Policy Research Working Paper 9457

Interest Rate Repression

A New Database

Pietro Calice
Federico Diaz Kalan
Oliver Masetti

WORLD BANK GROUP
Finance, Competitiveness and Innovation Global Practice
October 2020

Policy Research Working Paper 9457

Abstract

Financial repression resurfaced in the wake of the global financial crisis and might become a common feature in the post Covid-19 world. To advance knowledge and inform policy advice, this paper presents a new database on interest rate controls, a popular form of financial repression, based on a survey of 108 countries, representing 88 percent of global gross domestic product. The data cover such aspects of interest rate controls as types of controls, legal basis, intended objectives, methodologies, and enforcement rules. In an attempt to provide a meaningful characterization of the data, the paper also provides a preliminarily estimate of the degree of bindingness of the interest rate control regime in a country and presents simple correlations with other financial repression policies.

This paper is a product of the Finance, Competitiveness and Innovation Global Practice. It is part of a larger effort by the World Bank to provide open access to its research and make a contribution to development policy discussions around the world. Policy Research Working Papers are also posted on the Web at http://www.worldbank.org/prwp. The authors may be contacted at pcalice@worldbank.org; fdiazkalan@worldbank.org; and omasetti@worldbank.org.

Interest Rate Repression:
A New Database

Pietro Calice, Federico Diaz Kalan and Oliver Masetti[1]

JEL Classification Numbers: G28; H23; H81; K23

Keywords: Financial Repression; Financial Liberalization; Financial Regulations

Authors' E-Mail Addresses: pcalice@worldbank.org; fdiazkalan@worldbank.org; omasetti@worldbank.org

[1] Faruk Liriano, Guillermo Rodriguez Ruiz and Nan Zhou provided outstanding research assistance. The authors gratefully acknowledge the financial support of the FIRST Initiative and would like to thank Carlos Piñerúa and Moni Sengupta for their support. We thank Thorsten Beck, Erik Feyen, Alfonso Garcia Mora, Eva Gutierrez, Davide Mare, Yira Mascaro, Fernando Montes, Zafer Mustafaoglu and Valeria Salomao Garcia for their comments on an earlier version of this paper. We are indebted to the country authorities and their staff for participating in the survey on which this paper is based, and to the numerous World Bank colleagues who have contributed to the design and implementation of the survey and helped us verify the information received. Any errors or omissions are only ours. The views expressed in this paper are those of the authors and do not necessarily represent those of the World Bank or of its Board of Directors.

Contents

I. Introduction 3
II. Overview of the Survey Data 6
III. Characterizing the Data 12
IV. Concluding Remarks 17
References 20
ANNEX 23

I. Introduction

Financial repression is an umbrella term referring to government policies that prevent financial intermediaries from functioning at their full capacity.[2] It can take several forms, including *de jure* or *de facto* caps or floors on interest rates; directed lending to the government by captive domestic audiences such as banks and pension funds; limits on cross-border capital flows; imposition of lending quotas to financial intermediaries; restrictions on market entry in the financial sector; "excessive" bank reserve and liquidity requirements; and government ownership or control of banks (Reinhart and Sbrancia, 2015). The key rationale for the government to implement financial repression policies is to control fiscal resources to finance public spending; to allocate subsidized credit to priority sectors of the economy; and to maintain financial stability by limiting competition.

Most countries around the world have experienced some forms of financial repression at one point in their recent history. These policies were common following World War II, when many advanced economies practiced it on a large scale as a means of "liquidating" their substantive postwar debt via negative real interest rates (Reinhart and Sbrancia, 2015). Financial repression policies became less common in the 1980s, when advanced economies turned decisively towards financial liberalization. During the 1960s and until the 1990s many emerging markets and developing economies (EMDEs) too used financial repression as a part of the policy mix aimed at supporting state-led industrial policies and import substitution strategies. Confronted with the mixed results of these approaches and under pressure from increasingly integrated financial markets, EMDEs largely withdrew from repressive policies and started liberalizing their financial systems in the late 1990s and 2000s.

Financial repression forcefully reemerged in the wake of the Global Financial Crisis (GFC), a trend that is likely to strengthen and consolidate in the post Covid-19 world. During the last decade or so and in the aftermath of the Covid-19 pandemic, numerous advanced economies have resorted to unconventional policies, including extensive government and corporate bond purchases, which have contributed to flatten the yield curve, compounding the low, zero or, in some cases, negative interest rate policies.[3] Before the outbreak of the Covid-19 crisis, many EMDEs were mostly concerned with resisting currency misalignments and potential overheating arising from the search for yield. Accordingly, they resorted to targeted capital controls, whose legitimacy under certain circumstances has been restored by the IMF (2012), and other financial repression measures, including high reserve requirements. The Covid-19 pandemic coupled with deteriorating terms of trade has dramatically reversed that trend, with EMDEs currently forced to respond to a global retreat from risk and destabilizing market dynamics. While the outlook remains highly uncertain, policies in advanced economies and EMDEs combined with the need to deal with an unprecedented rise in public and private sector debt will likely provide strong incentives for the return to more tightly regulated domestic financial environments, which is the essence of what is commonly referred to as "financial repression". It is, therefore, a useful exercise to start examining these developments to provide

[2] See Ito (2008).

[3] Alternative arguments for the historically low levels of interest rates observed in the United States and other advanced economies, largely unrelated to financial repression policies, have been advanced recently (see, for example, Bernanke, 2005; and Summers, 2015). For a discussion on secular trends in interest rates around the world see, for example, Del Negro et al. (2019) and Schmelzing (2020).

guidance to policy makers who wish to minimize the welfare costs associated with financial repression policies.

This paper focuses on one of the most commonly used strategies of financial repression: interest rate controls (IRCs). Restrictions on interest rates have been historically part of the policy toolkit of many countries and have been largely used in the post GFC environment. For example, Ferrari et al. (2018) find that since 2011 at least 30 EMDEs have introduced new interest rate regulation or tightened existing restrictions. This trend seems to be regaining strength in the context of the Covid-19 pandemic, with a rapidly growing list of countries either modifying existing IRCs or introducing new ones. For example, during the first month after the declaration of the pandemic by the World Health Organization, countries such as Argentina, China, Finland, Sri Lanka and Vietnam opted for such measures.[4] While some measures may turn out to be temporary, others may become permanent. It is nonetheless a fair assumption that more countries will consider IRCs as a means to deal with the post Covid-19 consequences. Some countries may choose to control interest rates closely, and the way these controls are implemented as well as the level at which interest rates are set may differ significantly, with different welfare outcomes. In some countries, interest rates may be administered flexibly, in an attempt to track movements of market rates; other countries may decide to waive this flexibility, and large divergences between administered rates and market rates may emerge, including negative real rates.

Interest rate repression provides one of the classic examples of welfare-decreasing government interventions in financial markets. The standard argument against IRCs is that they discourage both savings and investment, thus inhibiting economic growth (Mc Kinnon, 1974; Shaw, 1973). It is argued that because financial institutions are essential to the efficient allocation of capital, free competitive markets are needed to ensure that resources go to projects with the highest risk-adjusted rates of return. If governments restrict interest rates and replace efficient market allocation mechanisms with public selection processes, the result is that capital is less efficiently allocated. However, market-based financial intermediation involves a certain degree of moral hazard and adverse selection problems, and financial institutions may ration credit at less-than-market clearing prices to reduce their risks (Stiglitz and Weiss, 1981), justifying a government intervention.

These theoretical arguments have been tested by numerous empirical studies. Many studies have confirmed a negative association between interest rate repression and several macroeconomic outcomes such as savings rates, investment and economic growth (Fry, 1978, 1997; Roubini and Sala-i-Martin, 1992; Jafarov et al., 2019). Interest rate repression has also been found to be harmful to financial development. Specifically, caps on lending rates lead to a reduction in the overall supply of credit, with non-trivial effects on financial inclusion as banks are forced to reallocate credit from small, risky borrowers to large commercial borrowers and the government (Heng, 2015; Safavian and Zia, 2018; Alper et al., 2019; Madeira, 2019) and withdraw services from remote areas (Miller, 2013). Transparency is also reduced (Helms and Reille, 2004), and, to the extent that IRCs affect the viability of small banks, risks to

[4] In February 2020, Bangladesh also announced the introduction of a restrictive system of IRCs, which became effective April 1, 2020. IRCs in Bangladesh encompass a 9 percent ceiling on lending rates on all products except credit cards, and a 6 percent cap on deposit rates. The decision, which applies only to private banks, was not motivated by the Covid-19 crisis but rather by longstanding domestic complaints about high borrowing costs and recent upward pressure on bank funding costs.

financial stability can increase via contagion (Safavian and Zia, 2018; Alper et al., 2019). However, the existing literature usually refers to very severe forms of interest rate repression, often leading to negative real interest rates. In milder forms, i.e. when the rate of return to financial assets is still positive although lower than the market rate, the impact of interest rate repression on economic and financial development may not be very significant, other things being equal. IRCs were common in a group of rapidly growing economies in the 1980s, including Chile, China, Japan and the Republic of Korea (Zahid, 1995).

Interest rate liberalization is not unproblematic. While deregulation of interest rates advanced across much of the world during the period from the early 1980s to the years preceding the GFC (Abiad and Mody, 2005; Abiad et al., 2010), it proved to be a double-edged sword. In most cases interest rate liberalization led to higher real interest rates, shifted surplus from borrowers to savers, and expanded access to credit opportunities. For example, in India many small businesses gained access to credit after liberalization (Hanson, 2001). At the same time, interest rate volatility increased after deregulation, contributing to a rise in the probability of experiencing a banking crisis (Kaminsky and Reinhart, 1999; Demirguc-Kunt and Detragiache, 2005).[5] However, financial instability episodes occurred with a higher frequency in countries with weak prudential regulation and supervision (Noy, 2004; Angkinand et al., 2010) and underdeveloped institutional and market infrastructure (Pereira Leite and Sundarajan, 1990; Mehran et al., 1995; Feyzioglu et al., 2009), underlying the crucial importance of this set of preconditions for the pace and sequencing of deregulation. This is because interest rate liberalization is not only about price reform; it also needs to involve removing all sources of frictions while building key institutions.

To contribute to a better understanding of IRCs around the world, this paper presents a new data set based on a survey of World Bank Group members. A questionnaire was submitted to financial sector authorities and bankers' associations in more than 150 jurisdictions during 2019 to investigate the legal framework associated with the implementation of *de jure* IRCs, document their application, and provide details on their functioning. We received responses from 108 countries at all levels of income and in all parts of the world. In an attempt to provide a potentially meaningful characterization of a country's interest rate control regime, the data collected through the survey are then used to attempt to provide a preliminary estimate of the degree of bindingness of IRCs in a country and explore whether the degree of bindingness of IRCs is associated with other forms of financial repression.

This paper builds on and extends recent efforts to take stock of IRCs around the world. There have been various attempts in recent years to classify IRCs internationally. However, existing studies either take a narrow geographical perspective, focusing on EMDEs (Helms and Reille, 2004) or advanced economies (see Reifner et al., 2010, for the EU; and Dasgupta and Mason, 2019, for the US), or, when taking a global perspective, they focus on lending interest rate caps only (Maimbo and Gallegos, 2014; Ferrari et al., 2018). In a paper similar to ours, Jafarov et al. (2019) attempt to compile a database on all types of IRCs and construct a basic index (i.e. based on binary variables) of IRCs across economies. However, like in previous studies except for Reifner et al. (2010), it is based on data and information from secondary sources. To the

[5] Recent literature finds that the relationship between financial liberalization and financial instability is more complicated and that non-linearities may be at play. See, for example, Loayza and Ranciere (2006); Ranciere et al. (2006); Kaminsky and Schmukler (2008); Angkinand et al. (2010).

best of our knowledge, our paper is the first to take stock of IRCs around the world based on a survey involving a large number of economies and covering several aspects of a country's interest rate regime. Our paper also complements recent literature aimed to assess the welfare impact of IRCs at the country level (e.g. Safavian and Zia, 2018, and Alper et al., 2019, for Kenya; or Madeira, 2019, and Schmukler et al., 2018, for Chile).

The remainder of the paper proceeds as follows. The next section describes the data and how they were obtained. It also draws upon our new and comprehensive database to provide a selective overview of key aspects of IRCs collected through the survey. The third section uses the data to provide a preliminary estimation of the degree of bindingness of IRCs by calculating the gap, expressed in real terms, between legal restrictions and actual interest rates. This section also presents pairwise correlations between the degree of IRC bindingness and other dimensions of financial repression. The final section concludes.

II. Overview of the Survey Data

We designed and implemented a survey to collect key features of *de jure* IRCs on lending and deposit markets around the world. In addition to explicit regulation, governments can and often control interest rates through political pressure, moral suasion, implicit subsidies in various financing support programs, and other interventions. However, given the difficulties to track and measure *de facto* IRCs in a cross-country setting, we took stock only of legal or *de jure* IRCs, that is, administered caps or floors to interest rates via explicit regulation. Specifically, we focus on IRCs in lending and deposit markets, acknowledging that *de jure* restrictions can also apply to interbank and bond markets.

The formulation and completion of the survey entailed a number of inter-related steps. Leveraging existing contacts at central banks and financial supervisory authorities, the initial outreach effort targeted the pertinent staff within local regulators and supervisors. However, given the sometimes-elusive nature of IRCs, with implementing authorities varying from central banks to different ministries, we also decided to contact the local banking associations, as these are in a prime position to provide specific references to the domestic or regional institutional arrangements. With the aim to cover as many countries as possible, the outreach effort included more than 150 jurisdictions.

Despite our best efforts, our survey faced several challenges. Not every country responded to the survey. Also, officials from the same country or even the same agency sometimes provided conflicting answers. Therefore, we had a second outreach effort to non-respondent local authorities relying on the contacts of World Bank Group financial sector experts, while we also followed up with the authorities that had provided inconsistent or incomplete responses. In a few countries where we still faced difficulties getting a response from the local authorities, we relied on the answers of World Bank Group financial sector experts.[6] In addition, in an attempt to reconcile any inconsistencies, we checked our responses with Ferrari et al. (2018), who recently took stock of lending interest rate caps collecting data from private and public sources; with the 2017 Global Financial Inclusion and Consumer Protection Survey, which included

[6] These countries are Algeria, Argentina, Bangladesh, China, Ethiopia, Ghana, Kenya, South Africa and the United States.

one question on interest rate caps and pricing limits on loans (GFICPS 2017);[7] and with Reifner et al. (2010), who collected comprehensive data on interest rate caps in the EU. We gave preeminence to citations to laws and regulations, creating a repository for these as a complement to our survey. In total, we received responses from 108 countries, which were provided by 91 central banks and financial supervisory authorities, 20 local banking associations and 9 World Bank financial sector experts. These 108 countries represent 88 percent of the global GDP and the sample is balanced in terms of levels of income and geographical representation. The information from the responses refers to 2019. The full list of surveyed countries is presented in the annexes.

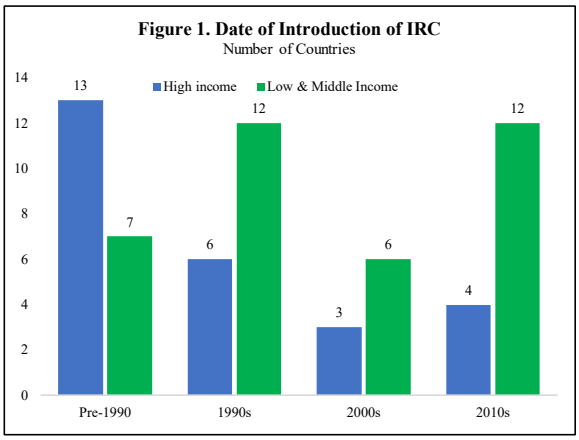
IRCs are common in countries across different income levels and legal systems though some regional differences emerge. Table 1 presents a general overview of IRCs in the 108 countries grouped by region, income level and legal system.[8] A total of 63 countries responded that they have IRCs in place. Both high income countries and low and middle income countries show a similar prevalence of IRCs at about 60 percent of their respective surveyed samples.[9] This even distribution across income levels is also reflected in a GDP-weighted average of 66 percent of the sample with IRCs, though this hinges on the fact that China had unwound its IRCs by 2019 and our survey does not consider the recent policy response to Covid-19.[10] The share of countries with *de jure* IRCs also remains roughly unaltered when countries are divided according to their legal system, though we observe a relatively higher prevalence of IRCs in common law countries.[11] Differences appear when the regional dimension is introduced, with a bigger fraction of high income relative to low and middle income countries in Europe & Central Asia reporting IRCs, while the opposite is observed in East Asia & Pacific. In general, IRCs are more popular in regions such as South Asia, the Americas, and Sub-Saharan Africa.

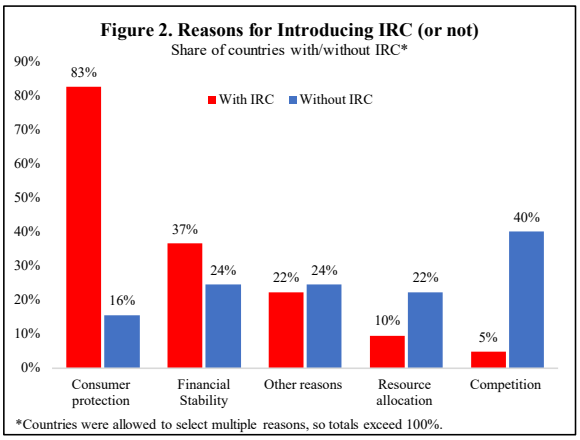
Table 1. Number of Countries with IRCs (total countries surveyed in parentheses)

Region	High Income	Low & Middle Income	Civil Law	Common Law	Mixed Systems	Total
East Asia & Pacific	2 (6)	4 (7)	2 (3)	2 (3)	2 (7)	6 (13)
Europe & Central Asia	15 (23)	7 (15)	20 (34)	2 (3)	0 (1)	22 (38)
Middle East & North Africa	1 (3)	1 (5)	-	-	2 (8)	2 (8)
North & South America	8 (11)	11 (17)	9 (15)	9 (11)	1 (2)	19 (28)
South Asia	-	3 (4)	-	-	3 (4)	3 (4)
Sub-Saharan Africa	0 (1)	11 (16)	1 (1)	-	10 (16)	11 (17)
Total	26 (44)	37 (64)	32 (53)	13 (17)	18 (38)	63 (108)

[7] Question D.13 in the GFICPS 2017 was: "Are financial institutions subject to explicit caps on interest rates or other methods that limit loan pricing, e.g. maximum profit margins or maximum spread?"
[8] Regional and income level classifications are consistent with the World Bank classification while legal origins are based on the JuriGLOBE database of the University of Ottawa.
[9] We conducted a two-sample t test for equality of means by income group and found no statistically significant difference between high income and low and middle income economies.
[10] China's influence is even greater if the sample is weighted by deposit money banks' assets: these stand at 175 percent of the Chinese GDP and 29 percent of our full country sample (source: Global Financial Development Database).
[11] Seventy-six percent of the countries under common law in our sample have IRCs. That is significantly higher (at 5%, one-tail) than countries with civil codes or mixed legal systems.

The introduction of IRCs has been more recent in low and middle income countries. Due to the difficulty to find out the evolution of local regulation over the past few decades, our survey only inquired about the regulation currently in effect. Nonetheless, we did collect the date of introduction of IRCs, which were either provided by the regulators or could be obtained from the citations of laws and regulations. When looking at the earliest time of introduction of IRCs by country, there is a clear contrast between high income and low and middle income economies, with a much larger share of IRCs introduced more than three decades ago in high income economies, including usury laws that date back to the beginning of the twentieth century such as those in Germany, introduced in 1900, and Spain, in 1908. On the other hand, a larger share of low and middle income countries introduced IRCs in recent years, and this trend seems to be accentuating with the unravelling of the Covid-19 crisis (Figure 1). Of particular interest are the experiences of Zambia, which introduced lending rate caps in 2012 but removed them in 2015, and of Kenya, which established IRCs in 2016 only to abolish them three years later. In both cases, the reversal followed the realization of the tangible unintended consequences of IRCs for the financial sector and real outcomes.





Caps on lending rates and floors on deposit rates are the most frequent types of IRCs. Most of the countries imposing IRCs have ceilings on lending rates (Table 2). This is because this category includes both usury laws as well as more stringent limits on lending such as hard caps on loans to a particular sector. Roughly half of both high income and low and middle income countries surveyed provided a positive answer to the question of whether lending caps were in place.[12] Lending rate ceilings typically apply to commercial banks and often to microfinance institutions. Floors on deposit interest rates are also commonplace, especially within low and middle income countries, where 28 percent of the countries in our sample have such limits (in contrast to only 16 percent of high income countries).[13] As expected, floors on deposit rates apply typically to commercial banks. As for other restriction types, some countries placed caps on deposit rates, while one country (Mauritania) reported to have a floor on lending rates.

[12] While 50 percent of high-income countries have caps on lending rates, 45 percent of low and middle income countries have similar schemes. There is no statically significant difference between these two groups.
[13] The difference is statistically different at 10 percent (one-tail).

Table 2. Number of Countries with IRCs by Regulated Institution and Restriction Type

Institution Type / Level of Income	Contractual lending rates		Contractual deposit rates	
	Ceiling	Floor	Ceiling	Floor
Commercial banks	47	1	9	25
Cooperative banks	29	-	7	5
Savings banks	20	-	5	4
Financing companies	29	-	6	2
Microfinance institutions	36	1	3	12
High Income Countries	22	-	3	7
Low & Middle Income Countries	29	1	8	18

Limits on lending rates are usually imposed across all business and retail lending products in both high income and low and middle income economies. While there are countries such as Ecuador that impose ceilings on lending rates on all loan categories, it is very common for countries to regulate only all business or all retail loan products (Table 3). Among retail products, regulation typically focuses on consumer loans and microcredit, though high income countries have more breadth in terms of specific products, including credit cards and residential real estate loans. In the case of deposit rate regulation, we observe almost as many countries with product-specific regulation (15) as those with all-encompassing restrictions (17). This is due to the relative importance of floors on savings deposit rates, while other product types such as checking accounts and term deposits receive less attention from regulators. An interesting experience is that of the United States, which has an IRC system in place where most of the states regulate a maximum lending rate on payday loans while at the federal level the Federal Deposit Insurance Corporation enforces a ceiling on deposit rates for supervised institutions that are “less than well capitalized”.

Consumer protection concerns were cited as the main intended reason for the introduction of IRCs. Four out of five countries with IRCs pointed to consumer protection as a key reason to regulate interest rates (Figure 2). The typical case of such a country involved regulations that put a ceiling on loan rates (92 percent of those that invoked consumer protection) while, though also prevalent, it was less common in countries that implemented floors on deposit rates (64 percent of these opted for this reason). Financial stability was also a driving factor for many countries, with one-third of those with IRCs appealing to it. This reason was especially popular (64 percent) among those economies that set a ceiling on deposits interest rates, including France, Brazil and Sri Lanka, among others, with some invoking moral hazard of weaker institutions and others pointing to the instability of interbank markets ultimately affecting retail rates and hindering the transmission of monetary policy. As for the less cited reasons of resource allocation (9 percent) and competition (5 percent), these were more invoked by countries with deposit rate caps (at 36 and 18 percent, respectively). Other reasons, such as financial inclusion (members of the West African Economic and Monetary Union, WAEMU) or strengthening the monetary policy transmission channels (Pakistan) were cited by a significant share (40 percent) of countries setting a floor on deposit interest rates. Countries with no IRCs were asked to provide reasons for not using this tool, and their answers highlighted mainly the need to maintain competition in the banking markets, followed by preserving financial stability and efficiency of resource allocation.

Table 3. Number of Countries with IRC by Product Type

	All business loans	*Some business loans*	All retail loans	*Some retail loans*	All deposits	*Some deposits*
East Asia & Pacific	1	*1*	1	*3*	0	*2*
Europe & Central Asia	12	*0*	15	*7*	3	*1*
Middle East & N. Africa	2	*0*	2	*0*	1	*0*
North & South America	6	*2*	6	*5*	3	*9*
South Asia	0	*0*	0	*1*	1	*2*
Sub-Saharan Africa	9	*0*	10	*0*	9	*1*
High Income	12	*0*	14	*8*	3	*5*
Low & Middle Income	18	*3*	20	*8*	14	*10*

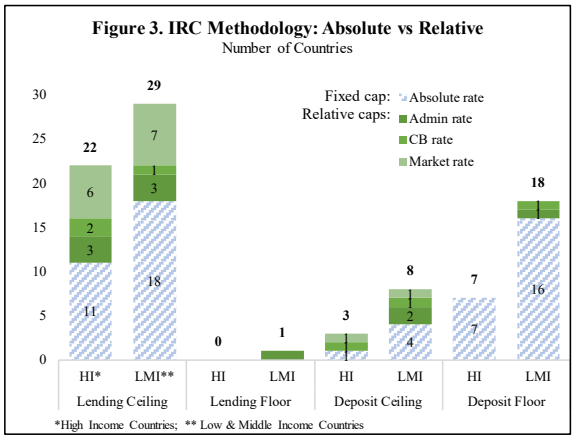
While the majority of legal limits on lending rates are based on primary legislation, the basis for restrictions on deposit rates, both floors and ceilings, is evenly split between primary legislation and administrative regulation. Three out of four countries imposing ceilings on lending rates, including all high income economies, did it through a law, with many of these being statutory laws or special legislation. In some cases, such as Paraguay, the authority to regulate interest rates beyond the conduct of monetary policy is incorporated into the central bank articles. Other countries have special laws, which can take the form of specific anti-usury laws, such as those in El Salvador, Italy or Uruguay, or could be part of a more general consumer protection act, such as the ones enacted in Finland, Korea (Republic of) or San Marino. Restrictions on deposit rates additionally rely on administrative regulation, which typically takes the form of central bank directives. For example, the deposit rate floor prevalent in WAEMU countries is based on a decree of the Council of Ministers and the Board of the Central Bank of West African States. Finally, one notable exception where the basis of IRC regulation is a court ruling is the British dependency of Guernsey, where part of the legal system is based on customary law.

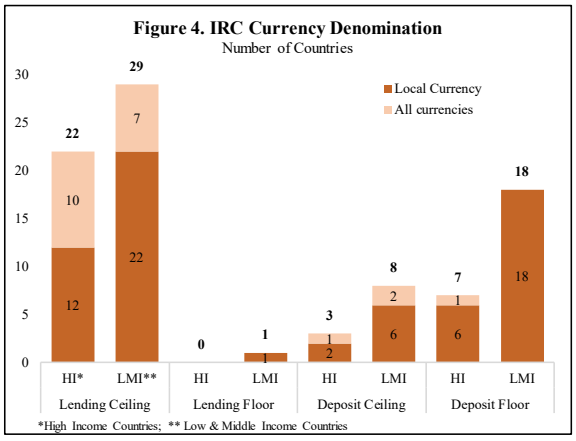
Fixed or absolute limits are the typical methodology employed for setting IRCs, regardless of the restriction type. The methodology for determining the level at which interest rates are limited is a critical feature of the interest rate regime. Countries that set a fixed maximum (or minimum) rate introduce an additional rigidity that makes them less responsive to changes in the macroeconomic environment. However, relative rate limits come in different flavors, ranging from those set relative to a benchmark market rate to others set as a spread over an administrative rate, with discretion for the government to determine the latter (turning many of these into quasi-fixed frameworks). Rates set relative to central banks' policy rates deserve a separate mention, as they introduce some flexibility at the cost of distorting the monetary transmission channels, as it became manifest in Kenya's failed attempt to control interest rates. Figure 3 shows that countries that decide to impose IRCs often choose a hard ceiling (or floor). However, some countries opt for flexibility when imposing caps on rates. Surprisingly, data on lending rate ceilings show that low and middle income economies are as likely as their high income peers to choose a benchmark market rate (both at 27 percent of those with IRCs). As far as caps on deposit rates are concerned, only Sri Lanka and the United States have set their maximum rate relative to a market rate, while Belgium and Morocco set theirs in relation to their central bank policy rate.

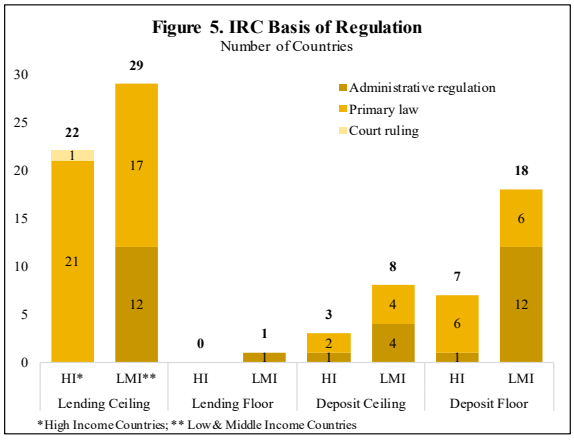
IRCs are typically applied to deposits and loans denominated in local currency. In the case of deposit rate floors, all but one country (Belgium, where a floor is set for rates on deposits

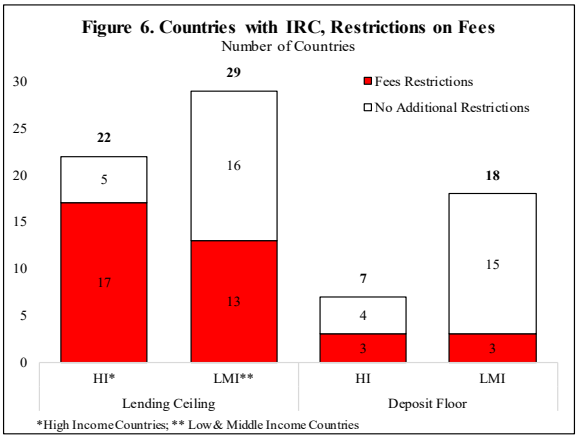
denominated in any currency) have their regulation applying to deposits in local currency, which may resonates with the (often implicit) objective of ensuring a minimum return to the domestic retail depositor (Figure 4). On the other hand, one third of countries with lending rate caps impose these on loans denominated in all currencies, though differences appear across income levels: while 45 percent of the high income economies that impose lending ceilings are in this group, only 24 percent of low and middle income countries do so. As an example of the former, the lending rate ceiling imposed by the National Credit Code on consumer loans, credit cards and microcredit in Australia is applicable regardless of the currency denomination.

Almost half of the countries sanction breaches to IRCs through administrative penalties, which are typically enforced by the banking supervisor. There are differences at the income level though, with 57 percent of low and middle income economies opting for this option, while high income economies show split results among administrative sanctions (35 percent), criminal sanctions, normally associated with usury laws (35 percent), and automatic substitution of contractual provisions (27 percent). Interestingly, the majority of common law countries (69 percent) resort to criminal law, mainly due to the Eastern Caribbean Currency Union (ECCU) members enforcing the Eastern Caribbean Central Bank Agreement, which sets a floor on deposit rates.









III. Characterizing the Data

A. Are IRCs Binding?

The presence of IRCs is a necessary yet not sufficient condition for legal restrictions to be binding, that is, to lead to out of equilibrium interest rates. The mainly legal aspects of IRCs presented in the previous section are important per se, being particularly useful for policy makers, researchers and market participants interested in comparing specific features of a country's IRC regime with those in other countries. However, the economics of IRCs are equally important. In this context, it is of special interest attempting to assess whether IRCs are binding. This happens when caps (floors) on lending rates are below (above) the market rates, that is interest rates based on the market forces of demand and supply, and when caps (floors) on deposit rates are set at a level below (above) market rates. In these circumstances, regardless of the intended objectives, IRCs can have nontrivial consequences for savings and investment and, ultimately, for welfare, as discussed in section I.

Assessing the bindingness of IRCs is not an easy task. There is no well-established methodology to judge whether the prevailing level and structure of interest rates is out of equilibrium. For one, when IRCs are in place we may not be able to observe market rates directly. Actual rates are not an accurate indicator of market rates where IRCs are in fact binding, since the actual rates reflect the influence of the cap or of the floor. The multiplicity of IRCs is another complication. As shown in the previous section, often countries set different caps or floors for different banking products, providing rational financial institutions with room for regulatory arbitrage so that they can borrow where they can pay below market rates and lend where they can obtain market rates. In principle, one would expect that under competitive conditions the expected real interest rates on savings instruments is positive, else there would be a strong tendency to substitute hoarding of cash, goods and self-investment for financial savings. Yet occasionally, in the presence of volatile inflation, real interest rates in an economy can be negative even when rates are free and competitively determined.[14] Finally, international comparisons with similar countries and markets may provide useful indications on interest rate levels, yet differences in regulations and other country characteristics may be difficult to isolate.

We measure the bindingness of IRCs that apply to commercial banks by taking the difference between the legal limits and the actual interest rates. The gap, expressed in percentage points and in real terms, between the *de jure* limit, as reported by the country authorities in our survey, and the observed actual average interest rate charged or paid by commercial banks in a country provides a preliminary indication of the degree of bindingness of IRCs and therefore of interest rate repression.[15] The lower the gap between the regulatory limit and the interest rate for caps on deposit and lending rates, the higher the degree of bindingness of IRCs. A gap of zero may indicate full bindingness. For floors on deposit rates, the higher the gap between the interest rate paid by lenders and the regulatory minimum, the more binding is the IRC. Where multiple legal limits exist, we calculate our gap measure for the most representative product-level IRC that apply to commercial banks in a country. For example, Colombia reported legal (usury)

[14] A similar argument can be made in the context of very low policy rates and unconventional monetary policy.
[15] While most of the countries provided accurate references to the level at which floors and ceilings were set, their responses in terms of actual market rates were much more limited. As a complement to the survey, we therefore collected market rate information from the IMF's International Financial Statistics and central banks' webpages.

limits for all commercial bank lending products and interest rate ceilings for rural lending products. In our framework, we use the former only given its broader coverage. Accordingly, we use the relevant market rate to calculate the gap. In our example, we use the weighted average of commercial bank lending rates to measure the gap with the legal ceiling. For countries that, for example, reported *de jure* controls on credit card rates, we use the market credit card rate to calculate the gap. We acknowledge that it would be ideal to focus on products and maturities rather than institutions yet data constraints in our cross-country setting limits the feasibility of this option.

Our gap measure of IRC bindingness is not without shortcomings. The most important limitation is that we lack a longitudinal dimension in our data as we only collected information on IRCs as of 2019. Ideally one would observe over time the evolution of the gap between IRCs and actual rates to draw more general conclusions about the degree of IRC bindingness. Future research at the county level could fill this gap. Another shortcoming of our approach is that the convergence of the actual interest rates towards the caps on lending rates and the floors on deposit rates may be symptomatic of low competition rather than reflect the bindingness of IRCs. In an oligopolistic market with inelastic demand, the presence of a legal limit may serve as a focal point for tacit collusion. However, this behavior may arise only in the case of fixed rate limits or in the case of flexible rate limits which are tied to a specific external reference rate, such as an interest rate decided on by the central bank. In contrast, reference rates which are endogenously determined such as observed average interest rates of previous periods respond to the price setting behavior of lenders so that even during one period interest rates converge towards an existing limit, the next period's limit will be higher or lower. As a result, there cannot be focal point for collusion in the long run. In any event, whether focal points happen in practice in the presence of IRCs is an empirical issue.

Gaps between lending ceilings and actual rates offered a diverse landscape. Table 4 presents legal limits and actual rates as well as the gap measure for the representative market segment in 2019 for the 47 economies that reported interest rate caps for commercial banks. It portrays a very heterogenous map, with the large majority of countries showing a relatively large gap between the cap and the actual rates. Only five countries (Argentina, Bolivia, Marshall Islands, Mauritania and Vietnam) exhibit a zero gap, and in two economies (France and Ecuador) the gap is within 150 basis points. Countries at the top of our bindingness ranking include a majority of middle income economies, with a regional predominance of Latin American economies. Interestingly, the large majority of countries where our gap measure is narrowest adopt a fixed or absolute cap. While this approach in principle entails a high degree of rigidity for the IRC regime, judging from the overall distribution in Table 5 we cannot point to the conclusion that fixed limits are in fact more binding than relative or flexible limits.

Gaps for commercial bank deposit rates are generally narrow in the nine countries that reported the presence of IRCs in these markets. As described in the previous section, legal limits on deposit rates are largely concentrated in savings accounts. For example, France imposes a cap on the "*Livret A*", a popular tax-free savings account available to all individuals in the country. Table 5 shows legal limits, actual rates and the gap measure for the nine economies that impose ceilings on deposit rates. In three countries (Mauritania, Morocco and Vietnam) the real gap between the legal limits and the actual deposit rates is zero, while in other three economies (France, Ecuador and the United States) the gap is within 100 basis points of the respective

limit. The method used to determine the ceiling in these four countries is either fixed or relative to a non-market reference rate. Interestingly, Table 6 also shows that actual real rates are negative in four economies (Belgium, France and the United States) where monetary policy is likely to play a role, and in one country (Brazil), where the presence of a negative real floor (see below) in addition to the cap in a highly oligopolistic market may act as a focal point.

Table 4: Lending Rate Ceilings, Commercial Banks

Country	Nominal		Real		Gap	Type of Limit	Product regulated
	Ceiling	Actual Rate	Ceiling	Actual Rate			
Argentina	55.00	55.00	0.95	0.95	**0.00**	Absolute	Retail (credit card)
Vietnam	6.00	6.00	3.12	3.12	**0.00**	Absolute	Business (real estate, agriculture)
Bolivia	11.50	11.50	9.49	9.49	**0.00**	Absolute	Retail (real estate, small business, micro), Business (working capital, term, agriculture)
Mauritania	14.50	14.50	11.93	11.93	**0.00**	Relative: Adm. rate	All retail/business loans
Marshall Isl.	15.00	15.00	14.36	14.36	**0.00**	Absolute	Retail (consumer loans)
France	4.47	3.36	3.33	2.23	**1.10**	Relative: Market Rate	All retail/business loans
Ecuador	9.83	8.58	9.54	8.29	**1.25**	Absolute	All retail/business loans
Russia	11.67	8.75	6.89	4.10	**2.79**	Relative: Market Rate	Retail (consumer, credit card, micro)
Spain	7.50	4.20	6.75	3.48	**3.28**	Relative: Adm. rate	Retail (consumer, real estate)
Croatia	6.93	2.69	6.11	1.90	**4.21**	Relative: Market Rate	All retail loans
Italy	8.71	3.76	8.04	3.13	**4.91**	Relative: Market Rate	All retail/business loans
N.Macedonia	10.50	5.21	9.66	4.41	**5.25**	Relative: Adm. rate	All retail/business loans
Portugal	13.60	7.30	13.22	6.94	**6.28**	Relative: Adm. rate	All retail/business loans
Guernsey	10.00	3.65	7.80	1.57	**6.22**	Absolute	All retail loans
San Marino	15.95	9.55	14.86	8.52	**6.34**	Absolute	All retail/business loans
Chile	19.23	12.82	16.26	10.01	**6.25**	Relative: Market Rate	All retail/business loans
Morocco	13.57	6.50	13.35	6.29	**7.06**	Relative: Market Rate	All retail/business loans
Germany	14.26	7.13	12.64	5.60	**7.03**	Relative: Market Rate	All retail/business loans
Burkina Faso	15.00	6.81	18.84	10.38	**8.46**	Absolute	All retail/business loans
Niger	15.00	6.81	17.94	9.54	**8.40**	Absolute	All retail/business loans
Mali	15.00	6.81	16.94	8.61	**8.33**	Absolute	All retail/business loans
Côte D'Ivoire	15.00	6.81	16.29	8.01	**8.28**	Absolute	All retail/business loans
Benin	15.00	6.81	15.96	7.70	**8.26**	Absolute	All retail/business loans
Guinea-Bissau	15.00	6.81	14.72	6.55	**8.17**	Absolute	All retail/business loans
Togo	15.00	6.81	14.23	6.09	**8.14**	Absolute	All retail/business loans
Senegal	15.00	6.81	13.01	4.96	**8.05**	Absolute	All retail/business loans
Belgium	10.00	1.70	8.44	0.26	**8.18**	Absolute	Retail (consumer, real estate), All business loans
Netherlands	14.00	4.99	11.07	2.29	**8.78**	Relative: Adm. rate	All retail/business loans
South Africa	20.64	10.14	15.86	5.77	**10.08**	Relative: Market Rate	All retail loans
Armenia	24.00	13.12	22.24	11.51	**10.73**	Relative: Policy Rate	All retail/business loans
Israel	15.25	3.48	14.29	2.62	**11.67**	Relative: Policy Rate	All retail/business loans
Finland	20.00	6.33	18.78	5.25	**13.53**	Absolute	Retail (consumer, credit card)
Kyrgyz Rep.	34.99	18.94	33.47	17.61	**15.87**	Relative: Market Rate	All retail/business loans
El Salvador	24.28	8.03	24.19	7.95	**16.24**	Relative: Market Rate	All retail/business loans
Colombia	28.98	10.38	24.59	6.62	**17.97**	Relative: Market Rate	All retail/business loans
Paraguay	37.81	18.08	34.11	14.91	**19.20**	Relative: Market Rate	All retail/business loans
Korea	24.00	3.40	23.53	3.01	**20.52**	Absolute	All retail/business loans
United States	31.00	10.32	28.67	8.35	**20.31**	Absolute	Retail (consumer,small business, micro)
Thailand	28.00	4.08	27.10	3.35	**23.75**	Absolute	Retail (consumer,credit card, micro)
Uzbekistan	50.00	23.61	30.93	7.89	**23.03**	Absolute	Retail (small business, micro)
Sweden	40.00	6.00	37.55	4.14	**33.40**	Relative: Policy Rate	Retail (consumer, micro)
Uruguay	50.00	11.56	39.04	3.41	**35.63**	Relative: Market Rate	All retail/business loans
Georgia	50.00	10.82	43.06	5.69	**37.37**	Absolute	All retail/business loans
Bulgaria	50.00	9.93	45.48	6.62	**38.86**	Relative: Adm. rate	All retail loans
Lithuania	75.00	2.20	71.01	-0.13	**71.14**	Absolute	Retail (consumer, credit card, real estate)
Latvia	107.36	17.28	101.69	14.07	**87.61**	Absolute	All retail loans

* Brasil, which has a lending cap for commercial banks, was excluded due to the limited applicability of IRC to loans under Sistema Financeiro da Habitação (SFH).

Actual deposit rates paid by commercial banks unsurprisingly show a general convergence towards floors. Table 6 presents the real gaps between the actual interest rates paid by commercial banks and the legal limits, used as a proxy for determining the degree of bindingness of floors on deposit rates. It shows that in 2019 in all but one country the real gap

was within 100 basis points of the respective limit. In six economies (Brazil, Bolivia, Pakistan, Mauritania, Montserrat and Belgium) the gap is zero or close to zero. All but two countries reporting deposit rate floors determine the legal limit using a fixed rate. Interestingly, the two economies (Bolivia and Brazil) that adopt a relative (to the policy rate) approach are among those where the gap is zero. On the other hand, a few economies had negative real deposit floors (and actual rates) in 2019. Again, these are mostly eurozone economies (Belgium, France and Portugal) where monetary policy greatly constrains the level of rates, in addition to Brazil, discussed above, and Ethiopia, where interest rate repression is embedded in the country's framework for managing its monetary and foreign exchange policy (Chauffour and Gobezie, 2019). One country, Malaysia, shows a negative real floor though the actual rate paid was positive.

Table 5: Deposit Rate Ceilings, Commercial Banks

	Nominal		Real				
Country	Ceiling	Actual Rate	Ceiling	Actual Rate	**Gap**	Type of Limit	Product regulated
Morocco	1.94	1.94	1.74	1.74	**0.00**	Relative: Policy Rate	All deposits
Vietnam	5.00	5.00	2.14	2.14	**0.00**	Absolute	Certificates of deposits
Mauritania	4.70	4.70	2.35	2.35	**0.00**	Relative: Administrative rate	All deposits
France	0.75	0.50	-0.35	-0.60	**0.25**	Absolute	All deposits
Ecuador	1.50	1.05	1.23	0.78	**0.45**	Absolute	All deposits
United States	1.38	0.63	-0.42	-1.16	**0.74**	Relative: Market Rate	Savings, checking and money market accounts, CDs up to 60 months
Belgium	3.00	0.14	1.54	-1.28	**2.82**	Relative: Policy Rate	Savings accounts
Brazil	6.17	3.15	2.35	-0.56	**2.91**	Absolute	Savings accounts, Others
North Macedonia	10.50	1.87	9.66	1.10	**8.56**	Relative: Adm. Rate	All deposits

Table 6: Deposit Rate Floors, Commercial Banks

	Nominal		Real				
Country	Floor	Actual Rate	Floor	Actual Rate	**Gap**	Type of Limit	Product regulated
Brazil	3.15	3.15	-0.56	-0.56	**0.00**	Relative: Policy Rate	Savings accounts, Others
Bolivia	2.00	2.00	0.16	0.16	**0.00**	Absolute	Savings accounts, Term (CD)
Pakistan	11.25	11.25	0.61	0.61	**0.00**	Relative: Policy Rate	Savings, Checking accounts
Mauritania	4.70	4.70	2.35	2.35	**0.00**	Relative: Adm. Rate	All deposits
Montserrat	2.00	2.01	3.10	3.11	**0.01**	Absolute	Savings accounts
Belgium	0.11	0.14	-1.31	-1.28	**0.03**	Absolute	Savings accounts
Portugal	0.00	0.11	-0.34	-0.23	**0.11**	Absolute	All deposits
Dominica	2.00	2.12	0.48	0.60	**0.12**	Absolute	Savings accounts
Antigua And Barbuda	2.00	2.16	0.52	0.68	**0.16**	Absolute	Savings accounts
Grenada	2.00	2.20	1.39	1.59	**0.20**	Absolute	Savings accounts
St. Vincent And The Gren	2.00	2.29	1.08	1.37	**0.29**	Absolute	Savings accounts
St Kitts And Nevis	2.00	2.36	0.39	0.74	**0.35**	Absolute	Savings accounts
St. Lucia	2.00	2.36	1.28	1.64	**0.36**	Absolute	Savings accounts
Senegal	3.50	4.00	1.71	2.20	**0.49**	Absolute	All deposits
Malaysia	0.25	1.01	-0.41	0.35	**0.76**	Absolute	Savings accounts
Togo	3.50	4.32	2.81	3.62	**0.81**	Absolute	All deposits
Guinea-Bissau	3.50	4.32	3.24	4.06	**0.81**	Absolute	All deposits
Benin	3.50	4.32	4.36	5.18	**0.82**	Absolute	All deposits
Mali	3.50	4.32	5.25	6.08	**0.83**	Absolute	All deposits
Niger	3.50	4.32	6.14	6.98	**0.84**	Absolute	All deposits
Burkina Faso	3.50	4.32	6.96	7.80	**0.84**	Absolute	All deposits
France	0.00	0.98	-1.10	-0.12	**0.97**	Absolute	All deposits
Anguilla	2.00	2.99	1.17	2.15	**0.98**	Absolute	Savings accounts
Ethiopia	7.00	8.00	-7.62	-6.76	**0.86**	Absolute	Savings accounts, Term (CD)
Côte D'Ivoire	3.50	4.64	4.66	5.81	**1.15**	Absolute	All deposits

B. Are IRCs Part of a Broader Financial Repression Policy Toolkit?

IRCs have been historically part of a wider financial repression policy toolkit. IRCs have often been one among many financial repression policies, including government ownership or control of banks, controls on cross-border capital flows, restrictions on entry in the banking market, and excessively high bank reserve requirements. To check whether interest rate repression is in fact more pervasive in countries which adopt other financial repression policies, we calculate the pairwise correlation coefficients between our measure of IRC bindingness for lending ceilings and the following proxies for financial repression policies:[16,17]

- **State ownership of banks**: Ownership of banks is the most direct form of control a government can have over credit allocation. State ownership can be the result of nationalization following a banking crisis (e.g., Mexico in 1982, Indonesia in 1998 or more recently many advanced economies in the context of the GFC) but more often is the result of a conscious policy decision by the authorities (e.g., in India beginning in 1969). We proxy this variable by the share of the banking system's assets controlled by the government, where control is defined when the government owns 50 percent or more equity. We use Anginer et al. (2019), which provides the latest figure for 2016.[18] We expect a negative association between our measure of interest rate repression and the share of state ownership of banks, that is the lower the gap between the legal limits and the actual interest rates, the higher should be state ownership of banks.

- **Capital account restrictions**: Restrictions on international financial transactions are often imposed to give the government greater control over the flow of credit within the economy, as well as greater control over the exchange rate. These restrictions can take various forms, from transactions taxes to outright restrictions on inflows and/or outflows. We measure the extent of capital account restrictions by the widely used Chinn-Ito index. This is an index measuring a country's degree of capital account openness initially introduced by Chinn and Ito (2006) and updated frequently.[19] The index is based on the tabulation of restrictions on cross-border financial transactions reported in the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions. It is therefore a measure of *de jure* restrictions. We take the latest available value of the series, which is available up to 2017. Given that higher values of the Chinn-Ito index imply greater capital account openness, we expect a positive association with our measure of interest rate repression.

- **Entry barriers**: To maintain control over credit allocation, governments may restrict the entry into the financial system of new domestic banks or of other potential competitors, for example foreign banks or non-bank financial institutions. Entry barriers may take several forms, including outright restrictions on foreign banks; bank activity restrictions; or excessively restrictive licensing requirements. We proxy entry barriers by an index of legal requirements needed to obtain a banking license. This indicator, first developed by Barth et al. (2001), can be calculated using data systematically collected by the World Bank as a

[16] While an important financial repression measure used in many jurisdictions, we do not include lending quotas that, to the best of our knowledge, are not systematically tracked and cannot be meaningfully proxied by a quantitative variable.
[17] We did not calculate correlation coefficients for deposit IRCs due to the low number of observations. There are only 9 countries with deposit rate ceilings, and while there are 25 countries with deposit rate floors, 8 of them are ECCU members and 8 economies are WAEMU members.
[18] Available at https://datacatalog.worldbank.org/dataset/bank-regulation-and-supervision-survey#tab2.
[19] Available at http://web.pdx.edu/~ito/Chinn-Ito_website.htm.

part of the Bank Regulation and Supervision Survey. We use the latest available data (World Bank, 2019) and expect a negative association with our measure of interest rate repression, given that a higher value of the index of legal requirements indicates greater entry barriers.

- **Excessive reserve requirements**: Governments may impose excessively high reserve requirements, beyond what can be reasonably expected for prudential purposes, and reserves may not be remunerated at market rates of return. Excessive reserve requirements are not directly observable, however. We measure reserve requirements using the Reserve Requirement Dataset (Federico et al., 2014), who provide a database of various reserve requirements (by type of currency, products, etc.) for 65 countries updated to 2019. We take the average of reserve requirements, which are expressed as a percentage of the instrument targeted. We expect that higher values of reserve requirements are positively associated with higher interest rate repression hence we expect a negative sign on the coefficients of correlation.

Pairwise correlations confirm that IRCs may in fact be a component of a wider financial repression policy toolkit. Table 7 presents the pairwise correlation coefficients among the gap between actual lending rates and legal ceilings, our bindingness measure for lending rate caps, and our proxies for other common financial repression policies along with their statistical significance. Pairwise correlations suggest that the relative bindingness of lending ceilings is associated with a higher share of state-owned commercial banks, which governments can use to direct credit, and more stringent *de jure* capital controls, which can be used to influence size and composition of capital flows. Correlations become stronger, including for other proxies of financial repression (albeit not significant), when lending ceilings that are determined relative to a market benchmark are excluded from the sample.

Table 7. Correlation Between Lending IRC Bindingness and Other Financial Repression Policies

	Full sample		Excl. relative (mkt) ceilings	
	ρ	N	ρ	N
State ownership of banks	-0.284*	42	-0.393**	31
Capital account restrictions	0.305**	45	0.377**	33
Entry into banking requirements	0.002	42	0.032	30
Excessive reserve requirements	-0.082	19	-0.403	12

Significance at ***1%, **5% and *10%.

IV. Concluding Remarks

In this paper we present a new database on IRCs in 108 countries, which account for 88 percent of global GDP. There are signs of a resurgence in financial repression policies around the world, which may be exacerbated by the Covid-19 crisis. While some measures may turn out to be temporary, others may become permanent. Understanding their unfolding is therefore important for policy makers concerned with minimizing the associated costs. This paper represents a step towards that goal. Building on a survey of financial sector authorities and bankers' associations conducted during 2019 in World Bank Group member countries, this paper documents a key form of financial repression: IRCs, including their origins, the legal framework and their intended objectives. The data collected through the survey are then used to provide a preliminary estimation of the degree of bindingness of IRCs and to calculate pairwise correlations with other financial repression policies.

The key findings of this paper are the following:

- IRCs are common in countries across different income levels and legal systems though some regional differences emerge. A total of 63 countries out of 108 surveyed responded that they have IRCs in place. Both high income countries and low and middle income countries show a similar prevalence of IRCs. The share of countries with *de jure* IRCs also remains roughly unaltered when countries are divided according to their law system, though we observe a relatively higher prevalence of IRCs in common law countries. Geographically, IRCs tend to be more popular in regions such as South Asia, the Americas, and Sub-Saharan Africa.

- Caps on lending rates and floors on deposit rates are the most frequent types of IRCs. Most of the countries imposing IRCs have a ceiling on lending rates, regardless of the level of income. Lending rate ceilings typically apply to commercial banks and often to microfinance institutions. Floors on deposit interest rates are also commonplace, especially within low and middle income countries.

- Limits on lending rates are usually imposed across all business and retail lending products in both high income and low and middle income economies. In retail markets, IRCs typically focus on consumer loans and microcredit, though high income countries have more breadth in terms of specific products, including credit cards and residential real estate loans. In the case of deposit rate regulation, we observe almost as many countries with product-specific regulation as those with all-encompassing restrictions.

- Consumer protection concerns are the main stated reason for the introduction of IRCs, especially by those countries that imposed a ceiling on loan rates. Financial stability is also a driving factor for many countries, especially among those setting a ceiling on deposit interest rates. Less cited reasons for introducing IRCs relate to resource allocation and competition, especially by countries with deposit rate caps. Other reasons such as financial inclusion or strengthening the monetary policy transmission channels are reported by countries setting a floor for deposit interest rates.

- Fixed limits are the typical methodology employed for setting IRCs, which generally apply only to domestic currency denominated transactions and are accompanied by limits on fees. However, some countries opt for flexibility when imposing caps on rates. IRCs are typically applied to transactions denominated in local currency, especially deposit rate floors. Half of the countries with IRCs also impose limits on fees. Restrictions on administrative and servicing fees aim to curtail the ability of financial intermediaries to increase the effective lending rate beyond the established ceiling or to decrease the effective deposit rate below the established floor. We find that limits on fees are mostly imposed in the context of lending rate ceilings. Finally, almost half of the countries with IRCs sanction breaches to IRCs through administrative penalties, which are typically enforced by the banking supervisor.

- IRC bindingness in 2019 presented a diverse landscape. Gaps between legal limits and actual lending rates in real terms, used as a proxy for a preliminary estimate of the degree of bindingness of IRCs, portray a very heterogenous map, with the large majority of countries showing a relatively large gap between the cap and the actual rates and only five countries exhibiting a gap of zero. Real gaps for commercial bank deposit rates are

generally narrow in countries that reported the presence of IRCs in these markets, with only three countries showing a gap of zero. Actual deposit rates are negative in a few economies with deposit rate ceilings. Finally, actual deposit rates paid by commercial banks unsurprisingly show a general convergence towards floors, with a few economies showing negative real floors and actual rates.

- The degree of bindingness of lending IRCs is associated with other financial repression policies. Pairwise correlations suggest that the relative bindingness of real lending ceilings is associated with a higher share of state-owned commercial banks, which governments can use to direct credit, and more stringent *de jure* capital controls, which can be used to influence the size and composition of capital flows. Correlations become stronger, including for other proxies of financial repression, when lending ceilings that are determined relative to a market benchmark are excluded from the sample.

Further research is needed to advance knowledge on IRCs and investigate their effects on welfare. The hope is that our database on IRCs can contribute to generate renewed interest and additional research on the topic, which can help provide concrete policy prescriptions. It would be important to complement our effort with country level analysis at the bank-product level over time to ascertain whether legal limits to interest rates in a country are in fact binding and what are the welfare implications. In this context, it would also be important to include *de facto* IRCs in the analysis, especially those introduced by subsidized government programs. It would also be interesting to collect data on other forms of financial repression, especially lending quotas on which there is very limited knowledge, and investigate the interactions among various forms of financial repression. It is likely that IRCs in a country are part of a wider toolkit of financial repression policies, as we have preliminarily shown in this paper, and interaction and complementarity of policies may have different welfare outcomes. Finally, given the prospect that IRCs might become an increasingly important feature of domestic financial systems in the post Covid-19 world, it would be important to closely monitor these developments.

References

Abiad, A., and A. Mody, 2005. "Financial Reform: What Shakes It? What Shapes It?" American Economic Review, 95 (1): 66-88.

Abiad, A., E. Detragiache, and T. Tressel, 2010. "A New Database of Financial Reforms," IMF Staff Papers.

Alper, C. E., B. Clements, N. Hobdari, and R. Moyà Porcel, 2019. "Do Interest Rate Controls Work? Evidence from Kenya," IMF Working Papers, WP/19/119.

Angkinand, A., W. Sawangngoenyuang, and C. WihlborgFinancial, 2010. "Liberalization and Banking Crises: A Cross-Country Analysis," International Review of Finance, 10 (2), pp. 263-292.

Barth, J.R., G. Caprio, and R. Levine, 2001. "The Regulation and Supervision of Banks Around the World: A New Database," in: Litan, R.E., and R. Herring (Eds.), Integrating Emerging Market Countries into the Global Financial System. Brookings–Wharton Pap. Finan. Services. Brookings Institution Press, pp. 183–240.

Bernanke, B., 2005. "The Global saving s glut and the U.S. Current Account Deficit," Speech delivered at the Sandridge Lecture, Virginia Association of Economics, Richmond, Virginia.

Chauffour, J. P. and M. A. Gobezie, 2019. "Exiting Financial Repression: The Case of Ethiopia," World Bank Policy Research Working Paper No. 9082. Washington, D.C.: World Bank Group.

Dasgupta, K. and B. J. Mason, 2019. "The Effect of Interest Rate Caps on Bankruptcy: Synthetic Control Evidence from Recent Payday Lending Bans," Working Papers 2019-04, Auckland University of Technology, Department of Economics.

Del Negro, M., D. Giannone, M. P. Giannoni, and A. Tambalotti, 2019. "Global Trends in Interest Rates," Journal of International Economics, 118(C): pp 248-262.

Demirguc-Kunt, A. and E. Detragiache, 1998. "Cross-Country Empirical Studies of Systemic Bank Distress: A Survey," World Bank Working Paper No. 3719.

Federico, P., C. A. Vegh and G. Vuletin, 2014. "Reserve Requirement Policy over the Business Cycle," NBER Working Paper No 20612.

Ferrari, A., O. Masetti, and J. Ren, 2018. "Interest Rate Caps : The Theory and the Practice," World Bank Policy Research Working Paper No. 8398. Washington, D.C.: World Bank Group.

Feyzioğlu, T., N. Porter, and E. Takáts, 2009, "Interest Rate Liberalization in China," IMF Working Papers, WP/09/171.

Fry, M. J., 1978. "Money and Capital or Financial Deepening in Economic Development?", Journal of Money, Credit, and Banking, 10(4).

Fry, M. J., 1997. "In Favor of Interest Rate Liberalization," The Economic Journal, 107: pp. 754 -770.

Hanson, J. A, 2001. “Indonesia and India: Contrasting Approaches to Repression and Liberalization,” in Financial Liberalization, ed. by Caprio, Honohan, and Stiglitz (Cambridge: Cambridge University Press).

Helms, B. and X. Reille, 2004. “Interest Rate Ceilings and Microfinance: The Story So Far,” CGAP Occasional paper No. 9. Washington, DC: World Bank.

Heng, D., 2015. “Impact of the New Financial Services Law in Bolivia on Financial Stability and Inclusion,” IMF Working Papers, WP/15/267.

International Monetary Fund, 2012. “The Liberalization and Management of Capital Flows - An Institutional View,” IMF Policy Papers.

Ito, H., 2008. “Financial Repression,” in: Reinert K. A. and R. Ramkishen (eds), The Princeton Encyclopedia of the World Economy. Princeton University Press, Princeton.

Jafarov, E., R. Maino, and M. Pani, 2019. “Financial Repression is Knocking at the Door, Again. Should We Be Concerned?”, IMF Working Papers, WP/19/211.

Kaminsky, G. L. and C. Reinhart, 1999. “The Twin Crises: The Causes of Banking and Balance-of-Payments Problems,” American Economic Review 89. 473-500.

Kaminsky, G. L. and S. Schmukler, 2008. “Short-Run Pain, Long-Run Gain: Financial Liberalization and Stock Market Cycles,” Review of Finance 12(2): pp. 253–292.

Loayza, N. V. and R. Rancière, 2006. “Financial Development, Financial Fragility, and Growth,” Journal of Money, Credit and Banking 38(4): pp. 1051-1076.

Madeira, C., 2019. "The Impact of Interest Rate Ceilings on Households’ Credit Access: Evidence from A 2013 Chilean Legislation," Working Papers Central Bank of Chile 840, Central Bank of Chile.

Maimbo, S. M. and C. A. Henriquez Gallegos, 2014. “Interest Rate Caps Around The World: Still Popular, But A Blunt Instrument,” Policy Research Working Paper; no. WPS 7070. Washington, DC: World Bank Group.

Mckinnon, R., 1974. “Money and Capital in Economic Development.” Washington D.C.: The Brookings Institution.

Mehran, H., M. Quintyn, and B. Laurens, 1996. “Interest Rate Liberalization and Money Market Development,”. International Monetary Fund: Washington, D.C.

Miller H., 2013. “Interest Rate Caps and their Impact on Financial Inclusion,” Economic and Private Sector, Professional Evidence and Applied Knowledge Services.

Noy, I., 2004. "Financial Liberalization, Prudential Supervision, and the Onset of Banking Crises," Emerging Markets Review, Elsevier, vol. 5(3), pages 341-359, September.

Pereira Leite, S. and V. Sundararajan, 1990. “Issues in Interest Rate Management and Liberalization,” IMF Staff Papers, 37, issue 4, p. 735-752.

Ranciere, R., A. Tornell and F. Westermann, 2006. “Decomposing the Effects of Financial Liberalization: Crises vs. Growt,.” Journal of Banking & Finance 30(12): pp. 3331-3348.

Reifner, U., S. Clerc-Renaud and M. Knobloch, 2010. “Study on Interest Rate Restrictions in the EU,” Final Report for the EU” iff/ZEW, Commission DG Internal Market and Services, Project No. ETD/2009/IM/H3/87, Brussels/Hamburg/Mannheim.

Reinhart, C. and M. B. Sbrancia, 2015. "The Liquidation of Government Debt," Economic Policy, CEPR;CES;MSH, vol. 30(82), pp 291-333.

Roubini, N. and X. Sala-i-Martin, 1992. “Financial Repression and Economic Growth,” Journal of Development Economics, 39, issue 1, pp. 5-30.

Safavian, M. and B. Zia, 2018. “The Impact of Interest Rate Caps on the Financial Sector: Evidence from Commercial Banks in Kenya,” Policy Research Working Paper; No. 8393. World Bank, Washington, DC.

Schmelzing, P., 2020. “Eight Centuries of Global Real Interest Rates, R-G, and the ‘Suprasecular’ Decline, 1311–2018,” Bank of England Working Paper No. 845, January 2020.

Schmukler, S., J. Tessada, C. Vasquez, and M. Vera, 2018. “Winners and Losers from Interest Rate Ceilings: Quasi-experimental Evidence from Chile,” mimeo.

Shaw, E., 1973. “Financial Deepening in Economic Development.” New York: Oxford University Press.

Stiglitz, J. and A. Weiss, 1981. “Credit Rationing in Markets With Imperfect Information,” American Economic Review. 71. 393-410.

Summers, L. H., 2015. "Demand Side Secular Stagnation," American Economic Review, 105 (5): pp 60-65.

World Bank, 2017. “Global Financial Inclusion and Consumer Protection Survey”.

Anginer, D., A. Bertay Can; R. J. Cull, A. Demirguc-Kunt, and D. S. Mare, 2019. “Bank Regulation and Supervision Ten Years after the Global Financial Crisis,” World Bank Policy Research Working Paper No. 9044.

Zahid, S., 1995. “Financial Sector Development in Asia.” Oxford University, New York.

ANNEX

List of Surveyed Countries

	East Asia & Pacific	Europe & Central Asia	Middle East & N. Africa	North & South America	South Asia	Sub-Saharan Africa
Countries with IRCs (2019)	Australia Korea, Rep. Malaysia Marshall Islands Thailand Vietnam	Armenia Belgium Bulgaria Croatia Finland France Georgia Germany Guernsey Italy Kyrgyz Rep. Latvia Lithuania Netherlands North Macedonia Portugal Russian Fed. San Marino Spain Sweden United Kingdom Uzbekistan	Israel Morocco	Anguilla Antigua & Barbuda Argentina Bolivia Brazil Chile Colombia Dominica Ecuador El Salvador Grenada Jamaica Montserrat Paraguay St. Kitts &Nevis St. Lucia St. Vincent & the Grenadines United States Uruguay	India Pakistan Sri Lanka	Benin Burkina Faso Côte d'Ivoire Ethiopia Guinea-Bissau Mali Mauritania Niger Senegal South Africa Togo
Countries without IRCs (2019)	China Hong Kong SAR, China Indonesia Japan Macao SAR New Zealand Philippines	Albania Azerbaijan Bosnia & Herzegovina Cyprus Czech Republic Estonia Greece Iceland Jersey Kosovo Liechtenstein Moldova Norway Romania Serbia Ukraine	Algeria Iraq Jordan Lebanon Malta Qatar	Bermuda Canada Costa Rica Dominican Rep. Guatemala Guyana Nicaragua Panama Peru	Bangladesh	Ghana Kenya Mauritius Seychelles Sudan Zambia