

Financial Regulation, Monetary Policy, and Inflation in the Industrialized World

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This article argues that the institutional mandates of central banks have an important influence on inflation outcomes in the advanced industrialized countries. Central banks that are also responsible for bank regulation will be more sensitive to the profitability and stability of the banking sector and therefore less likely to alter interest rates solely on the basis of price stability objectives. When bank regulation is assigned to a separate agency, the central bank is more likely to enact tighter monetary policies geared solely toward maintaining price stability. An econometric analysis of inflation in 23 industrial countries from 1975 to 1999 reveals that inflation is significantly higher in those countries with central banks that are vested with bank regulatory responsibility, although this effect is conditional on the choice of exchange rate regime and the relative size of the banking sector. We also conduct a case study of the Bank of England, which lost its bank regulatory authority to a new agency in 1998. We find that the new Labour government under Tony Blair imposed the institutional change on the Bank of England in part to remove the bank stability bias from its monetary policymaking. These findings suggest that the mandates of central banks not only have important influences on macroeconomic outcomes, but may also be modified in the future by governments seeking to impose their own monetary policy preferences.

In today's world of global capital markets, political leaders face two primary challenges in regulating their economies. First, leaders must ensure the stability of their country's financial institutions. The frequency and magnitude of banking crises have reached levels not seen since the interwar period (Bordo et al. 2000). The United States, for example, experienced a dramatic bout of banking instability during the 1980s, with more banks collapsing in 1985–87 than in the prior 30 years (FDIC 1998). The United Kingdom faced a similar crisis among small banks during the 1970s, followed by the sudden and dramatic collapse of a prestigious bank in the mid-1980s. Such episodes of financial instability have prompted governments to place “prudential regulation”—rules and policies designed to ensure the solvency and soundness of banks and other financial institutions—at the top of their economic policy agendas (Eichengreen 1999; Llewellyn 1999). Second, politicians face the age-old challenge of fighting inflation—an economic scourge that has become even more virulent in today's environment of floating exchange rates and full capital mobility (Mosley 2003). In nearly all industrialized countries, politicians have granted their central banks a high degree

of insulation from political pressures, leaving them ostensibly to focus on keeping prices stable.

The dual policy goals of financial stability and low inflation generate a challenge for monetary policy makers. The central bank's main monetary policy instrument is the interest rate, which dampens inflationary pressures when raised. However, interest rate hikes are potentially harmful to banks' profits and increase the probability of bank failures (Cukierman 1991; OECD 1992). A policy of financial stability may require a more gradual monetary tightening in the face of inflationary pressures, thereby allowing banks more time to adjust their balance sheets. On the other hand, a policy of strict price stability would require more aggressive interest rate adjustments. With one policy instrument and two potentially conflicting goals, a central bank must decide how much emphasis to place on fighting inflation versus maintaining financial stability.

In this article, we focus on the institutional tension between the dual goals of financial stability and low inflation. Specifically, we argue that monetary policy makers have a less aggressive stance toward inflation when governments combine the bank regulatory- and monetary-policy-making functions

within the central bank. Such “regulatory central banks”—which exist in more than one-third of industrialized countries—have incentives to be especially sensitive to the profitability and stability of the banking sector when setting monetary policy. We therefore argue that the presence of bank regulatory authority in the central bank’s mandate generates a bias in its monetary policymaking. On the other hand, in countries where bank regulation is assigned to a separate agency, the central bank is less likely to be biased by bank stability concerns and more likely to enact tighter monetary policies geared toward maintaining low inflation. Policy makers’ success in fighting inflation therefore varies with the institutional locus of bank regulatory authority.

We further argue that the effect of a central bank’s mandate on inflation is conditional on the government’s choice of exchange rate regime. Assuming full capital mobility, countries that adopt floating exchange rates maintain the ability to conduct autonomous monetary policy. Under such conditions, a central bank’s regulatory responsibilities play a significant role in shaping its monetary policy choices. In contrast, a central bank operating under fixed exchange rates will not have the ability to pursue an independent monetary policy, and therefore its institutional features will be of little importance (O’Mahony 2007). We also test an ancillary hypothesis regarding the effect of the central bank’s regulatory mandate conditional upon the size of the domestic banking sector. We hypothesize that when banks represent a larger share of the national economy, a regulatory central bank will be particularly sensitive to bank stability when setting monetary policy.

In focusing on the relationship between central banks’ regulatory mandates and monetary policymaking, this paper contributes to two theoretical literatures in political economy. The first literature, which examines the politics of central banking, has focused overwhelmingly on the relative degree of political independence as the driving influence on the central bank’s monetary policymaking (e.g., Broz 2002; Clark 2002; Cukierman 1992; Franzese 1999; Grilli, Masciandaro, and Tabellini 1991; Henning 1994; Maxfield 1997). This literature depends critically on the implicit assumption that all central banks have the same responsibilities; thus, the “institutional structure” of the central bank can be equated solely with its degree of insulation from the political whims of politicians (Bernhard, Broz, and Clark 2002).¹

¹Central bank independence is not always treated as a single analytical concept; see, e.g., Hallerberg (2002).

Politicians, who view monetary policy from the perspective of political expediency, will encourage a dependent central bank to adjust interest rates for political purposes (e.g., to provide a temporary boost to the economy before an election). In the absence of political interference, central banks are assumed to be aggressive inflation fighters.² While we do not dispute the importance of a central bank’s political independence on its monetary policymaking behavior, we argue that the institutional locus of regulatory authority also strongly influences how central bankers make decisions—even for central banks with high degrees of independence. This argument essentially turns the central banking literature on its head: rather than assuming a uniform political influence on monetary policymaking, we argue that central banks can be pulled in different directions as a result of their institutional mandates.

The second relevant literature pertains to the dynamics of principal-agent relationships, specifically those that arise when elected governments delegate important tasks to bureaucratic agents. There are many studies of the challenges inherent in the delegation of authority to an agent whose preferences may differ from those of the principal and of the strategies available to principals to ensure the obedience of their agents (e.g., McCubbins and Schwartz 1984; Weingast 1984). The paper does not challenge this literature; instead, it illustrates how politicians’ initial choice to delegate multiple tasks to a single bureaucratic agency can have significant consequences for policy outcomes (Dewatripont, Jewitt, and Tirole 2000). The “multitask” dilemma exists in many policy domains, including environmental and energy policy, financial regulation, and health and safety. Consider, for example, the consequences of delegating responsibility for energy efficiency and environmental conservation to the same agency. If policies designed to minimize environmental damage have the side effect of raising energy costs, then an agent could find itself compromising one objective in favor of the other. A similar tension can be found in the mandates of financial regulators, who are frequently held accountable for the competitiveness *and* stability of the regulated industry. We apply this reasoning to central banks and examine how their anti-inflation policies might vary as a function of their regulatory responsibilities.

In the case of central banking in the developed world, governments generally decided their delegation structures in the early twentieth century, long

²For a discussion of central bankers’ preferences based on their varied career backgrounds, see Adolph (2005).

before the emergence of prudential regulation as a politically prominent issue. As regulation gained political salience, the preferences of regulatory central banks began to change. We note below that the mandates of central banks have been largely static over the years, but the evolution in the preferences of regulatory central banks has led some governments to alter their longstanding delegation decisions—specifically by removing regulatory authority from the central bank—to ensure that monetary policy outcomes remain in line with government preferences.

The remainder of the article proceeds as follows. In the next section, we discuss the significant variation in the regulatory responsibilities of central banks, emphasizing that this variation has, until very recently, been entirely cross-national rather than intertemporal. We then explore the theoretical reasons why this variation in the central bank's institutional mandate might influence its monetary policymaking choices, after which we move on to empirical tests of our argument. Using data from 23 industrialized countries from 1975 to 1999, we show that inflation has been systematically higher in countries where the central bank is vested with bank regulatory authority; as expected, however, we find that this effect is conditional on both the choice of exchange rate regime and the size of the domestic banking sector.

An important policy implication of this finding is that the removal of bank regulatory responsibility from the central bank is a potential strategy for countries seeking to enhance the inflation-fighting credibility of their central banks. We test this logic by conducting a case study of the Bank of England, which lost its bank regulatory authority to the newly formed Financial Services Authority in a major British government initiative in 1998. We find that the new Labour government under Tony Blair was eager to control inflation and imposed the institutional change on the Bank of England in part to remove the bank stability bias from its monetary policymaking. Finally, we conclude with a discussion of the broader implications of these findings for our understanding of the politics of bureaucratic decision making.

Regulatory Responsibilities of Central Banks

Across the world, central banks vary in the responsibilities delegated to them by politicians. Central banks are generally responsible for implementing a country's monetary policy by controlling the money supply and setting interest rates based on current economic

conditions. In addition, some—but not all—central banks serve as bank regulators with responsibility for implementing rules and restrictions on banking activity, supervising compliance with prudential regulation and applicable laws, and otherwise safeguarding the stability of the banking sector. This variation has been understudied in the literature on the political economy of inflation.³ Some scholars have examined the central bank's regulatory mandate in the context of measuring its overall degree of independence from political pressures (Banaian, Burdekin, and Willett 1995). Other scholars have grappled with the interplay between monetary policy and financial stability more generally (Cukierman 1991, 1992). However, in empirical analyses of inflation, central bank independence reigns supreme, and the central bank's regulatory responsibilities are generally ignored.

The regulatory responsibilities of central banks are rooted in history. Until the early 1800s, the focus of central banks was predominantly on wartime finance. For example, the British government created the Bank of England in 1694 to raise funds for war and conquest (North and Weingast 1989). Norway's central bank, the Norges Bank, was created in the wake of the Napoleonic Wars to stabilize the currency after a period of highly inflationary wartime expenditures (Capie, Goodhart, and Schnadt 1994). The exigencies of wartime finance eventually gave way to the more general goal of maintaining the internal and external value of the currency, which often involved ensuring convertibility in commodity-based exchange rate regimes. For many central banks, maintaining the value of the currency was closely intertwined with the regulation of the banking system, since commercial banks play a major role in the implementation of monetary policy (Capie, Goodhart, and Schnadt 1994). Central banks in countries such as Italy and the Netherlands gradually assumed bank regulatory responsibility in the twentieth century. The Bank of England operated for decades as an informal but powerful bank regulator and gained statutory authority to regulate banks with the Banking Act of 1979. In the United States, Congress created the Office of the Comptroller of the Currency—the regulator of nationally chartered banks—in 1863, but later delegated the statutory authority to regulate state-chartered

³An exception is Di Noia and Di Giorgio (1999), which offers mostly descriptive statistics and no theoretical argument. Posen (1995) includes the central bank's regulatory mandate as part of a broader measure of financial opposition to inflation. In addition, there are several analyses of the pros and cons of separating the monetary-policy and regulatory functions, including Abrams and Taylor (2000); Barth et al. (2002); Goodhart (2001); Goodhart and Schoenmaker (1995); and Peek, Rosengren, and Tootell (1999).

banks and bank holding companies to the U.S. Federal Reserve, founded in 1913.

In contrast, central banks and regulatory agencies emerged as completely separate entities in countries such as Canada and the Scandinavian countries. Canada, in fact, developed a bank regulator first—in 1925—and waited nine years before establishing its central bank in 1934. For countries such as Sweden and Norway, central banks have existed for centuries, yet bank regulatory authority lies with independent agencies subsequently established in the nineteenth and early twentieth centuries.⁴

Today there is considerable cross-national variation in the institutional mandates of central banks. Of the 23 industrial countries listed in Table 1, 14 currently have separate central banks and bank regulators, while nine have unified systems. It is interesting to note that levels of central bank independence do not appear to be associated with regulatory structure. Countries with unified systems have central banks ranging from highly independent (Germany and the United States) to relatively dependent (Spain).

The regulatory responsibilities of central banks in industrialized countries have demonstrated very little variation over time. This path-dependent characteristic stands in marked contrast to other aspects of central banks, such as their degrees of political independence, which have experienced more frequent changes over time (see Bernhard 1998). Indeed, altering the institutional mandate of the central bank is costly, both politically and financially. To remove the regulatory responsibilities of the central bank, governments must enact highly detailed legislation to establish a separate bank regulatory agency with its own staff, budget, and bylaws. In the industrialized world, there are only three exceptions to the endurance of the central bank's mandate: the United Kingdom and Australia, both of which transferred bank regulatory responsibilities to newly created separate agencies in 1998, and Iceland, which made a similar change in 1999.⁵ In the

⁴The Riksbank was established in Sweden in 1668, while the Royal Inspectorate of Banks was founded in 1907, and continues to operate today as the Swedish Financial Supervisory Authority (Finansinspektionen). In Norway, the Norges Bank was founded in 1816, while the Banking Inspectorate was founded in 1825; it operates today as the Banking, Insurance, and Credit Commission under the Ministry of Finance.

⁵The new agencies are called the Financial Services Authority in the United Kingdom, the Australian Prudential Regulatory Authority in Australia, and the Financial Supervisory Authority in Iceland. Korea also experienced an institutional change in 1998, but it was not considered an industrial country for much of the time period of our analysis, and thus is not included in our sample.

TABLE 1 Location of Bank Regulatory Authority, Industrial countries (2005)

Central bank	Separate agency
France ¹	Australia ²
Greece	Austria
Ireland	Belgium
Italy	Canada
Netherlands	Denmark
New Zealand	Finland
Portugal	Germany ³
Spain	Iceland ⁴
United States ⁵	Japan
	Luxembourg
	Norway
	Sweden
	Switzerland
	United Kingdom ⁶

¹The Banking Commission (Commission Bancaire) is a composite body chaired by the Governor of the Banque de France, with representatives from the Treasury. While the World Bank data classify this as a separated regime, we follow Goodhart and Schoenmaker (1995) in treating this as unification. However, our results are not sensitive to the alternative specification.

²Prior to 1999, the Reserve Bank of Australia regulated banks. This authority now resides with the Australian Prudential Regulatory Authority.

³The Federal Financial Services Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht, BaFIN), established in 2002, united the three previously independent supervisory agencies for banking, securities, and insurance. BaFIN is entrusted with control over the “sovereign measures” (licensing, issuing regulations) whereas the Bundesbank only participates in the “operational tasks” of supervision (e.g., collecting and processing banks’ prudential returns). See Goodhart and Schoenmaker 1995, http://www.bundesbank.de/bankenaufsicht/bankenaufsicht_bafin.en.php, and http://www.bafin.de/bafin/aufgabenundziele_en.htm#n6. Goodhart and Schoenmaker classify this arrangement as a separated regime, while the World Bank treats it as “unification.” We follow the former, but our results are not sensitive to the alternative specification.

⁴Prior to 1999, the Bank Inspectorate was part of the Central Bank of Iceland. It was merged with the Insurance Supervisory Authority into a separate entity, the Financial Supervisory Authority, on January 1, 1999 (http://www.invest.is/files/2075240179Financial_System.qxp.pdf).

⁵The Federal Reserve is not the only bank regulator in the U.S., but it has overall responsibility for banks within the Federal Reserve system, and also regulates all bank holding companies. Note that our definition of “unification” is that the central bank has or shares responsibility for regulation.

⁶Prior to 1999, the Bank of England regulated banks. This authority has since been transferred to the Financial Services Authority.

overwhelming majority of cases, however, the regulatory responsibilities of the central bank have remained steady through the years. This historical claim will prove important in our statistical analysis of inflation performance from 1975 to 1999, in which we assume that the central bank's mandate is exogenously determined.

Central Banks, Regulation, and Monetary Policy Bias

Scholars of monetary policymaking have long argued that the central bank faces dueling pressures to keep prices stable and to maintain economic growth and full employment. The classic model by Barro and Gordon (1993) indicates a tension between maintaining inflation at a socially optimal level and responding to political pressure to decrease unemployment. It is assumed that inflation aversion varies across countries. Consider the following quadratic loss function (adapted from Persson and Tabellini 2000):

$$L = [\lambda(\pi - \bar{\pi})^2 + (x - \bar{x})^2]/2 \quad (1)$$

where π and x represent inflation and output (with overbars representing society's preferred values), and λ is the relative weight that the policy maker places on controlling inflation. The political economy literature generally assumes that central bank independence (CBI) is a useful proxy for λ , with the expectation that politically insulated central banks will be more conservative, or inflation hawkish, than politically dependent ones.

While we do not dispute the importance of a central bank's political independence on its monetary policymaking behavior, we argue that a sole focus on CBI ignores the fact that central banks also vary on another dimension: their regulatory mandates. Central banks responsible for bank regulation must respond appropriately to exogenous influences on the price level without triggering politically costly instability in the banking sector. When the central bank raises interest rates by decreasing the money supply, it deters investment and dampens aggregate demand, thereby keeping inflation in check. However, interest rate changes motivated exclusively by expected changes in the price level have potentially adverse consequences for the profitability and solvency of banks (Cukierman 1991, 1992; Goodhart and Schoenmaker 1995).⁶ Banks are particularly vulnerable to changing financial market conditions because they must commit to loan terms in advance. More specifically, banks that issue fixed-rate loans, such as mortgages and certain corporate loans, will face declining profits as increasing interest rates force them to raise their own deposit rates. Bank customers might also withdraw their money in favor of higher-

yielding money market accounts or other investments. The overall increase in the cost of funds, in turn, cuts into banks' profits and increases the likelihood of bank failures (OECD 1992). Increasing interest rates also leads to a greater risk of default by bank customers with flexible-rate loans, which also increases the potential for bank failures (OECD 1992; Tuya and Zamalloa 1994).⁷

The connection between monetary policy and bank stability does not inhere exclusively in the level and volatility of interest rates. A more general tension is that the cyclical effects of monetary policy and bank regulation push in opposite directions (Goodhart and Schoenmaker 1993). Monetary policy tends to move in *countercyclical* fashion: in the event of an economic slowdown, the central bank expands the money supply and provides more funds to speed up the economy's recovery. However, the effects of bank regulation—especially prudential regulation, such as capital adequacy requirements—are *procyclical*, requiring a contraction of banking activity when the economy slows. For example, during a recession, a bank regulator might require an increase in loan-loss reserves and an improvement in the quality of banks' lending portfolios. The resulting decrease in lending activity would result in tighter credit just as the monetary authorities were attempting to facilitate new lending to spur investment and consumption.

Examples of the tension between tight monetary policy and financial stability can be found across the developed and developing world. In New Zealand in 1985, a run on foreign exchange reserves prompted the central bank to increase interest rates dramatically, but concern over the soundness of the banking sector led to a reversal in policy and a prompt injection of liquidity (Healey 2001). In the United States, in 1979, Federal Reserve Chairman Paul Volcker announced that the Federal Open Market Committee (FOMC) would adopt a tight-money strategy called "nonborrowed reserve targeting," in which changes in monetary aggregates such as M1 and M2—rather than interest rates or other economic targets—would serve as the target of monetary policy. When the LDC Debt Crisis began to unfold in 1982, policy makers and economists viewed the stringency of this approach as a contributing factor

⁶For a similar argument about the vulnerability of the financial sector to interest-rate defenses of fixed exchange rates, see Walter and Willett (2007).

⁷A drop in interest rates may also have adverse consequences for the banking system. If banks have loan portfolios that are more sensitive to interest rate fluctuations than their liabilities (e.g., treasury bonds and customer deposits), then a drop in interest rates—instigated by the central bank to spur economic growth or prevent disinflation—will lead to a deterioration in bank profitability in the short run. See Di Noia and Di Giorgio (1999).

to the growing debt problems of the LDCs and the resulting instability of overexposed U.S. banks (Goodhart and Schoenmaker 1995). By the autumn of 1982, Volcker abandoned the FOMC's sole focus on money supply targets in favor of inflation targets and other macroeconomic measures, which proved more sensitive to the plight of the banking sector. Finally, there are countless examples in the developing world of national banking systems actively resisting the tight money policies of central banks during financial crises (Walter and Willett 2007). The central bank of Indonesia, for example, raised interest rates sharply in November 1997 in the wake of the Asian financial crisis, but quickly injected new liquidity into the economy as banks began to collapse (Boorman et al. 2000).

Given the tension between monetary tightening and bank stability, how will the central bank make monetary policy? Our central claim, which emanates from the earlier work of Cukierman (1991, 1992) and others, is that the presence of regulatory responsibility in the central bank's institutional mandate introduces an important bias into its monetary policymaking calculus. When the central bank has official responsibility for regulating the banking sector, it is held publicly accountable in the event of bank failures or a sharp decline in bank profitability.⁸ For example, after the sudden collapse of Johnson Matthey Bankers (JMB) in the United Kingdom in 1984, the Bank of England—which at the time was also the bank regulator—faced a barrage of criticism from Parliament. Indeed, the reappointment of a prominent deputy governor of the Bank to another five-year term was delayed because of the negative fallout from the JMB affair (Singer 2007). It should come as no surprise that politicians find it politically expedient to castigate bank regulators for bouts of financial instability; in extreme cases, elected leaders will force the heads of regulatory agencies to resign. Any central bank with regulatory responsibility will therefore be especially sensitive to short-term bank stability when making policy decisions.

In contrast, central banks without regulatory authority will, all else equal, base their monetary policy decisions on the price level, with less emphasis on the impact of interest rates on bank solvency or profitability. If banks become unstable, policy makers will place blame on the agency with official responsibility for bank supervision, such as Canada's Office of the Superintendent of Financial Institutions or the

Australian Prudential Regulatory Authority. Central bank policy might be the focus of legislative discussion, but it is unlikely that the central bank itself will be held ultimately responsible if banks should fail. The U.S. savings and loan (S&L) crisis is illustrative: the rapid interest rate increases during the early 1980s squeezed the profit margins of S&Ls that issued long-term fixed-rate mortgages. Those S&Ls that did not take proper steps to rebalance their portfolios found themselves in dire financial trouble, and many collapsed altogether. The Federal Reserve, however, was not held publicly accountable for the S&L crisis despite the fact that its aggressive monetary policies were a contributing factor.⁹ Indeed, banks do not fail because of interest rate changes per se; they fail because of improper risk management, inadequate capital, or other forms of malfeasance—all of which are part of the bank regulator's jurisdiction.

Returning to equation (1), our argument can be stated more formally: $\lambda_r < \lambda_s$, where the subscripts r and s refer to regulatory and separate central banks, respectively. In other words, separate central banks should be more inflation hawkish than regulatory central banks, all else equal. The discrepancy between λ_r and λ_s arises as a result of the varying principal-agent relationships between elected leaders and the central bank. When politicians delegate regulatory authority to the central bank, banking instability becomes personally costly to central bankers. We therefore expect central bankers to adjust their monetary policies with careful attention to bank stability.

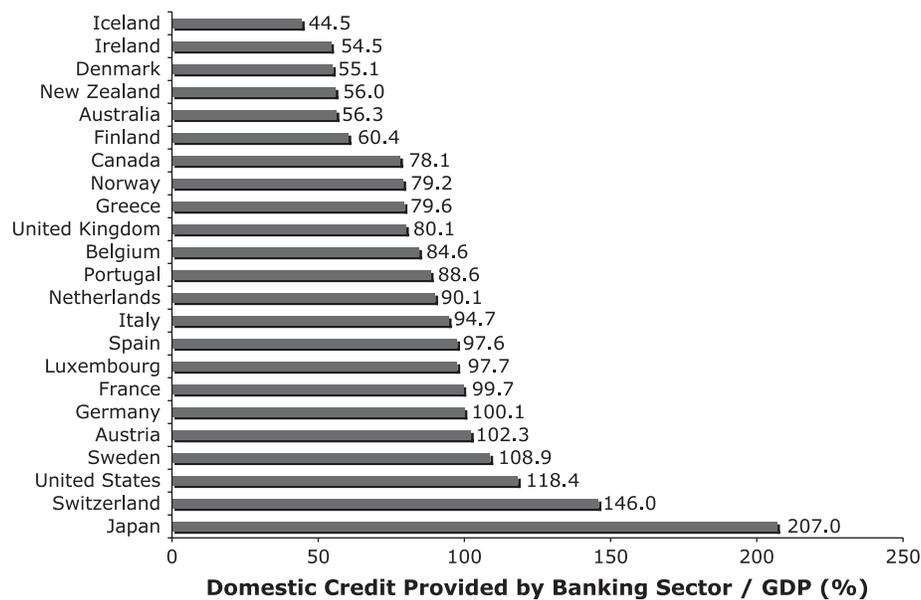
Although we expect this logic to hold across countries and over time, it is important to acknowledge three important caveats to our argument. First, as noted previously, the influence of the institutional mandate of the central bank on inflation outcomes is likely to be conditional upon the prevailing exchange rate regime. Whether a country fixes or floats its exchange rate will influence the degree of monetary policy autonomy of the central bank. In a fixed exchange rate regime, the central bank has limited or no autonomy to set an independent monetary policy, and thus its characteristics—including its regulatory responsibilities—will have little impact on inflation outcomes (Bearce 2003; Oatley 1999; O'Mahony 2007).¹⁰

⁹In contrast, Congress quickly dismantled the S&L regulator—the Federal Home Loan Bank Board—and fired its chairman.

¹⁰Central banks can employ sterilization as a monetary policy strategy in the short term, but this strategy is generally not viable in the medium- or long-term given the continual need to spend down foreign exchange reserves.

⁸For an example of this argument applied to the U.S. Federal Reserve, see Cukierman (1991).

FIGURE 1 Average Banking Sector Size, Industrialized Countries, 1975–99



Second, it is plausible that the influence of the central bank's regulatory mandate on inflation outcomes is conditional on the size of the domestic banking sector. In particular, the central bank's regulatory responsibilities might be more likely to influence the magnitude of λ (the relative weighting given to inflation fighting) in countries where the banking sector is large relative to the overall size of the economy. The logic is straightforward: the size of the banking sector is an excellent proxy for the potential magnitude of the career costs associated with bank instability. In contrast, the central bank's institutional mandate should have less of an impact on monetary policymaking when the banking sector is relatively small. As Figure 1 illustrates, there is significant variation in the size of the domestic banking sector across the advanced industrialized countries. While we believe the central bank's regulatory responsibilities are influential in all countries, we acknowledge the possibility that banking sector size may be an important determinant of the magnitude of a regulatory central bank's bias.

Finally, it is important to emphasize that no central bank ignores financial stability entirely. To be sure, the central bank is always concerned about the stability of the banking system, and bank stability factors into monetary policy regardless of the central bank's additional responsibilities (Briault 1999). Central banks rely on the banking system for the smooth functioning of open market operations, and for the satisfactory supply of credit to the economy. Bank of England Governor Eddie George makes the case more

bluntly: "It is inconceivable that the monetary authorities could quietly pursue their [price] stability-oriented monetary policy objectives if the financial system through which policy is carried on... were collapsing around their ears" (George 1994). On this point we do not disagree; certainly no central bank would ever preside insouciantly over a faltering financial system. Rather, as depicted in equation (1), our argument is one of degree. Central banks without regulatory authority will place less emphasis on the negative externalities of bank stability in their policy choices, and more emphasis on fighting inflation. Thomas Cargill notes that "[t]he channels of conflict are fundamentally related to the need to have an economy-wide perspective for the conduct of monetary policy as opposed to an industry-wide perspective for the conduct of financial regulation" (Cargill 1989, 60). Since monetary policy influences the objectives of financial regulation—namely bank stability—a central bank with regulatory power is expected to be more sympathetic to the perspective of industry than a central bank without regulatory authority.

Nevertheless, it is also important to note that the link between institutional structure and inflation could obtain even if central bankers make monetary policy decisions without actively taking their varying regulatory responsibilities into account. If market actors have *expectations* that the central bank might be influenced by the presence or absence of regulatory responsibility, then they will react accordingly—setting wage contracts and locking in their

expected changes in the price level (Di Noia and Di Giorgio 1999; Goodhart and Schoenmaker 1995).

Our expectations of different policies as a result of central banks' varying institutional structures are consistent with a variety of analytical approaches to regulation. Scholars such as Stigler (1971) argue that regulators are "captured" by the regulated industry, and enact policies that reflect the industry's short-term needs. Central banks with regulatory authority (or "captured central banks") would therefore enact monetary policies more favorable to banks than central banks without regulatory authority. As Frieden (1991) notes, banks are generally considered to be a strong constituency in favor of price stability. However, in the event of exogenous shocks, banks would prefer that the central bank take an "interest rate smoothing" approach—in which interest rates are increased in relatively small and steady increments—even if a more aggressive strategy would be more effective in controlling inflation (Cukierman 1991; see also Walter and Willett 2007). Other scholars argue that regulators safeguard their decision-making discretion and avoid policy choices that increase the chances of political intervention (Ferejohn and Shipan 1990; Singer 2004, 2007; Weingast and Moran 1983; Woolley 1984). Under this assumption, a central bank with regulatory responsibility would be especially sensitive to the threat of bank instability, since the legislature would likely react to bank failures with heightened monitoring of the central bank's policies.¹¹ In addition, our argument is consistent with the emerging literature on multitask incentive problems in principal-agent theory (Dewatripont, Jewitt, and Tirole 2000). Agents with multiple responsibilities will behave differently than single-task agents, especially when there are potential conflicts between the agents' tasks.

Empirical Analysis

Thus far, we have argued that a central bank's regulatory mandate is an important yet underappreciated factor influencing its monetary policymaking behavior. In this section, we test this theory by exploring the relationship between the institutional locus of financial regulation—that is, whether the central bank has regulatory responsibility or not—

¹¹The policy literature on the institutional structure of central banks includes "increased politicization" as one of the disadvantages of vesting regulatory authority with the central bank. See, e.g., Barth et al. (2002).

and inflation outcomes for a panel of 23 industrialized countries for the 1975–99 period. The empirical analysis follows the econometric specifications used in recent political economy work on inflation outcomes (Keefer and Stasavage 2002, Franzese 1999, Hall and Franzese 1998, Cukierman, Webb, and Neyapti 1992). The dependent variable is the (logged) five-year average inflation rate. Period averages are appropriate because many of the institutional determinants of inflation rates in our model, including the central bank's mandate, change infrequently.¹²

The main explanatory variable, regulatory separation (hereafter *Separate*), is a binary variable that takes the value of 0 if the central bank holds or shares bank regulatory authority (unification) and a value of 1 if the task of bank regulation has been delegated to an agency separate from the central bank (separation).¹³ Based on the theory explicated above, we expect this variable to be negatively associated with inflation outcomes—that is, countries that vest regulatory authority in a separate agency should have lower inflation rates than countries that combine the two functions in the central bank. Data on *Separate* are compiled from a recently available World Bank dataset, *Bank Regulation and Supervision*, which assembles the results of a cross-national survey on the structure of financial markets and financial regulation (Barth, Caprio, and Levine 2003).¹⁴ We supplement the World Bank source with data from Goodhart and Schoenmaker (1995) and national monetary policy and regulatory policy authorities.¹⁵

In the first model, we include a standard battery of control variables, including central bank independence (CBI), exchange rate regime, trade openness, capital account openness, and the log of GDP and GDP per capita. Data on CBI are based on Cukierman's (1992) methodology for calculating legal independence and are compiled from the *Comparative Political Dataset* for the period 1975–96 (Armingeon et al. 2005) and Polillo and Guillen

¹²Inflation data are taken from the World Bank's *World Development Indicators*.

¹³Note that the dependent variable does not take into account whether a single regulator oversees banking, securities, and insurance, or whether multiple agencies participate in bank regulation. *Separate* simply classifies the central bank's participation in bank regulation. Data are taken from question 12.1 of the World Bank survey utilized by the authors to compile the dataset: "What body or agency supervises banks?"

¹⁴For complete background on the dataset, as well as the data itself, see http://www.worldbank.org/research/projects/bank_regulation.htm.

¹⁵See Table 1 for further details.

(2003) for the remaining years.¹⁶ The exchange rate regime variable takes the value of 0 for floating or managed floating regimes and 1 for all varieties of “hard” fixed exchange rates (currency boards, monetary unions, hard pegs).¹⁷ Data are based on the International Monetary Fund’s classification of each country’s choice of exchange rate regime as published in the IMF’s *Annual Report on Exchange Arrangements and Exchange Restrictions*. Each observation in the dataset is the average of the annual observations over the relevant five-year period.

Trade openness, measured as imports plus exports as a percentage of GDP, is taken from the *World Development Indicators* database, along with GDP and GDP per capita. We also include the Chinn-Ito index of capital account openness (“KAOPEN”), in which higher values indicate greater degrees of openness (Chinn and Ito 2006). KAOPEN measures the extent of legal restrictions on cross-border financial transactions. It is based on the binary coding of restrictions in the IMF’s *Annual Report on Exchange Arrangements and Exchange Restrictions* and focuses on four dimensions of restrictions: the existence of multiple exchange rates, restrictions on the current and capital accounts (where the latter are measured as the proportion of the last five years without controls), and requirements to surrender export proceeds.¹⁸ The index has a mean of zero and ranges from -2.66 (full capital controls) to 2.66 (complete liberalization). We also include GDP to control for the significant disparity in size between the smallest industrialized countries (Luxembourg, Iceland, New Zealand) and the largest (United States, Japan, Germany). Likewise, including GDP per capita alleviates our concerns that some of our institutional variables (e.g., CBI, KAOPEN) are merely proxies for different levels of development across the developed countries (Keefer and Stasavage 2002).

We include several additional controls. First, we add a variable that captures whether there was a currency crisis in the country during the four-year period. We also add a similar variable for the presence of a banking crisis. Data for both variables is taken from Glick and Hutchinson (1999), with missing data for Australia and the United States filled in using Caprio and Klingebiel (2003). Each of these variables is measured for individual years over the 1975–99 period, taking a value of 1 if there was a crisis and 0 otherwise. For each five-year period in the sample, each variable represents the sum of these individual year observations divided by five, thereby indicating the portion of time within each five-year period in which a crisis was occurring. All else equal, we expect inflation to be higher during periods that were more crisis-prone. Second, we include a dummy variable to capture whether a country has implemented explicit deposit insurance. Our expectation is that all central banks—regardless of their institutional mandates—have greater leeway to pursue price stability-oriented monetary policy when an explicit deposit insurance scheme protects depositors from losses in the case of bank failures. Data are taken from the World Bank’s *Deposit Insurance Around the World* database (Demirgüç-Kunt, Karacaovali, and Laeven 2005). Third, we include the size of the domestic banking sector, measured as domestic credit provided by the banking sector as a percentage of GDP. Data are taken from the World Bank’s *World Development Indicators*. Finally, we include a time trend variable that ranges from 1 to 5 in accordance with the five periods in the dataset. This variable controls for unobserved characteristics across each five-year period, including the factors that may have contributed to the secular decline in inflation rates across the developed world over the last 25 years.¹⁹

¹⁶Alternative CBI measures are available for only a subset of our sample; we therefore rely on Cukierman’s index. For a discussion of the challenges of measuring CBI, see Banaian, Burdekin, and Willett (1995).

¹⁷Alternative specifications using a 3-point ordered scale (floating, managed floating/intermediate, fixed) produce similar results. Since we are primarily concerned with the distinction between “hard” pegs and other regimes, we utilize the simpler binary scale in the analysis that follows. The authors thank Nancy Brune for sharing her dataset, which draws on Bernhard and Leblang (1999) and compiles and codes the raw IMF data.

¹⁸For a detailed description of this measure, see Chinn and Ito (2006). 1975–79 data are missing for Switzerland and 1975–80 data are missing for the Netherlands; we use the 1980 and 1981 values, respectively, for these periods.

¹⁹In 1975–79, average inflation in the 23 industrialized countries was 12.02% per year. While average inflation rose slightly in 1980–84 (12.19%), it subsequently declined in each period (6.06% in 1985–89; 4.35% in 1990–94; 1.97% in 1995–99).

Models and Results

We first specify a basic linear regression (OLS) model with panel-corrected standard errors. This specification accounts for heteroskedasticity and spatial error correlation, common problems in time-series cross-sectional data that are evident in our sample (Beck

2004; Beck and Katz 1995). The basic model is as follows:

$$\text{LOG INFLATION}_{it} = \alpha + \beta (\text{INDEPENDENT VARIABLES})_{it} + \varepsilon$$

In our second model, we more directly assess the argument that the influence of the institutional structure of the central bank (*Separate*) on inflation is conditional upon the exchange rate regime. When the exchange rate is fixed, the central bank will have limited or no autonomy to conduct an independent monetary policy, and thus the central bank's institutional structure should have little effect on inflation outcomes. We therefore include a multiplicative interaction term that captures the influence of *Separate* conditional upon the exchange rate regime. All else equal, we expect that a country which separates the bank regulatory authority from the central bank (*Separate*=1) will realize lower inflation rates under floating exchange rates (*Exchange Rate Regime*=0), since the central bank's monetary policy autonomy increases and it will be free to pursue strict price stability. Under fixed exchange rates, however, we expect *Separate* to have no significant effect on inflation outcomes, since the commitment to a fixed exchange rate commits all central banks—regardless of their regulatory mandates—to a price stability-oriented monetary policy. We therefore expect the interaction term to be positively associated with inflation outcomes.

Finally, in model 3 we test the argument that the influence of *Separate* on inflation is conditional not only on the exchange rate regime, but also on the size of the domestic banking sector. In this model, we therefore include a three-way multiplicative interaction, which captures the influence of *Separate* on inflation conditional on both the exchange rate regime and the banking sector size.

Table 2 presents the regression results for all three models, which are robust to alternative specifications.²⁰ In the models, several of the controls have the expected effects on inflation outcomes, including capital account openness and currency crises. The time trend variable is also significant and negative. Likewise, inflation rates are significantly lower in countries that choose fixed exchange rate regimes than those that pursue floating rates. Country size, as measured by GDP, is also associated with lower

²⁰The results do not change substantively when including the "lagged dependent variable" (e.g., the previous five-year period's inflation average) or when including period effects. Additional explanatory variables, such as union density, centralization and coordination of wage bargaining, veto players, the partisan composition of government, unemployment rates, GDP growth, and a dummy for an election year, also do not affect the basic results.

TABLE 2 Regression Results

Dependent variable: ln(inflation)	1	2	3
GDP (log)	-0.039 (0.050)	-0.041 (0.046)	-0.087** (0.042)+
GDP Per Capita (log)	-0.067 (0.119)	-0.068 (0.106)	-0.006 (0.086)
Trade Openness	-0.002 (0.002)	-0.002 (0.002)	-0.003 (0.002)
Capital Account Openness (KAOPEN)	-0.271*** (0.043)	-0.257*** (0.044)	-0.250*** (0.044)
Deposit Insurance (1 = yes)	0.077 (0.094)	0.11 (0.093)	0.12 (0.098)
Currency Crisis (1 = yes)	0.720** (0.304)	0.689** (0.280)	0.597** (0.253)
Banking Crisis (1 = yes)	0.103 (0.135)	0.057 (0.136)	0.034 (0.126)
Time	-0.288*** (0.058)	-0.298*** (0.058)	-0.323*** (0.058)
CBI	0.361 (0.309)	0.493 (0.308)	0.246 (0.323)
Exchange Rate Regime (1 = fixed)	-0.281*** (0.087)	-0.410*** (0.099)	-0.751*** (0.227)
Banking Sector Size	-0.004* (0.002)	-0.003 (0.002)	-0.001 (0.002)
Separate Central Bank	-0.151** (0.071)	-0.382*** (0.114)	-0.037 (0.226)
Exchange Rate Regime * Separate		0.383*** (0.139)	0.131 (0.129)
Exchange Rate Regime * Banking Sector Size			0.003 (0.003)
Banking Sector Size * Separate			-0.004** (0.002)
ER Regime * Banking Sector Size * Separate			0.003** (0.001)
Constant	4.826*** (1.631)	4.849*** (1.508)	5.553*** (1.428)
Observations	115	115	115
Number of countries	23	23	23
Log-likelihood	-57.167	-54.153	-49.709
R ²	0.809	0.819	0.832
Adjusted R ²	0.786	0.795	0.805

Panel corrected standard errors in parentheses.

*p < .10; **p < .05; ***p < .01.

inflation outcomes in model 3 but is not statistically significant in models 1 and 2. The remaining variables appear to have had less impact on industrialized countries' inflation rates during the 1975–99 period: trade openness, GDP per capita, deposit insurance, and banking crises are insignificant in all three models. Despite the extensive literature arguing that independence is the key institutional factor affecting

TABLE 3 First Differences, Model 1*
Predicted average inflation rate, all variables at mean: 5.38%

Variable	Predicted change in average inflation	Interpretation of one standard deviation (or equivalent) change in X
KAOPEN	-1.64%	1.25 to 2.59 (maximum openness = 2.65)
Currency Crisis	5.42%	0 to 1
time	-3.13%	Time = 2 (1980-84) to Time = 4 (1990-94)
Exchange Rate Regime	-1.57%	0 to 1
Separate	-0.81%	0 to 1

*All other variables held constant at their means

central banks' monetary policy behavior, CBI is also not significantly associated with lower inflation in our models. This finding could be attributable to measurement issues with CBI (e.g., Banaian, Burdakin, and Willett 1995) or to theoretical problems with the link between CBI and inflation (e.g., Posen 1995).

In contrast, the results provide strong support for our argument that central banks' regulatory mandates are a key determinant of monetary policy-making and inflationary outcomes in the developed world. In the basic model, *Separate* is negative and highly significant. Since the significance of *Separate* in the interactive models is conditional on the exchange rate regime and banking sector size, we cannot directly interpret the regression coefficients in models 2 and 3 for these variables. However, F-tests of the joint significance of the interaction terms and their components in both models 2 and 3 are significant at the 1% level. We further analyze and interpret these interactive results below.

Given that the dependent variable in our model is the natural log of inflation, interpreting the magnitude of these regression coefficients even in the "base" model is not straightforward. Therefore, in Table 3, we present first differences that illustrate the predicted effect of a one standard deviation (or equivalent relevant change) increase in each significant independent variable on average inflation, holding all other variables constant at their means.²¹ These results further clarify the importance of a central bank's regulatory mandate as a key determinant of inflation outcomes. All else equal, countries in which the central bank does not regulate banks (*Separate*=1) have inflation rates that are 0.81 % lower than in "unified" (*Separate*=0) countries. This effect is quite large in relation to both the average inflation rate in the industrialized countries from 1975 to 1999

(7.32%) and the predicted rate with all variables held at their means (5.38%).

Table 3 also illustrates the relative effect of the significant control variables from model 1 on inflation. A one standard deviation increase in capital account openness (*KAOPEN*), roughly equivalent to a shift from the mean level to its maximum, reduces inflation by 1.64%, a decrease of 30.5% from the predicted rate of inflation when all variables are set at their means (5.38%). Similarly, a shift in the time trend variable from period 2 (1980–84) to period 4 (1990–94) reduces inflation by 3.13%. This finding reinforces the observation that inflation throughout the developed world has declined sharply since the late 1970s. As expected, fixed exchange rates also reduce inflation: a shift from floating to fixed rates reduces average inflation by 1.57%. Currency crises, on the other hand, increase average inflation by 5.42%.

Although these results clearly support our basic hypothesis, they do not test our conditional argument that the effect of *Separate* should depend on the choice of exchange rate regime. Thus, in Table 4, we present the relevant quantities of interest for the two-way interactive model (model 2). Here, too, the results strongly support our argument. Under floating exchange rates, separation of monetary policy-making and bank regulation significantly reduces inflation. When the central bank regulates banks under floating rates, predicted average inflation is 7.16%. However, when responsibility for bank regulation is assigned to a separate agency, average predicted inflation declines sharply to 4.28%. As the table illustrates, this is a statistically significant difference at the 95% confidence level. In contrast, "separation" has no significant effect on inflation outcomes under fixed exchange rates. Indeed, predicted average inflation under fixed rates is almost identical in both "separated" and "unified" systems (4.29% to 4.33%, respectively). This result confirms

²¹Calculations done using the Stata post-estimation software CLARIFY (Tomz, King, and Wittenberg 2003).

TABLE 4 Predicted Inflation by SEPARATE, Conditional on Exchange Rate Regime*

Exchange rate Regime	Does the CB regulate banks?	Predicted average inflation rate (%)	Confidence interval (95%)
<i>Floating</i>	Yes (Separate = 0)	7.16	6.18–8.28
	No (Separate = 1)	4.28	3.27–5.60
<i>Fixed</i>	Yes (Separate = 0)	4.29	3.49–5.28
	No (Separate = 1)	4.33	3.71–5.04

*All other variables held constant at their means

our expectation that the institutional structure of the central bank has clear and significant effects on monetary policymaking and inflation outcomes, but that this effect is conditional on the choice of exchange rate regime.

Finally, in Figures 2 and 3, we analyze and interpret the three-way interactive model (model 3), in which *Separate* is conditional on both the choice of exchange rate regime and the size of the domestic banking sector. In Figure 2, we graph the marginal effect of *Separate* under both fixed and floating exchange rates as banking sector size varies across the range of observed values in our dataset.²² As is evident from the chart, separation has no significant effect on inflation under fixed exchange rates, regardless of the size of the banking sector (dashed line). In contrast, separation has a clear and significant negative effect on inflation under floating rates, but only at mid- to high levels of banking sector size.²³ This result further confirms our expectation that the regulatory mandate of the central bank has clear and significant effects on monetary policymaking and inflation outcomes, but it also further clarifies the conditional nature of this expectation. Figure 3 builds on this finding by graphing the predicted inflation level under separation (*SEPARATE*- = 1) and floating exchange rates as banking sector size varies across the range of observed values in our sample. Once again, the large and significant negative impact of separation on inflation outcomes under this unique combination of conditions is clearly evident. As these results illustrate, the institutional structure of the

central bank has the most significant impact on monetary policymaking and inflation when two conditions are met: (1) A country is operating under floating exchange rates; (2) The banking sector represents a sizeable portion of the domestic macroeconomy.²⁴

As a robustness check, we consider the possibility that selection into the “separate” category may not be exogenous to the explanatory variables in our data—or in other words, the same variables that explain variation in inflation outcomes also may explain a country’s initial decision to separate bank regulatory authority from the monetary policy authority. To address this concern, we use propensity score matching to “preprocess” our data (Ho et al. 2007; Leuven and Sianesi 2003; Simmons and Hopkins 2005). The critical idea behind propensity score matching is to match each “treated” observation (in this case, each country-year observation of “separation”) with a “control” observation (i.e., a country-year observation of nonseparation) for which all the values of the explanatory variables are as close to identical as possible. The matching estimation results demonstrate that the paper’s main findings still hold after controlling for possible selection bias.²⁵

A Case of Institutional Change: The Bank of England

As discussed earlier, governments in the industrialized world decided the regulatory responsibilities of their central banks many years ago, and those institutional configurations have been largely static over time. However, three industrialized countries—the United Kingdom, Australia, and Iceland—modified the mandates of their respective central banks in the late 1990s by transferring bank regulatory responsibility to newly created regulatory agencies. The argument presented above suggests that

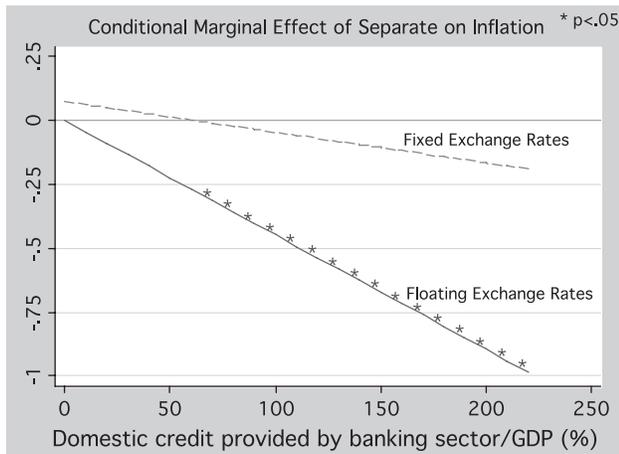
²²Table 6 was generated using the Stata code for analyzing interactive terms developed by Brambor, Clark, and Golder 2006 (<http://homepages.nyu.edu/~mrg217/interaction.html>).

²³The mean value of banking sector size in the sample is 90.4%, with a minimum of 27.0% and a maximum of 239.4%.

²⁴The results for the size of the banking sector should be viewed with caution; while its marginal effect on inflation (given a separate central bank and a floating exchange rate) is statistically significant, the confidence intervals are fairly wide as a result of the small sample size.

²⁵The results are available upon request by the authors.

FIGURE 2 Marginal Effect of SEPARATE (0 to 1),
Three-way interaction



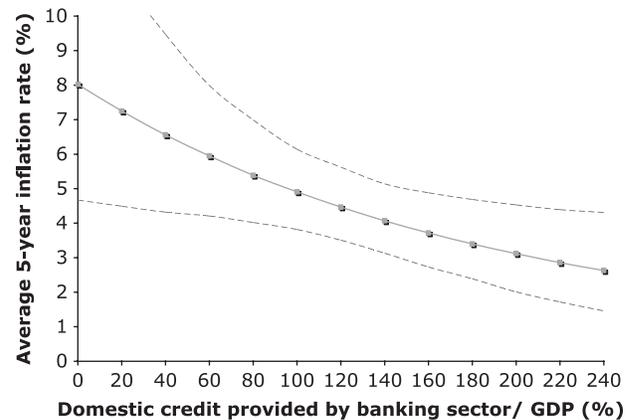
a government's price-stability bias could lead it to alter the mandate of the central bank. In the following brief case study, we explore the applicability of our argument to the institutional evolution of the Bank of England in the United Kingdom. We find that price stability was a primary concern behind the modification of the Bank of England's mandate, but that exogenous factors—namely the rise of financial conglomerates with multiple financial functions—were also an important influence behind the transfer of regulatory responsibilities to new all-encompassing “super regulator.” The case study demonstrates the possibility that governments in the future could be swayed to shift regulatory responsibility away from the central bank for price-stability concerns. At the same time, it also underscores the point that the central bank's mandate is subject to exogenous (i.e., noninflation related) influences.²⁶

Inflation, Regulation, and the Bank of England

In 1997, the incoming Labour government in the United Kingdom made an abrupt change in the mandate of the Bank of England. The new Chancellor of the Exchequer, Gordon Brown, announced that the Bank's regulatory responsibilities would be transferred to a newly created financial regulator, the Financial Services Authority (FSA). In a separate announcement, Chancellor Brown also transferred full monetary policy authority to the Bank, thus

²⁶This case study draws upon a series of interviews conducted by the authors with regulators and financial consultants at the Bank of England, the Financial Services Authority, and private financial institutions in London during the summer of 2005.

FIGURE 3 Predicted Values of Inflation by
Banking Sector Size (with Separate
Central Bank and Floating Exchange
Rates)



changing its status from an agent of the Treasury to a relatively independent central bank, similar to its counterparts in the industrialized world. These two policy initiatives were not unrelated; indeed, the preceding discussion about the conflicting mandates of central banks and bank regulators helps us to understand the rationale behind Brown's actions.

The Bank of England faced a two-pronged challenge in the 1980s and 1990s. The first challenge was to maintain price stability in the face of increasing economic globalization and a turbulent foreign exchange market. The United Kingdom faced average annual inflation rates of approximately 10% between 1980 and 1984, and in excess of 5% through the mid-1990s. In contrast, the United States kept average inflation below 8% between 1980 and 1984 and well below 4% through the mid-1990s.²⁷ The United Kingdom's struggle with inflation can be traced to its history of adopting and then abandoning a series of exchange rate regimes during the period after the fall of Bretton Woods (Bernanke et al. 1999). The most dramatic episode in Britain's recent monetary history came in 1992, when currency speculators attacked the pound, leading to an abrupt devaluation and Britain's hasty exit from the Exchange Rate Mechanism (ERM). In the absence of an exchange rate target, policy makers grew concerned about the credibility of monetary policy. Norman Lamont, then the Chancellor of the Exchequer, promptly announced a temporary inflation target to guide the Treasury's monetary policy decisions through the end of the current Parliament, with the understanding

²⁷Inflation data taken from the *World Development Indicators*.

that the next government—whether Conservative or Labour—would have to make a decision about the future course of monetary policy after the 1997 election (Bernanke et al. 1999).

The second challenge faced by the Bank of England pertained to bank regulation—and in particular, to the increasing prominence of bank instability. The Bank's regulatory responsibilities evolved quickly in the 1970 and 1980s. During the 1970s, the Bank regulated informally, using “moral suasion” to keep commercial banks in line with its wishes (Penn 1989). However, the “secondary banking crisis” of 1973–75, in which a large number of community banks collapsed as a result of imprudent lending decisions and changing macroeconomic conditions, prompted Parliament to grant the Bank formal regulatory responsibility in 1979. The Banking Act of 1979 established an authorization process whereby deposit-taking institutions were required to secure a license from the Bank and undergo mandatory examinations by regulators. Just five years later in 1984, Johnson Matthey Bankers (JMB), a prestigious bank heavily involved in gold trading and real estate investment, became insolvent after a series of lending mishaps (Grady and Weale 1986). The collapse of JMB caused great embarrassment for the Bank, and led to another legislative initiative by Parliament: the Banking Act of 1987, which among other things created a bank supervisory board within the Bank and raised the profile of the Bank's regulatory functions (Hall 1999).

In the wake of these episodes of financial instability, the Bank quickly became a worldwide leader in the development of prudential regulations for commercial banks. Bank Governor Eddie George was instrumental in the creation of the 1988 Basel Accord, a capital adequacy standard for internationally active banks in the G-10 industrialized countries. At the same time, however, the large banks in the United Kingdom were finding new ways to take on risk, as manifested by the spectacular collapse of Barings in 1995. The country's numerous smaller banks—including some 60 “building societies” which catered to local communities—were also struggling with the economic recession of the early 1990s (Logan 2001).

When the Labour Government came to power in 1997, it was clear that the Bank was being pulled in two different directions. On the one hand, the Treasury was adamant about reining in inflation through tighter monetary policy and increased credibility; on the other, the Bank itself was being held increasingly accountable for instability in the banking sector. Chancellor Gordon Brown's strategy simultaneously addressed both challenges. In transferring operational

responsibility for monetary policy from the Treasury to the Bank, Brown enhanced the Bank's independence, bolstered the credibility of its inflation-fighting mandate, and signaled to the public a strong commitment to price stability. At the same time, by transferring bank regulatory responsibility from the central bank to the newly created Financial Services Authority (FSA), the Government removed the potential bias that could compromise the Bank's inflation-fighting mandate. In terms of fighting inflation, the combination of increased independence and the removal of regulatory responsibility appears to have been successful: from 1999 to 2005, the United Kingdom's average annual inflation rate was 2.38% and did not exceed 3% in any individual year.²⁸

An alternative but complementary rationale for the removal of regulatory responsibility from the Bank was the increasing prominence of financial conglomerates in London, and the corresponding challenges of orchestrating multiple functional regulators—including the Bank of England, the Securities and Investments Board (SIB), the Personal Investment Authority, and many others. Before the creation of the FSA, a large financial institution with banking, securities, and insurance arms could find itself subject to regulation and supervision from a welter of regulators, some of them with conflicting objectives. The new FSA, however, is a “super regulator” in that all forms of financial regulation—from insurance supervision to the prevention of securities fraud—fall within its jurisdiction. Proponents of the new agency argue that it leads to increased efficiency through economies of scale and that financial institutions are generally relieved to work with only one regulator with a unified set of rules and procedures (Briault 1999). According to this line of reasoning, the Government removed the Bank's regulatory responsibilities in order to create a new, coherent financial regulator to manage London's new financial conglomerates. It would have been impractical to grant the Bank the full responsibility for all of these regulatory functions. Some regulators also note that the Bank would be deemed far too powerful in the eyes of the Treasury if it was granted both political independence and a host of new regulatory responsibilities.²⁹

While this alternative explanation for the change in the Bank's mandate is attractive for its simplicity,

²⁸Of course, it is impossible to determine whether the drop in inflation is attributable to the increase in independence, the removal of regulatory authority, or some other exogenous variable.

²⁹We thank Andrew Bailey at the Bank of England for this point.

it cannot explain the timing of the institutional change. Unlike the United States, in which the Graham-Leach-Bliley Act of 1999 relaxed a long-held prohibition against financial conglomerates, the United Kingdom's experience with financial conglomerates began in earnest in the 1970s and 1980s (Maycock 1986). Concerns about the inefficiency of multiple regulators and the blurring of lines between different sectors of the financial services industry therefore would have dictated an institutional change long before 1997.

Ultimately, the Bank of England case demonstrates the potential conflict between bank regulation and monetary policy. In 1997, the incoming Labour Government was eager to establish its inflation-fighting credentials after more than a decade of poor macroeconomic performance. The establishment of an independent central bank was an important first step, but the United Kingdom's history of bank instability made it clear that the Bank's responsibility for bank regulation could compromise its efforts to fight inflation. The transfer of bank regulatory authority to the FSA proved to be the capstone of the Government's reengineering of monetary policymaking in the 1990s.

Conclusion

In this paper, we argue that a central bank's institutional mandate—specifically, whether or not it also regulates banks—is an important determinant of its monetary policy decisions. The institutional locus of regulatory authority influences how the central bank resolves the tension between price stability and bank stability. All else equal, we argue that a central bank without regulatory responsibility is more likely to enact tighter monetary policies geared solely toward maintaining price stability. Analyzing data from 23 industrialized countries from 1975 to 1999, we find strong support for our argument: inflation rates have been significantly lower, on average, in countries where the central bank and the bank regulator are separate agencies. However, this effect of a central bank's mandate on inflationary outcomes is conditional on both the choice of exchange rate regime and the size of the domestic banking sector. Under floating rates, the central bank's regulatory responsibilities play a significant role in shaping its monetary policy choices, but only when the domestic banking sector is sufficiently large. In contrast, a central bank operating under fixed exchange rates will pursue price

stability-oriented policies, regardless of its regulatory mandate or the size of the domestic financial sector. Thus, a central bank's regulatory mandate influences monetary policy outcomes, but only under certain institutional and economic conditions.

These findings have several key policy and research implications. Above all, they suggest that our understanding of the political economy of central banks and monetary policymaking has been limited by an exclusive focus on independence as the primary institutional characteristic affecting central banks' behavior. Indeed, as our results indicate, other facets of a central bank's mandate—in particular, the scope of its regulatory responsibilities—also play a significant role in shaping its monetary policymaking decisions. This finding suggests that politicians should be cautious in assuming that granting the central bank operational independence will automatically enhance the credibility of its commitment to price stability, thereby resulting in lower average inflation. In many cases, central bank independence may indeed provide an “institutional fix” for the problem of high inflation. Whether or not this is the case, however, depends critically on the broader institutional mandate of the central bank, as well as on the structure of other monetary institutions (e.g., the choice of exchange rate regime) and the characteristics of the domestic financial system.

In addition, our findings about the influence of a central bank's mandate on its policy choices shed light on a broader issue concerning the delegation of authority to bureaucratic agencies. In particular, they suggest that the behavior of agents in delegation situations depends critically not only on the type of tasks that the principal assigns them, but also on the number of tasks that they have been delegated (Dewatripont, Jewitt, and Tirole 2000). Specifically, they illustrate how politicians' choice to delegate multiple tasks to a single bureaucratic agency can have significant consequences for policy outcomes. This is especially likely in cases where these policy goals (e.g., price stability and bank stability) are potentially conflicting, and bureaucrats have a primary “tool” (e.g., interest rate manipulation) by which to achieve them. Thus, while it may be politically and administratively easier for politicians to assign multiple tasks to an existing bureaucracy rather than incurring the costs of creating a new agency, the bundling of multiple tasks within a single agency may produce unintended policy outcomes.

Finally, this paper also suggests an additional question for future research: what are the effects of institutional design on *regulatory* policymaking? Our

argument has focused on the monetary policy implications of the institutional design of central banks, but there may be substantive differences in bank regulation as well. Are central banks more stringent bank regulators than stand-alone regulatory agencies? This question is beyond the scope of the literature on the political economy of monetary policy, but nonetheless important for the expanding literature on comparative financial regulation (e.g., Rosenbluth and Schaap 2003). Exploring the relationship between the mandates of regulatory agencies and key policy outcomes (e.g., financial stability, bank profitability) would further enhance our understanding of the ways in which institutions shape economic policy outcomes.

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