

How Do Central Bank Governors Matter? Regulation and the Financial Sector*

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March 10, 2017

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 (5.6 years), 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.

JEL classification: E58, G28

Keywords: central bank, central bank governor, leaders, financial regulation.

*We thank George Akerlof, Kenneth Kuttner, David Romer and participants at the IMF Research Brown Bag Seminar for useful comments and suggestions. Reshef thanks the Bankard Fund for Political Economy, the Office of the Vice President for Research and the College of Arts and Sciences at the University of Virginia for financial support. Pranav Gupta, George Sidarous, Anup Tiwari, Nishant Vats, and Luke Warnock provided excellent research assistance.

†On leave from IMF. The views represent those of the authors and not of the Reserve Bank of India or the IMF, or any of the institutions to which the authors belong.

1 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. For example, in his role as chairman of the Board of Governors of the Federal Reserve, Paul Volcker is famously responsible for changing the conduct of monetary policy in the United States in the 1980s. Volckers credibility, bolstered by his experience in the financial sector and the U.S. Treasury Department, was key for his success in reducing inflation. However, the role of heads of central banks extends well beyond controlling inflation, and covers financial regulation.

In this paper we ask whether personal characteristics of central bank governors affect financial regulation. In light of the special role that financial regulation played in the recent financial crises in the United States and Europe, it is important to understand the forces that shape it¹. 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. And public perceptions that central bank governors behavior has benefited the financial sector also merits giving attention to what affects their actions²

We find that past experiences of central bank governors predict financial reform. In particular, experience in the (private) 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

¹On the role of financial regulation see, e.g., Igan, Mishra and Tressel (2012), and Philippon and Reshef (2012), Boustanifar, Grant and Reshef (2016). *The Economist* (2015): Whats wrong with finance?, May 1, 2015, also explains how deregulation helped create the preconditions for the financial crisis.

²For examples of these perceptions, see Adolph (2013), Sherman (2009), and *The New York Times* (2008): Taking Hard New Look at a Greenspan Legacy, October 8, 2008.

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.⁴ Padoa-Schioppa (2002) argues that until recently bank and financial supervision constituted an inseparable part of central bank policy and actions.⁵

Even in cases where financial regulation is not the direct responsibility of the central bank, the governor may have great power to shape it, through public speeches, special reports on the topic, and less-visible political connections. For example, as chairman of the Federal Reserve, Alan Greenspan was extremely influential in advocating financial deregulation in the United States and justifying it (Sherman, 2009, Johnson and Kwak, 2010; Hacker and Pierson, 2010, *The Economist*, 2015)⁶. It is a case in point that while his predecessor, Paul 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. His successor, Ben Bernanke, was instrumental in developing responses to the 2007-8 financial crisis in the United States, including new financial regulation⁷. 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.

The importance of central bank governors is manifested in many instances. For example, 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.⁸ Currently, he is instrumental in shaping monetary policy at the European Central Bank, reforming banking regulation, and in coordinating policy more generally across

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

⁴Hirtle, Kovner and Plosser (2016) demonstrate that discretion over bank supervision lead to apparently less risky behavior in large banks, without adversely affecting their competitiveness, supporting the notion that supervision has a distinct role as a complement to regulation.

⁵Padoa-Schioppa (2002) argues that in order to achieve both financial stability and monetary policy, central banks applied bank supervision. Goodfriend and King (1988) argue that central banks must engage in financial regulation in order to achieve monetary policy goals. More recently, Hellwig (2014) also advocates the importance of bank and financial supervision for achieving the goals of central banks.

⁶*The Economist* (2015): What's wrong with finance?, May 1, 2015.

⁷For 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.

⁸For 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".

the European Union. Responses to the Asian crises in 1997 differed across countries in particular, imposing capital controls and were influenced by central bank governors in the countries that were directly involved. Stanley Fischer's conduct as governor of the Bank of Israel had a significant effect on how that country's competitiveness and financial stability was perceived, with arguably positive outcomes.⁹ 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.¹⁰ These examples make clear that central bank governors are indeed pivotal in more than just monetary policy.

Although perceptions in the media and in 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

⁹The International Institute for Management Development, *World Competitiveness Yearbook* 2010. Fischer received an "A" rating on Global Finances Central Banker Report Card in 2009, 2010 and 2011.

¹⁰*The Economic Times*, First year as RBI governor: Raghuram Rajan has delivered on most counts with courage of conviction, September 3, 2014.

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 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 previous experience in the financial sector; about a quarter of all central bankers are employed by 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 (deregulation) 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 the financial sector is more tightly regulated (i.e., 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. Finally, we do not find financial sector reforms to be significantly associated with central bankers' education.

We also examine whether the effect of financial sector experience varies by type of financial reform—banking or securities market. We find that prior financial sector experience is significantly associated with reforms in the banking sector, but not with securities' markets reforms. This 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. It is difficult to identify separate effects of sub-components of banking reform, because they are all strongly correlated, but there is some evidence that the result for banking reform may be driven by sub-components that are associated with increased competition, and removal of controls on credit and interest rates—but, importantly, not with changes in the quality of bank supervision. While introduction of competition can benefit the private financial sector, the quality of bank supervision is arguably more important for non-financial sector participants. If so, then our findings suggest that reform that is beneficial to the fi-

nancial sector but not reform that benefits non-financial actors is associated with governors with past experience in finance. This lends some credence to populist concerns that central bankers benefit the financial sector.

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 banker governors with prior experience in the United Nations and the Bank of International Settlements are overall associated with *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 are not spurious, are not completely driven by spurious correlation or omitted variables, and can be plausibly interpreted as causal. 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 these 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 alternative 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. We control in our regressions for left-leaning governments, in an attempt to capture changing political winds within countries. Our results are not very sensitive to inclusion of this control.

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. These are likely to be highly

correlated, and in both cases 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.

2 Relationship to the Literature

We contribute 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.¹¹ 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. In addition, inflation is

¹¹This is consistent with the analysis of Havrilesky (1993). See also Eijffinger and de Haan (1996) on the political economy of central banks.

of a slow moving and persistent nature, while regulation can be changed instantly (at least *de jure*), so we expect to find large effect on changes in regulation.

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. However, it is important to distinguish regulation of industry *a la* Stigler (1971) where regulation entails barriers to entry, price, cost and quantity controls from financial regulation which also involves macroprudence, and curbing risk taking and asymmetric information. The latter may be hindered by increased competition.¹²

The financial sector is an important pool for potential governors; and as we show, 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 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 on current pace of deregulation, 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,

¹²For example, Korinek and Kreamer (2014) develop a model in which financial deregulation increases bank concentration and compensation in the financial sector (at the expense of the rest of the economy), and are associated with higher risk taking. Acharya, Pagano, and Volpin (2013) study a model in which an increase in firm-to-firm mobility causes employers provide excessive short term compensation, while the employees take excessive long term risk. Bijlsma, Zwart, and Boone (2012), Thanassoulis (2012) and Benabou and Tirole (forthcoming) study models in which competition between banks leads to competition for banker talent, which manifests in high banker compensation and incentive pay (bonuses) and unnecessarily high (long run) risk for banks.

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.¹³

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 higher unemployment (e.g., Germany, U.S., U.K.). Rubinstein (2006) demonstrates that studying economics is correlated with higher willingness to lay off workers. However, 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 shapes the preferences and beliefs of those 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.¹⁴

¹³But 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.

¹⁴Cukierman 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, 2010) examine the determinants of central bank governor departures before the end of their term (early departures). The importance

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. Malmendier, Nagel, and Yan (2016) show that personal lifetime experiences significantly affect the forecasts and voting behavior of members of the Federal Open Market Committee in the United States Federal Reserve System. In this context, our work can be understood as detecting pre-existing attitudes towards financial regulation (in contrast to monetary policy and inflation, cf. Romer and Romer 2004, and Malmendier, Nagel, and Yan 2016) 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), who 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. Moreover, Gohlmann and Vaubel (2007) examine only 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.

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.

3 Data and Empirical Strategy

Data on 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. We keep track separately of each unique educational and work experience for each governor. In country-year cells in which there was more than one governor we ordered governors according to their within-year spells.¹⁵ Data are cross-checked across multiple sources when possible. In cases where there were discrepancies, we preferred using information posted on official central bank websites.

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). We classify all work experiences into nine broad categories: Academic, International Organization, Private Financial Sector, Other Private Sector, Politics, Central Bank, Ministry of Finance, Other Government, and NGO. As each governor may have more than one type of work experience; therefore observations (or percentage points) across categories sum to more than the total number of governors (or 100 percent) for which work experience exists.

The majority of central bank governors 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 at the central bank, governors often take positions in the international organizations, or in government. A significant fraction of central bankers have past experience in the financial sector almost 20 percent. Of these, a quarter gained experience in finance outside

¹⁵We keep track of within-year transitions with a within-year identifier. For example, in Argentina in 2002, governor Rocque Maccarone was replaced by Mario Bleijer during January, who was replaced by Aldo Piganelli in June, who was replaced by Alfonso Prat Gay in December. These were given within-year identifiers of 1 to 4, respectively.

of the home country. A quarter of all central bankers are employed in the financial sector after their tenure. A relatively small fraction (12 percent) of those who return to finance take positions outside the country where they served as governors.

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 vast majority of what we define as financial sector experience occurs in credit intermediation and banking, not in trading and securities (not tabulated). The list of all 128 central bank heads in our sample with financial sector experience is provided in appendix Table A1.

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 increased significantly. 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. 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 only a bachelors 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 1973-2005.¹⁶ The data has significant advantages over existing data sources, which cover a limited number of sectors and countries. Regulation indices in the dataset cover 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 100. Higher values are associated with less strict regulation.

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

- **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.
- **Banking sector regulation:** This captures five sub-indices (1) reductions or removal of interest rate controls (floors or ceilings), (2) credit controls (directed credit and subsidized lending), (3) competition restrictions (limits on branches and entry barriers in the banking market, including licensing requirements or limits on foreign banks), (4) public ownership of banks, and (5) 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.

The correlations among the six sub-components of financial liberalization are high, at 0.5 or higher. In most of the paper, we focus on the aggregate index, but we also analyze the association of different sub-components of financial reform with past financial sector experience.¹⁷ Although the paper focuses on financial regulation, we also use Consumer Price

¹⁶This is based on the methodology in Abiad and Mody (2005). See IMF (2009) for details.

¹⁷The two measures most frequently used as indicators of financial repression—credit controls, and interest rate controls—are highly correlated with each other, with a correlation of 0.65. Less correlated are the measures of financial liberalization relating to entry barriers and securities regulations. The measure of privatization in the banking sector has the lowest correlation with the other components, an indication that privatization does not coincide with other reforms.

Index (CPI) inflation rate from the World Economic Outlook database of the IMF as an additional dependent variable.

Other Data

- **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 change in the real exchange rate as a control variable; a real devaluation 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:** Indicator 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 Statistics¹⁸. This variable acts like a time-varying and country specific trend in reform.

- **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.¹⁹

The unit of analysis is a country-year observation. The merged dataset with central bankers' past experience and financial regulation 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 1371 observations: 73 countries, 30 years, and only 276 central bank governors. Table A2 provides the summary statistics for the key variables used in this specification.

Figure 3 shows the evolution of the share of central bankers with prior financial sector experience and the financial regulation index (normalized between 0 and 1, with 0 corresponding to the strictest degree of regulation and 1 corresponding to the least strict). Both variables tend to move together over time, especially for high and middle income countries. Although suggestive of a relationship between the two, Figure 3 does not show that increased prevalence of central bankers causes financial reforms, or deregulation (change in the level of regulation). The empirical analysis below examines this issue more rigorously.

¹⁸<http://www.cepii.fr/anglaisgraph/bdd/distances.htm>.

¹⁹Note that the Dataset of Political Institutions defines the ideology of the government also for autocratic regimes.

Empirical Strategy

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

$$reform_{c,t} = Index_{c,t} - Index_{c,t-1}$$

Our baseline specification is as follows:

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

where $CBG_{(c,t)_i}$ is a vector of characteristics (or, in some cases, just one) of central banker, who is in office in country i , 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. 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 potentially multiple country-year observations per governor, while governor characteristics do not vary along these dimensions (Moulton, 1990).

We restrict the dataset to one governor per country-year cell, to ensure that $reform_{c,t}$ is treated by not more than one governor. The reason we do this is that our dependent variable varies only at the country-year level, and repeating the reform variable for country-year cells with multiple governors potentially creates serial correlation in the errors. Less than 3 % of the country-year observations have more than two governors (3, 4, or 5); we drop these observations. About a quarter of all country-year observations in our dataset involve two central bankers in the corresponding year, i.e. these are country-year cells in which governors are replaced during a year. For these country-year cells we keep the central banker who took office first, because future governors are captured in the subsequent country-year cell. Consistent with this, we restrict attention to governors who appear in at least two calendar years. Our main findings remain robust to keeping the incoming central banker (rather than

the outgoing one), and also to including multiple governors in the country-year cell.

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 less scope for reform). In some specifications we interact $CBG_{(c,t)_i}$ 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 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.

4 Results

We begin analyzing 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 2-6 we add macroeconomic controls, one at a time. Column 7 is the most demanding specification as it includes all macroeconomic controls. The sample sizes vary across the regressions due to availability of data on controls. Therefore, in column 8 we repeat 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. We maintain this structure of presenting the results in several tables.

The coefficient on past experience in the financial sector in column 7 is positive; central bankers with prior experience in the financial sector are associated with greater financial sector reforms. The estimated coefficient of 1.063 is statistically significant at the 5% level in our preferred specification. The point estimates are relatively stable across specifications,

which increases overall confidence in the magnitude of the estimated coefficient on past experience in the financial sector. This is corroborated in column 8, where we do not control for macroeconomic variables, and restrict to the sample of column 7²⁰.

The estimated effect in column 7 implies that, on average, we predict reform to be 1.1 percentage 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 2.0 (Table A2 in the appendix), the point estimate of 1.1 implies an economically large effect: On average, having a central bank governor with past experience in finance increases the annual rate of financial deregulation by more than 50 percent. 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 her tenure, relative to a governor who did not have such past work experience.²¹

We also find that past experience in an international organization is significantly associated with reform. The coefficient on past experience is 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 only marginally statistically significant).

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 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. Experience in the financial sector matters much more when there is greater scope for deregulation.²² At the bottom of Table 6 we report the marginal effect of past experience in finance at different quartiles of the lagged index. In column 7 we see that the effect is

²⁰The effect of central bankers with prior financial sector experience for financial reforms is statistically indistinguishable between advanced economies, and emerging and LICs (not shown).

²¹ $5.6 * (0.011/0.02) \approx 3$.

²²In 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

1.649 percent higher reform when the lagged index is at the 1st quartile. Compared to the average effect in column 7 of Table 5 of roughly 1 percent, this implies a much larger effect when the scope for reform is larger. At the 3rd quartile the effect diminishes to 0.383 and is no longer statistically significant at conventional levels.

Sensitivity Analysis

While we do not have plausible instruments for governors' characteristics, we argue that the results in Tables 5 and 6 are not completely driven by spurious correlation or omitted variables. The single biggest concern may be that if a pro-market party takes power, it may both appoint central bankers with financial sector experience and take other actions to deregulate. Or if a party in power suddenly decides to pursue deregulation, it may both appoint central bankers with financial sector experience as a way to implement this agenda more effectively and at the same time take other actions to deregulate. This concern is addressed, to some extent, by the fact that our findings are robust to controlling for whether a left-wing government is in power.²³

Another concern in identifying causal effects in our context arises if the political system in countries with a preference for reform tend to choose central bank governors who are more likely to be reform-oriented. If attitudes towards deregulation are either country-specific but time-invariant, *or* broad time-varying trends that are common across countries, then country and time fixed effects in our empirical specifications control for such attitudes. If, however, attitudes towards deregulation are country-specific *and* time varying, this is insufficient. Since the inclusion of country and year varying fixed effects does 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 goes some way towards controlling for country-specific *and* time varying omitted variables.

Table 7 reports regressions where we compare our baseline results on the effect of past experience in the financial sector (columns 1 and 2 replicate column 7 in tables 5 and 6,

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.

²³It has been argued that Alan Greenspan succeeded Paul Volcker precisely because Volcker was not perceived as being in favor of financial deregulation. See, e.g., *The Huffington Post* (2008): "The Fall of Wall Street Is to Market Fundamentalism What the Fall of the Berlin Wall Was to Communism", October 17, 2008. If this were true, it would pose a threat to our causal interpretation. The left versus right-wing leaning governments dummy variable addresses this concern in our regressions, capturing the switch from the Carter to the Reagan administration.

respectively) with estimates of these effects from specifications without country fixed effects, without year fixed effects, and then when we include country-by-decade fixed effects. These comparisons shed some light on whether the concerns raised just above are likely to bias our results.

Columns 3 and 4 report estimates of equation (1) without country fixed effects. 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 tend to implement 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, but 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 common trends in the incidence of reform are correlated with the incidences of governors with past experience in finance. To do this, we drop time fixed effects 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 trends 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 country-by-decade fixed effects pick up some of the variation in the remaining scope for reform.

The message from 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.

In order to further address concerns that slowly-changing, but persistent country-specific factors (such as evolving preferences towards deregulation) drive the results, we shift the timing of governors job spells. If such factors determine both the pace of deregulation and the appointment of governors, then we expect to find little change in the results when we shift the timing of job spells forward or backwards. One way to view this exercise is like a placebo, where we estimate whether characteristics of *future or past governors* determine the *current pace of deregulation*²⁴. The average length of a job spell as governor is about 5.6 years. Therefore, we estimate (1) while shifting the timing of a governor's characteristics $CBG_{(c,t)_i}$ either six years earlier to $t-6$ or later to $t+6$. We also lag or lead ($Index_{c,t-1} = 1$) by six years, commensurate with the $CBG_{(c,t)_i}$ 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 of the entire vector of governor characteristics in $CBG_{(c,t)_i}$; then we only change the timing of the private sector financial experience information. In all these specifications, governor experience in finance is not statistically significant, whether shifted forward or backwards. These results strengthen our 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 countrys 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

²⁴Note that this is distinct from asking whether future employment of current governors affects current reform; we address this question below.

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_t40%) (Table A5). These findings strengthen our causal interpretation: the preferences of central bank governors have a causal effect on financial deregulation.

Financial Sector Experience and Types of Financial Deregulation

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 8. In Panel A 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. Moreover, central banks regulate banks more often than securities markets, so this is likely to be a dimension in which the governor has more influence. Columns 3-7 repeat the regressions for the various sub-components of banking sector reforms. The effect of experience in the financial sector is positive for all sub-components of banking reform (Panel A), and statistically significant for two sub-components – directed credit, and entry barriers/competition restrictions.

When we add an interaction of past experience in finance with the lagged reform index in

Panel B of Table 8, we find that banking reform is more influenced when there is greater scope for reform, as in Table 6. The corresponding estimates for securities markets reform follow the same pattern, but are not statistically significant. When looking at subcomponents of banking deregulation we find strong effects on reducing the prevalence of Directed Credit and Interest Rate Controls, more so when the scope for doing so is large, and similar effects albeit not statistically significant for Entry Barriers, Competition Restriction, and Privatization.

The only dimension in which we find no effect of past experience is the quality of banking supervision. Recall that this pertains to the power and independence of bank supervisors, the adoption of Basel capital standards, and the presence of a framework for bank inspections. Therefore, reform in this dimension, as the index is constructed, is a movement towards better regulation, not deregulation.

Overall, the evidence suggests that central bank governors with financial sector experience are associated with pro-competitive reforms, and with fewer restrictions on banking activities. Consistent with a free market approach (including less restrictions on entry), governors with financial sector experience do not promote reform towards tougher, or better quality regulation. This is consistent with an interpretation that governors who have past experience in finance have aligned preferences with the financial sector: it is not reforms *per se* that are promoted; rather, reforms that are favored by banks are promoted and others are not, in particular those that pertain to macroprudential regulation, and attempts to curb risk taking and asymmetric information²⁵

Differential Effects on Deregulation across International Organizations

In Table 9 we ask whether the effect of experience varies across 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

²⁵It is important to distinguish financial regulation from the classic regulatory capture theory *a la* Stigler (1971), where regulation entails barriers to entry, price, cost and quantity controls. Instead, financial regulation highlights macroprudential regulation, and attempts to curb risk taking and asymmetric information, which can be hindered with increased competition (Goodhart *et al.* 1998).

the influence of the so-called Washington Consensus at the IMF on governors. In contrast, experience at the UN and the BIS seem to drive the negative association in Table 5.

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. Importantly, differentiation among international organizations does not alter the main results for the effect of experience in the financial sector on financial reforms.

In columns 4 and 5 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 Columns [1]–[3] of Table 9, with some variation in magnitudes. Past experience at the IMF predicts deregulation of both subcomponents, with a higher effect for securities market deregulation, and experience at the UN predicts slower deregulation. Experience at the BIS is strongly and negatively associated with both banking and securities market deregulation; more so with slower securities markets deregulation, and less with banking deregulation. In fact, we find some evidence, albeit weak, for experience at the BIS to be associated with more reforms in the quality of banking supervision, which conforms with the mandate of the BIS to strengthen the regulation, supervision and risk management of the banking sector (these results are available upon request).

Experience after Leaving Governor Position

We now turn to the following question: Is it the past experience of the central banker or the prospect of future employment 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 lucrative 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 10: 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.²⁶

Additional Findings: Education and Inflation

We now turn to examining the effect of 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 studied 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 changes in consumer price annual 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 that past experience in finance and academia have a positive effect on change in inflation. This is seemingly at odds with Posen (1995), who finds that a politically organized financial sector induces lower inflation, though the results are not exactly comparable while Posen considers the inflation rate, we consider changes in the inflation rate. 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 are associated with smaller increases (or larger decreases) in inflation. The estimated coefficients in column 4 of Table 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.

²⁶Even when we introduce previous and future experiences in the same specification, we do not find any evidence for future experience of the central banker to be a significant determinant of financial sector reforms.

Similar to results on financial sector reforms, we do not find education of central bankers to be important in explaining the changes in inflation.²⁷

5 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 experience in the financial sector. In contrast, previous experience at the UN and BIS has the opposite effect.

Our findings have important implications. On one hand, 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 in addition, achieving this goal may also be facilitated by this choice. On the other hand, in cases where the choice of the central bank governor does not take into account past experience, the financial deregulation may be an undesirable outcome.

Overall, our results strengthen the importance of considering the background and past work experience before appointing a central bank 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

²⁷The result of no effect of educational background remains virtually unchanged when we alter the configuration of fixed effects as in Table 7. We omit these regressions, but they are available upon request.

experience of candidates for central banks.

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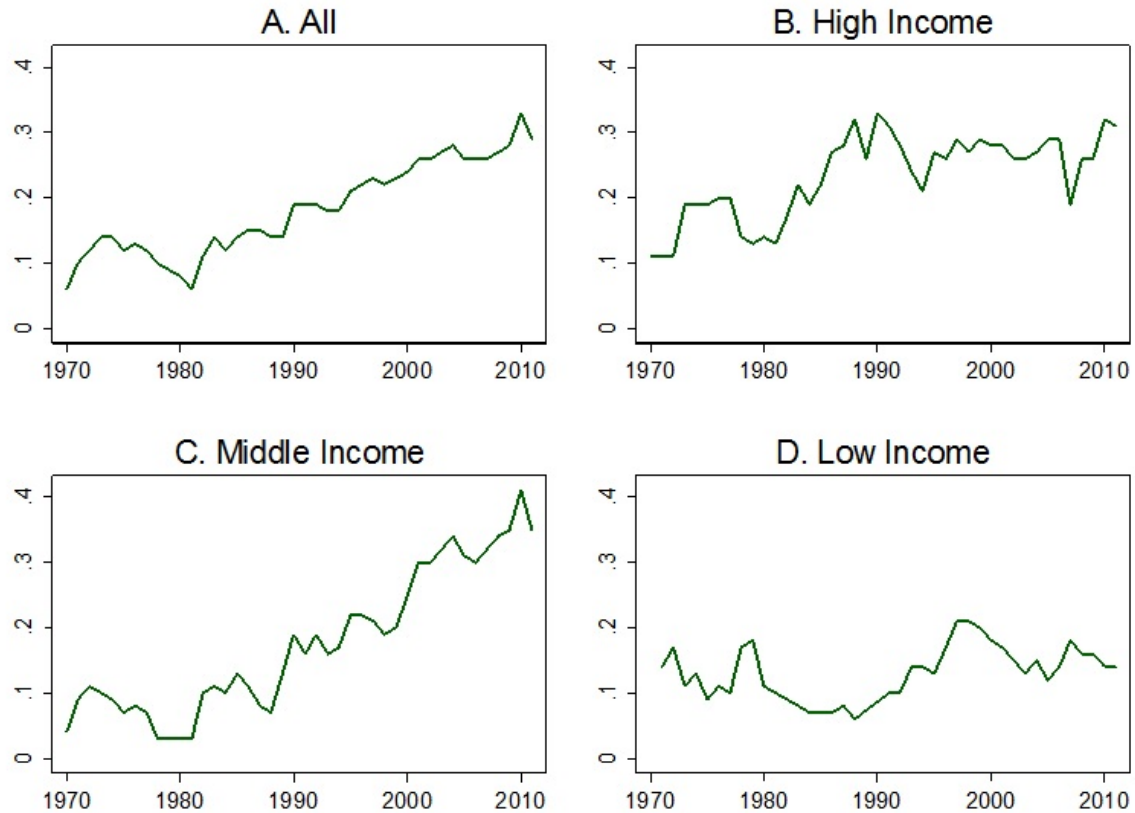
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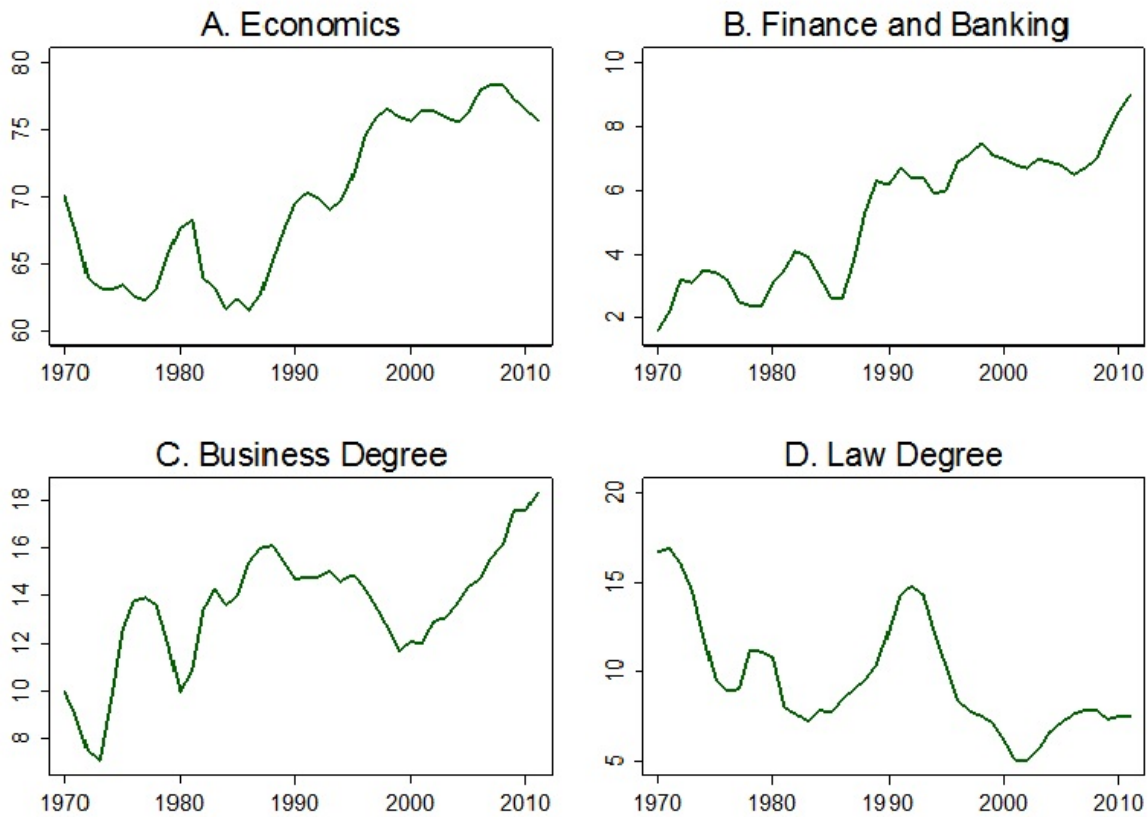
FIGURES AND TABLES

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



Figures represent the percent of governors with each type of experience. Data are three-year moving averages.

Figure 2b: Highest Degree Attained

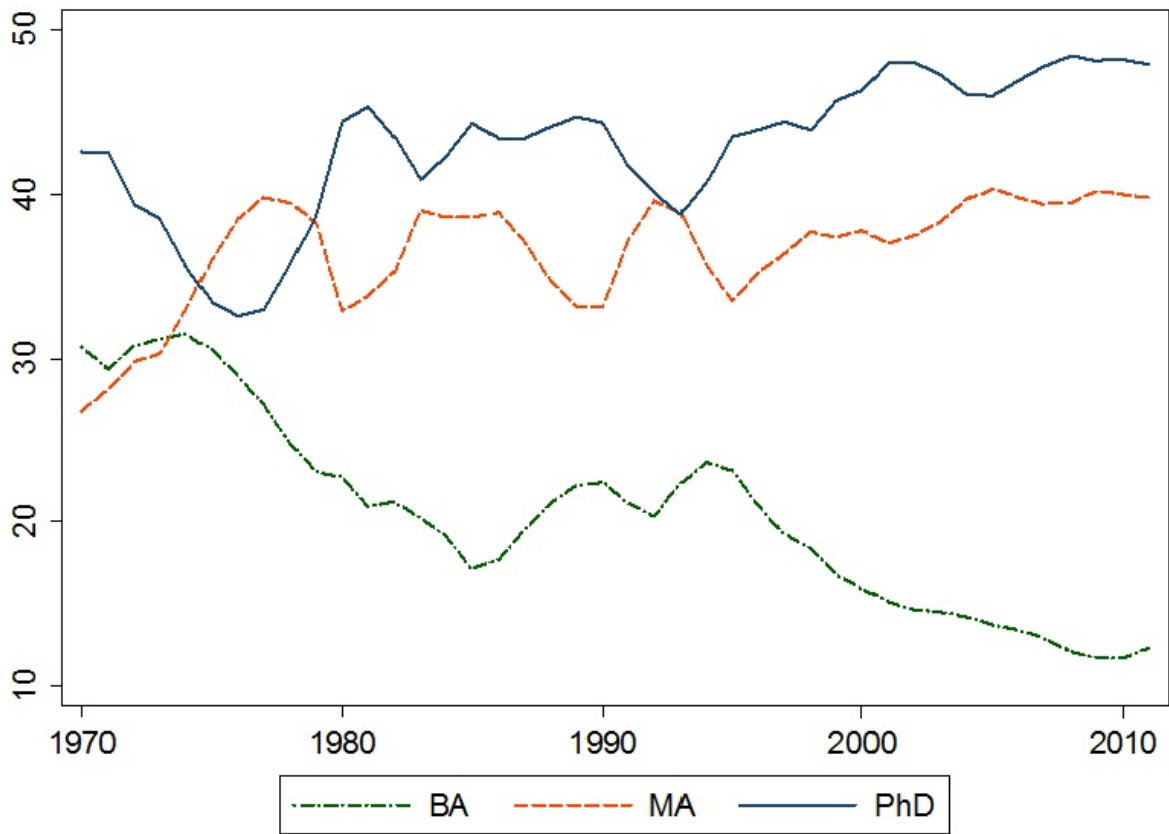
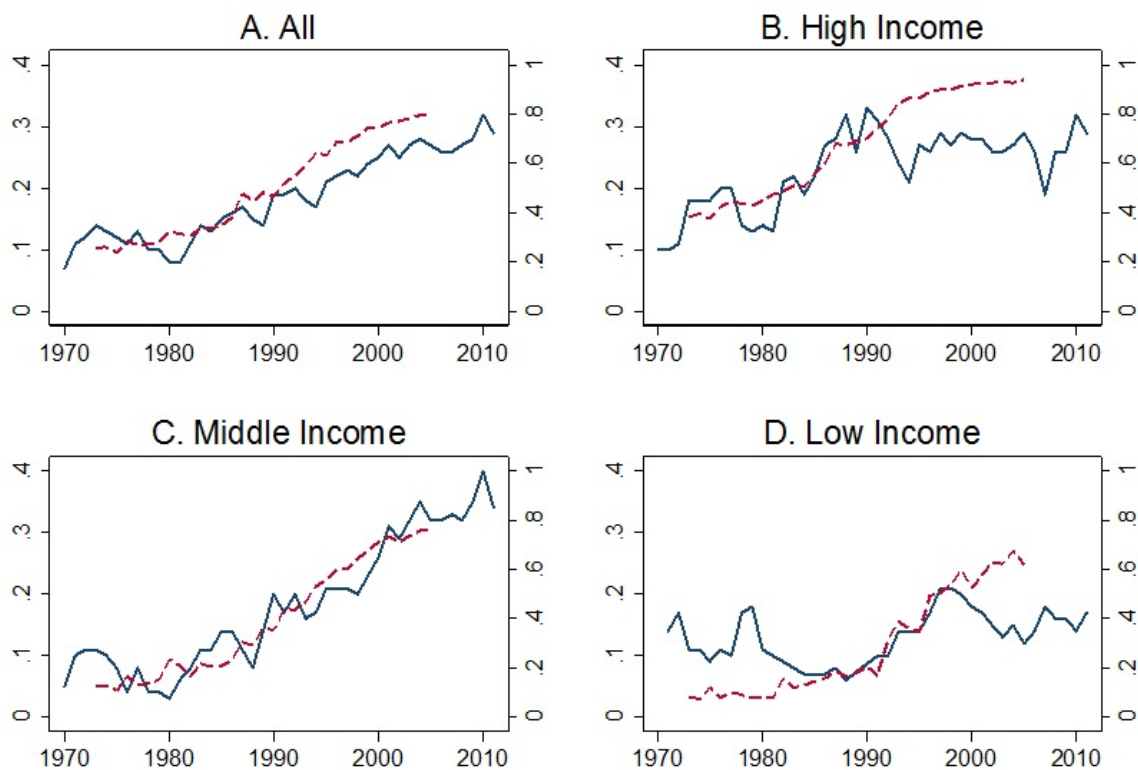


Figure represent the percent of governors with each education level. Data are three-year moving averages.

Figure 3: Private Financial Sector Experience and Financial Deregulation



Legend: Solid=Share finance experience (left axis), Dash=Financial regulation index (right axis)

Notes: The figures report the percent of governors with past experience in the private financial sector, together with the financial regulation index from IMF (2009). Here 0 corresponds to the strictest degree of regulation and 1 corresponds to the least strict.

Table 1: Work Experience of Central Bank Governors

<i>Panel A: Before serving as central bank governor</i>										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Academic	International Organization	Financial Sector	Other Private Sector	Politics	Central Bank	Ministry of Finance	Other Gvt	NGO	All
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	-
<i>Of which outside home country</i>										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Academic	International Organization	Financial Sector	Other Private Sector	Politics	Central Bank	Ministry of Finance	Other Gvt	NGO	All
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
<i>Panel B: After serving as central bank governor</i>										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Academic	International Organization	Financial Sector	Other Private Sector	Politics	Central Bank	Ministry of Finance	Other Gvt	NGO	All
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	-
<i>Of which out of home country</i>										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Academic	International Organization	Financial Sector	Other Private Sector	Politics	Central Bank	Ministry of Finance	Other Gvt	NGO	All
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

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	All
Percent	38.7	8.5	9.4	9.4	8.5	10.4	15.1	100

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								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	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

B. Highest Degree Attained				
	(1)	(2)	(3)	(4)
	BA	MA	PhD	Obs.
Percent	16.1	39.3	44.6	484

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

Financial sector	The index of domestic financial liberalization is an average of six sub indices, five related to banking and one related to the securities market.
Banking	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.
Securities market	The sixth sub index relates to securities markets 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	IMF (2009), following the methodology in Abiad and Mody (2005), and 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	-0.129*** [0.014]	-0.136*** [0.015]	-0.135*** [0.015]	-0.136*** [0.015]	-0.129*** [0.014]	-0.135*** [0.015]	-0.147*** [0.016]	-0.147*** [0.016]
Past Experience in Private Financial Sector	1.045** [0.457]	0.985** [0.464]	0.961** [0.478]	1.140** [0.481]	1.052** [0.456]	0.985** [0.484]	1.063** [0.512]	1.074** [0.523]
Past experience in academia	0.477 [0.352]	0.585 [^] [0.372]	0.592 [^] [0.379]	0.548 [^] [0.359]	0.49 [0.353]	0.474 [0.358]	0.578 [^] [0.400]	0.572 [0.400]
Past experience in other private sector	0.316 [0.353]	0.397 [0.392]	0.339 [0.396]	0.472 [0.371]	0.307 [0.353]	0.342 [0.367]	0.49 [0.426]	0.493 [0.426]
Past experience in central banking	0.148 [0.336]	0.150 [0.347]	0.061 [0.346]	0.251 [0.346]	0.144 [0.336]	0.258 [0.342]	0.196 [0.369]	0.236 [0.366]
Past experience in ministry of finance	-0.08 [0.374]	-0.053 [0.397]	-0.062 [0.398]	-0.013 [0.399]	-0.073 [0.377]	0.057 [0.399]	0.102 [0.437]	0.109 [0.435]
Past experience in international organization	-0.581* [0.340]	-0.630* [0.360]	-0.568 [^] [0.352]	-0.757** [0.359]	-0.591* [0.341]	-0.662* [0.360]	-0.784** [0.390]	-0.779** [0.384]
Lagged crisis (inflation>40)		-0.335 [0.833]					-0.213 [1.036]	
Lagged real devaluation			0.010 [0.084]				0.631 [1.048]	
Lagged reforms in geographical neighbors				-8.258 [7.803]			-7.736 [8.564]	
Lagged IMF Program					0.179 [0.320]		-0.040 [0.351]	
Lagged dummy for left						0.23 [0.384]	0.072 [0.412]	
Lagged dummy for presidential						-0.607 [0.781]	-0.755 [0.827]	
Observations	1371	1323	1294	1291	1371	1308	1195	1195
Number of countries	73	73	70	71	73	72	68	68
R-squared	0.19	0.20	0.20	0.20	0.19	0.19	0.21	0.20

Notes: 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 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	-0.122*** [0.015]	-0.129*** [0.016]	-0.128*** [0.016]	-0.128*** [0.015]	-0.122*** [0.015]	-0.127*** [0.015]	-0.140*** [0.016]	-0.139*** [0.017]
Past Experience in Private Financial Sector	2.362* [1.226]	2.357* [1.223]	2.199* [1.235]	2.753** [1.348]	2.342* [1.235]	2.493* [1.373]	2.603* [1.458]	2.650* [1.468]
Past Experience in Private Financial Sector * Lagged level of index	-0.023 [0.017]	-0.024 [0.017]	-0.021 [0.017]	-0.027^ [0.018]	-0.022 [0.017]	-0.025 [0.018]	-0.026 [0.019]	-0.026 [0.019]
Past experience in academia	0.405 [0.353]	0.508 [0.372]	0.519 [0.381]	0.463 [0.359]	0.415 [0.355]	0.389 [0.362]	0.489 [0.405]	0.482 [0.404]
Past experience in other private sector	0.299 [0.352]	0.38 [0.389]	0.325 [0.393]	0.449 [0.370]	0.293 [0.352]	0.339 [0.365]	0.484 [0.424]	0.48 [0.424]
Past experience in central banking	0.160 [0.332]	0.159 [0.343]	0.074 [0.342]	0.266 [0.345]	0.157 [0.333]	0.269 [0.338]	0.211 [0.369]	0.252 [0.365]
Past experience in ministry of finance	-0.071 [0.372]	-0.037 [0.392]	-0.046 [0.394]	0.004 [0.395]	-0.066 [0.375]	0.09 [0.392]	0.137 [0.429]	0.143 [0.428]
Past experience in international organization	-0.596* [0.338]	-0.646* [0.357]	-0.584* [0.350]	-0.765** [0.353]	-0.603* [0.338]	-0.670* [0.354]	-0.790** [0.384]	-0.783** [0.378]
Lagged crisis (inflation>40)		-0.397 [0.860]					-0.309 [1.074]	
Lagged real devaluation			0.018 [0.084]				0.589 [1.076]	
Lagged reforms in geographical neighbors				-8.517 [7.840]			-7.944 [8.628]	
Lagged IMF Program					0.125 [0.322]		-0.072 [0.353]	
Lagged dummy for left						0.189 [0.391]	0.026 [0.418]	
Lagged dummy for presidential						-0.503 [0.777]	-0.644 [0.819]	
Effect of Past Experience in Private Financial Sector at different quartiles of lagged index								
Lagged index at 1st quartile	1.597**	1.734**	1.703**	1.488**	1.998**	1.726**	1.649**	1.753**
Lagged index at 2nd quartile	0.945**	1.112**	1.037**	0.992**	1.219**	1.116**	1.056**	1.111**
Lagged index at 3rd quartile	0.412	0.604	0.394	0.423	0.489	0.617	0.383	0.477
Observations	1371	1323	1294	1291	1371	1308	1195	1195
Number of countries	73	73	70	71	73	72	68	68
R-squared	0.19	0.20	0.20	0.20	0.19	0.19	0.21	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 7: Financial Sector Reforms and Experience of Central Banker: Baseline and No Fixed Effects

	Dependent variable: financial sector reform in (country, year)							
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	Baseline		No country fixed effects		No time fixed effects		Country * decade fixed effects	
Lagged level of index	-0.147*** [0.016]	-0.140*** [0.016]	-0.033*** [0.007]	-0.029*** [0.007]	-0.044*** [0.008]	-0.036*** [0.007]	-0.195*** [0.020]	-0.192*** [0.021]
Past Experience in Private Financial Sector	1.063** [0.512]	2.603* [1.458]	0.495 [0.379]	1.886^ [1.267]	0.905* [0.511]	3.554** [1.575]	0.860* [0.501]	1.462 [1.362]
Past Experience in Private Financial Sector * Lagged level of index		-0.026 [0.019]		-0.022 [0.016]		-0.044** [0.020]		-0.01 [0.018]
Past experience in academia	0.578^ [0.400]	0.489 [0.405]	0.023 [0.290]	-0.024 [0.296]	0.286 [0.396]	0.151 [0.402]	-0.103 [0.401]	-0.121 [0.405]
Past experience in other private sector	0.49 [0.426]	0.484 [0.424]	0.447 [0.346]	0.441 [0.349]	0.907** [0.420]	0.882** [0.417]	0.026 [0.399]	0.028 [0.397]
Past experience in central banking	0.196 [0.369]	0.211 [0.369]	-0.042 [0.272]	-0.064 [0.271]	0.358 [0.388]	0.378 [0.392]	0.198 [0.343]	0.195 [0.341]
Past experience in ministry of finance	0.102 [0.437]	0.137 [0.429]	-0.256 [0.291]	-0.286 [0.293]	-0.233 [0.455]	-0.159 [0.440]	0.501 [0.483]	0.515 [0.477]
Past experience in international organization	-0.784** [0.390]	-0.790** [0.384]	-0.558** [0.263]	-0.532** [0.257]	-0.758* [0.399]	-0.769** [0.390]	-0.576 [0.413]	-0.599 [0.415]
Lagged crisis (inflation>40)	-0.213 [1.036]	-0.309 [1.074]	0.988 [0.985]	0.876 [1.012]	1.36 [1.188]	1.143 [1.235]	0.64 [1.060]	0.636 [1.068]
Lagged real devaluation	0.631 [1.048]	0.589 [1.076]	0.133 [1.155]	0.108 [1.181]	0.565 [1.004]	0.472 [1.039]	0.91 [0.954]	0.901 [0.963]
Lagged reforms in geographical neighbors	-7.736 [8.564]	-7.944 [8.628]	-13.349^ [8.892]	-13.192^ [8.948]	4.801 [7.310]	3.55 [7.419]	-13.910* [8.222]	-14.020* [8.253]
Lagged IMF Program	-0.040 [0.351]	-0.072 [0.353]	0.440^ [0.293]	0.435^ [0.295]	0.193 [0.384]	0.094 [0.398]	0.176 [0.421]	0.167 [0.425]
Lagged dummy for left	0.072 [0.412]	0.026 [0.418]	-0.473^ [0.298]	-0.403 [0.287]	-1.015 [0.891]	-0.811 [0.880]	-0.660 [0.914]	-0.639 [0.907]
Lagged dummy for presidential	-0.755 [0.827]	-0.644 [0.819]	0.385 [0.303]	0.344 [0.307]	0.133 [0.380]	0.07 [0.383]	-0.313 [0.389]	-0.322 [0.392]
Observations	1195	1195	1195	1195	1195	1195	1195	1195
Number of countries	68	68	68	68	68	68	68	68
R-squared	0.205	0.203	0.11	0.12	0.10	0.11	0.30	0.30

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 8: Components of Financial Sector Reforms and Experience of Central Banker

Dependent variable: financial sector reform in (country, year)							
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
	Components of Financial Regulation			Components of Banking Sub-index			
	Banking	Securities	Directed Credit	Interest Rate Controls	Entry Barriers, Competition Restrictions	Quality of Banking Supervision	Privatization
Panel A.							
Lagged level of index	-0.156*** [0.017]	-0.207*** [0.027]	-0.172*** [0.026]	-0.190*** [0.024]	-0.189*** [0.021]	-0.233*** [0.023]	-0.185*** [0.029]
Past Experience in Private Financial Sector	1.256** [0.545]	0.58 [0.897]	1.885* [1.128]	1.952 [1.368]	1.708* [0.899]	0.392 [0.880]	0.54 [1.022]
Observations	1195	1195	1195	1195	1195	1195	1195
Number of countries	68	68	68	68	68	68	68
R-squared	0.20	0.20	0.16	0.19	0.18	0.20	0.17
Panel B.							
Lagged level of index	-0.149*** [0.018]	-0.206*** [0.027]	-0.168*** [0.025]	-0.185*** [0.023]	-0.189*** [0.021]	-0.234*** [0.023]	-0.192*** [0.031]
Past Experience in Private Financial Sector	2.639* [1.434]	1.582 [2.565]	6.251*** [2.344]	6.110* [3.249]	2.028 [2.177]	-1.323 [2.059]	-3.231 [2.407]
Past Experience in Private Financial Sector * Lagged level of index	-0.035* [0.019]	-0.039 [0.031]	-0.060* [0.032]	-0.081^ [0.053]	-0.008 [0.026]	0.01 [0.029]	0.041 [0.036]
Observations	1195	1195	1195	1195	1195	1195	1195
Number of countries	68	68	68	68	68	68	68
R-squared	0.20	0.20	0.16	0.20	0.18	0.20	0.17

Note. All regressions include country and year fixed effects. The following control variables are included, but not reported: Past experience in academia, Past experience in other private sector, Past experience in central banking, Past experience in ministry of finance, Past experience in international organization, Lagged crisis (inflation_{t-40}), Lagged real devaluation, Lagged reforms in geographical neighbors, Lagged IMF Program, Lagged dummy for left, Lagged dummy for presidential. Standard errors are clustered at the governor-level. ***, **, *, and ^ denote statistically significant at 1, 5, 10, and 15 percent respectively.

Table 9. 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]	[4]	[5]
				Components of Financial Regulation	
			Banking	Securities	
Lagged level of index	-0.132*** [0.014]	-0.137*** [0.014]	-0.154*** [0.016]	-0.160*** [0.017]	-0.217*** [0.028]
Past experience at the IMF	1.311** [0.550]	1.523** [0.643]	1.738** [0.732]	1.548** [0.723]	3.518** [1.537]
Past experience at the World Bank	0.086 [1.093]	0.087 [1.042]	0.442 [1.207]	0.187 [1.302]	2.148[^] [1.462]
Past experience at the BIS	-1.861*** [0.675]	-1.957*** [0.751]	-1.906** [0.775]	-1.542** [0.751]	-4.446** [1.742]
Past experience at the UN	-1.815*** [0.683]	-1.947*** [0.650]	-2.003*** [0.735]	-2.208*** [0.824]	-1.315 [1.191]
Past experience in other development banks (not the World Bank)	-0.337 [0.564]	-0.641 [0.556]	-0.733 [0.616]	-0.844 [0.681]	-0.729 [0.881]
Past Experience in Private Financial Sector		1.020** [0.436]	0.931* [0.482]	1.121** [0.529]	0.459 [0.780]
Past experience in academia		0.512 [^] [0.352]	0.639 [^] [0.397]	0.437 [0.428]	2.079*** [0.754]
Past experience in other private sector		0.502 [0.364]	0.720* [0.431]	0.754* [0.449]	0.584 [0.776]
Past experience in central banking		0.144 [0.339]	0.225 [0.376]	0.164 [0.390]	0.608 [0.715]
Past experience in ministry of finance		-0.081 [0.380]	0.009 [0.434]	0 [0.458]	0.133 [0.780]
Lagged crisis (inflation>40)			-0.054 [0.971]	-0.128 [1.154]	-0.912 [1.475]
Lagged real devaluation			0.688 [1.051]	0.298 [0.904]	2.45 [2.481]
Lagged reforms in geographical neighbors			-7.335 [8.609]	-9.414 [10.172]	5.583 [14.359]
Lagged IMF Program			0.226 [0.398]	0.187 [0.465]	0.476 [0.706]
Lagged dummy for left			-0.823 [0.815]	-0.789 [0.875]	-1.012 [1.589]
Lagged dummy for presidential			0.081 [0.356]	-0.056 [0.404]	0.479 [0.739]
Observations	1371	1371	1195	1195	1195
Number of countries	73	73	68	68	68
R-squared	0.19	0.20	0.21	0.21	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 10: 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	-0.126*** [0.019]	-0.128*** [0.020]	-0.137*** [0.021]	-0.134*** [0.020]	-0.125*** [0.019]	-0.134*** [0.020]	-0.140*** [0.022]	-0.152*** [0.023]
Future Experience in Private Financial Sector	0.339 [0.517]	0.293 [0.525]	0.206 [0.530]	0.345 [0.542]	0.304 [0.519]	0.306 [0.531]	0.396 [0.544]	0.180 [0.575]
Future experience in academia	0.404 [0.609]	0.099 [0.606]	0.178 [0.602]	0.135 [0.633]	0.378 [0.595]	0.138 [0.657]	-0.393 [0.639]	-0.329 [0.635]
Future experience in other private sector	-0.388 [0.519]	-0.294 [0.540]	-0.287 [0.536]	-0.344 [0.573]	-0.418 [0.515]	-0.321 [0.544]	-0.346 [0.582]	-0.135 [0.609]
Future experience in central banking	-0.254 [1.121]	0.437 [1.274]	0.186 [1.290]	-0.189 [1.253]	-0.25 [1.116]	-0.035 [1.254]	0.676 [1.591]	0.55 [1.720]
Future experience in ministry of finance	-0.158 [0.947]	-0.398 [0.991]	0.005 [0.946]	-0.618 [1.058]	-0.221 [0.942]	-0.136 [1.023]	-0.639 [1.067]	-0.463 [1.125]
Future experience in international organization	0.037 [0.553]	0.198 [0.550]	0.323 [0.567]	0.367 [0.597]	0.018 [0.547]	0.276 [0.571]	0.653 [0.549]	0.821 [0.617]
Lagged crisis (inflation>40)		1.589 [1.202]					2.510 [^] [1.537]	
Lagged real devaluation			0.002 [0.081]				0.417 [1.550]	
Lagged reforms in geographical neighbors				-10.489 [10.996]			-10.24 [11.521]	
Lagged IMF Program					0.395 [0.405]		0.202 [0.470]	
Lagged dummy for left						0.541 [0.441]	0.537 [0.471]	
Lagged dummy for presidential						-1.322 [1.233]	-1.409 [1.187]	
Observations	972	930	905	911	972	923	830	830
Number of countries	67	67	65	65	67	66	63	63
R-squared	0.22	0.23	0.24	0.23	0.22	0.22	0.25	0.24

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 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	-0.133*** [0.018]	-0.133*** [0.018]	-0.117*** [0.017]	-0.118*** [0.017]	-0.118*** [0.017]	-0.136*** [0.017]	-0.120*** [0.018]	-0.142*** [0.023]
Economics	0.301 [0.455]							
Economics or Finance		0.309					-0.152	-0.168
PhD			0.054 [0.351]				0.088 [0.399]	0.036 [0.429]
Economics PhD				0.224 [0.381]				
Economics or Finance PhD					0.249 [0.367]			
School in UK						0.005 [0.664]	0.09 [0.698]	-0.176 [0.798]
School in US						0.845** [0.428]	0.71 [0.500]	0.626 [0.578]
Lagged crisis (inflation>40)								0.062 [0.840]
Lagged real devaluation								1.255 [1.085]
Lagged reforms in geographical neighbors								4.532 [9.703]
Lagged IMF Program								0.703* [0.403]
Lagged dummy for left								0.205 [0.878]
Lagged dummy for presidential								-0.204 [0.457]
Observations	1064	1064	982	959	959	1091	915	817
Number of countries	70	70	67	67	67	70	66	63
R-squared	0.23	0.23	0.20	0.21	0.21	0.24	0.22	0.25

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 12: Changes in Inflation Rate and Experience of Central Banker

	Dependent variable: change in inflation in (country, year)			
	[1]	[2]	[3]	[4]
L.inflation	-0.451*** [0.042]	-0.454*** [0.043]	-0.450*** [0.044]	-0.465*** [0.043]
Past Experience in Private Financial Sector	0.016 [0.011]	0.015 [0.012]	0.021 [^] [0.013]	0.018 [^] [0.012]
Past experience in academia		0.018 [^] [0.012]	0.021 * [0.012]	0.019 [^] [0.012]
Past experience in other private sector		0.004 [0.012]	0.005 [0.014]	0.005 [0.012]
Past experience in central banking		-0.002 [0.010]	-0.004 [0.011]	-0.002 [0.010]
Past experience in ministry of finance		-0.017 * [0.010]	-0.017 [^] [0.011]	-0.017 * [0.010]
Past experience in international organization		-0.004 [0.007]	-0.007 [0.008]	-0.005 [0.007]
Crisis (banking or debt)			0.021 [0.033]	
Growth in Real GDP				-0.003** [0.001]
Observations	2078	2078	1819	2078
Number of countries	114	114	99	114
R-squared	0.40	0.40	0.41	0.41

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 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	-0.408*** [0.051]	-0.409*** [0.051]	-0.411*** [0.063]	-0.413*** [0.063]	-0.413*** [0.063]	-0.359*** [0.036]	-0.330*** [0.047]	-0.329*** [0.050]	-0.341*** [0.051]
Economics	0.020* [0.011]								
Economics or Finance		0.016** [0.006]					0.021** [0.009]	0.016* [0.008]	0.015** [0.008]
PhD			-0.011 [0.013]				-0.012 [0.015]	-0.014 [0.016]	-0.009 [0.013]
Economics PhD				-0.005 [0.010]					
Economics or Finance PhD					-0.009 [0.013]				
School in UK						0.012 [0.010]	0.006 [0.009]	0.009 [0.010]	0.002 [0.010]
School in US						-0.003 [0.010]	-0.004 [0.011]	-0.015 [0.012]	-0.003 [0.011]
Crisis (banking or debt)								-0.016 [0.021]	
Growth in Real GDP									-0.004* [0.002]
Observations	1632	1632	1516	1493	1493	1637	1417	1250	1417
Number of countries	109	109	103	103	103	106	99	89	99
R-squared	0.41	0.41	0.37	0.37	0.37	0.33	0.28	0.28	0.29

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 A1: List of CBGs with Previous Experience in private Banking Sector

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	Illir 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. Helmuth 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 MLLer 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 GutiRrez	2002	2010	2
33	Costa Rica	238	Rodrigo Bolanos Zamora	2010	.	2
34	Croatia	960	?Eljko 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	GyRgy SurNyi	1995	2001	2
54	Hungary	944	Zsigmond JRai	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
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	FrDRic 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	AntNio 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 Aburiesh	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. BLent GLtekin	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	1195	2.03	4.63	-16.67	33.33
Lagged level of reform index	1195	58.49	29.08	0	100
Past experience in private financial sector	1195	0.23	0.42	0	1
Past experience in academics	1195	0.29	0.45	0	1
Past experience in other private sector	1195	0.19	0.40	0	1
Past experience in central banking	1195	0.53	0.50	0	1
Past experience in ministry of finance	1195	0.31	0.46	0	1
Past experience in international organization	1195	0.33	0.47	0	1
Crisis (inflation>40)	1195	0.06	0.24	0.00	1.00
Real devaluation	1195	0.01	0.17	-1.00	3.04
Lagged reforms in geographical neighbors	1195	0.02	0.02	-0.10	0.14
Lagged IMF Program	1195	0.31	0.46	0.00	1.00
Lagged dummy for left	1195	0.42	0.49	0.00	1.00
Lagged dummy for presidential	1195	0.28	0.45	0.00	1.00
Number of countries	73				
Number of governors	246				
Number of years	32				

Notes. The summary statistics in this table correspond to Column [7] in Table 5.

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	-0.122*** [0.015]	-0.129*** [0.015]	-0.128*** [0.016]	-0.128*** [0.015]	-0.122*** [0.015]	-0.127*** [0.015]	-0.141*** [0.016]	-0.139*** [0.016]
Past Experience in Private Financial Sector	2.331* [1.265]	2.375* [1.276]	2.190* [1.281]	2.776** [1.388]	2.313* [1.274]	2.514* [1.408]	2.663* [1.503]	2.694* [1.513]
Past Experience in Private Financial Sector* Lagged level of index	-0.022 [0.017]	-0.024 [0.017]	-0.021 [0.017]	-0.028[^] [0.019]	-0.022 [0.017]	-0.026 [0.019]	-0.026 [0.020]	-0.027 [0.020]
Past experience in academia	-0.002 [0.011]	0.001 [0.012]	-0.001 [0.011]	0.001 [0.011]	-0.002 [0.011]	0.001 [0.011]	0.004 [0.012]	0.003 [0.012]
Past experience in other private sector	0.402 [0.354]	0.51 [0.373]	0.518 [0.383]	0.466 [0.359]	0.412 [0.356]	0.392 [0.362]	0.499 [0.403]	0.489 [0.404]
Past experience in central banking	0.300 [0.353]	0.379 [0.389]	0.326 [0.394]	0.448 [0.370]	0.294 [0.352]	0.338 [0.365]	0.481 [0.424]	0.478 [0.424]
Past experience in ministry of finance	0.161 [0.332]	0.159 [0.343]	0.075 [0.343]	0.265 [0.344]	0.158 [0.333]	0.267 [0.339]	0.206 [0.370]	0.248 [0.366]
Past experience in international organization	-0.072 [0.373]	-0.036 [0.392]	-0.046 [0.394]	0.006 [0.395]	-0.067 [0.375]	0.091 [0.392]	0.141 [0.428]	0.147 [0.427]
Past experience in international organization* Lagged level of index	-0.489 [0.750]	-0.705 [0.819]	-0.554 [0.785]	-0.849 [0.761]	-0.501 [0.749]	-0.752 [0.782]	-1.028 [0.818]	-0.945 [0.818]
Lagged crisis (inflation>40)		-0.396 [0.861]					-0.306 [1.075]	
Lagged real devaluation			0.018 [0.085]				0.587 [1.079]	
Lagged reforms in geographical neighbors				-8.549 [7.838]			-8.011 [8.630]	
Lagged IMF Program					0.123 [0.322]		-0.075 [0.354]	
Lagged dummy for left						0.19 [0.391]	0.031 [0.419]	
Lagged dummy for presidential						-0.51 [0.777]	-0.669 [0.817]	
Observations	1371	1323	1294	1291	1371	1308	1195	1195
Number of countries	73	73	70	71	73	72	68	68
R-squared	0.19	0.20	0.20	0.20	0.19	0.19	0.21	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*** [0.017]	-0.140*** [0.017]	-0.147*** [0.018]	-0.147*** [0.017]	-0.148*** [0.016]	-0.138*** [0.019]
Past Experience in Private Financial Sector	1.060** [0.507]	1.020** [0.516]	1.063** [0.512]	1.063** [0.512]	1.065** [0.513]	2.257 [1.568]
Past experience in academia	-0.174 [0.785]	0.47 [0.393]	0.581 [^] [0.401]	0.573 [0.399]	0.581 [^] [0.400]	-0.129 [0.782]
Past experience in other private sector	0.493 [0.421]	2.197** [1.020]	0.486 [0.430]	0.483 [0.427]	0.49 [0.427]	1.744 [^] [1.148]
Past experience in central banking	0.172 [0.372]	0.107 [0.369]	0.245 [0.708]	0.2 [0.372]	0.194 [0.369]	0.278 [0.747]
Past experience in ministry of finance	0.108 [0.439]	0.098 [0.432]	0.106 [0.446]	0.245 [0.731]	0.103 [0.437]	0.452 [0.751]
Past experience in international organization	-0.766* [0.392]	-0.803** [0.392]	-0.784** [0.393]	-0.789** [0.388]	-0.829 [0.793]	-1.141 [0.858]
Lagged crisis (inflation>40)	0.013 [0.011]					0.01 [0.011]
Lagged real devaluation	-0.219 [1.026]	-0.265 [1.042]	-0.21 [1.040]	-0.206 [1.034]	-0.212 [1.038]	-0.3 [1.063]
Lagged reforms in geographical neighbors	0.684 [1.035]	0.588 [1.092]	0.631 [1.049]	0.635 [1.048]	0.631 [1.048]	0.612 [1.102]
Lagged IMF Program	-7.74 [8.547]	-7.916 [8.604]	-7.75 [8.563]	-7.703 [8.572]	-7.748 [8.575]	-8.098 [8.636]
Lagged dummy for left	0.039 [0.407]	0.046 [0.415]	0.069 [0.415]	0.066 [0.412]	0.073 [0.414]	-0.021 [0.417]
Lagged dummy for presidential	-0.735 [0.832]	-0.746 [0.821]	-0.746 [0.840]	-0.734 [0.834]	-0.760 [0.825]	-0.616 [0.834]
Past Experience in Private Financial Sector * Lagged level of index	-0.066 [0.354]	-0.081 [0.344]	-0.038 [0.354]	-0.045 [0.350]	-0.04 [0.352]	-0.125 [0.352]
Past experience in academia * Lagged level of index		-0.027* [0.014]				-0.02 [0.016]
Past experience in other private sector * Lagged level of index			-0.001 [0.011]			-0.003 [0.011]
Past experience in central banking * Lagged level of index				-0.003 [0.012]		-0.006 [0.012]
Past experience in ministry of finance * Lagged level of index					0.001 [0.011]	0.006 [0.012]
Past experience in international organization * Lagged level of index						-0.02 [0.021]
Observations	1195	1195	1195	1195	1195	1195
Number of countries	68	68	68	68	68	68
R-squared	0.21	0.21	0.21	0.21	0.21	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 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]
Lagged crisis (inflation>40)	0.106 [^] [0.068]					0.159** [0.074]
Lagged real devaluation		0.003 [0.005]				0.069 [0.063]
Lagged reforms in geographical neighbors			0.254 [0.461]			0.19 [0.506]
Lagged IMF Program				-0.003 [0.034]		-0.014 [0.048]
Lagged dummy for left					0.03 [0.042]	0.033 [0.044]
Lagged dummy for presidential					-0.037 [0.083]	-0.028 [0.090]
Observations	1323	1294	1291	1919	1308	1195
Number of countries	73	70	71	103	72	68
R-squared	0.50	0.49	0.49	0.47	0.50	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.