDP. We also take the natural log of the number of listed companies. We measure financial access by taking the log of ATMs per 100.000 inhabitants. The data for all dependent variables come from the WDI.

Financial Deregulation and Subsidies in Latin America

	Loan Capital		Finance Inv.		Finance Marketing		Export Insurance	
	(1) OLS	(2) Logit	(3) OLS	(4) Logit	(5) OLS	(6) Logit	(7) OLS	(8) Logit
CBI	1.45** (0.51)	9.19* (4.99)	0.68* (0.39)	7.12* (3.81)	1.30*** (0.38)	13.43** (5.31)	0.35 (0.60)	1.83 (3.20)
Constant	-0.16 (0.36)	-4.06 (2.86)	-0.22 (0.15)	-6.27** (2.64)	-0.46** (0.16)	-9.93** (3.99)	0.08 (0.35)	-2.03 (2.02)
Observations	18	18	18	18	18	18	18	18
R^2	0.41		0.14		0.36		0.03	
$\hat{\sigma}$	0.38		0.37		0.38		0.47	

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 7: The dependent variables are listed at the top of the models. Robust standard errors in parentheses. *Loan Capital* means that the government offers loans to finance working capital. *Finance Inv.* means that the government offers loans to finance fixed investment costs. *Finance Marketing* means that the government finances marketing activities. *Export Insurance* means that the government offers export credit insurances.