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A New Measure of Central Bank Independence

Tobias Adrian, Ashraf Khan, Lev Menand

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Monetary and Capital Markets Department

A New Measure of Central Bank Independence**Prepared by Tobias Adrian, Ashraf Khan, Lev Menand***

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ABSTRACT: This paper constructs a new index for measuring de jure central bank independence, the first entirely new index in three decades. The index draws on a comprehensive dataset from the IMF's Central Bank Legislation Database (CBLD) and Monetary Operations and Instruments Database (MOID) and weightings derived from a survey of 87 respondents, mostly consisting of central bank governors and general counsels. It improves upon existing indices including the Cukierman, Webb, and Neyapti (CWN) index, which has been the de facto standard for measuring central bank independence since 1992, as well as recent extensions by Garriga (2016) and Romelli (2022). For example, it includes areas absent from the CWN index, such as board composition, financial independence, and budgetary independence. It treats dimensions such as the status of the chief executive as composite metrics to prevent overstating the independence of statutory schemes. It distills ten key metrics, simplifying current frameworks that now include upwards of forty distinct variables. And it replaces the subjective weighting systems relied on in the existing literature with an empirically grounded alternative. This paper presents the key features of the new index; a companion, forthcoming paper will provide detailed findings by country/region, income level, and exchange rate regime.

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WORKING PAPERS

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Prepared by Tobias Adrian, Ashraf Khan, and Lev Menand¹

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Contents

Glossary	3
I. Introduction	4
II. Existing Measures of Central Bank Independence	5
III. Shortcomings of Existing Measures	8
IV. A New Central Bank Independence Index	10
A. Ten Metrics	10
B. Survey Weights	13
C. IMF Central Bank Legislation Database and Monetary Operations and Instruments Database	17
V. Preliminary Descriptive Statistics	19
VI. Conclusion	21
References	22

FIGURES

1. CBI Survey Respondents	14
2. CBI Score Distribution	17
3. CBLD Data Coverage (2010/2015, 2020/2021)	18
4. CBI Index Country Coverage	19

BOXES

1. Survey Responses by Region and Income Level	15
2. Survey Responses by Market Type	15
3. Survey Responses by Exchange Rate Regime	16
4. Survey-based Variable Weights (Total)	16
5. Survey-based Variable Weights (By Weight Number)	17
6. CBI-relevant CBLD Search Categories	18
7. Survey Weights for CBI Variables	20

Glossary

AI/ML	Artificial Intelligence/Machine Learning
BP	Bade and Parkin (1988)
CBI	Central Bank Independence
CBIE	Central Bank Independence Index
CBLD	Central Bank Legislation Database
CEO	Chief Executive Officer
CWN	Cukierman, Webb, and Neyapti (1992)
GMT	Vittorio Grilli, Donato Masciandaro, and Guido Tabellini (1991)
IAPOC	Independence and Accountability, Policy and Operational Strategy, and Communications
MPC	Monetary Policy Committee

I. Introduction

Central banks are among the most important economic governance institutions in the world today. They manage the money supply and broader financial conditions in ways that impact inflation, real activity, and financial stability. The impact of their decisions and policy frameworks have been particularly pronounced during recent crisis periods such as the global financial crisis of 2007–2009 and the COVID-19 pandemic in 2020, both of which episodes led to significantly expanded central bank balance sheets and the latter of which prompted rapid increases in the price level in many countries.

The last half century has seen a proliferation of scholarship regarding the institutional design of central banks. How do the laws structuring central banks affect their decisions? What relationship, if any, does central bank legislation have with economic outcomes such as price stability, real activity, and financial stability? Many inquiries focus on “central bank independence”: the ability of central bankers to set monetary policy— independently of other government officials, particularly members of the executive branch.¹

One subset of these inquiries relies on measures of *de jure* independence: quantitative scores that differentiate between central banks based on objective features of their statutory schemes. Over the past thirty years, this literature has come to rely predominantly on an index first developed in 1992 by Cukierman, Webb, and Neyapti (CWN). This index (or expanded versions of it) appears in dozens of studies examining economic, political, and financial dynamics across countries and over time. The index, however, is based on subjective weightings and variable definitions that are arguably out-of-date or difficult to justify.

This paper takes a fresh look at the issue and constructs a new index for measuring *de jure* central bank independence; to our knowledge the first entirely new index in three decades that is not based on CWN. The index draws on a new dataset from the IMF’s Central Bank Legislation Database (CBLD) and Monetary Operations and Instruments Database (MOID) and weightings derived from a new survey of 87 central banks. It improves upon existing indices including the CWN index, as well as recent extensions by Garriga (2016) and Romelli (2022). With the development of our index, we are making a key methodological contribution to the construction of central bank indices for the following three reasons:

First, it simplifies existing frameworks that now include upwards of forty distinct variables. Our index includes ten key metrics, expanding coverage to address areas absent from CWN, such as board composition, financial independence, and budgetary independence, while distilling to three metrics, for example, provisions related to central bank lending. Our ten metrics are independence of the chief executive from executive branch officials, independence of the highest governing body from executive branch officials, budgetary independence of the central bank from the legislature, policy independence from the executive branch, the role of price stability among the central bank’s statutory objectives, whether the central bank is prohibited from long-term direct lending to the government, whether the central bank is prohibited from direct short-term lending to the government, whether the central bank has financial autonomy, whether the central bank is restricted from lending outside the financial system, and whether state audit bodies are barred from investigating monetary policy decisions.

Second, we define our variables conservatively, to prevent overstating independence based on statutory features that, when taken in connection with other provisions, are unlikely to grant any meaningful decisional

¹ We use “independence” and “autonomy” interchangeably in this paper.

autonomy. For example, we treat the status of the chief executive as a composite metric. For a central bank law to create an independent chief executive it is necessary that it offer both a meaningful term in office *and* protection from removal by the executive branch at will. One without the other is little help.

Finally, and most importantly, we replace the arbitrary, subjective, and complex weighting systems of existing indices with the first empirically grounded framework. We use data collected from senior officials at 87 monetary authorities around the world. The data reveal that existing weighting schemes diverge meaningfully from expert opinion among central bankers as to the relative importance of certain statutory features to generating decisional autonomy.

This paper proceeds as follows. Section 2 reviews existing measures of central bank independence. Section 3 catalogues shortcomings of these measures. Section 4 describes our new index and includes background on the survey weights and statutory data. Section 5 provides preliminary aggregate statistics produced by scoring the enabling laws for 151 monetary authorities using our methodology, weightings, and 2020/2021 data. In a forthcoming paper, we will release detailed country-level data, summary statistics, and empirical analysis using this sample and compare our results to existing measures.

II. Existing Measures of Central Bank Independence

Over thirty years ago, Alberto Alesina and Larry Summers observed that “[t]he central difficulty in examining the question of central bank independence is measuring the independence of the central bank in different countries” (Alesina and Summers 1993, 152). At the time, three different measures were in use: Bade and Parkin (1988) (BP); Grilli, Masciandaro, and Tabellini (1991) (GMT), and Cukierman, Webb, and Neyapti (1992) (CWN).

Robin Bade and Michael Parkin—who showed that more independent central banks deliver a lower rate of inflation (Bade and Parkin 1988)—categorized twelve central banks along two dimensions: policy and finances.² As to policy, Bade and Parkin scored a central bank most independent if it could make final decisions with respect to policy and at least some of the members of its policy setting body were appointed by officials outside of the government (such as in Germany at the time). Bade and Parkin scored central banks least independent if the government was the final policy authority, government officials served on the bank’s board of directors, and the government appointed all of the members of the policy setting body (such as in Australia at the time). Two middle categories covered cases where the government was the final policy authority but there were no government officials on the bank’s board of directors (such as in the United Kingdom) and the bank was the final policy authority, but all board appointments were made by the government (such as in the United States). As to financing, Bade and Parkin delineated four groups: countries where the government approved the central bank budget, determined board member salaries, and allocated central bank profits (least independent); countries where the government determined salaries and profit allocations but the bank determined budget allocation; countries where profit allocation was determined by statute and the bank determined the budget and salaries; and countries where the bank determined budget, salaries, and profit allocation (most independent).

Bade and Parkin did not use variable weightings, nor did they calculate composite scores fusing assessments

² Bade and Parkin (1988) limited their study to industrial countries between 1972 and 1986 (Australia, Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, Switzerland, the UK, and the US).

of both operational and financial independence. Bade and Parkin also omitted a variety of statutory features relating to both operational and financial independence. For example, they did not consider whether the government could remove central bank officials at will or only for cause; they did not incorporate term lengths into their calculations (although they included this information in their tables); they did not examine government audit powers or lending prerogatives; and they did not consider statutory mandates.

Several years later Vittorio Grilli, Donato Masciandaro, and Guido Tabellini (1991) (GMT) put out a new index. They also distinguished central banks along two dimensions (political and economic), but they incorporated six more countries and many more elements than Bade and Parkin (fifteen in total), and they combined scores for each institution to construct ordinal index measures. Their eight political metrics covered appointments (whether the governor is appointed by the bank board; whether the governor's term is greater than five years; whether all of the board is *not* appointed by the government; and whether the board members serve for more than five years); government involvement in decision-making (whether the government is legally entitled to participate in board decision-making through a representative or *ex officio* member; whether government approval of policy decisions is required); and the structural relationship of the bank to governmental decision-makers (whether there is a statutory requirement for the central bank to pursue monetary stability amongst its goals; whether there are statutory provisions that strengthen the central bank in conflicts with the government).

Their seven economic metrics addressed monetary financing (whether the bank has discretion with respect to extension of direct credit to the government; whether the government is required to pay a market interest rate on extensions of credit; whether any credit extension must be temporary; whether any direct credit must be limited in amount; whether the central bank is excluded from the primary market for public debt) and monetary instruments (whether the discount rate is set by the central bank; whether bank supervision occurs *outside* of the central bank or is not entrusted to the central bank alone).

Each of these fifteen metrics were scored on a binary (1 or 0) basis except that central banks receive two points if they have no responsibility for bank supervision, one point if they share responsibility for supervision with other government actors, and zero points if they are the sole supervisory authority.³ In 1991, the US, Switzerland, and Germany received a thirteen; New Zealand and Portugal scored three. The GMT index has been updated and used by many subsequent authors (see, e.g., Alesina and Summer 1993, Arnone et al. 2009, Arnone and Romelli 2013, Binder 2021).

In 1992, Alex Cukierman, Steven Webb, and Bilin Neyapti (CWN) published the index that has come to dominate social scientific studies of central bank design. The original version covers 72 countries and employs sixteen different variables coded on a scale of 0 to 1 with as many as five sub-weights (0.17, 0.33, 0.5, 0.67, 0.83). These variables address the legal status of the bank's chief executive (term of office; appointment authority; dismissal provisions; provisions barring holding other offices); policy formulation (whether and on what terms the bank shares authority over monetary policy formulation; who has the final word on conflicts with the government; whether the central bank has an active role in the government's budgetary process); objectives (whether price stability is the major or only objective or one of many objectives); and limitations on lending to the government (limits on unsecured lending; limits on secured lending; limits on lending terms; limits on potential borrowers; limits on lending amounts; limits on maturity; limits on interest rates; limits on buying or selling government securities in the primary market).

³ "Combining [the various attributes of central bank legislation] is unavoidably arbitrary[,] so we adopt the simplest procedure of adding them up" (Grilli et al. 1991, 367).

The variable scores are granular. For example, one point is awarded if a central bank chief executive enjoys a term of office greater than eight years, 0.75 points are awarded for a term of six to eight years, 0.5 points are awarded for a term of five years, 0.25 points are awarded for a term of four years, and 0 points are awarded for a shorter term or no term. Central banks receive one point if interest rates on their loans must be above market rates, 0.75 points if their loans must be at market rates; 0.5 if their loans can be below market rates; 0.25 points if interest rates are not mentioned in the statute; and 0 points if the government can borrow without paying interest. Dismissal is similarly complex: one point if there is no mechanism to remove the bank chief executive, 0.83 points if dismissal must be for cause; 0.67 if dismissal is at the discretion of the bank's board; 0.5 if dismissal is at the discretion of the legislative; 0.33 if legislative dismissal can be unconditional; 0.17 if the executive dismissal is permitted; 0 points if unconditional dismissal by the executive is permitted.

These variables, in turn, are weighted. The four variables related to the chief executive are each weighted 0.05 (totaling 0.2). Policy formulation sums to 0.15. The single variable relating to statutory objectives counts for 0.15. And the eight variables relating to lending total 0.5 (with sub-weights from 0.025 to 0.15), or fully half the index.

The CWN index now undergirds dozens of studies including Campillo and Miron 1997, Oatley 1999, Cukierman et al. 2002, Polillo and Guillen 2005, Crowe and Meade 2008, Acemoglu et al. 2008, Bodea and Hicks 2015, Garriga 2016, Bodea and Higashijima 2017, Kern et al. 2019, Garriga and Rodriguez 2020, Unsal et al. 2022, Elgin et al. 2021, and Binder 2021. But the CWN framework has various shortcomings: for example, it does not address the legal status of board members, a component of Grilli et al., nor does it assess the central bank's own budgeting process, a feature of Bade and Parkin. Subsequent authors have therefore occasionally modified it to include more variables or to change how some variables are calculated and weighted. Three modifications bear mention (although none has taken off in the same way as the original index).

First, in 2005, Luis Jácome and Francisco Vázquez (2005) revamped the CWN metrics, adding eight new variables and removing seven. These changes simplified the measurement of central bank lending (replacing variables measuring secured lending, terms of lending, potential borrowers, limits on lending amounts, limits on maturities, and limits on primary market purchases with variables regarding lending to the government, who decides financing conditions to the government, and beneficiaries of central bank financing). Jácome and Vázquez also expanded their index to incorporate the appointment and dismissal of the central bank's board of directors (a la Bade and Parkin and GMT), exchange rate policy (penalizing involvement by the government), central bank approval of public debt issuance (instead of central bank involvement in the government's budget process), central bank ability to preserve capital ("financial autonomy"), and an accountability criteria that rewards requirements to report on a regular basis on the fulfillment of policy targets and publish audited financial statements. These new criteria are scored in a similar fashion to the CWN criteria. For example, a country's central bank reporting score is 1 if it reports to the executive branch and informs at least annually to the legislature, 0.75 if it reports to the executive annually and submits an annual report to the legislature, 0.5 if it reports annually to the executive, and 0.25 if it distributes reports but on an ad hoc basis. Jácome and Vázquez also adjusted the overall weightings of each variable such that the accountability criteria (reporting and auditing) account for almost one quarter of the overall score.

Next, in 2014, Nergiz Dincer and Barry Eichengreen made more modest adjustments to CWN, adding eight new measures to the existing sixteen. Specifically, they included variables regarding the reappointment of the chief executive, the bank's role in formulating exchange rate policy, and the bank's board members (their terms in office, appointers, restrictions on their dismissal, whether they may hold other offices in the government,

restrictions on their reappointment, and whether one or more is a government representative). The first two additions were incorporated into the overall CWN weightings for the variables regarding the chief executive and policy formulation and the final vector was assigned an overall weighting equivalent to that assigned to the chief executive variables.

In the last few years, Davide Romelli has developed an enhanced central bank independence index (CBIE) that adds on top of the CWN sixteen another 26 variables (also with weights and sub-weights between 0 and 1) measuring characteristics covered by Bade and Parkin, GMT, Jâcome and Vázquez, and Dincer and Eichengreen. The result is a six-part index that addresses the status of the chief executive and the rest of the board, policy formulation (including exchange rate policy and supervisory policy), statutory objectives, lending rules, financial independence (including financial autonomy, budgetary autonomy, and auditing), and reporting and disclosure (incorporating the two variables added by Jâcome and Vázquez). Romelli adjusts the weightings so that each of the six dimensions is weighted equally and within each dimension each of the variables is similarly equivalent (although the number of variables within a dimension range from one to twelve). Romelli has updated the CBIE with a remarkable dataset going back to 1923, and uses this to outline a global trend towards enhancing central bank independence, across countries' income levels and indices of central bank indices (Romelli (2024)).

Most recently, D. Filiz Unsal, Chris Papageorgiou, and Hendre Garbers (2022) have released a very comprehensive Independence and Accountability, Policy and Operational Strategy, and Communications (IAPOC) index, focused on jointly measuring independence and accountability in a both de facto and de jure manner as part of a Monetary Policy Framework. Their Framework consists of three (unweighted) main pillars: (i) Independence and Accountability; (ii) Policy and Operational Strategy; and (iii) Communications, each with several sub-pillars. The independence pillar focuses on operational independence of the central bank's monetary policy function. The relevant independence sub-pillars cover: (i) delegation and designation of responsibility (outlining who within the central bank is responsible for monetary policy decision-making); (ii) mandated goals and numerical targets (outlining the goals assigned to monetary policy); (iii) integrity of the monetary policymaking body (which covers the integrity of members of monetary policy decision-making bodies, including their terms of office, grounds for dismissal, etc.); (iv) financial arrangements (such as lending to government, profit distribution, and recapitalization arrangements); and (v) reporting and oversight (which focuses on relevant accountability mechanisms). Scoring is generally 1 or 0, with scores of 0.5 in some cases.

III. Shortcomings of Existing Measures

We seek to improve on existing approaches, especially the dominant approach taken by CWN and its progeny, including Romelli. In particular, we focus on redressing the following deficiencies.

First, we find that existing approaches employ subjective weightings that are, in many cases, arbitrary. For example, CWN heavily weights lending rules (50 percent of the overall index) compared with the central bank's role in formulating monetary policy (5 percent), such that a bank that has "no say" in formulating monetary policy but also has no power to lend and no power to buy government securities in the primary market scores 0.5 points (out of 0.55 points allocated to these dimensions) while a bank with full control over monetary policy formulation that still has very strict limits on lending (advances and securitized lending up to only fifteen percent of government revenues, with terms set by the bank, maturities no more than six months, and at penalty rates)

and no power to buy government securities in the primary market scores just 0.416 (out of 0.55)—significantly less.

Romelli's recent extensive and impressive expansion of the CWN index somewhat compounds this deficiency. Although Romelli weights each of his six categories equally (the four categories in CWN plus vectors of financial independence and reporting/disclosure variables), this would still entail a more subjective judgment. It means that reporting/disclosure (whether the central bank is required to make annual reports to the legislature and is subject to mandatory independent annual audits) is treated as equivalent to whether the central bank has control over monetary policy. It also means that if the financial independence category and reporting/disclosure category were joined as a single category, each would suddenly count for half as much. The effect is particularly pronounced at the level of individual variables. For example, the variable regarding price stability as a statutory objective, which is the only variable in the statutory objectives dimension, accounts for 16.67 percent of a country's overall score, whereas the central bank reporting variable (described in detail above), which is one of two variables in the reporting and disclosure dimension, accounts for 8.3 percent overall, and whether the central bank has the exclusive right to determine and approve its annual budget, a very important consideration but which is one of twelve variables grouped under the heading of financial independence, is weighted just 1.4 percent overall.

Past approaches are also disaggregated, treating various features as distinct variables with independent scores, which allows for "partial credit" in ways that could affect measurement. For example, if a central bank's chief executive is appointed by the central bank board for a term of ten years and cannot hold other offices in the government, the central bank receives 0.15 points (out of 0.2 points allocated to this dimension) even if the executive branch of the government can dismiss the central bank chief executive at any time and for no reason at all.

In addition, CWN and Romelli, as the dominant frameworks, employ several inferences in calibrating their variables that might not be fully in line anymore with current views on central bank independence. Among these is the judgment that the chief executive and central bank board should score most independent if they are appointed by private shareholders (or are part of a self-perpetuating board), 25 percent less independent if they are appointed by a council of the executive, legislature, and existing board, 50 percent less independent if they are appointed by the legislative branch alone; 75 percent less independent if they are appointed by a council of executive branch officials; and not independent at all if one or more executive branch officials makes the appointments alone. This waterfall approach is somewhat arbitrary in its relative weighting and does not incorporate the common practice of joint appointment by executive officials and the legislature.

Similarly, relative weightings regarding dismissal provisions are highly granular and may prove difficult to justify. Taking Romelli's formulation of the CWN variable, for example, dismissal for policy reasons at the legislative branch's discretion credits a country with 0.5 points whereas dismissal at will by the legislative branch credits a country with 0.33 points, dismissal by the executive branch for policy reasons counts for 0.17 and dismissal by the executive at will counts for zero. Meanwhile, if removal is permitted at will by the central bank board, the country scores 0.67 points. These distinctions appear excessively precise as the practical difference between removal at will and removal for policy reasons is likely minimal with both leaving central bankers vulnerable to dismissal for excessively tight monetary policy.

Meanwhile, countries receive points towards independence for metrics whose effect on central bank independence could be seen as ambiguous. For example, central bank responsibility for bank supervision is

penalized—but there are strong reasons for consolidating supervision of the banking sector under central bank control including that supervisory policy affects monetary policy and financial conditions (Menand 2023). Similarly, it's not clear that reporting requirements enhance independence—the U.S. Congress imposed extensive reporting requirements on the Federal Reserve in the late 1970s to reduce its independence from the legislature and enhance the ability of legislators to exert pressure on central bank decision-makers (Menand 2023). Likewise, statutory requirements to publish certified financial statements have a looser relationship to independence, even if they are strong indicators of good governance, especially when compared to whether state audit authorities can assess monetary policy.

Lastly, indices such as the IAPOC, provide a useful and innovative barometer of the effectiveness of monetary policy frameworks, including policy strategy and communications. However, it devotes less attention to the independence components, for instance by focusing on operational independence, without fully taking aspects of functional, personal, and financial independence into account. Weightings are assigned on the basis of the authors' analysis of existing literature and preferences. It does, however, evaluate central bank independence and accountability by collecting and assessing publicly available resources manually while keeping the averaging of the criteria unweighted.

On the distinction between *de jure* and *de facto* independence, we note that variables that try to capture *de facto* independence have clear added value and would be equally important to measure central bank independence, though these are arguably difficult to capture. For instance, regarding a *de facto* variable on governor or board member turnover, it could be noted that in some countries the governor or board members voluntarily step down some time after a new government has been appointed—say, every five years. It is not clear, however, if such a turnover is different (either worse or better) than the situation where the governor or board members are officially dismissed for non-policy related reasons every three or four years. We, therefore, argue that further research is needed to ensure proper *de facto* variables are developed and included in the index, and we will include this in future work.

IV. A New Central Bank Independence Index

We construct a new index focused on independence of the central bank as a monetary authority—the first entirely new index focused on independence since CWN in 1992. Our index covers the major areas addressed by CWN, GMT, and Romelli but in a more parsimonious fashion. It consists of ten key metrics, which we weight using data collected from 87 central banks. We score countries using the IMF's central bank legislation database, which catalogues authoritative versions of relevant legal provisions.

A. Ten Metrics

Every central bank index involves an irreducible quantum of normative judgment with respect to the variables to include. Drawing on a combination of the wide range of existing variables, the academic literature mentioned above, the survey responses,⁴ and various AI-related measures (see also AlAjmi (2023)), we extract what we believe are the ten most important dimensions of central bank design from the perspective of monetary policy autonomy:

⁴ The survey allowed central bank respondents to indicate any comments or concerns about the ten variables in an open text box at the end of the survey. Respondents did not question the choice of the variables nor indicate the necessity to add additional variables.

1. Independence of the Chief Executive

Is the central bank Governor/CEO independent of executive branch officials?

Yes, if the Governor/CEO is appointed for longer than the electoral cycle (i.e., often at least five years), and the Governor/CEO is not solely appointed by the executive branch, but appointment includes involvement (such as through approval, ratification, nomination, or consultation) of non-executive officials (including, for example, legislators or non-government officials), can be dismissed by government officials only “for cause” and not for reasons relating to policy, is compensated, and cannot hold other high ranking executive positions at the same time. For purposes of this question, the “Governor” or “CEO” is the most senior executive officer of the central bank, sometimes also with the title “president” or “chairman.”

2. Independence of the Highest Governing Body

Is the central bank’s highest governing body independent of executive branch officials?

Yes, if the members of the highest governing body are appointed for longer than the electoral cycle (i.e., often at least five years), with staggered terms, by or with the approval of non-executive officials, can be dismissed by government officials outside of the central bank only “for cause” and not for reasons relating to policy, are compensated, and cannot hold other high ranking executive positions at the same time. For purposes of this question, the “highest governing body” refers to the organ of the central bank frequently referred to as the “board,” “council,” “court,” or “committee,” and which is identified by the central bank law as the bank’s main decision-making body. Note: if there are ex officio government officers on the highest governing body (with or without voting rights), then the body is not independent. Note that members of the body may be referred to, inter alia, as “directors” or “governors.”

3. Budgetary Independence

Does the central bank have budgetary independence from the legislature?

Yes, if the legislative power has no involvement with the central bank’s budgeting process on an annual basis (including to propose, approve, or suspend the budget).

4. Independence in Formulating Monetary Policy

Can the central bank set monetary policy independently from executive branch officials?

Yes, if the central bank can set policy without the approval of other government officials, and there are no government officials (with or without voting rights) on the body that sets monetary policy (e.g., the board or monetary policy committee/MPC). Note: if the central bank only advises other bodies, which then can either adopt or reject the bank’s monetary policy recommendation, there is no independence along this metric.

5. Primary Objective of the Central Bank

Is price stability the primary objective of the central bank?

Yes, if price stability is the only objective or other objectives are clearly subordinated to the objective of

price stability. No, if the statute specifies other objectives that are not clearly subordinated to price stability. This could include financial stability, maximum employment, supporting economic policies of government, considerations like climate change, or political responsibilities like setting government spending policy.

6. Long-Term Direct Lending to the Government

Is the central bank prohibited from long-term direct lending to the government?

Yes, if the central bank is prohibited from lending long-term to the government directly or purchasing long-term securities in the primary market. Long-term lending is defined as any form of lending (including through loans, advances, primary market purchases of securities, or guarantees) to the government for periods greater than 90 days.

7. Short-Term Direct Lending to the Government

Is the central bank prohibited from short-term direct lending to the government?

Yes, if the central bank is prohibited from lending to the government for 90 days or less (including through loans, advances, primary market purchases of securities, or guarantees). Note that if a central bank is permitted to lend in “emergencies,” such as war and natural disasters, then it is not prohibited from short-term lending and would score a zero on this metric. Note that short-term lending to the government also includes lending to address seasonal imbalances.

8. Financial Independence

Does the central bank have financial independence?

Yes, if it is separately capitalized (i.e., has its own capital, separate from the government or other public entities), with paid up capital, can control distributions to the government, has a reserve fund, and can exclude unrealized gains from net profit.

9. Lending Outside the Financial System

Is the central bank restricted from lending outside the financial system?

Yes, if the central bank cannot provide loans, advances, or guarantees to entities that are not regulated and supervised by the financial regulatory and supervisory authorities in the country/monetary union, and cannot otherwise conduct quasi-fiscal activities, allocating credit to nonfinancial institutions.

10. Monetary Policy Audit

Are state audit bodies with oversight powers explicitly restricted to examining operational efficiency aspects of the central bank (without the power, for example, to investigate monetary policy decisions)?

Yes, if the law specifies that a state audit body can only examine the operational efficiency of the central bank, and not policy-related decisions. Note that a state audit body includes bodies or agencies such as a “national audit office,” “national evaluation office,” or “comptroller-general.”

We set each variable equal to either zero or one. A country can score a one only if a series of specific requirements are met. For example, a central bank chief executive is independent (variable number 1) only if

the executive is appointed for longer than the electoral cycle, the appointment includes involvement of non-executive officials, the appointment can only be terminated for cause and not reasons relating to policy, the official is compensated, and the official is barred from holding other high ranking executive positions at the same time.

Our index, therefore, does not allow for partial credit. It treats variables like chief executive independence as composite concepts, which depend on a suite of structural features each of which is necessary.⁵ For example, if the executive can be removed at will by the executive, the term of office does not really matter much at all (and if the term of office is one year, strong removal protections are not particularly valuable). Other composite concepts in our index include board member independence, monetary policy formulation, and financial independence. By structuring these variables more strictly than past indices, we do not credit central bank laws that appear to offer central bank officials decisional independence in some ways but contain loopholes that render the independence generated by those features illusory.

We also simplify the assessment of central bank lending. Three types of lending, it appears to us, are important: lending to the government temporarily in emergencies, lending to the government for longer periods of time, and lending outside of the financial system. We make no judgment as to the relative importance of these provisions to overall monetary policy autonomy: instead, our prior is that restrictions on lending to the government for long periods of time is more important than other restrictions on lending.

Finally, we drop from our index information regarding central bank responsibility for supervision and foreign exchange policy. These responsibilities are likely to have a complex relationship to monetary policy autonomy. More important, it is difficult to universalize and compare across countries as for some countries the effect of supervisory and foreign exchange responsibilities is likely to have very different effects on the relationship between the central bank and the government. Consider, for example, countries with pegged rates versus countries with floating rates or countries with highly diffuse banking systems, like the United States, and countries with highly concentrated banking systems, like Switzerland.

Overall, our new index is closest to the IAPOC developed by Unsal et al, given that both indices are granular, and include similar questions/variables and aspects such as board composition, financial independence, and budgetary independence (see appendix in Unsal et al. (2022)). The IAPOC evaluates central bank independence and accountability by collecting and assessing publicly available resources manually but keeping the averaging of the criteria unweighted, while our index instead adds weighting based on a representative sample of central bank respondents across income levels, regions, and exchange rate regimes, while using data from the IMF CBLD and MOID to enhance country scoring.

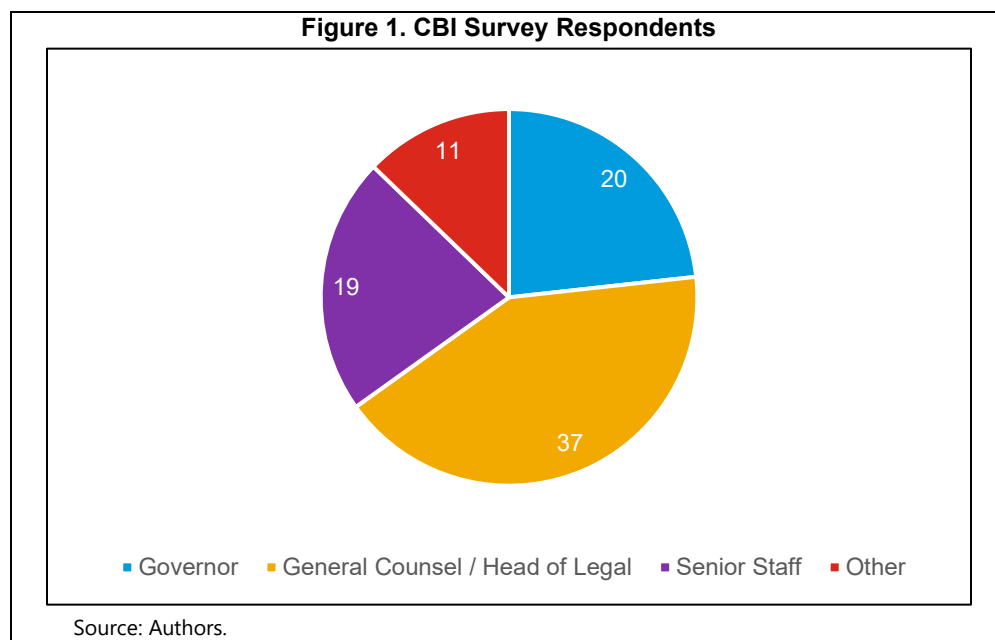
B. Survey Weights

We weight our ten variables using data gathered from a survey of central banks. Weights are assigned to each of the ten variables based on what scores respondents give to each variable. Weighting based on these responses allows us to incorporate the perspectives of central bankers, with a focus on input from officers who are versed in the intricacies of central bank independence.

⁵ In this regard, we follow the approach employed by Bade and Parkin (1988).

We asked senior central bank officials at 193 monetary authorities to indicate the most appropriate weight for each variable: 0 (should not be considered); 1 (not important); 2 (less important); 3 (important); 4 (very important); or 5 (critical). We asked that respondents weigh on the basis of general importance of each variable for central banks globally, and not to respond based on their own central bank or monetary union. We randomly divided respondents into four groups. Each of the four groups received the overview of the ten metrics in a different order to counter counteracting any bias respondents might have to rate variables listed first higher or lower than variables listed later. Definitions of each of the ten metrics were provided as part of the survey. An open text box at the end of the survey allowed respondents to provide additional comments.

We received 87 responses including from three of the five monetary unions surveyed (the Central Bank of West African States, the European Central Bank, and the Eastern Caribbean Central Bank). Most respondents were either general counsel/head of legal department, or governors, see Figure 1.



Our panel draws on responses from central banks in all five world regions (Africa, Asia and Pacific, Europe, Middle East and Central Asia, and Western Hemisphere), a range of income levels (from low to high), and all three market types (advanced economies, low income developing countries, and emerging market and developing countries). High income and European countries were more likely to respond—with responses from central banks in 70 percent of high-income countries and 80 percent of European countries. African countries and low-income countries were less likely to respond—with responses from just 17 percent of African countries and 23 percent of low-income countries. Advanced economies were similarly overrepresented—with responses from 86 percent of all countries in that category.

Box 1. Survey Responses by Region and Income Level

Region	Responses	Percent of Total
Africa	8	17%
Asia & Pacific	17	47%
Europe	36	80%
Middle East & Central Asia	11	34%
Western Hemisphere	15	43%

Income Level	Responses	Percent of Total
High Income	38	70%
Upper Middle Income	21	39%
Lower Middle Income	18	35%
Low Income	7	23%
Monetary Union	3	

Source: Authors.

Nonetheless, differences based on region, income level, and market type were relatively muted. One difference bears note: on average, European central banks were more likely to rate variables “critical” than central banks in other regions as were central banks in high income countries.

Box 2. Survey Responses by Market Type

Market Type	Responses	Percent of Total
Advanced Economies	32	86%
Low Income Developing Countries	19	32%
Emerging Market and Developing Countries	33	34%
Monetary Union	3	

Source: Authors.

Our sample also draws on a range of foreign exchange regimes including countries with a conventional peg, crawl-like arrangement, crawling peg, currency board, floating rate, free floating rate, other managed arrangement, pegged exchange rate within horizontal bands, and stabilized arrangement.

Box 3. Survey Responses by Exchange Rate Regime

Exchange Rate Regime	Responses
Conventional peg	8
Crawl-like arrangement	8
Crawling peg	4
Currency board	3
Floating	20
Free floating	27
Other managed arrangement	2
Pegged exchange rate within horizontal bands	1
Stabilized arrangement	11

Source: Authors.

Respondents on average viewed all ten metrics as at least “very important.” However, there was still meaningful variation between metrics. Respondents rated short-term lending to the government as comparatively less important, with twelve countries scoring the variable “less important,” “not important,” or “should not be considered.” Similarly, nine central banks responded that restrictions on lending outside of the financial system were either “not important” or “less important.” Meanwhile 64 out of 87 monetary authorities thought that financial independence was critical, the most of any variable. This result is particularly noteworthy given that financial independence was entirely absent from the CWN index (in Romelli’s extension of the CWN index, what we call “financial independence” is combined with measures of what we define as “budgetary independence” and “state audit” to comprise 16.67 percent of the overall score, collectively).

Box 4. Survey-based Variable Weights (Total)

Variable	Weighting	Percent Scored as Critical
8. Does the central bank have financial independence?	4.68	74%
1. Is the central bank Governor / CEO independent of executive branch officials?	4.51	62%
10. Are state audit bodies with oversight powers explicitly restricted to examining operational efficiency aspects of the central bank?	4.47	68%
4. Can the central bank set monetary policy independently from executive branch officials?	4.37	64%
3. Does the central bank have budgetary independence from the legislature?	4.30	66%
6. Is the central bank prohibited from long-term direct lending to the government?	4.29	55%
5. Is price stability the primary objective of the central bank?	4.24	56%
9. Is the central bank restricted from lending outside the financial system?	4.17	59%
2. Is the central bank’s highest governing body independent of executive branch officials?	4.15	51%
7. Is the central bank prohibited from short-term lending to the government?	4.11	57%

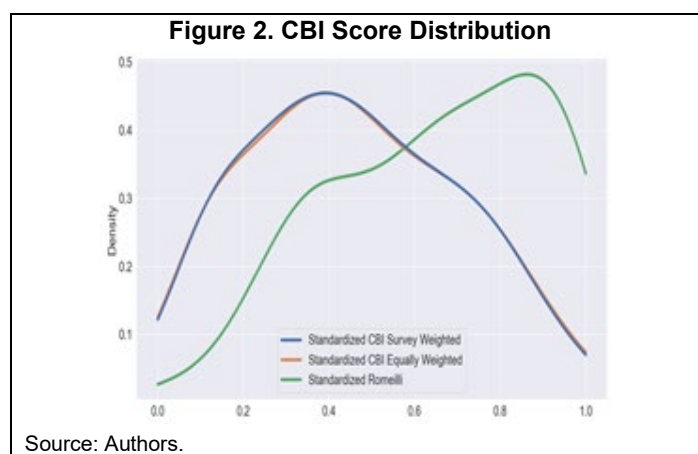
Source: Authors.

Box 5. Survey-based Variable Weights (By Weight Number)

	1. Is the central bank Governor / CEO independent of executive branch officials?	2. Is the central bank's highest governing body independent of executive branch officials?	3. Does the central bank have budgetary independence from the legislature?	4. Can the central bank set monetary policy independently from executive branch officials?	5. Is price stability the primary objective of the central bank?	6. Is the central bank prohibited from long-term direct lending to the government?	7. Is the central bank prohibited from short-term lending to the government?	8. Does the central bank have financial independence?	9. Is the central bank restricted from lending outside the financial system?	10. Are state audit bodies with oversight powers explicitly restricted to examining operational
0 = should not be considered	0.0%	1.1%	2.3%	2.3%	1.1%	2.3%	3.4%	0.0%	0.0%	2.3%
1 = not important	0.0%	1.1%	2.3%	0.0%	2.3%	1.1%	4.6%	0.0%	5.7%	0.0%
2 = less important	1.1%	8.0%	6.9%	5.7%	3.4%	3.4%	5.7%	1.1%	5.7%	2.3%
3 = important	9.2%	11.5%	5.7%	6.9%	13.8%	6.9%	6.9%	3.4%	12.6%	6.9%
4 = very important	27.6%	27.6%	17.2%	20.7%	23.0%	31.0%	21.8%	21.8%	17.2%	20.7%
5 = critical	62.1%	50.6%	65.5%	64.4%	56.3%	55.2%	57.5%	73.6%	58.6%	67.8%

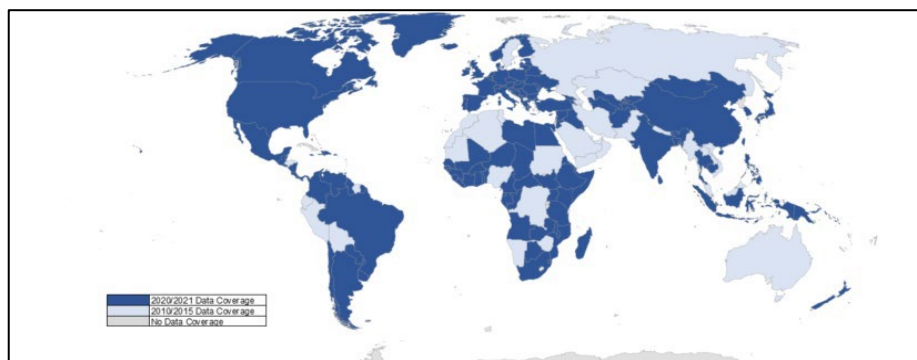
Source: Authors.

Figure 2 below allows a comparison of the aggregated scores of our CBI index (based on weights assigned by the survey respondents) with the results of country scores using Romelli's index. Whether there is a statistically significant difference between equal weighting of the variables and weighting based on the survey responses will be examined in more detail in our forthcoming paper.



C. IMF Central Bank Legislation Database and Monetary Operations and Instruments Database

We also aim to improve index accuracy by improving the legal inputs. We used the publicly accessible IMF Central Bank Legislation Database (CBLD, see Al Ajmi et al. (2023)) as our main source of central bank legislation. The [CBLD](https://data.imf.org/cblld) is the most comprehensive central bank legislation database in the world, and contains central bank laws, excerpts of constitutions, and other relevant legislation (such as selected banking, resolution, payments, and AML/CFT laws) of 175 IMF member countries and monetary unions, grouped into 273 unique categories, see <https://data.imf.org/cblld>; additional details on monetary policy objectives and institutional arrangements from the IMF's Monetary Operations and Instruments Database (MOID) were included where needed. The CBLD currently includes datasets from four specific update moments: 2010, 2015, 2020/2021, and 2023. CBLD data can be accessed by searching by country, or by pre-set groups of countries (notably, by region, income level, exchange rate arrangements, and membership of a monetary union). All collected data is in English only—either provided by the authorities or translated by the IMF (in which case a disclaimer would be added, noting that the provided text is not an official translation). Figure 3 below shows CBLD data coverage for the 2020/2021 update, in addition to data coverage for the combined CBLD updates of 2010 and 2015.

Figure 3. CBLD Data Coverage (2010/2015, 2020/2021)

Source: AIAjmi et al (2023).

The CBLD's 273 categories cover all topics of relevance to central banks, both from an institutional point of view (e.g., decision-making arrangements, organizational structure, communication, reporting)⁶ and from a policy point of view (e.g., monetary policy, financial stability, financial inclusion, financial integrity), and allow for highly granular searches. As part of the CBLD update process, search categories are manually assigned to articles or even sentences within an article by a team of central bank lawyers as part of the CBLD's update (see Khan (2017)). Additionally, as of 2023, Artificial Intelligence (AI) and Machine Learning (ML) tools are used by the IMF to enhance this process (AIAjmi et al. (2023)).

For our initial index, we use CBLD data for 2020/2021 based on preselected search categories for central bank independence, most notably:

Box 6. CBI-relevant CBLD Search Categories

#	Metric	Corresponding CBLD Category/Categories
1	Independence of the Chief Executive	3.23 Governor: Requirements, Terms, Nomination, Selection, Appointment 3.28 Governor: Resignation 3.29 Governor: Subsequent Employment 3.31 General Manager
2	Independence of the Highest Governing Body	3.09 Governing Bodies: Composition, Terms, Qualification Requirements, Nomination, Selection, Appointment 3.12 Governing Bodies: Ineligibility/Inability to Serve in the Governing Bodies 3.13 Governing Bodies: Disqualification and Removal
3	Budgetary Independence	2.17 Financial Autonomy 4.03 Budget 9.01 Central Bank as Advisor to the Government
4	Independence in Formulating Monetary Policy	2.32 Prohibited Activities of the Central Bank 6.01 Monetary Policy: Institutional Arrangement 9.01 Central Bank as Advisor to the Government
5	Primary Objective of the Central Bank	2.02 - 2.11 Legal Status and Objectives of the Central Bank
6	Long-Term Direct Lending to the Government	9.02 Fiscal Agency, Depository Functions, and Cashier of the Government 9.03 Central Bank Credit to the Government and Purchase of Government Securities 2.32 Prohibited Activities of the Central Bank
7	Short-Term Direct Lending to the Government	12.01 Lender of Last Resort Function / Objectives 9.06 Lending and Guaranteeing for Development Purposes and other Quasi-fiscal Activities
8	Financial Independence	2.17 Financial Autonomy 4.01 – 4.09 Financial Provisions
9	Lending Outside the Financial System	9.06 Lending and Guaranteeing for Development Purposes and other Quasi-fiscal Activities 2.32 Prohibited Activities of the Central Bank
10	Monetary Policy Audit	17.04 – 17.08 Accounts, Financial Statements, Audits and their Publication 3.32 Comptroller General/Audit Committee 3.33 Internal Auditor 3.34 External Auditor

Source: Authors.

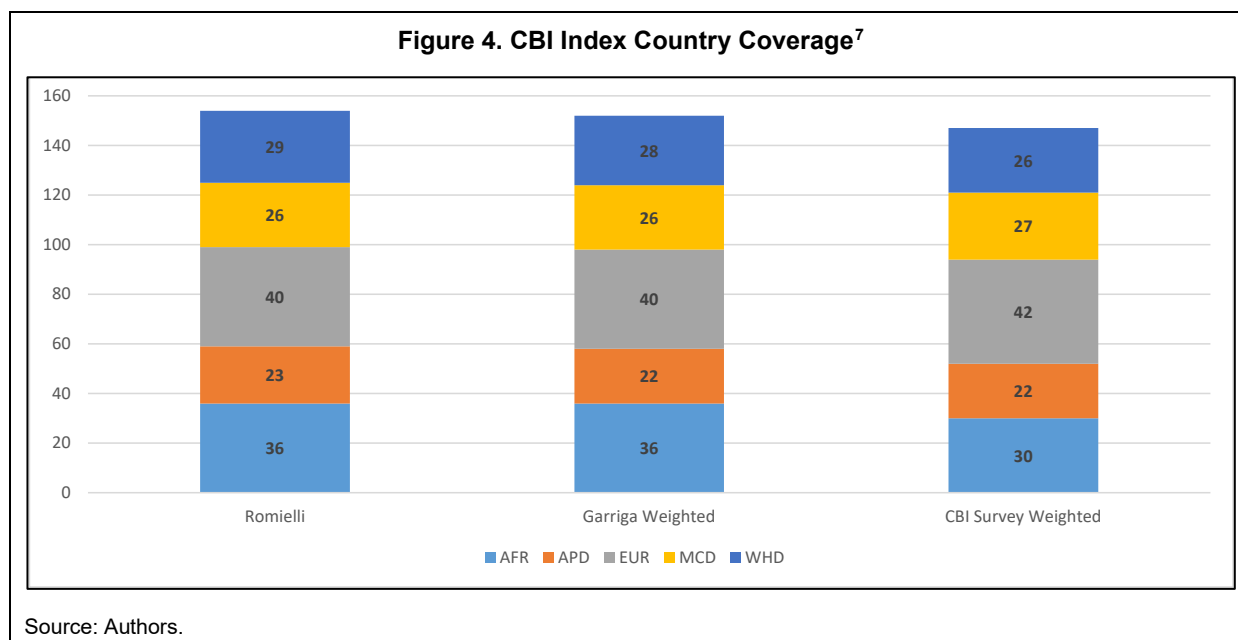
⁶ Including those aspects covered by the IMF Central Bank Transparency Code.

Two research officers manually scored the CBLD data, cross-checking each other's work. The compiled overview of scores was subsequently reviewed, based on cases that were flagged as ambiguous as well as through random sample checks. For 30 countries, the 2020/2021 legislation was not available in the CBLD, and the 2015 dataset was used to complete the scores.

Additionally, data from the IMF's Monetary Operations and Instruments Database (MOID) were used as an additional source to aid scoring of the respective central banks, with a focus on category A (Monetary Policy Institutional Arrangements, questions 2a – 5a), allowing to identify whether the primary objective of the central bank is price stability (our variable number 5). Interestingly, as the MOID is a survey-based database, we found that several central banks self-reported price stability as the primary objective in the MOID survey, though the CBLD data suggested that was not the case. These details will be explored further in our second paper.

V. Preliminary Descriptive Statistics

Using the CBLD and MOID, we score the enabling statutes and associated legal provisions governing 151 monetary authorities. Our sample is largely consistent with the sample scored by Romelli (2022) and Garriga (2016), which cover 154 and 152 statutes, respectively. The geographic breakdown of the sample is also similar, with the primary difference being six fewer African countries and the addition of five monetary unions, see Figure 4 (indicating the number of countries and regions covered by the listed indices).



Preliminary comparisons between indices suggest that our index produces lower independence scores on average across the board. Although the observations in Romelli and Garriga are five to ten years older than those used in our initial scoring (2020/2021), the mean, median, and tails of the distribution are significantly lower, likely the result of methodological differences rather than amendments adopted during the intervening

⁷ AFR = Sub-Saharan Africa; APD = Asia-Pacific; EUR = European; MCD = Middle East and Central Asia; WHD = Western Hemisphere.

years. One reason for the downward shift and the greater variance is our use of composite metrics for several variables, which leads to scores of zero where the CWN approach would offer significant partial credit.

The vast majority of central banks in our sample score zero on multiple statutory features associated with enhanced decisional autonomy. And more than half of the sample lacks independence along six of the ten metrics. Even on the other four metrics, those where a majority of the central banking laws in our sample are designed in ways central bankers believe enhance monetary policy independence, at least forty percent of countries are not designed consistent with independence. Interestingly, the ability of the central bank to set monetary policy independently from executive branch officials is the dimension along which central bank laws in the sample are most likely to score independent—with 58 percent of the sample equal to one. Meanwhile, the independence of the central bank chief executive and members of its governing body are the least likely to score independent—with just 25 percent and 17 percent of the sample qualifying, respectively.

Box 7. Survey Weights for CBI Variables

Variable	Weighting
4. Can the central bank set monetary policy independently from executive branch officials?	58%
5. Is price stability the primary objective of the central bank?	52%
3. Does the central bank have budgetary independence from the legislature?	51%
6. Is the central bank prohibited from long-term direct lending to the government?	50%
9. Is the central bank restricted from lending outside the financial system?	46%
10. Are state audit bodies with oversight powers explicitly restricted to examining operational efficiency aspects of the central bank?	46%
8. Does the central bank have financial independence?	43%
7. Is the central bank prohibited from short-term lending to the government?	32%
1. Is the central bank Governor / CEO independent of executive branch officials?	25%
2. Is the central bank's highest governing body independent of executive branch officials?	17%

Source: Authors.

VI. Conclusion

This paper developed a new methodology to measure features of central bank statutory schemes designed to enhance monetary policy decisional autonomy. The resulting index centers on ten features, which we weight based on empirical survey data from central banks themselves. The goal is to facilitate cross-country comparison. In a forthcoming paper, we report country-specific results and empirical analysis assessing the relationship between de jure independence and various outcome variables including inflation, growth, and employment.

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