

How Do Central Bank Governors Matter?

Regulation and the Financial Sector¹

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Abstract

Do employment and educational characteristics of central bank governors affect financial regulation? To answer this question, we construct a new and unique dataset based on curriculum vitae of all central bank governors around the world in 1970-2011, and merge this with data on financial regulation and other variables. The proportion of governors that had past experience in finance increases from 10 percent in 1980 to 30 percent in 2010. Past experience in finance matters, and the effect is large: Over the average duration in office, a central bank governor with financial sector experience deregulates three times more than a governor without financial sector experience. Experience in finance after tenure as governor is not important. Similar results hold for past experience at the International Monetary Fund; in contrast, past experience at the Bank of International Settlements and the United Nations have the opposite effect, slowing the pace of deregulation. Our findings are consistent with the view that past work experiences of central bankers shape their beliefs and preferences, which, in turn, are consequential for policy outcomes.

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I. INTRODUCTION

Central bank governors (presidents or chairmen) play a pivotal role in decisions about economic policy, even when they are part of a board or committee, and even when central banks are not fully independent. A new and growing body of work studies the importance of personal characteristics of pivotal individuals for the firms and countries that they lead – and these characteristics seem to matter. For example, Paul Volcker is famously responsible for changing the conduct of monetary policy in the United States in the 1980s. Volker’s credibility, bolstered by his experience in the financial sector and the U.S. Treasury Department, was key for his success in reducing inflation. The role of heads of central banks extends well beyond controlling inflation. In this paper we ask whether personal characteristics of central bank governors affect financial regulation.

In light of the importance of financial regulation in the recent financial crises in the United States and Europe (e.g., Igan, Mishra and Tressel, 2012, and Philippon and Reshef, 2012, Boustanifar, Grant and Reshef, 2016), it is important to understand the forces that shape financial regulation. The leading role of central bank governors in shaping policy in the aftermath of the crisis underscores the importance of identifying factors that influence their behavior.

We find that past experiences of central bank governors predict financial reform. In particular, experience in the financial sector is associated with greater financial deregulation. Experience in international organizations matters too: While experience in the International Monetary Fund has similar effects as experience in finance, governors’ experience in the United Nations and in the Bank of International Settlements is associated with less deregulation. These characteristics can be taken into account when choosing governors, and we show that this choice can substantially influence policy outcomes, as Romer and Romer (2004) suggest.

Many central banks are statutorily in charge of financial regulation. In 2012, two thirds of central banks in a sample of 145 countries regulate their banking system, while almost one fourth regulate securities and insurance markets (Horakova, 2012).³ In these cases central banks not only determine the implementation of regulation, but also influence the legal and regulatory environment. Even in cases where financial regulation is not the sole responsibility of the central bank, the governor may have great power to shape it. For example, as chairman of the Federal Reserve, Alan Greenspan was extremely influential in advocating financial deregulation in the United States and justifying it (Johnson and Kwak, 2010; Hacker and Pierson, 2010).⁴ His successor, Ben Bernanke, has been instrumental in developing responses to the recent financial crisis in the United States, including new financial regulation.⁵ Notably, Bernanke had no work experience in the financial sector when he was appointed; in contrast, Greenspan did have extensive experience there. In this paper we find that the relationship between experience in finance and financial deregulation is indeed systematic, and we make the case that this is a causal relationship.

The importance of central bank governors is manifested in many instances. In relation to the European debt crisis, Mario Draghi has come into the limelight as the new head of the European Central Bank and as a break with previous policies under Jean Claude Trichet.⁶ Currently, he is instrumental in shaping monetary policy at the European Central Bank, banking regulation, and in coordinating policy more generally, across the European Union. Responses to the Asian crises in 1997 differed across countries and were influenced by central bank governors in the countries that were directly involved. Stanley Fisher's conduct as governor of the Bank of Israel had a significant effect

³ In all cases where the central bank regulates its securities and/or insurance markets, it also regulates the banking system.

⁴ In fact, it has been argued that Greenspan succeeded Volcker precisely because Volcker was not perceived as being in favor of financial deregulation. See *The Huffington Post*, October 17, 2008: "The Fall of Wall Street Is to Market Fundamentalism What the Fall of the Berlin Wall Was to Communism." While Volcker did work in finance for a few years between roles in the Federal Reserve System and the U.S. Treasury Department, Greenspan had a much longer and continuous experience in the private financial sector before becoming chairman of the Federal Reserve.

⁵ For example, in testimony to the U.S. Congress in November and December 2009, and in a speech on January 3, 2010, Bernanke blamed regulatory failure for the financial crisis (not low interest rates), and advocated outright banning of some financial products. These were part of the statements that prepared the ground for the Dodd-Frank Act, which was signed into law on July 21, 2010.

⁶ For example, *Financial Times*, November 2, 2011: "Mario Draghi's historic choice". *The New York Times*, November 3, 2011: "European Central Bank, Under New Chief, Cuts Key Rate" and "Mr. Draghi Makes a Start".

on how that country's competitiveness and financial stability was perceived, with arguably positive outcomes.⁷ The appointment of Raghuram Rajan as the head of the Bank of India in September 2013 is often associated with calming financial markets, which were faced with bouts of volatility following the United States' Federal Reserve announcements of tapering of purchases of quantitative easing assets. Since taking over, he has embarked on a reform agenda spanning both new financial regulation and modern monetary policy.⁸

Although perceptions in the media and policy circles during the last several decades have illustrated the importance of central bank governors in determining the course of policy, responses to economic events, and economic outcomes, empirical evidence on the importance of central bank governors remains scarce. The goal of this paper is to help fill this gap. To this end, we build a new and unique dataset which combines manually collected data on personal backgrounds of central bank governors with several policy outcome variables, which we use to evaluate the importance of central bank governors, and to determine their economic significance.

We ask the following questions. Do central bank governors influence financial regulation? If so, which characteristics matter and how? Is there a revolving door between the financial industry and central banks? In other words, do governors have financial sector backgrounds; and are they likely to return to the financial industry once their tenure expires? Is that likely to affect the nature of financial regulation? Are governors more likely to work in the financial sector after their term is over than in other occupations? Other occupational experiences may matter too, such as running a private business and entrepreneurship, experience in the government or in an international organization. For example, in many developing countries (e.g., India, until recently), central bank governors are often bureaucrats with experience in the ministry of finance. Are there other experiences that are significantly associated with financial sector regulation? Does past work experience of central bank governors in the financial

⁷ The International Institute for Management Development, *World Competitiveness Yearbook 2010*. Fischer received an "A" rating on *Global Finance's* Central Banker Report Card in 2009, 2010 and 2011.

⁸ *The Economic Times*, "First year as RBI governor: Raghuram Rajan has delivered on most counts with courage of conviction", September 3, 2014.

sector affect inflation as well? And does it matter where these experiences took place (in the home country or abroad)?

The data suggest that about 20 percent of central bankers have experience in the financial sector; about a quarter of them return to the financial sector after their tenure ends. Our main finding is that central bankers that have prior experience in the private financial sector are associated with greater reforms in the financial sector in the countries and years in which they serve as governors. The effect is economically significant: We estimate that a central bank governor with past experience in finance increases the average *annual* rate of financial deregulation by 50 percent. Over the average duration of being a central bank governor, a governor with financial sector experience deregulates roughly three times more than a governor without financial sector experience. We also find that financial sector experience matters more when there is greater scope for deregulation.

While past experience in finance is associated with financial deregulation, experience gained after the governors' tenure ends is not. This alleviates concerns for "revolving doors" between finance and central bank positions. Furthermore, financial sector experience is significantly associated with banking rather than securities' markets reforms. Finally, we do not find financial sector reforms to be significantly associated with central bankers' education.

Another type of experience that appears to affect financial regulation significantly is experience in an international organization. Almost 30 percent of governors have such experience. Central bankers with prior experience in the United Nations and the Bank of International Settlements are associated with overall *less* reforms in the financial sector. Experience in the International Monetary Fund is positively associated with financial sector reforms.

While we do not have plausible instruments for governors' personal characteristics, we argue that the results have a causal interpretation, and are not completely driven by spurious correlation or omitted

variables. The main concern in identifying causal effects in our context arises if countries that have a preference for reform also appoint governors that are more likely to advocate and implement reform. Attitudes towards deregulation are likely to be either country-specific but time-invariant, or broad, time-varying trends that are common across countries. The latter is evident in Abiad and Mody (2005), who examine the global trends and changes in financial regulation. In order to address these concern, we include country and time fixed effects in our empirical specifications. If, however, attitudes towards deregulation are country-specific *and* time varying, they would not be captured through the inclusion of fixed effects. In order to try to address this concern, we also include country-by-decade fixed effects. This specification goes some way towards controlling for country-specific *and* time varying omitted variables. We also estimate placebo specifications, in which we shift the timing of the job spells as governor either forward or backward. In these specifications we find no effect of past experience in finance on financial regulation, which strengthens our causal interpretation.

While our results indicate a robust – and arguably causal – relationship between past experience in finance and financial reform while serving as central bank governor, our empirical strategy cannot distinguish whether this is because of a personal preference of such governors, or a greater ability to push and implement reforms. In both cases, however, the results highlight the importance of background and past experience of central bank governors for policy.

This paper is distinct in three respects. First, it focuses on financial regulation rather than macroeconomic outcomes like inflation. The former has been neglected in the literature. Second, we examine not only education and past experiences of central bankers, but also track them after leaving office as well. This enables us to examine whether there is a "revolving door" for governors, and whether it matters. Third, we analyze a broad set of countries, including developed, emerging and low-income over a long span of time, 1970-2011, which enables us to analyze how the role of governors varies across regions and whether governors have become more influential over time. Previous work has focused mostly on developed countries and use shorter samples.

II. RELATIONSHIP TO THE LITERATURE

We contribute mainly to the emerging literature on the importance of individuals and their characteristics for aggregate economic outcomes. Our work is also related to the literature on central bank independence, and to the emerging literature on political economy and network connections between policymakers and the financial sector (and with other industries more generally).

The relationship between the central bank and the financial sector is complex. In many cases, central banks supervise commercial banks and private insurers (Horakova, 2012). In those instances, *de jure*, the power is on the side of the central bank. But as Posen (1995) forcefully demonstrates, the financial sector is a critical political actor in determining the degree of central bank independence, as well as the inflation rate directly.⁹ Because of its usual mode of operation (short term deposits and long term lending), the financial sector has a strong preference for price stability and supports low inflation. Posen (1995) demonstrates empirically that the stronger the financial sector is as a political actor, the lower the inflation rate. However, Posen does not analyze the mechanism by which the financial sector exercises its political power, which is where our paper makes a contribution.

The literature on financial regulation shows that banks have strong incentives to affect how they are regulated, with particular stress on leverage and information; for example, see Goodhart *et al.* (1998). The idea of regulatory capture dates back at least to the classic analysis of regulation a la Stigler (1971). In this respect, one way in which the financial sector can exert influence over how it is regulated and over monetary policy is through its ties with the central bank governor. The financial sector is an important pool for potential governors; and central bank governors often find employment in the financial sector once their term in office ends. In this case, the governor brings with her attitudes and

⁹ This is consistent with the analysis of Havrilesky (1993). See also Eijffinger and de Haan (1996) on the political economy of central banks.

perceptions that are nurtured and welcomed in the financial sector. Indeed, Braun and Raddatz (2009) find in a cross section of 150 countries that bank regulation is more "pro-banks" when the prevalence of former politicians and central bank governors on executive boards of commercial banks is higher. But they do not attempt to discern causation from correlation. Our findings are consistent with the "pool of potential candidates" mechanism; we do not find evidence for an effect of post-tenure employment in finance, which is inconsistent with a "quid-pro-quo" mechanism. Lucca, Seru and Trebbi (2014) find that career transitions of federal and state U.S. banking regulators respond to the business cycle. In contrast, our results are not qualitatively different when controlling for macroeconomic conditions.

A growing body of work has recently started to examine whether specific individuals have significant impact on the organizations and countries that they lead. This literature tries to understand which personal characteristics of prominent individuals affect firm-level and aggregate outcomes. For example, Bertrand and Schoar (2003) and Kaplan, Klebanov, and Sorensen (2008) examine how firm strategies and CEO performance are related to general ability and execution skills.

At the national level, Jones and Olken (2005) and Besley, Montalvo, and Reynal-Querol (2011) use arguably exogenous unexpected deaths and departures of national leaders to establish significant impacts on growth, where the latter find that educated leaders matter more. Jones and Olken (2005) find that national leaders affect growth through their effect on inflation. Dreher *et al.* (2009) argue that leaders who were in their past careers entrepreneurs are more successful in implementing market-liberalizing reforms.¹⁰

¹⁰ But this last result is driven by only 11 leaders who were entrepreneurs in their past, out of a pool of 513 leaders overall. Horowitz, McDermott, and Stam (2005) find that older leaders tend less to get their countries involved in violent conflict. Horowitz, McDermott, and Stam (2008) examine how military service and educational backgrounds shape the way leaders behave when facing international conflict. Gehlbach, Sonin, and Zhuravskaya (2010) show that businessmen become politicians in Russian gubernatorial elections where local institutions are weak.

Subtle dimensions of education – other than attainment – may also affect attitudes towards inflation, as well as other economic outcomes, for instance where schooling takes place (country and school) and what topic was studied. Studying economics, or other subjects, may have a different effect on attitudes towards inflation in countries that have demonstrated ability to curb inflation, sometimes at the cost of employment (e.g., Germany, U.S., U.K.). Rubinstein (2006) demonstrates that studying economics is correlated with higher willingness to lay off workers. Despite all this, we do not find any significant effect of educational backgrounds within the sample of central bank governors.

Fernandez and Fogli (2006, 2009) show how both cultural background and personal experiences shape the fertility behavior of immigrant women in the United States. Our results are consistent with this view: Working in the financial sector shaped the preferences and beliefs of those central bank governors who worked there.

Several papers study turnover of prominent national figures and assess their impact on financial and money markets. Moser (2007) demonstrates that unexpected replacement of finance ministers increases interest rate spreads of sovereign debt. Kuttner and Posen (2010) and Dreher and Moser (2010) find that central bank governor turnover affects the exchange rate. This strand of the literature focuses on short-term outcomes. While surprise turnover may have an effect in the very short run, there may be no effect – indeed, even opposite effects – in the medium and long run. Cukierman and Webb (1995) show how inflation and variability of inflation correlates with degree to which central bank governors are vulnerable to political upheavals. Dreher, Sturm, and de Haan (2008) and Dreher, Sturm, and de Haan (2010) examine the determinants of central bank governor departures before the end of their term (early departures).¹¹

¹¹ The importance of commitment and preferences over inflation of central bank governors is illustrated by Kydland and Prescott (1977), Barro and Gordon (1983), Rogoff (1985) and Cukierman (1992). Cukierman (1994) shows how delegation of monetary decisions serves the political desires of the incumbent government.

Romer and Romer (2004) argue convincingly that the beliefs of chairmen of the Board of Governors of the Federal Reserve System about whether there is a permanent tradeoff between inflation and unemployment and about the level of the non-accelerating inflation rate of unemployment (NAIRU) determined their policy decisions on monetary policy. They also discuss how these beliefs may have been shaped (and detected) before appointment. In this context, our work can be understood as detecting pre-existing attitudes towards financial regulation (in contrast to inflation, cf. Romer and Romer) as they are shaped by experience in the financial sector, and testing whether they affect policy outcomes.

A paper closely related to ours is Gohlmann and Vaubel (2007), where they study the importance of education and past occupations of the entire monetary board composition in 11 industrialized countries (plus the Euro zone post 1999). They find that former members of the central bank staff prefer significantly lower inflation rates than former politicians do. They also find weak evidence that suggests that private sector bankers and insurance executives are associated with lower inflation. The focus of this paper is on financial sector regulation, rather than inflation. Moreover, Gohlmann and Vaubel (2007) do not focus on central bank *governors*, and they only examine a handful of central banks in advanced economies. Our results, which cover a broader set of countries and a longer sample, do not indicate any effect of past experience in a central bank, neither on financial regulation nor on inflation.

While we acknowledge that decision making in central banks is often made by many members, we focus only on governors due to their pivotal role. Riboni and Ruge-Murcia (2010) estimate that in advanced economies decision-making about inflation in central banks is consistent with a consensus-based model without a pivotal role for the governor, where a supermajority (that is, a level of support that exceeds a simple majority) is required to adopt a new policy. Our results pertain to all economies, not only advanced ones. Riboni and Ruge-Murcia (2010) do not study decision-making on financial regulation, where we do find a pivotal role for governors. Our work sheds light on this important dimension of the responsibilities of central banks.

III. DATA

Central Bankers and Their Characteristics

Our dataset covers detailed information on 658 governors of central banks who have held tenure over the period 1970-2011. The information includes central bankers' dates of duty, country, details on educational background and work experience (both before and after their tenure, country where the experience was gained, etc.). The dataset is compiled from various sources, which include central bank reports, websites of central banks, as well as several other online sources. Data are cross-checked across multiple sources when possible.

Table 1 summarizes the occupational backgrounds of central bank governors before their tenure as head of the central bank (Panel A), and their occupations after their tenure (Panel B). The majority of central bank heads have previous experience in government, and 30 percent have worked in the Ministry of Finance. Approximately half (47 percent) have previous experience in a central bank. Almost 30 percent of governors are academics; and almost 30 percent have prior experience in international organizations. 35 percent have work experience outside the home country (i.e. the country where they serve as central bank heads); a majority of these have worked for international organizations (almost 66 percent). After their tenure central bank, governors often take positions in the international organizations, or in government. A significant fraction of central bankers has experience in the financial sector – almost 20 percent. A quarter of these gained experience in finance outside of the home country. A quarter of central bankers return to jobs in the financial industry after their tenure. A relatively small fraction (12 percent) of those who return to finance take positions outside the country; a majority of them take up financial sector positions within the country.

Central bankers with previous experience in the financial sector have become more prevalent across the world from 1970 to 2011, as seen in Figure 1. The trend is common across high and middle income countries; with a four-fold increase between 1970 and 2010 for the latter. For low-income countries, central bankers with financial sector experience are less common, and their share has remained stable over time. This is not surprising, given the relative underdevelopment of financial markets in developing countries. The list of all 128 central bank heads in our sample with financial sector experience is provided in Table A1. The list includes governors from high, middle, and low-income countries.

Based on a smaller sample of 106 central bankers (out of a total of 128 who had financial sector experience), for whom we know the date at which they left the financial industry, the data suggest that almost 40 percent spend less than one year after leaving the financial sector and taking up the position as the central banker; see Table 2. However, a significant fraction takes longer periods of time between working in finance and serving as central bank governor. For example, 15 percent spent 10 or more years, 10.4 percent spent 8-9 years, and 8.5 percent spent 7-8 years before starting tenure as a central bank governor.

The educational backgrounds of central bankers are summarized in Table 3. Almost 73 percent have a background in Economics, and 7 percent have experience in Finance and Banking (Panel A). Figure 2a shows that since the late 1980s, the proportion of central bankers with economics or banking and finance degrees has increased dramatically. For example, in 1985, 60 percent of central bankers had a degree in economics. This figure increased to more than 75 percent in 2010. Business degrees have also become more prevalent, although the trend is less clear. On the other hand, the proportion of central bank governors with law degrees has declined significantly. Panel B of Table 3 shows that 45 percent of central bank governors have a PhD. Figure 2b shows that the proportion of PhD central bank governors has increased sharply over time, while those with a bachelor's degree has declined.

Financial regulation

Our analysis of financial regulation is based on the dataset used by Giuliano, Mishra, and Spilimbergo (2013) – a completely new and extensive dataset, compiled by the Research Department of the IMF, describing the degree of regulation for a sample of 150 industrial and developing countries in 1973-2005.¹² The dataset has significant advantages over existing data sources, which cover a limited number of sectors and countries. Regulation indices in the dataset cover six sectors, including both financial and real sectors. Each indicator contains different sub-indices summarizing different dimensions of the regulatory environment in each sector. The sub-indices are then aggregated into indices and normalized between 0 and 1. Higher values are associated with less regulation.

We focus on the measure of regulation in the domestic financial market. This measure is captured by two different sub-indicators.

- i) **Securities markets regulation:** This sub-index assesses the quality of the market framework, including the existence of an independent regulator and the extent of legal restrictions on the development of domestic bond and equity markets.
- ii) **Banking sector regulation:** This sub-index captures reductions or removal of interest rate controls (floors or ceilings), credit controls (directed credit and subsidized lending), competition restrictions (limits on branches and entry barriers in the banking market, including licensing requirements or limits on foreign banks), and public ownership of banks. This sub-index also captures a measure of the quality of banking supervision and regulation, including the power and independence of bank supervisors, the adoption of Basel capital standards, and the presence of a framework for bank inspections. The sub-indices and data sources are described in Table 4.

¹² See IMF (2009) for details. The IMF dataset uses the methodology in Abiad and Mody (2005) to extend the sample period for the index of financial sector regulation.

Although the paper focuses on financial regulation, we also use Consumer Price Index (CPI) inflation rate from the World Economic Outlook database of the IMF.

Other data

We also include in our specifications the following controls:

- **Lagged level of regulation index:** this variable can be a proxy for important incentives in favor and against the implementation of structural reforms. Excessive government regulation and/or market failures may be perceived as costlier when the economy is least reformed. At the same time, the beneficiaries of existing large rents may oppose reforms. In addition, since the regulation indices are bounded between zero and one, this variable controls for the mechanical property that the index allows less scope for deregulation as regulation becomes lighter.
- **Economic crises:** According to a widely held view, economic crises foster reforms by making evident the cost of stagnation and backwardness. The opposite view maintains that it is easier to implement reforms during periods of economic growth when potential losers can find other opportunities in a booming economy or when countries become richer and have more resources to compensate the losers. Crisis is measured by episodes of hyperinflation (inflation rate greater than 40 percent points).
- **Real devaluation:** Compensation schemes can offset costs associated with reforms. A large government may compensate losers from reforms compared to a very lean government with a small budget. We use the magnitude of devaluation of the real exchange rate, which could promote exports and therefore help compensate losers from reforms. For instance, some important reforms happened together with large devaluations and in the context of IMF-supported programs.
- **IMF program:** We also control for the existence of IMF program in all specifications.

- **Reforms in neighbors:** Reforms in neighboring countries or in trading partners may affect the adoption of domestic reforms through peer pressure and imitational effects. We use the weighted average of reforms in neighboring countries, where the weights are defined by geography. The source for geographic distance is CEPII. For bilateral trade flows, we use the IMF’s Direction of Trade Statistics.¹³
- **Left wing in power and presidential form of government:** The ideology of the ruling government and the form of government may determine the adoption of reforms. Alesina and Roubini (1992) argue that right-wing governments are normally considered more inclined to market-oriented reforms; Persson and Tabellini (2002) finds that a presidential system facilitates reforms as they are abler to overcome the resistance of small interest groups. We capture the ideological orientation of the executive with the indicator “left”, which is equal to 1 if the executive belongs to a party of the left and 0 if it belongs to a right-wing, centrist or other party. The form of government is proxied by the variable “presidential”, which takes the value of 1 if the system is directly presidential and 0 if the president is elected by the assembly or parliamentary. The source for these two variables is the Database of Political Institutions from the World Bank.¹⁴

The unit of analysis is a country-year observation. The merged dataset with central bankers and financial regulation which is used for the baseline regressions comprises an unbalanced panel of 1493 observations with 74 countries, 32 years from 1974-2005, and 320 central bankers. Due to data limitations, the dataset for our preferred specification with several control variables is a smaller sample, an unbalanced panel of 1090 observations: 69 countries, 30 years, and only 246 central bank governors. Table A2 provides the summary statistics for the key variables used in preferred specification.

Figure 3 shows the behavior over time of the share of central bankers with prior financial sector experience and the index of regulation in the financial sector (normalized between 0 and 1, with 0

¹³ <http://www.cepii.fr/anglaisgraph/bdd/distances.htm>.

¹⁴ Note that the Dataset of Political Institutions defines the ideology of the government also for autocratic regimes.

corresponding to the lowest degree of deregulation and 1 corresponding to the highest). Both variables tend to move together over time, especially for high and middle income countries. The figure in itself does not show that increased prevalence of central bankers with financial sector experience “causes” financial reforms. The empirical analysis below examines this issue more rigorously.

IV. EMPIRICAL STRATEGY

We define financial sector reform as the change in the index of regulation in country c at time t :

$$reform_{c,t} \equiv Index_{c,t} - Index_{c,t-1} .$$

Our baseline specification is as follows:

$$reform_{c,t} = \alpha \cdot Index_{c,t-1} + \beta \cdot CBG_{i(c,t)} + \phi \cdot X_{c,t} + \gamma_c + \chi_t + \varepsilon_{c,t} , \quad (1)$$

where $CBG_{i(c,t)}$ is a vector of characteristics (or, in some cases, just one) of central banker i , who is in office in country c in year t . Here γ_c and χ_t are country and year fixed effects, respectively, and $X_{c,t}$ are country-specific and time-varying controls which we describe below. Country fixed effects control for any country-specific time invariant characteristics, and time dummies control for any common trend in financial sector deregulation, which may be correlated with characteristics of central bankers. Standard errors in all regressions are clustered at the governor-level, in order to reflect the fact that in

general there are multiple country-year observations per governor, while governor characteristics do not vary along these dimensions (Moulton, 1990).¹⁵

We control for the lagged level of the index in order to identify the existence of convergence toward some possible country specific levels of regulation, and in order to take into account the limited range of the index (as the index approaches 1 there is no more scope for reform). In some specifications we interact $CBG_{c,t}$ with the lagged level of the index in order to examine whether the effect of governor characteristics depends on scope for reform.

Being bounded between minus one and one by construction, the reform variable does not have a unit root; however, it can still exhibit a trend within the bounds. Giuliano, Mishra, and Spilimbergo (2013) report standard panel unit root tests for the reform indicators, and reject the null of unit roots for the financial sector reform index. Therefore, we feel confident to use the level of the financial sector reform index, $reform_{c,t}$ as the dependent variable.

In additional regressions, we replace $reform_{c,t}$ in Equation (1) with annual change in the inflation rate.

Main Findings

We analyze the relationship between past experience of the central banker and financial sector reform in Table 5. Column 1 includes the lagged level of the index, and dummies for whether the central banker had past experience in the financial sector, academia, other private sector, central banking, ministry of finance, and international organizations. In columns 2-7 we add macroeconomic controls, one at a time. Column 7 is the most demanding specification as it includes all macroeconomic controls.

¹⁵ There are also instances with multiple governors per country-year. About 24% of the observations are those where the governor changed during a year. Our main findings remain robust to dropping these observations; these results are available upon request.

The sample sizes vary across the regressions due to availability of data on controls. Column 8 repeats the specification in column 1 without any macroeconomic controls on the restricted sample of column 7 in order to check whether the results in Column 7 are driven by the different sample or added controls.

The coefficient on past experience in the financial sector is positive and statistically significant at conventional levels in all regressions; central bankers with prior experience in the financial sector are associated with greater financial sector reforms. The estimated effect in column 7 implies that, on average, we predict reform to be 0.011 points greater every year in which there is a governor with financial sector experience than in a year in which the governor has no financial sector experience. Compared to the average annual level of reform of 0.02 (Table A2 in the appendix), the point estimate of 0.011 implies a large economically significant effect: On average, having a central bank governor with past experience in finance increases the annual rate of financial deregulation by 50 percent.¹⁶ The average duration of a governor over our sample is 5.6 years, which implies that a governor with financial sector experience, on average, can increase reforms by roughly three times over his tenure.¹⁷

We also find that past experience in an international organization is significantly associated with reform. The coefficient on past experience is, however, negative and statistically significant. On average, countries where central bankers have prior experience in international organizations are associated with less reform. The magnitude and interpretation are similar to financial sector experience, but in the opposite direction. We examine below (Table 10) which international organizations are driving these results. We do not find past experience in any other sector – academia, other private sector, central banking, ministry of finance – to be significantly associated with reform (experience in academia is significant in columns 2 and 3, but loses its significance in other

¹⁶ The effect of central bankers with prior financial sector experience for financial reforms is statistically indistinguishable between advanced economies, and emerging and LICs (not shown).

¹⁷ $5.6 \times (0.011/0.02) \approx 3$.

specifications). The coefficient on the lagged level of the index is negative and significant at the 1 percent level, as expected.

Next we ask whether the effect of financial sector experience varies by the scope for further deregulation. In Table 6 we interact financial sector experience with the lagged level of the index. The interaction is negative and statistically significant in all the regressions, which implies that the lower is the level of the index, the greater the effect of experience in the financial sector on financial reforms. When there is no scope for reform ($Index_{c,t-1} = 1$), past experience in the financial sector has no effect, since the main effect is equal to the interaction effect. Comparing a country that is one standard deviation above the mean level of regulation to a country that is one standard deviation below the average level of regulation, the effect of past financial sector experience is 0.023 lower – almost equal to the average level of reform of 0.02.¹⁸ Experience in the financial sector matters much more when there is greater scope for deregulation.¹⁹

While we do not have plausible instruments for governors' characteristics, we argue that the results in Tables 5 and 6 have a causal interpretation, and are not completely driven by spurious correlation or omitted variables. The main concern in identifying causal effects in our context arises if countries that have a preference for reform also appoint governors that are more likely to advocate and implement reform. In other words, countries with a preference for reform tend to choose central bank governors who are more likely to be reform-oriented. In order to address this concern, we assume that attitudes towards deregulation are likely to be either country-specific but time-invariant, *or* broad time-varying trends that are common across countries. Country and time fixed effects in our empirical specifications control for such attitudes towards deregulation. If, however, attitudes towards deregulation are

¹⁸ The coefficient on the interaction of past experience with lagged level of regulation in column 7 of Table 6 is -0.039, and a standard deviation of lagged level of regulation is 0.29 (Table A2 in the appendix). The difference in the effect is thus equal to $0.0226 = -0.039 \times (2 \times 0.29)$.

¹⁹ In Table A3, we include interactions of the significant experience variables, financial sector and international organization experiences, with the lagged level of the financial sector reform index; and in Table A4, we interact all the experience variables with the lagged level of the index. Our main findings remain robust. There is some evidence in Table A4 that experience in non-financial private sector also has positive and significant association with financial sector reforms; the effect is larger when the scope for deregulation is greater.

country-specific *and* time varying, they would not be captured through the inclusion of fixed effects. Since the inclusion of country and year varying fixed effects will not leave us with any degrees of freedom, we estimate equation (1) with country-by-decade fixed effects to address any remaining causality concerns. This last specification goes some way towards controlling for country-specific *and* time varying omitted variables.

Table 7 reports these regressions, where we report the baseline results in columns 1 and 2 to facilitate comparisons (column 7 in tables 5 and 6, respectively). Columns 3 and 4 report estimates of equation (1) without country fixed effects. We compare these to the baseline results, to assess whether country-specific attitudes towards deregulation drive our results. Since the country fixed effects are relegated to the error in these specifications, we expect them to bias the estimator, as an omitted factor. Compared to column 1, the estimated coefficient to past experience in the private financial sector in column 3 drops, and although the standard error drops too, the estimate is not statistically significant at the conventional levels. This implies that countries that prefer financial reform (larger country fixed effects) are *less* likely to appoint a governor who is more likely to implement reform. We would expect the opposite if countries that prefer reform appoint governors that are more likely to implement reform. The attenuation effect is smaller in column 4 versus column 2, and the interpretation remains the same. The difference in attenuation between columns 3 and 4 is due to the fact that the interaction of experience in finance with lagged regulation captures some of the variation that is country-specific and correlated with past experience in finance.

Next we investigate whether broad trends in reform, common across countries, are correlated with the incidence of governors with past experience in finance. To do this, we drop time fixed effects. The results are reported in columns 5 and 6 of Table 7. The omission of time fixed effects in column 5 does not affect the coefficient to past experience in finance, implying that broad trends in deregulation do not seem to bias the results. However, the estimated coefficients are larger in column 6, compared to column 2, which suggests an upward bias in the effect of past experience in finance at low levels of regulation when we omit the time effects. Overall, we interpret this as evidence that

aggregate trends in reform are only weakly correlated with appointment of governors with past experience in finance.

In a last permutation of fixed effects, we replace the country and time fixed effects with country-by-decade fixed effects. These fixed effects absorb changes in attitudes towards reform across decades within countries. This is a very demanding specification, since it restricts identification of the effect of past experience in finance to variation within decades and countries. The results in columns 7 and 8 confirm the main message of columns 1 and 2. The coefficients are somewhat smaller, but we still find significant effects of past experience in finance, although the interaction with lagged level of the regulation index loses statistical significance.

The message of Table 7 is that country-specific attitudes, or global trends towards deregulation, or even country and time-varying (by decade) attitudes towards reform do not drive our results. If anything, countries with a preference for financial sector reform are less likely to appoint reform-oriented governors, and therefore controlling for such preferences raises the magnitude of the effect of financial sector experience on reforms.

We estimate placebo specifications, in which we shift the timing of the job spells as governor either forward or backward. The average length of a job spell as governor is about 5.7 years. Therefore, we estimate (1) while using either $CBG_{i(c,t+6)}$ or $CBG_{i(c,t-6)}$. We also lag or lead $Index_{c,t-1}$ by six years, commensurate with CBG lag or lead, in order to take into account the fact that the propensity for reform changes (although this is immaterial for the results). We do this in two ways: first use the lead or lag the entire vector of governor characteristics in CBG ; then we only change the timing of the private sector financial experience information. In all these specifications, past experience in finance is not statistically significant. In the lead regressions the coefficient to past experience in finance is also much smaller (these results are available upon request). These results strengthen our causal

interpretation, and indicate that the effect is concentrated in the period of the job spell, further weakening concerns for spurious correlation, and strengthening our causal interpretation.

If a governor is nominated in order to address the country's preference for reform, then this is more likely to happen in the first years within the job spell, rather than in the latter. On the other hand, if deregulation is the preference of the governor, then it is likely to be more spread out throughout time at the position. In order to address this, we interacted the indicator for past experience in finance with the corresponding number of years on the job (job spell). The interactions are insignificant (these results are available upon request). Therefore, we do not find evidence that governors with private financial sector experience are more likely to reform in early years on the job, as is likely to be the case if countries who want to reform are likely to hire governors from the private financial sector.

In a final check, we try to predict experience in finance by regressing it on our macroeconomic control variables. The macroeconomic environment may affect preferences about the economy and also about the nature of the desired central bank governor. We fit a linear probability model with the indicator for past experience in finance as the dependent variable. We do not find any effect of the macroeconomic environment, except for a weak and imprecisely estimated increase in the likelihood of having a governor with experience in finance in response to crisis (inflation > 40%) (Table A5). These findings strengthen our causal interpretation: the preferences of central bank governors have a causal effect on financial deregulation.

We now turn to the following question: Is it the past experience of the central banker or the future experience in the financial sector (after the end of the tenure as the central banker, the so-called "revolving door") that determines governors' preferences toward financial sector reforms? Governors' decisions may be affected by the promise of employment in finance in return for promoting deregulation. In order to address this question, we repeat the specification in Table 5 with experience *after* the central banking tenure. The results are reported in Table 8: We do not find any

evidence for future experience in financial industry (or any other sector) to be a significant determinant of financial sector reforms.

Next we ask whether the effect of financial sector experience varies by type of financial reform – banking or securities market. In order to address this question, we repeat the main specification in Table 5 (column 7) by changing the type of reform as the dependent variable – banking reform or securities markets reform. The results are reported in Table 9. We find that prior financial sector experience is significantly associated with reforms in the banking sector (column 1), but not with securities’ markets reforms (column 2). This result can be explained by the fact that the vast majority of what we define as financial sector experience occurs in credit intermediation and banking, not in trading and securities. Columns 3-7 repeat the regressions for the various sub-components of banking sector reforms. The effect of experience in the financial sector is consistently positive for all sub-components of banking reform, and statistically significant for two sub-components – entry barriers/competition restrictions, and privatization. Central bank governors with financial sector experience carry out pro-competitive reforms, and push for less public involvement in banking.^{20, 21}

In Table 10 we further investigate the effect of experience in international organizations. Here we distinguish between different international organizations: the International Monetary Fund (IMF), World Bank, United Nations (UN), Bank of International Settlements (BIS), other development banks (not the World Bank). Although on average experience in an international organization is associated with lower financial reforms (Table 5), we find substantial variation across different international organizations. Experience at the IMF is associated with greater reforms; this is consistent with the influence of the so-called “Washington Consensus” at the IMF on governors. In contrast, experience

²⁰ Adding an interaction of past experience in finance with the lagged reform index illustrates that banking reform is more influenced when there is greater scope for reform, as in Table 6, but the estimates of this effect for subcomponents of banking reform is not precise (not reported).

²¹ These results are not consistent with the classic regulatory capture theory a la Stigler (1971), where regulation entails barriers to entry, price, cost and quantity controls. Instead, financial regulation highlights macroprudence, and attempts to curb risk taking and asymmetric information which can be hindered with deregulation and increased competition.

at the UN and the BIS seem to drive the negative association in Table 5.²² This is consistent with the view that at these institutions instill a more prudential and cautious view on financial deregulation, especially at the BIS. Experience at the World Bank shows no significant relationship with financial sector reforms. Differentiation among international organizations does not alter the main result for the effect of experience in the financial sector on financial reforms.

Additional Findings

In an additional specification, we examine the educational characteristics of central bankers in Table 11. Columns 1-6 include indicator variables for whether the central banker has a degree in economics, economics or finance, has a PhD, PhD in economics, PhD in economics or finance, went to school in the US or the UK, respectively. In column 7, we include simultaneously multiple educational characteristics of the central bank governor (degree in economics or finance, has a PhD, and went to school in the US, or in the UK). In column 8, we introduce additional macroeconomic controls such as GDP growth, crisis, and growth in bank credit. Across all specifications, we do not find any robust relationship between the educational characteristics of the central bank governor and financial sector reforms.

Finally, in line with the prior literature, we also examine how characteristics of central bank governors affect annual changes in the consumer price inflation rate. We repeat the regressions in Tables 5 and 11 with change in inflation (instead of financial sector reform) as the dependent variable. The results for experience and education are shown in Tables 12 and 13 respectively. We find past experience in finance and academia to have a positive and weakly significant effect on change in inflation. In contrast, past work experience in the ministry of finance is negatively associated with changes in inflation. In other words, central bankers who have worked at the ministry of finance have a preference for smaller increases (or larger decrease) in inflation. The estimated coefficients in column 4 of Table

²² In Table A6, we examine the effect of different types of international organization experience on the subcomponents of the financial sector reform index – banking and securities. The estimated effects are qualitatively similar to that in Table 9, with the magnitude of the effects being larger for the banking sector sub-index (with the exception of BIS experience, where the effect is larger for the securities sub-component).

12 imply that on average, every year in which there is a governor with financial sector experience, we predict inflation to increase by 0.02 percentage points more compared to a year in which the governor has no financial sector experience. The direction and magnitude of the effect for experience in the academia is similar. However, inflation is predicted to increase by roughly 0.02 percentage points *less* in a year in which there is a governor with experience in the Ministry of Finance.

Finally, similar to results on financial sector reforms, we do not find education of central bankers to be important in explaining the changes in inflation.

V. CONCLUSION

In this paper we study how personal characteristics of central bank governors affect financial regulation, and other policy outcomes. This is the first paper to ask whether heads of central banks affect financial regulation, not just inflation.

Our main finding is that governors that have prior financial sector experience (20 percent of central bankers in our sample) are associated with greater financial sector reform – in particular banking reform (rather than securities markets reform). Previous experience at the IMF has the same effect as in the financial sector. In contrast, previous experience at the UN and BIS has the opposite effect. Although we do not have plausible instruments for characteristics of central bank governors, we attempt to discern a causal interpretation for our results.

Our findings have several important implications. First, if the goal of the country's government is to implement deregulation, this may manifest itself in the choice of a central bank governor with experience in the financial sector, but the achievement of the country's goal could also be facilitated

by this choice. In cases where the choice of the central bank governor does not take into account past experience, the outcome of financial deregulation may be an undesirable result.

Overall, our results strengthen the importance of considering the background and past work experience before appointing a governor. In this sense, our paper strengthens the broad argument in Romer and Romer (2004), while shifting the focus from inflation to financial regulation. In light of the recent economic crises in the United States and Europe, and the perceived importance of financial regulation (e.g., Igan, Mishra, and Tressel, 2012, and Philippon and Reshef 2012), this shift in focus may indeed be warranted. Our empirical strategy cannot identify whether greater financial reform is a preference of the central banker (we rule out the importance of the effect of country preference), or simply a greater ability to push and implement reform. In both cases, however, past experience in finance predicts greater financial reform, which makes the case for the importance of examining past experience of candidates for central banks.

REFERENCES

- Abiad, A., and A. Mody (2005): Financial Reform: What Shakes It? What Shapes It? *The American Economic Review*, 95, 66-88.
- Barro, R. J., and D. B. Gordon (1983): Rules, discretion and reputation in a model of monetary policy, *Journal of Monetary Economics*, 21(1), 101-121.
- Bertrand, M., and A. Schoar (2003): Managing with Style: The Effect of Managers on Firm Policies, *The Quarterly Journal of Economics*, 118(4), 1169-1208.
- Besley, T., J. G. Montalvo, and M. Reynal-Querol (2011): Do Educated Leaders Matter? *The Economic Journal*, 121, 205-227.
- Boustanifar, H., Grant, E. and Reshef, A. (2016): “Wages and Human Capital in Finance: International Evidence, 1970-2005”, working paper, Paris School of Economics.
- Braun, M., and C. Raddatz (2009): Banking on Politics, World Bank, Policy Research Working Paper 4902.
- Cukierman, A. (1992): *Central Bank Strategy, Credibility and Independence: Theory and Evidence*. The MIT Press, Cambridge, MA.
- Cukierman, A. (1994): Commitment through Delegation, Political Independence and Central Bank Independence, in *A Framework for Monetary Stability*, ed. by J. O. de Beaufort Wijnholds, S. C. W. Eijçnger, and L. H. Hoogduin, pp. 66-74, Boston. Kluwer Academic Publishers.
- Cukierman, A., and S. B. Webb (1995): Political Influence on the Central Bank: International Evidence, *World Bank Economic Review*, 9(3), 397-423.
- Cukierman, A., S. B. Webb, and B. Neyapti (1992): Measuring the Independence of Central Banks and its Effect on Policy Outcomes, *World Bank Economic Review*, 6(3), 353-398.
- De Soto, H. (1990): *The Other Path*. Harper and Row, New York.
- Drazen, A. (2000): *Political Economy in Macroeconomics*. Princeton University Press, Princeton.

Dreher, J., M. J. Lamla, S. M. Lein, and F. Somogyi (2009): The impact of political leaders' profession and education on reforms, *Journal of Comparative Economics*, 37, 169-193.

Dreher, A., and C. Moser (2010): Do Markets Care about Central Bank Governor Changes? Evidence from Emerging Markets, *Journal of Money, Credit and Banking*, 42(8), 1589-1612.

Dreher, A., J.E. Sturm, and J. de Haan (2008): Does High Inflation Cause Central Bankers to Lose Their Job? Evidence Based on a New Data Set, *European Journal of Political Economy*, 24, 778-787.

Dreher, A., J.E. Sturm, and J. de Haan (2010): When is a Central Bank Governor Replaced? Evidence Based on a New Data Set, *Journal of Macroeconomics*, 32, 766-781.

Eijffinger, S. C. W., and J. de Haan (1996): The Political Economy of Central Bank Independence, *Special Papers in International Economics*, No. 19, International Finance Section, Department of Economics, Princeton University.

Fernandez, R., and A. Fogli (2006): Fertility: The Role of Culture and Family Experience, *Journal of the European Economic Association*, 4(2-3), 552-561.

Fernandez, R., and A. Fogli (2009): Culture: An Empirical Investigation of Beliefs, Work, and Fertility, *American Economic Journal: Macroeconomics*, 1(1), 146-177.

Gehlbach, S., K. Sonin, and E. Zhuravskaya (2010): Businessman Candidates, *American Journal of Political Science*, 54(3), 718-736.

Gohlmann, S., and R. Vaubel (2007): The educational and occupational background of central bankers and its effect on inflation: An empirical analysis, *European Economic Review*, 51, 925- 941.

Goodhart, C., P. Hartmann, D. Llewellyn, L. Rojas-Suarez, and S. Weisbrod (1998): *Financial Regulation: Why, How and Where Now?* Routledge, New York.

Guiliano, Paola, Prachi Mishra, and Antonio Spilimbergo, 2013, "Democracy and Reforms", *American Economic Journal: Macroeconomics*, 5(4): 179-204.

Hacker, J. S., and P. Pierson (2010): *Winner-Take-All Politics*. Simon and Schuster, New York.

Havrilesky, T. (1993): *The Pressures on American Monetary Policy*. Kluwer Academic Publishers, Norwell, MA.

Horakova, M. (2012): *How Countries Supervise Their Banks, Insurers and Securities Markets 2012*, Central Banking Publications.

Horowitz, M., R. McDermott, and A. C. Stam (2005): Leader Age, Regime Type, and Violent International Relations, *The Journal of Conflict Resolution*, 49(5), 661-685.

Horowitz, M., R. McDermott, and A. C. Stam (2008): Where You Stand Depends on If You Served: How Military Backgrounds Influence the Behavior of Leaders, Working paper, University of Michigan.

Igan, Deniz, Prachi Mishra, and Thierry Tresselt (2012): "A Fistful of Dollars: Lobbying and the Financial Crisis," NBER Macroeconomics Annual, University of Chicago Press, vol. 26(1), pages 195 - 230.

IMF (2009): "Structural Reforms and Economic Performance in Advanced and Developing Countries", Occasional Paper No. 268.

<http://www.imf.org/external/pubs/cat/longres.aspx?sk=22594.0>

Johnson, S., and J. Kwak (2010): *13 Bankers*. Pantheon Books, New York.

Jones, B. F., and B. A. Olken (2005): Do Leaders Matter? National Leadership and Growth since World War II, *The Quarterly Journal of Economics*, 120(3), 835-864.

Kaplan, S. N., M. M. Klebanov, and M. Sorensen (2008): Which CEO Characteristics and Abilities Matter? NBER Working Paper No. 14195.

Kuttner, K. N., and A. S. Posen (2010): Do Markets Care Who Chairs the Central Bank?, *Journal of Money, Credit and Banking*, 42(2-3), 347-371.

Kydland, F. E., and E. C. Prescott (1977): Rules Rather than Discretion: The Inconsistency of Optimal Plans, *Journal of Political Economy*, 85(3), 473-492.

Lucca, D., A. Seru, and F. Trebbi (2014): The Revolving Door and Worker Flows in Banking Regulation, *Journal of Monetary Economics*, 65, pp. 17-32.

Moser, C. (2007): The Impact of Political Risk on Sovereign Bond Spreads - Evidence from Latin America, Working Paper, University of Mainz.

Moulton, B. R. (1990): An Illustration of a Pitfall in Estimating the Effects of Aggregate Variables on Micro Units, *The Review of Economics and Statistics*, Vol. 72, No. 2, pp. 334-338.

Philippon, T. and A. Reshef (2012): Wages and Human Capital in the U.S. Financial Industry: 1909–2006, *The Quarterly Journal of Economics*, 127(4), November 2012, pp. 1551–1609.

Posen, A. S. (1995): Declarations Are Not Enough: Financial Sector Sources of Central Bank Independence, in *NBER Macroeconomics Annual 1995*, ed. by B. S. Bernanke, and J. J. Rotemberg, vol. 10. MIT Press.

Riboni, A., and F. J. Ruge-Murcia (2010): Monetary Policy by Committee: Consensus, Chairman Dominance, or Simple Majority? *The Quarterly Journal of Economics*, Volume 125, Issue 1, pp. 363-416, February.

Rogoff, K. (1985): The Optimal Degree of Commitment to an Intermediate Monetary Target, *The Quarterly Journal of Economics*, 100(4), 1169-1189.

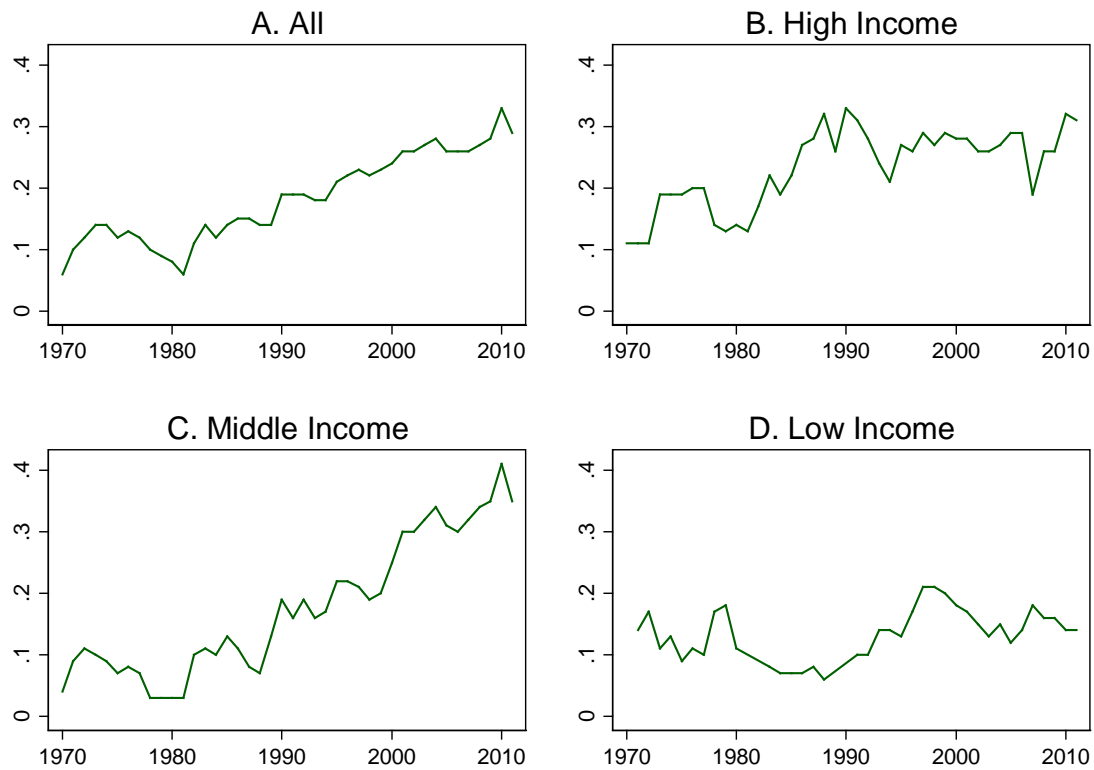
Romer, C. D. and D. H. Romer (2004): Choosing the Federal Reserve Chair: Lessons from History, *Journal of Economic Perspectives*, Volume 18, No. 1, pp. 129-162.

Rubinstein, A. (2006): A Sceptic's Comment on the Study of Economics, *The Economic Journal*, 116, C1-C9.

Stigler, G. (1971): The Theory of Economic Regulation, *Bell Journal of Economics and Management Science*, 2, 3-21.

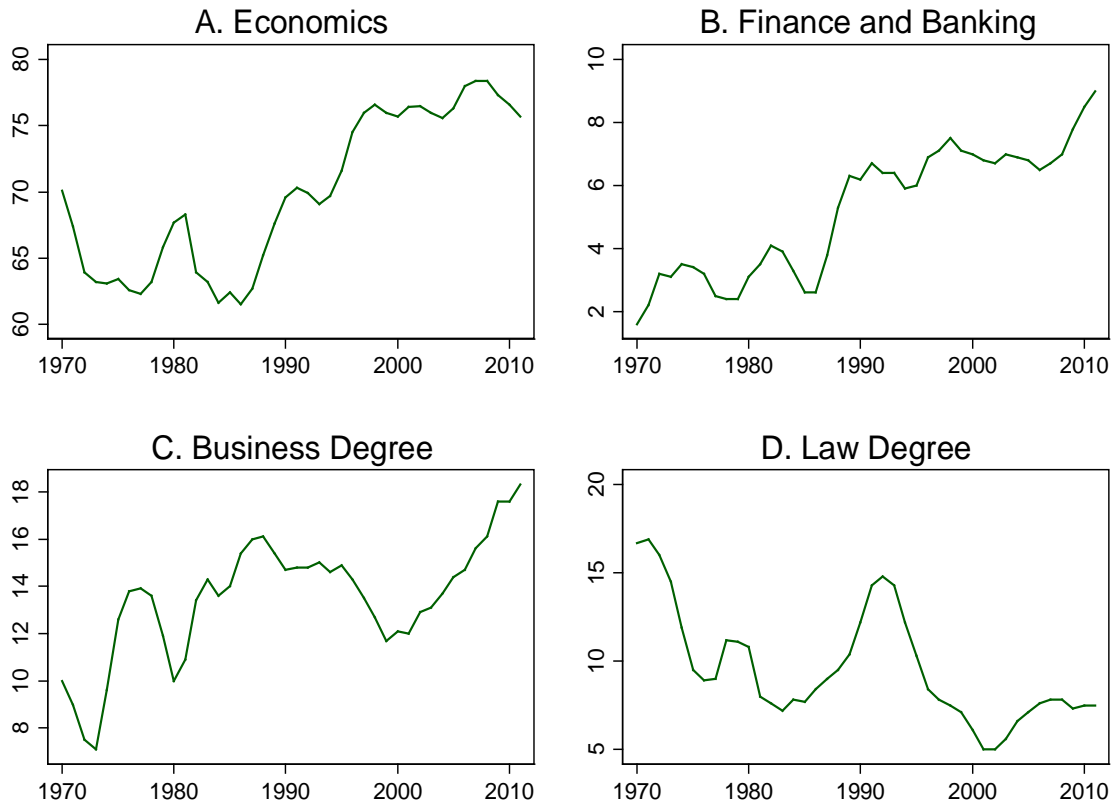
FIGURES AND TABLES

Figure 1: Private Financial Sector Experience



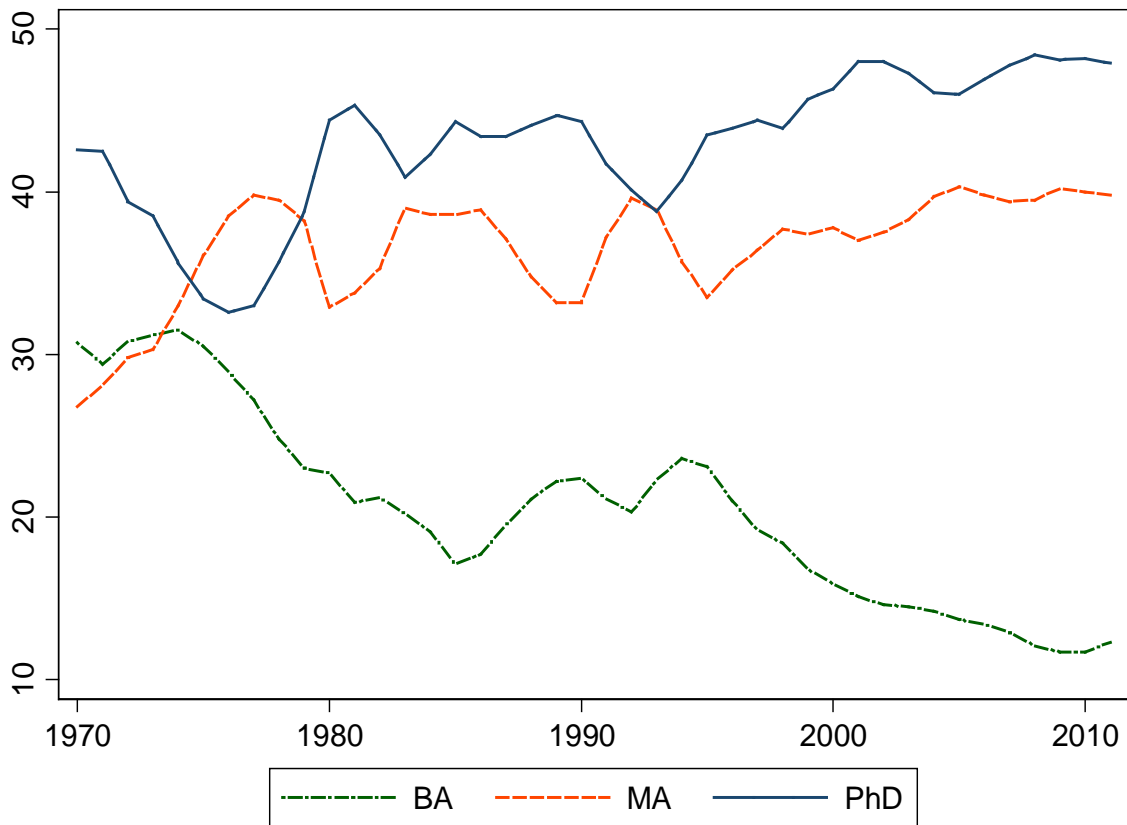
Notes: The figure reports how the percent of central bank governors with experience in the private financial sector has changed over time. Panel A describes their prevalence across all countries, and Panels B-D distinguishes high, middle and low income countries (World Bank classifications).

Figure 2a: Education Fields over Time



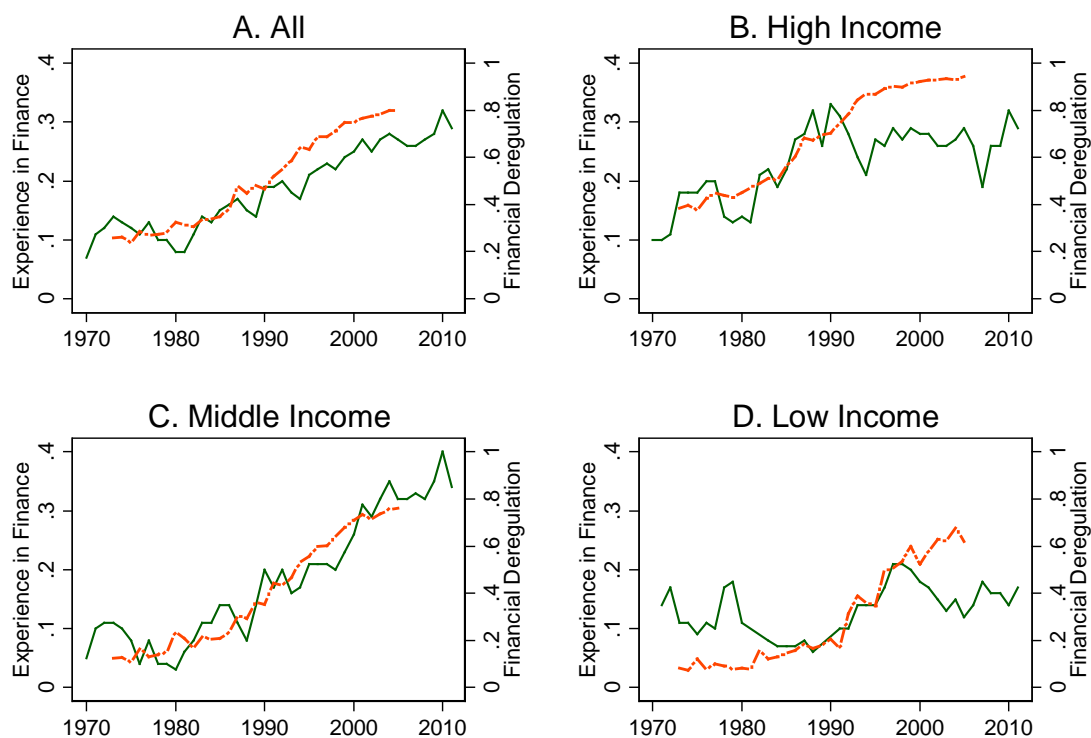
Notes: Figures report the percent of governors with each type of educational background. Data are three-year moving averages.

Figure 2b: Highest Degree Attained



Notes: The figure reports the percent of governors with each education level. Data are three-year moving averages.

Figure 3: Private Financial Sector Experience and Financial Deregulation



Legend: Solid=Private Banking, Dot-dash=Financial Deregulation

Notes: The figures report the percent of governors with past experience in the private financial sector, together with the financial deregulation index from IMF (2009).

Table 1: Work Experience of Central Bank Governors

A. Before serving as central bank governor										
	Academic	International Organization	Private Sector		Politics	Central Bank	Government		NGO	All
			Financial	Other			Ministry of Finance	Other		
Observations	197	196	128	112	22	311	198	368	0	658
Percent	29.9	29.8	19.5	17.0	3.3	47.3	30.1	55.9	0.0	-
Of which outside home country										
Observations	45	129	31	12	0	24	3	49	0	229
Percent	22.8	65.8	24.2	10.7	0.0	7.7	1.5	13.3	0.0	35
B. After serving as central bank governor										
	Academic	Intl. Org.	Private Sector		Politics	Central Bank	Government		NGO	All
			Financial	Other			Ministry of Finance	Other		
Observations	65	119	101	103	16	23	62	195	7	402
Percent	16.2	29.6	25.1	25.6	4.0	5.7	15.4	48.5	1.7	-
Of which outside home country										
Observations	12	66	12	13	1	7	10	39	2	135
Percent	18.5	55.5	11.9	12.6	6.3	30.4	16.1	20.0	28.6	33.6

Notes: Panel A reports the number of central banker governors that have each type of past work experience, together with the percent that these observations in the sample. The percent need not sum to 100, because governors may have more than one type of past experience. Observations of experiences that occur outside of the country in which governors serve (“home country”) are reported in the third and fourth lines. Panel B reports similar statistics for work experiences after serving as governor. The sample is smaller due to data restrictions.

Table 2: Years Between Leaving Private Sector Finance and Starting Position as Central Bank Governor

	0	1	2-3	4-5	6-7	8-9	10 or more	All
Percent	38.7	8.5	9.4	9.4	8.5	10.4	15.1	100

Notes: Based on 106 observations for which we have data on date in which CBG left private sector banking, out of total of 128 governors that had previous experience in this industry.

Table 3: Education of Central Bank Governors**A. Education Fields (512 observations)**

	Economics	Finance and Banking	Accounting	Business	Law	Engineering	Natural Sciences	Other
Percent	72.7	6.8	4.9	15.4	9.6	4.1	5.5	11.5
S.D.	2.0	1.1	1.0	1.6	1.3	0.9	1.0	1.4

B. Highest Degree Attained (484 observations)

	BA	MA	PhD
Percent	16.1	39.3	44.6
S.D.	1.7	2.2	2.3

Notes: Panel A is based on a sample of 512 governors, for which we data on educational background. Panel B is based on 484 governors, for which we know the highest degree attained.

Table 4. Financial Sector Regulation Indices

<i>Financial sector</i>	The index of domestic financial liberalization is an average of six sub indices, five related to <i>banking</i> and one related to the <i>securities market</i> .
<i>Banking</i>	The banking sub index is an average of the following 5 indicators: (i) interest rate controls, such as floors or ceilings; (ii) credit controls, such as directed credit and subsidized lending; (iii) competition restrictions, such as limits on branches and entry barriers in the banking sector, including licensing requirements or limits on foreign banks; (iv) the degree of state ownership; and (v) the quality of banking supervision and regulation, including power of independence of bank supervisors, adoption of Basel capital standards, and a framework for bank inspections.
<i>Securities market</i>	The sixth sub index relates to <i>securities markets</i> and covers policies to develop domestic bond and equity markets, including (i) the creation of basic frameworks such as the auctioning of T-bills, or the establishment of a security commission; (ii) policies to further establish securities markets such as tax exemptions, introduction of medium- and long-term government bonds to establish a benchmark for the yield curve, or the introduction of a primary dealer system; (iii) policies to develop derivative markets or to create an institutional investor's base; and (iv) policies to permit access to the domestic stock market by nonresidents. The sub indices are aggregated with equal weights. Each sub index is coded from zero (fully repressed) to three (fully liberalized).
Data sources	Abiad and others (2008), following the methodology in Abiad and Mody (2005), based on various IMF reports and working papers, central bank websites, and others.

Table 5. Financial Sector Reforms and Experience of Central Banker

Dependent variable: financial sector reform in (country, year)								
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Lagged level of index	-0.143*** [0.014]	-0.151*** [0.016]	-0.151*** [0.015]	-0.141*** [0.017]	-0.142*** [0.015]	-0.148*** [0.015]	-0.151*** [0.019]	-0.148*** [0.019]
Past Experience in Private Financial Sector	0.008* [0.004]	0.008* [0.004]	0.008^ [0.005]	0.012** [0.005]	0.008* [0.004]	0.007^ [0.004]	0.011** [0.005]	0.011** [0.005]
Past experience in academia	0.005 [0.004]	0.007* [0.004]	0.007* [0.004]	0.005 [0.004]	0.005 [0.004]	0.005 [0.004]	0.006 [0.004]	0.006 [0.004]
Past experience in other private sector	0.004 [0.004]	0.005 [0.004]	0.005 [0.004]	0.004 [0.004]	0.004 [0.004]	0.004 [0.004]	0.004 [0.005]	0.004 [0.005]
Past experience in central banking	0.001 [0.003]	0.000 [0.004]	0.000 [0.003]	0.003 [0.003]	0.001 [0.003]	0.001 [0.003]	0.002 [0.004]	0.002 [0.004]
Past experience in ministry of finance	-0.001 [0.004]	0.001 [0.004]	0.001 [0.004]	-0.001 [0.004]	0.000 [0.004]	0.001 [0.004]	0.000 [0.005]	0.000 [0.005]
Past experience in international organization	-0.007** [0.004]	-0.009** [0.004]	-0.008** [0.004]	-0.010** [0.004]	-0.007** [0.004]	-0.008** [0.004]	-0.010** [0.004]	-0.010** [0.004]
Lagged crisis (inflation>40)		-0.002 [0.008]					-0.003 [0.009]	
Lagged real devaluation			0.000 [0.001]				-0.012 [0.011]	
Lagged reforms in geographical neighbors				-0.017 [0.086]			-0.013 [0.091]	
Lagged IMF Program					0.004 [0.004]		0.000 [0.004]	
Lagged dummy for left						0.00 [0.004]	-0.001 [0.004]	
Lagged dummy for presidential						-0.01 [0.008]	-0.005 [0.008]	
Observations	1493	1436	1406	1173	1493	1426	1090	1090
Number of countries	74	74	71	72	74	73	69	69
R-squared	0.19	0.19	0.20	0.21	0.19	0.19	0.21	0.21

Notes: All regressions include country and year fixed effects. Standard errors are clustered at the governor-level. ***, **, *, and ^ denote statistical significance at 1, 5, 10, and 15 percent respectively.

Table 6. Financial Sector Reforms and Experience of Central Banker: Does the Effect Vary by Level of Regulation?

Dependent variable: financial sector reform in (country, year)								
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Lagged level of index	-0.137*** [0.016]	-0.145*** [0.016]	-0.145*** [0.016]	-0.129*** [0.016]	-0.137*** [0.016]	-0.142*** [0.016]	-0.139*** [0.018]	-0.136*** [0.019]
Past Experience in Private Financial Sector	0.017* [0.010]	0.019* [0.011]	0.018* [0.011]	0.034*** [0.012]	0.017* [0.010]	0.016 [0.011]	0.035*** [0.013]	0.034** [0.013]
Past Experience in Private Financial Sector*Lagged level of	-0.017 [0.014]	-0.02 [0.015]	-0.018 [0.015]	-0.037** [0.016]	-0.016 [0.014]	-0.017 [0.016]	-0.039** [0.018]	-0.037** [0.018]
Past experience in academia	0.005 [0.004]	0.006^ [0.004]	0.006^ [0.004]	0.004 [0.004]	0.005 [0.004]	0.004 [0.004]	0.004 [0.004]	0.004 [0.004]
Past experience in other private sector	0.004 [0.004]	0.005 [0.004]	0.005 [0.004]	0.004 [0.004]	0.004 [0.004]	0.004 [0.004]	0.005 [0.005]	0.004 [0.005]
Past experience in central banking	0.000 [0.003]	0.000 [0.003]	-0.001 [0.003]	0.002 [0.003]	0.000 [0.003]	0.001 [0.003]	0.001 [0.003]	0.001 [0.003]
Past experience in ministry of finance	-0.001 [0.004]	0.001 [0.004]	0.001 [0.004]	-0.001 [0.004]	0.000 [0.004]	0.001 [0.004]	0.001 [0.005]	0.001 [0.005]
Past experience in international organization	-0.007** [0.004]	-0.009** [0.004]	-0.009** [0.004]	-0.010*** [0.004]	-0.008** [0.004]	-0.008** [0.004]	-0.011*** [0.004]	-0.011*** [0.004]
Lagged crisis (inflation>40)		-0.002 [0.008]					-0.004 [0.010]	
Lagged real devaluation			0.000 [0.001]				-0.013 [0.011]	
Lagged reforms in geographical neighbors				-0.02 [0.086]			-0.015 [0.091]	
Lagged IMF Program					0.003 [0.004]		-0.001 [0.004]	
Lagged dummy for left						0.001 [0.004]	-0.002 [0.004]	
Lagged dummy for presidential						-0.009 [0.008]	-0.003 [0.008]	
Observations	1493	1436	1406	1173	1493	1426	1090	1090
Number of countries	74	74	71	72	74	73	69	69
R-squared	0.19	0.20	0.20	0.21	0.19	0.19	0.21	0.21

Notes: All regressions include country and year fixed effects. Standard errors are clustered at the governor-level. ***, **, *, and ^ denote statistical significance at 1,5, 10, and 15 percent respectively.

Table 7. Financial Sector Reforms and Experience of Central Banker: Baseline and No Fixed Effects

	Dependent variable: financial sector reform in (country, year)							
	Baseline		No country fixed effects		No time fixed effects		Country*decade fixed effects	
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Lagged level of index	-0.151*** [0.019]	-0.139*** [0.018]	-0.037*** [0.007]	-0.031*** [0.007]	-0.044*** [0.009]	-0.033*** [0.008]	-0.203*** [0.022]	-0.196*** [0.023]
Past Experience in Private Financial Sector	0.011** [0.005]	0.035*** [0.013]	0.005 [0.003]	0.024** [0.011]	0.011** [0.005]	0.044*** [0.014]	0.009** [0.005]	0.022* [0.012]
Past Experience in Private Financial Sector*Lagged level of index		-0.039** [0.018]		-0.030** [0.014]		-0.054*** [0.019]		-0.022 [0.016]
Past experience in academia	0.006 [0.004]	0.004 [0.004]	0.000 [0.003]	0.000 [0.003]	0.001 [0.004]	-0.001 [0.004]	-0.003 [0.005]	-0.003 [0.004]
Past experience in other private sector	0.004 [0.005]	0.005 [0.005]	0.006^ [0.004]	0.006^ [0.004]	0.010** [0.005]	0.010** [0.005]	0.002 [0.004]	0.002 [0.004]
Past experience in central banking	0.002 [0.004]	0.001 [0.003]	0.000 [0.003]	-0.001 [0.003]	0.003 [0.004]	0.002 [0.004]	0.000 [0.004]	0.000 [0.003]
Past experience in ministry of finance	0.000 [0.005]	0.001 [0.005]	-0.003 [0.003]	-0.003 [0.003]	-0.003 [0.005]	-0.003 [0.005]	0.004 [0.005]	0.004 [0.005]
Past experience in international organization	-0.010** [0.004]	-0.011*** [0.004]	-0.009*** [0.003]	-0.008*** [0.003]	-0.010** [0.004]	-0.011*** [0.004]	-0.008* [0.005]	-0.008* [0.005]
Lagged crisis (inflation>40)	-0.003 [0.009]	-0.004 [0.010]	0.01 [0.008]	0.009 [0.008]	0.015 [0.011]	0.012 [0.012]	0.01 [0.010]	0.01 [0.010]
Lagged real devaluation	-0.012 [0.011]	-0.013 [0.011]	-0.017 [0.012]	-0.018 [0.013]	-0.013 [0.011]	-0.015 [0.011]	-0.006 [0.011]	-0.006 [0.011]
Lagged reforms in geographical neighbors	-0.013 [0.091]	-0.015 [0.091]	-0.064 [0.094]	-0.064 [0.094]	0.107 [0.080]	0.093 [0.081]	-0.098 [0.087]	-0.099 [0.087]
Lagged IMF Program	0.000 [0.004]	-0.001 [0.004]	0.003 [0.003]	0.003 [0.003]	-0.001 [0.004]	-0.003 [0.004]	-0.001 [0.004]	-0.002 [0.004]
Lagged dummy for left	-0.001 [0.004]	-0.002 [0.004]	0.002 [0.003]	0.002 [0.003]	-0.011 [0.009]	-0.008 [0.009]	0.000 [0.010]	0.000 [0.010]
Lagged dummy for presidential	-0.005 [0.008]	-0.003 [0.008]	-0.004^ [0.003]	-0.004 [0.003]	0.003 [0.004]	0.002 [0.004]	-0.004 [0.004]	-0.004 [0.004]
Observations	1090	1090	1090	1090	1090	1090	1090	1090
Number of countries	69	69	69	69	69	69	69	69
R-squared	0.210	0.215	0.13	0.13	0.11	0.11	0.32	0.32

Notes: Columns 1 and 2 include country and year fixed effects. In columns 3 and 4 we drop country fixed effects, and in columns 5 and 6 we drop year fixed effects. Columns 7 and 8 include country-by-decade fixed effects. Standard errors are clustered at the governor-level. ***, **, *, and ^ denote statistical significance at 1, 5, 10, and 15 percent respectively.

Table 8. Financial Sector Reforms and Future Experience of Central Banker

Dependent variable: financial sector reform in (country, year)								
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Lagged level of index	-0.138*** [0.019]	-0.139*** [0.020]	-0.149*** [0.021]	-0.133*** [0.021]	-0.138*** [0.019]	-0.147*** [0.021]	-0.136*** [0.024]	-0.144*** [0.024]
Future Experience in Private Financial Sector	0.002 [0.005]	0.002 [0.005]	0.001 [0.005]	0.001 [0.005]	0.001 [0.005]	0.001 [0.005]	0.003 [0.005]	0.000 [0.005]
Future experience in academia	0.004 [0.006]	0.001 [0.006]	0.002 [0.006]	0.002 [0.006]	0.003 [0.006]	0.001 [0.006]	-0.003 [0.006]	-0.001 [0.006]
Future experience in other private sector	-0.003 [0.005]	-0.003 [0.006]	-0.002 [0.005]	-0.004 [0.006]	-0.003 [0.005]	-0.003 [0.006]	-0.005 [0.006]	-0.003 [0.006]
Future experience in central banking	0.007 [0.011]	0.015 [0.012]	0.013 [0.012]	-0.001 [0.014]	0.007 [0.011]	0.01 [0.012]	0.011 [0.016]	0.01 [0.016]
Future experience in ministry of finance	0.001 [0.009]	-0.005 [0.009]	-0.001 [0.009]	-0.003 [0.010]	0 [0.009]	0.001 [0.010]	-0.006 [0.010]	-0.003 [0.011]
Future experience in international organization	0.002 [0.006]	0.002 [0.006]	0.003 [0.006]	0.001 [0.006]	0.001 [0.006]	0.004 [0.006]	0.003 [0.006]	0.005 [0.006]
Lagged crisis (inflation>40)		0.014 [0.010]					0.019 [0.013]	
Lagged real devaluation			0.000 [0.001]				-0.027* [0.015]	
Lagged reforms in geographical neighbors				-0.012 [0.116]			-0.011 [0.119]	
Lagged IMF Program					0.004 [0.005]		0.004 [0.006]	
Lagged dummy for left						0.004 [0.005]	0.002 [0.004]	
Lagged dummy for presidential						-0.018 [0.013]	-0.015 [0.013]	
Observations	1053	1004	979	834	1053	1001	762	762
Number of countries	71	71	69	65	71	71	63	63
R-squared	0.23	0.24	0.24	0.23	0.23	0.23	0.25	0.24

Notes: All regressions include country and year fixed effects. Standard errors are clustered at the governor-level. ***, **, *, and ^ denote statistical significance at 1, 5, 10, and 15 percent respectively.

Table 9. Components of Financial Sector Reforms and Experience of Central Banker

	Dependent variable: financial sector reform in (country, year)						
	Components of Banking Sub-index						
	Banking	Securities	Directed Credit	Interest rate controls	Entry barriers/com petition restrictions	Banking supervision	Privatization
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
Lagged level of index	-0.159*** [0.021]	-0.199*** [0.026]	-0.148*** [0.025]	-0.205*** [0.029]	-0.213*** [0.026]	-0.229*** [0.024]	-0.196*** [0.029]
Past Experience in Private Financial Sector	0.013** [0.006]	0.007 [0.009]	0.015 [0.011]	0.012 [0.016]	0.019** [0.009]	0.006 [0.009]	0.017* [0.010]
Past experience in academia	0.003 [0.004]	0.024*** [0.008]	0.014^ [0.010]	-0.013 [0.010]	0.025*** [0.009]	0.001 [0.008]	-0.01 [0.010]
Past experience in other private sector	0.006 [0.005]	-0.004 [0.008]	0.003 [0.010]	0.014 [0.013]	0.004 [0.010]	-0.011 [0.009]	0.014 [0.010]
Past experience in central banking	0.002 [0.004]	0.002 [0.007]	0.008 [0.008]	0.007 [0.010]	-0.004 [0.008]	-0.009 [0.006]	0.006 [0.009]
Past experience in ministry of finance	-0.001 [0.005]	0.007 [0.009]	0.013 [0.010]	-0.008 [0.010]	-0.005 [0.011]	-0.016* [0.008]	0.014 [0.010]
Past experience in international organization	-0.010** [0.005]	-0.014** [0.007]	-0.011 [0.009]	-0.020* [0.012]	-0.01 [0.008]	-0.003 [0.008]	-0.005 [0.008]
Lagged crisis (inflation>40)	-0.004 [0.011]	-0.011 [0.016]	0.000 [0.018]	-0.022 [0.022]	-0.016 [0.017]	0.01 [0.014]	-0.007 [0.027]
Lagged real devaluation	-0.011 [0.011]	-0.017 [0.027]	-0.019 [0.024]	-0.023 [0.024]	0.018 [0.018]	0.005 [0.018]	-0.039 [0.029]
Lagged reforms in geographical neighbors	-0.051 [0.105]	0.200 [0.185]	-0.044 [0.305]	-0.032 [0.238]	0.12 [0.155]	0.018 [0.191]	-0.296 [0.300]
Lagged IMF Program	-0.001 [0.005]	-0.005 [0.007]	0.002 [0.007]	-0.003 [0.010]	0.001 [0.008]	-0.01 [0.010]	-0.001 [0.010]
Lagged dummy for left	-0.003 [0.010]	-0.016 [0.016]	0.005 [0.017]	-0.054*** [0.019]	0.007 [0.021]	0.001 [0.013]	0.019 [0.027]
Lagged dummy for presidential	-0.002 [0.004]	0.009 [0.007]	-0.010 [0.010]	-0.012 [0.011]	-0.010 [0.009]	-0.002 [0.008]	0.018^ [0.011]
Observations	1090	1090	1090	1090	1090	1090	1090
Number of countries	69	69	69	69	69	69	69
R-squared	0.21	0.21	0.15	0.21	0.20	0.21	0.20

Notes: All regressions include country and year fixed effects. Standard errors are clustered at the governor-level. ***, **, *, and ^ denote statistical significance at 1, 5, 10, and 15 percent respectively.

Table 10. Financial Sector Reforms and Experience of Central Banker. Does the Effect Vary by Type of Experience in International Organizations?

Dependent variable: financial sector reform in (country, year)			
	[1]	[2]	[3]
Lagged level of index	-0.147*** [0.014]	-0.150*** [0.014]	-0.160*** [0.018]
Past experience at the International Monetary Fund	0.014** [0.006]	0.015** [0.007]	0.020** [0.009]
Past experience at the World Bank	-0.008 [0.010]	-0.008 [0.009]	-0.005 [0.012]
Past experience at the Bank of International Settlements	-0.022*** [0.008]	-0.023*** [0.009]	-0.017^ [0.010]
Past experience at the United Nations	-0.023*** [0.007]	-0.024*** [0.007]	-0.031*** [0.008]
Past experience in other development banks (not the World Bank)	-0.004 [0.006]	-0.007 [0.006]	-0.009 [0.007]
Past Experience in Private Financial Sector		0.007* [0.004]	0.010** [0.005]
Past experience in academia		0.006^ [0.004]	0.006^ [0.004]
Past experience in other private sector		0.006 [0.004]	0.006 [0.005]
Past experience in central banking		0.001 [0.003]	0.003 [0.004]
Past experience in ministry of finance		0.000 [0.004]	-0.001 [0.005]
Lagged crisis (inflation>40)			-0.003 [0.009]
Lagged real devaluation			-0.012 [0.011]
Lagged reforms in geographical neighbors			-0.007 [0.091]
Lagged IMF Program			0.000 [0.004]
Lagged dummy for left			-0.006 [0.008]
Lagged dummy for presidential			0.002 [0.004]
Observations	1493	1493	1090
Number of countries	74	74	69
R-squared	0.19	0.20	0.22

Notes: All regressions include country and year fixed effects. Standard errors are clustered at the governor-level. ***, **, *, and ^ denote statistical significance at 1, 5, 10, and 15 percent respectively.

Table 11. Financial Sector Reforms and Education of Central Banker

Dependent variable: financial sector reform in (country, year)								
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Lagged level of index	-0.147*** [0.018]	-0.147*** [0.018]	-0.141*** [0.019]	-0.144*** [0.019]	-0.144*** [0.019]	-0.150*** [0.017]	-0.147*** [0.021]	-0.148*** [0.023]
Economics	0.006 [0.005]							
Economics or Finance		0.003 [0.005]					0.000 [0.006]	-0.003 [0.006]
PhD			0.001 [0.004]				0.001 [0.005]	0.002 [0.005]
Economics PhD				0.004 [0.004]				
Economics or Finance PhD					0.003 [0.004]			
School in UK						0.003 [0.007]	0.003 [0.007]	0.002 [0.008]
School in US						0.010** [0.005]	0.007 [0.005]	0.005 [0.007]
Lagged crisis (inflation>40)								-0.008 [0.008]
Lagged real devaluation								-0.014 [0.012]
Lagged reforms in geographical neighbors								0.157^ [0.105]
Lagged IMF Program								0.006^ [0.004]
Lagged dummy for left								0.002 [0.008]
Lagged dummy for presidential								-0.004 [0.004]
Observations	1154	1154	1065	1043	1043	1179	998	743
Number of countries	74	74	71	71	71	74	69	64
R-squared	0.23	0.23	0.22	0.22	0.22	0.23	0.24	0.25

Notes: All regressions include country and year fixed effects. Standard errors are clustered at the governor-level. ***, **, *, and ^ denote statistical significance at 1, 5, 10, and 15 percent respectively.

Table 12. Change in Inflation Rate and Experience of Central Banker

Dependent variable: change in inflation in (country, year)				
	[1]	[2]	[3]	[4]
L.inflation	-0.366*** [0.063]	-0.366*** [0.063]	-0.367*** [0.064]	-0.378*** [0.062]
Past Experience in Private Financial Sector	0.019 [0.014]	0.018 [0.014]	0.026* [0.015]	0.021^ [0.014]
Past experience in academia		0.016^ [0.010]	0.018^ [0.011]	0.016^ [0.010]
Past experience in other private sector		-0.001 [0.012]	-0.001 [0.014]	-0.001 [0.012]
Past experience in central banking		0.005 [0.010]	0.002 [0.011]	0.005 [0.010]
Past experience in ministry of finance		-0.018** [0.009]	-0.018* [0.010]	-0.017** [0.009]
Past experience in international organization		0.005 [0.010]	0.003 [0.010]	0.006 [0.009]
Crisis (banking or debt)			0.089* [0.047]	
Growth in Real GDP				-0.005*** [0.002]
Observations	2657	2657	2247	2657
Number of countries	117	117	102	117
R-squared	0.31	0.31	0.32	0.33

Notes: All regressions include country and year fixed effects. Standard errors are clustered at the governor-level. ***, **, *, and ^ denote statistical significance at 1, 5, 10, and 15 percent respectively.

Table 13. Change in Inflation Rate and Education of Central Banker

	Dependent variable: change in inflation in (country, year)								
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
Lagged level of index	-0.334*** [0.082]	-0.334*** [0.083]	-0.368*** [0.082]	-0.370*** [0.082]	-0.369*** [0.082]	-0.311*** [0.089]	-0.340*** [0.090]	-0.345*** [0.091]	-0.348*** [0.089]
Economics	0.001 [0.012]								
Economics or Finance		0.006 [0.009]					0.01 [0.012]	0.007 [0.013]	0.002 [0.011]
PhD			-0.013 [0.013]				-0.014 [0.013]	-0.02 [0.016]	-0.012 [0.012]
Economics PhD				-0.019 [^] [0.013]					
Economics or Finance PhD					-0.013 [0.013]				
School in UK						0.008 [0.009]	0.009 [0.011]	0.01 [0.012]	0.001 [0.012]
School in US						0.002 [0.015]	0.002 [0.017]	-0.006 [0.021]	0.002 [0.017]
Crisis (banking or debt)								0.086 [0.065]	
Growth in Real GDP									-0.006*** [0.002]
Observations	2103	2103	1950	1923	1923	2104	1832	1568	1832
Number of countries	116	116	110	110	110	112	105	94	105
R-squared	0.31	0.31	0.34	0.34	0.34	0.27	0.31	0.32	0.33

Notes: All regressions include country and year fixed effects. Standard errors are clustered at the governor-level. ***, **, *, and ^ denote statistical significance at 1, 5, 10, and 15 percent respectively.

Table A1: List of CBGs with Previous Experience in Private Sector Banking

No.	Country	IFS code	Governor Name	Begin Year	End Year	Within-year Order
1	Afghanistan	512	Anwar-Ul-Haq Ahady	2002	2004	1
2	Afghanistan	512	Noorullah Delawari	2004	2007	2
3	Afghanistan	512	Abdul Qadeer Fitrat	2007	.	2
4	Albania	914	Ilir Hoti	1992	1993	1
5	Albania	914	Qamil Tusha	1997	1997	2
6	Angola	614	Jose Lima Massano	2010	.	2
7	Argentina	213	Alfonso Prat Gay	2002	2004	4
8	Argentina	213	Martin Redrado	2004	2010	2
9	Armenia	911	Tigran Sargsyan	1998	2008	2
10	Armenia	911	Arthur Javadyan	2008	.	2
11	Austria	122	Dr. Hans Kloss	1973	1978	2
12	Austria	122	Dr. Helmut Klauhs	1988	1990	2
13	Austria	122	Dr. Maria Schaumayer	1990	1995	2
14	Austria	122	Dr. Klaus Liebscher	1995	2008	2
15	Austria	122	Ewald Nowotny	2008	.	2
16	Azerbaijan	912	Elman Rustamov	1995	.	1
17	Bangladesh	513	Mr. Lutfar Rahman Sarkar	1996	1998	2
18	Bangladesh	513	Farashuddin	1998	2001	2
19	Belgium	124	Baron Jean Godeaux	1982	1988	2
20	Bermuda	319	Cheryl-Ann Lister	1999	2006	1
21	Bolivia	218	Herbert Müller Costas	1983	1984	2
22	Bosnia Herzeg	963	Kemal Kozari	2005	.	1
23	Brazil	223	Pastore	1983	1985	2
24	Brazil	223	Bracher	1985	1987	2
25	Brazil	223	Francisco Gros	1991	1992	1
26	Brazil	223	Gustavo Loyola	1995	1997	2
27	Brazil	223	Arminio Fraga Neto	1999	2003	2
28	Brazil	223	Hinrique Meirelles	2003	.	2
29	Bulgaria	918	Ivan Iskrov	2003	.	2
30	Canada	156	Mark J. Carney	2008	.	2
31	Chile	228	Vittorio Corbo Lioi	2003	2007	2
32	Costa Rica	238	Francisco De Paula Gutiérrez	2002	2010	2
33	Costa Rica	238	Rodrigo Bolanos Zamora	2010	.	2
34	Croatia	960	Željko Rohatinski	2000	.	2
35	Czech Rep	935	Josef Tosovsky	1989	2000	2
36	Czech Rep	935	Zdenek Tuma	2000	2010	2
37	Czech Rep	935	Singer Miroslav	2010	.	2
38	Denmark	128	Bodil Nyboe Andersen	1990	2005	2
39	Denmark	128	Torben Nielsen	1996	.	2
40	Denmark	128	Nils Bernstein	2005	.	2
41	Ecuador	248	Dr. Ricardo Munoz Chavez	1977	1979	1
42	Egypt	469	Dr. Farouk Abdel Baky El Okdah	2003	.	2
43	Ethiopia	644	Leikun Berhanu	1991	1995	2
44	Finland	172	Mauno Koivisto	1968	1982	1
45	Finland	172	Matti Vanhala	1998	2004	2
46	Georgia	915	Giorgi Kadagidze	2009	.	2
47	Germany	134	Karl Klasen	1970	1977	1
48	Ghana	652	Kwabena Duffuor	1997	2001	2
49	Greece	174	Georgios A. Provopoulos	2008	.	2
50	Guatemala	258	Mr. Edgar Barquin Duran Baltazar	2010	.	2
51	Haiti	263	Charles Castel	2007	.	2
52	Hongkong	104	Norman Chan	2009	.	2
53	Hungary	944	György Surányi	1995	2001	2
54	Hungary	944	Zsigmond Járai	2001	2007	2
55	Hungary	944	Andras Simor	2007	.	2
56	Iran	429	Mahmoud Bahmani	2008	.	2
57	Israel	436	Moshe Sanbar	1971	1976	2
58	Israel	436	Moshe Mendelbaum	1982	1986	1
59	Israel	436	David Klein	2000	2005	2
60	Israel	436	Stanley Fischer	2005	.	2
61	Italy	136	Mario Draghi	2005	.	2

Table A1 (contd.): List of CBGs with Previous Experience in Private Sector Banking

62 Jamaica	343 G. Arthur Brown	1989 1992	1
63 Jamaica	343 Brian Wynter	2009 .	2
64 Jordan	439 Umayya Toukan	2001 2010	1
65 Jordan	439 Faris Abdel Hamid Sharaf	2010 2011	2
66 Kazakhstan	916 Kadyrzhan Damitov	1998 1999	2
67 Kazakhstan	916 Grigori Marchenko	1999 2004	2
68 Kazakhstan	916 Anvar Saidenov	2004 2009	2
69 Kazakhstan	916 Marchenko Grigoriy Aleksandrovich	2009 .	2
70 Kyrgyz Rep	917 Marat O. Alapaev	2006 .	1
71 Latvia	941 Ilmars Rimsevics	2001 .	2
72 Lebanon	446 Riad Salameh	1993 .	2
73 Libya	672 Farhat O. Bengdara	2006 2011	2
74 Madagascar	674 Fr��d��ric Rasamoely	2007 .	2
75 Malawi	676 V. Mbewe	2005 2009	2
76 Malaysia	548 Jaffar Bin Hussein	1985 1994	2
77 Malaysia	548 Ahmad Bin Mohd Don	1994 1998	2
78 Malta	181 Francis J Vassallo	1993 1997	2
79 Malta	181 Emanuel Ellul	1997 1999	2
80 Mauritius	684 Rundheersing Bheenick	2007 .	2
81 Mexico	273 Miguel Mancera Aguayo	1982 1997	2
82 Moldova	921 Leonid Talmacis	1991 2009	1
83 Moldova	921 Dorin Dragutanu	2009 .	2
84 Mongolia	948 O. Chuluunbat	2000 2006	2
85 Morocco	686 Abdellatif Jouahri	2003 .	2
86 New Zealand	196 Spencer Russell	1984 1988	2
87 New Zealand	196 Donald Thomas Brash	1988 2002	2
88 Nigeria	694 Dr. Paul A. Ogwuma, Ofr	1993 1999	2
89 Nigeria	694 Chief (Dr.) J. O. Sanusi, Con	1999 .	2
90 Pakistan	564 Kassim Parekh	1989 1990	2
91 Pakistan	564 I.S Hanfi	1990 1993	2
92 Pakistan	564 Syed Salim Raza	2009 2010	2
93 Pakistan	564 Shahid Hafiz Kardar	2010 .	2
94 Peru	293 Richard Webb Duarte	2001 2003	2
95 Philippines	566 Rafael B. Buenaventura	1999 2005	2
96 Poland	964 Slawomir Skrzypek	2007 2010	2
97 Poland	964 Marek Belka	2010 .	2
98 Portugal	182 Jos�� Alberto Tavares Moreira	1986 1992	2
99 Portugal	182 Ant��nio Jos�� Fernandes De Sousa	1994 1999	2
100 Russia	922 George Gavrilovic Matyukhin	1990 1992	1
101 Russia	922 Sergei Dubinin	1995 1998	2
102 Russia	922 Viktor Gerashchenko	1998 2002	2
103 Serbia	942 Radovan Jela��i	2004 2010	2
104 Slovak Rep	936 Marian Jusko	1999 2004	1
105 Slovak Rep	936 Ivan Sramko	2005 2010	1
106 Slovenia	961 Dr.France Arhar	1991 2001	1
107 Slovenia	961 Marko Kranjec	2007 .	2
108 Spain	184 Jaime Caruana	2000 2006	2
109 Sri Lanka	524 Amarananda Somasiri Jayawardena	1995 2004	2
110 Sudan	732 Awad Abdel Magied Aburish	1971 1972	2
111 Sudan	732 Ibrahim Mohamed Ali Nimir	1973 1980	1
112 Sudan	732 Ismail El-Misbah Mekki Hamad	1985 1988	2
113 Sudan	732 Abdall Hassan Ahmed	1996 1998	2
114 Sweden	144 Bengt Dennis	1982 1993	2
115 Sweden	144 Lars Heikensten	2003 2006	1
116 Sweden	144 Stefan Ingves	2006 .	2
117 Switzerland	146 Philipp Hildebrand	2010 .	1
118 Thailand	578 Mr. Chavalit Thanachanan	1990 1990	2
119 Thailand	578 Mr. Vijit Supinit	1990 1996	3
120 Thailand	578 Mr. Pridiyathorn Devakula	2001 2006	2
121 Turkey	186 Dr. B��lent G��ltekin	1993 1994	2
122 UAE	466 Sultan Bin Nasser Al Suwaidi	1991 .	1
123 UK	112 Gordon William Humphreys Richardson	1973 1983	2
124 UK	112 Robert Leigh-Pemberton	1983 1993	2
125 US	111 Paul A. Volcker	1979 1987	2
126 US	111 Alan Greenspan	1987 2006	2
127 Uganda	746 Henry Kajura	1978 1979	2
128 Ukraine	926 Serhiy Leonidovych Tihipko	2002 2004	2

Table A2. Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Financial sector reform	1090	0.02	0.05	-0.17	0.33
Lagged level of reform index	1090	0.59	0.29	0	1
Past experience in private banking	1090	0.23	0.42	0	1
Past experience in academics	1090	0.31	0.46	0	1
Past experience in other private sector	1090	0.19	0.39	0	1
Past experience in central banking	1090	0.52	0.50	0	1
Past experience in ministry of finance	1090	0.30	0.46	0	1
Past experience in international organization	1090	0.32	0.47	0	1
Crisis (inflation>40)	1090	0.08	0.26	0.00	1.00
Real devaluation	1090	0.00	0.15	-1.00	1.22
Lagged reforms in geographical neighbors	1090	0.02	0.02	-0.10	0.14
Lagged IMF Program	1090	0.28	0.45	0.00	1.00
Lagged dummy for left	1090	0.32	0.47	0.00	1.00
Lagged dummy for presidential	1090	0.41	0.49	0.00	1.00
Number of countries	69				
Number of governors	246				
Number of years	30				

Table A3. Financial Sector Reform and International Organization Experience of Central Banker. Does the Effect Vary by Level of Regulation

Dependent variable: financial sector reform in (country, year)								
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Lagged level of index	-0.137*** [0.015]	-0.144*** [0.016]	-0.144*** [0.016]	-0.131*** [0.016]	-0.137*** [0.015]	-0.143*** [0.016]	-0.142*** [0.018]	-0.138*** [0.018]
Past Experience in Private Financial Sector	0.017^ [0.011]	0.019* [0.011]	0.018^ [0.011]	0.036*** [0.012]	0.017^ [0.011]	0.017 [0.012]	0.037*** [0.014]	0.036*** [0.014]
Past Experience in Private Financial Sector* Lagged level of index	-0.017 [0.015]	-0.02 [0.015]	-0.018 [0.015]	-0.040** [0.017]	-0.016 [0.015]	-0.017 [0.016]	-0.042** [0.018]	-0.040** [0.018]
Past experience in academia	0.005 [0.004]	0.006^ [0.004]	0.006^ [0.004]	0.004 [0.004]	0.005 [0.004]	0.004 [0.004]	0.005 [0.004]	0.005 [0.004]
Past experience in other private sector	0.004 [0.004]	0.005 [0.004]	0.005 [0.004]	0.004 [0.004]	0.004 [0.004]	0.004 [0.004]	0.004 [0.005]	0.004 [0.005]
Past experience in central banking	0.000 [0.003]	0.000 [0.003]	-0.001 [0.003]	0.002 [0.003]	0 [0.003]	0.001 [0.003]	0.001 [0.004]	0.001 [0.004]
Past experience in ministry of finance	-0.001 [0.004]	0.001 [0.004]	0.001 [0.004]	-0.001 [0.004]	0 [0.004]	0.001 [0.004]	0.001 [0.005]	0.001 [0.005]
Past experience in international organization	-0.007 [0.008]	-0.008 [0.009]	-0.007 [0.009]	-0.016* [0.008]	-0.008 [0.008]	-0.01 [0.009]	-0.020** [0.009]	-0.020** [0.009]
Past experience in international organization* Lagged level of index	0.000 [0.012]	-0.001 [0.013]	-0.002 [0.013]	0.011 [0.012]	0 [0.012]	0.003 [0.013]	0.017 [0.013]	0.016 [0.013]
Lagged crisis (inflation>40)		-0.002 [0.008]					-0.004 [0.010]	
Lagged real devaluation			0.000 [0.001]				-0.014 [0.011]	
Lagged reforms in geographical neighbors				-0.023 [0.086]			-0.018 [0.091]	
Lagged IMF Program					0.003 [0.004]		-0.001 [0.004]	
Lagged dummy for left						0.001 [0.004]	-0.002 [0.004]	
Lagged dummy for presidential						-0.009 [0.008]	-0.003 [0.008]	
Observations	1493	1436	1406	1173	1493	1426	1090	1090
Number of countries	74	74	71	72	74	73	69	69
R-squared	0.19	0.20	0.20	0.21	0.19	0.19	0.22	0.21

Note. All regressions include country and year fixed effects. Standard errors are clustered at the governor-level. ***, **, *, and ^ denote statistically significant at 1, 5, 10, and 15 percent respectively.

Table A4. Financial Sector Reform and Experience of Central Banker. Does the Effect Vary by Level of Regulation

Dependent variable: financial sector reform in (country, year)						
	[1]	[2]	[3]	[4]	[5]	[6]
Lagged level of index	-0.152*** [0.020]	-0.140*** [0.019]	-0.150*** [0.022]	-0.152*** [0.020]	-0.153*** [0.019]	-0.136*** [0.022]
Past Experience in Private Financial Sector	0.011** [0.005]	0.011** [0.005]	0.011** [0.005]	0.011** [0.005]	0.012** [0.005]	0.031** [0.013]
Past experience in academia	0.003 [0.008]	0.004 [0.004]	0.006 [0.004]	0.006 [0.004]	0.006^ [0.004]	0.004 [0.008]
Past experience in other private sector	0.005 [0.005]	0.030** [0.012]	0.004 [0.005]	0.005 [0.005]	0.004 [0.005]	0.027** [0.013]
Past experience in central banking	0.002 [0.004]	0.001 [0.004]	0.002 [0.008]	0.002 [0.004]	0.002 [0.004]	0.000 [0.008]
Past experience in ministry of finance	0.000 [0.005]	0.000 [0.005]	0.000 [0.005]	-0.002 [0.007]	0.001 [0.005]	0.001 [0.007]
Past experience in international organization	-0.010** [0.004]	-0.010** [0.004]	-0.010** [0.004]	-0.010** [0.004]	-0.017* [0.009]	-0.023** [0.010]
Lagged crisis (inflation>40)	-0.003 [0.009]	-0.004 [0.009]	-0.003 [0.009]	-0.003 [0.009]	-0.003 [0.009]	-0.004 [0.010]
Lagged real devaluation	-0.011 [0.011]	-0.014 [0.011]	-0.012 [0.011]	-0.012 [0.011]	-0.012 [0.011]	-0.016^ [0.011]
Lagged reforms in geographical neighbors	-0.013 [0.091]	-0.014 [0.091]	-0.013 [0.091]	-0.013 [0.091]	-0.015 [0.091]	-0.019 [0.092]
Lagged IMF Program	-0.002 [0.004]	-0.002 [0.004]	-0.001 [0.004]	-0.001 [0.004]	-0.001 [0.004]	-0.002 [0.004]
Lagged dummy for left	-0.005 [0.008]	-0.005 [0.008]	-0.005 [0.008]	-0.006 [0.008]	-0.006 [0.008]	-0.004 [0.009]
Lagged dummy for presidential	0.000 [0.004]	-0.001 [0.004]	0.000 [0.004]	0.000 [0.004]	0.000 [0.004]	-0.001 [0.004]
Past Experience in Private Financial Sector* Lagged level of index						-0.033* [0.018]
Past experience in academia* Lagged level of index	0.004 [0.012]					-0.001 [0.013]
Past experience in other private sector* Lagged level of index		-0.040** [0.017]				-0.035* [0.018]
Past experience in central banking* Lagged level of index			0.000 [0.012]			0.000 [0.013]
Past experience in ministry of finance* Lagged level of index				0.005 [0.012]		0.000 [0.012]
Past experience in international organization* Lagged level of index					0.012 [0.013]	0.020^ [0.014]
Observations	1090	1090	1090	1090	1090	1090
Number of countries	69	69	69	69	69	69
R-squared	0.21	0.21	0.21	0.21	0.21	0.22

Note. All regressions include country and year fixed effects. Standard errors are clustered at the governor-level. ***, **, *, and ^ denote statistically significant at 1, 5, 10, and 15 percent respectively.

Table A5. Determinants of Experience

Dependent variable: Experience of the central bank governor in the financial sector (in country, year)							
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
Lagged crisis (inflation>40)		0.098^ [0.063]					0.114^ [0.072]
Lagged real devaluation			0.007 [0.009]				0.009 [0.084]
Lagged reforms in geographical neighbors				0.028 [0.449]			0.039 [0.491]
Lagged IMF Program					-0.02 [0.032]		-0.01 [0.049]
Lagged dummy for left						0.04 [0.040]	0.04 [0.045]
Lagged dummy for presidential						-0.084 [0.087]	-0.092 [0.103]
Observations	2686	1481	1406	1173	2261	1426	1090
Number of countries	117	74	71	72	105	73	69
R-squared	0.45	0.46	0.46	0.49	0.43	0.47	0.51

Note. All regressions include country and year fixed effects. Standard errors are clustered at the governor-level. ***, **, *, and ^ denote statistically significant at 1, 5, 10, and 15 percent respectively.

Table A6. Components of Financial Sector Reforms and International Organization Experience of Central Banker

	[1]	[2]
	Banking	Securities
Lagged level of index	-0.164*** [0.021]	-0.144*** [0.035]
Past experience in international organization -IMF	0.020** [0.009]	0.018^ [0.013]
Past experience in international organization - WB	-0.006 [0.014]	-0.001 [0.018]
Past experience in international organization - BIS	-0.014 [0.010]	-0.030* [0.016]
Past experience in international organization - UN	-0.033*** [0.009]	-0.020* [0.012]
Past experience in international organization - other development banks	-0.011^ [0.007]	0.002 [0.009]
Past Experience in Private Financial Sector	0.013** [0.006]	-0.004 [0.007]
Past experience in academia	0.005 [0.005]	0.013** [0.006]
Past experience in other private sector	0.008^ [0.005]	-0.002 [0.008]
Past experience in central banking	0.003 [0.004]	-0.001 [0.006]
Past experience in ministry of finance	-0.002 [0.005]	0.005 [0.008]
Lagged crisis (inflation>40)	-0.005 [0.011]	0.011 [0.017]
Lagged real devaluation	-0.011 [0.011]	-0.017 [0.030]
Lagged reforms in geographical neighbors	-0.041 [0.107]	0.16 [0.179]
Lagged IMF Program	0.001 [0.005]	-0.006 [0.007]
Lagged dummy for left	-0.003 [0.010]	-0.024 [0.017]
Lagged dummy for presidential	0 [0.005]	0.013* [0.007]
Observations	1090	1090
Number of countries	69	69
R-squared	0.20	0.13

Note. All regressions include country and year fixed effects. Standard errors are clustered at the governor-level. ***, **, *, and ^ denote statistically significant at 1, 5, 10, and 15 percent respectively.