



# Democratic institutions and regulatory privileges for government debt

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## ABSTRACT

How do democratic institutions shape financial market regulation? Focusing on the government's fiscal motives in financial market regulation, we present a new dataset documenting policies that governments use to place their own debt in an advantageous position on financial markets. These policies, which we call *borrowing privileges*, commonly require that banks and institutional investors hold their own government's debt, and take a place in-between prudential and repressive regulation. Drawing on data for 58 non-OECD countries, we document that borrowing privileges are more likely to be implemented in countries with democratic institutions. Focusing on the mechanisms for this association, we show that several characteristics typically associated with democracies – increased revenue needs from trade liberalization, political competition and transparency, and the growth of financial markets – make these policies attractive to policy-makers. We contribute to the literature on the institutional sources of financial regulation and show how governments balance the growth of financial markets with revenue concerns.

How do democratic institutions affect financial market regulation? The literature identifies competing incentives for governments. On the one hand, democratic institutions restrict the ability of governments to engage in predatory policies and financial repression (North and Weingast, 1989; Calomiris and Haber, 2014). That democratic institutions provide representation to a larger share of the population also makes the provision of public goods, and therefore of economic liberalization more generally, more attractive to governments (Bueno de Mesquita et al., 2003; de Haan and Sturm, 2003).<sup>1</sup> Because financial assets are thought to be more mobile than other assets (Acemoglu and Robinson, 2006; Freeman and Quinn, 2012; Pond, 2018), the need to attract and retain capital creates additional constraints for governments (Mosley, 2003; Clark, 2003).

On the other hand, financial repression can be a useful tool for generating revenue (Giovannini and de Melo, 1993; Menaldo, 2016), and democracies face a coincidence of pressing revenue challenges (Flores and Nooruddin, 2016): Democratic governments face political competition, which creates incentives to stimulate the economy, to raise debt levels, and to provide fiscal transfers to win elections (Franzese, 2002; Fortunato and Turner, 2018; Lipsy, 2018). Economic liberalization, spurred by democratic institutions, can also lead to the loss of other revenue sources, including from trade taxes and through international tax competition (Khattry and Mohan Rao, 2002; Bastiaens and Rudra, 2016; Arel-Bundock, 2017). At the same time, liberalization leads to new demands for social spending, as citizens seek protection from market forces (Rodrik, 1998; Adserá and Boix, 2002; Hays, 2009).<sup>2</sup>

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<sup>1</sup> For studies of institutions and growth, see Glaeser et al. (2004), Papaioannou and Siourounis (2008), Colagrossi et al. (2020). For liberalization and growth, see Alfaro et al. (2004), Bekaert et al. (2005), Quinn and Toyoda (2008). For institutions and liberalization, see Quinn and Inclan (1997), Obstfeld and Taylor (2004), Eichengreen (2008), Burgoon et al. (2012). The substitution of financial markets for welfare states may also reinforce citizen support for neoliberal policies (Pagliari et al., 2020; Chwieroth and Walter, 2020; Kerner, 2020). For a review of different perspectives on liberalization, see Betz and Pond (2021).

<sup>2</sup> As pointed out by Dreher et al. (2008), these competing incentives are also reflected in debates over the 'disciplining effect' of globalization, which reduces fiscal spending, and the 'compensation effect' of globalization, which creates demand for fiscal spending.

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Because democratic governments are more likely to liberalize markets and are more responsive to citizen demands, democratic governments face tightening fiscal conditions.<sup>3</sup> The consequence is a coincidence of fiscal and political pressures for democratic governments.

In the following, we argue that democracies seek out financial regulatory policies that balance the constraints they face against their revenue needs. Compared to autocratic institutions, we expect democratic institutions to tilt the scales toward fiscally motivated, intransparent financial market regulation, which complements their reliance on liberal, transparent policies documented in the literature. Specifically, we identify policies that governments use to put their own debt in a privileged position on domestic financial markets, requiring or incentivizing investors to hold government debt. We call these policies *borrowing privileges*. Borrowing privileges most often take the form of mandates that banks and other institutional investors (pension funds and insurance companies especially) hold some share of their assets in their own government's bonds. They thus share similarities both with prudential regulation, in that they increase reserves in an often safe asset, and with financial repression, in that they distort markets to privilege the domestic government and concentrate holdings in a single asset class. We introduce a new dataset documenting the use of borrowing privileges for 58 non-OECD countries from 1996 to 2015.<sup>4</sup>

We argue that borrowing privileges are particularly attractive to governments in democracies for several reasons. First, democratic governments simultaneously face declining revenues and substantial demands for government spending, frequently as a consequence of economic liberalization and global economic integration. Second, democracies tend to oversee deep financial markets, which make meaningful targets for borrowing privileges. Third, when asked to make hard choices, such as who will bear the cost of raising government revenues, democratic leaders rely on complex or opaque policies (Magee et al., 1989; Kono, 2006) – and borrowing privileges, as financial regulatory policies, are an opaque policy with complex consequences for citizens.

Drawing on our newly collected data, we demonstrate that borrowing privileges are indeed more prevalent in democracies than in autocracies. The results are robust to various measures of democratic institutions, several model specifications (including fixed effects models), and a variety of control variables. Corroborating the mechanisms behind this association, we also report that borrowing privileges are implemented where political competition is pronounced, where transparency is high, where financial markets are deep, and where trade liberalization leads to a decline in alternative revenue sources; and that these mechanisms account for some of the observed relationship between democracy and borrowing privileges. Financial regulatory policies, in the form of borrowing privileges, emerge as a response to political and economic constraints that are especially tight for democratic governments.

The literature has long recognized fiscal needs as a driver of financial regulation. Yet, as Reinhart and Sbrancia (2015, p. 291) put it, “It apparently has been collectively forgotten that [financial regulation] played an instrumental role in reducing [...] massive stocks of debt” since World War II. We thus join a growing literature that emphasizes the fiscal benefits of financial regulation (Calomiris and Haber, 2014; Menaldo, 2016). We make three contributions to this literature. First, we identify a set of policies with explicitly fiscal motivations and provide a new dataset detailing the adoption of such policies across a large number of countries and over time, and we show that a broad variety of policies falls under the umbrella of borrowing privileges. By contrast, prior work has either drawn on individual case studies or on market outcomes rather than on policy choices by governments.<sup>5</sup> Such approaches cannot disentangle voluntary holdings of government debt from holdings prescribed through policy mandates. Second, we highlight how some forms of financial regulation can be consistent, and even contingent on, the growth of financial markets, thus allowing governments to balance fiscal motivations with broader policy imperatives. Third, by emphasizing the obfuscated costs of these policies for creditors – and ultimately citizens – we offer a new explanation of how democratic institutions shape the types of financial regulation adopted by governments. Thus, while prior work shows how democratic institutions shape borrowing costs for governments (Schultz and Weingast, 2003; Stasavage, 2003) and for firms (Delis et al., 2020), we provide one of the first assessments of the link between democratic institutions and policies that privilege government debt.

The paper speaks to two additional debates. First, much of the literature on sovereign debt focuses on international markets and the constraints imposed by mobile capital. We emphasize that governments retain substantial autonomy in regulating these markets. While financial assets are mobile across markets, the markets in which financial services are provided are not easily interchangeable. Financial service providers must maintain a presence in the markets they serve: They serve people saving for retirement, purchasing insurance, and depositing their savings in banks. The cost for financial service providers of relocating and foregoing these profits altogether creates room for regulation. Even in a sector whose mobility is often asserted to help it elude regulation (Freeman and Quinn, 2012; Pond, 2018), and during a time period that is often characterized by increasing strains on the capacity of states to govern their markets, governments regulate domestic markets to their fiscal advantage. We thus contribute to a growing literature on the consequences of the increasing financialization of domestic markets. While Copelovitch and Myren (2018), Aklin et al. (2021), Aklin and Kern (2021), and Kern and Amri (2021), for example, document how governments use financial deregulation to stimulate the economy for political gain, we emphasize the use of financial regulation for fiscal gain, and we argue

<sup>3</sup> This is not to say that authoritarian governments are impervious to citizen demands. In fact, many studies show that authoritarian leaders respond to citizen interests (Mares and Carnes, 2009; Ballard-Rosa, 2016) and that there is significant variation within autocracies and democracies (Alesina et al., 1999; Bueno de Mesquita et al., 2003). Still, the extant literature tends to agree that democratic governments – through regularly scheduled, competitive elections – are held accountable by a larger share of citizens, making them more responsive to the needs of the public.

<sup>4</sup> The full dataset includes 87 countries. All results are robust to the use of the full sample. We exclude OECD members here, because their incentives are not well captured by the theory: they seem to have substantial market demand for their debt and they have little need for borrowing privileges.

<sup>5</sup> While policies that privilege government debt over other assets are included in standard definitions of financial repression (Aizenman and Noy, 2009; Calomiris and Haber, 2014; Reinhart et al., 2015; Menaldo, 2016; Chari et al., 2020), we provide to our knowledge the first systematic account of such policies.

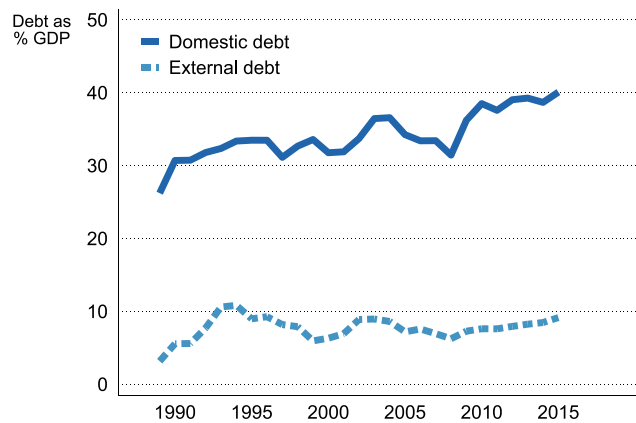


Fig. 1. Domestic and external government debt, as a percent of gross domestic product, between 1989 and 2015 in a sample of up to 50 countries. Data from Čihák et al. (2013). Domestic debt constitutes the majority of government debt, with an increasing share over time.

that the incentive to do so is particularly strong in democracies. Democratic institutions, in particular, create competing incentives for governments that result in the adoption of opaque market interventions.

Second, the relationship between political institutions and sovereign debt is at the center of a prominent literature. Representative institutions, by making creditors politically relevant, increase the ability of governments to issue debt. Consequently, reforms toward democratization aid the creditworthiness of governments (North and Weingast, 1989; Schultz and Weingast, 2003). We identify an alternative effect: governments in democracies might also turn their constituents into (unwitting) creditors. While arguments as in North and Weingast (1989) apply to a relatively elite set of creditors, our paper emphasizes much broader ownership of government debt in increasingly financialized contemporary economies. For democratic governments seeking to establish credibility on financial markets, this regulatory mechanism has attractive attributes: citizens may realize the costs of having become creditors to their own government only once the government defaults on its debt, which constitutes an effective tying hands strategy – as long as the government refrains from defaults, the political costs of borrowing privileges might be muted, despite considerable fiscal benefits.

## 1. Borrowing privileges

To finance expenditures, governments have broadly speaking three options: they can raise taxes, they can borrow on domestic and international capital markets, or they can rely on central banks to print money or purchase government debt. We focus on domestic credit sources, which for many governments present the dominant source of borrowing (Reinhart and Rogoff, 2011). We examine how governments can tilt the domestic market environment in a way that favors purchases of the government's own debt over other asset classes – including the debt of other governments – by domestic investors. We then argue that governments in democracies are more likely, compared to governments in autocracies, to implement policies that incentivize or require investors to hold government debt.

Domestic markets are an important source of government borrowing. Fig. 1 displays domestic and external government debt as a percent of gross domestic product (GPD) between 1989 and 2015 (data from Čihák et al., 2013, including up to 50 countries). Domestic debt accounts for the majority of total government debt, and the divergence between domestic and external government debt is increasing over time. Indeed, over the past two decades, the growth in domestic government debt has outpaced not only external debt, but also GDP (Hanson, 2007). On average, for the entire time period in Fig. 1, domestic government debt accounted for 34% of GDP, over four times the share of external government debt. A large portion of domestic debt, in turn, is held by banks and institutional investors — like insurance companies, pension funds, and collective investment funds. According to recent estimates for the period 1991–2018, institutional investors hold almost half of all outstanding sovereign debt, and acquire the vast majority of newly issued debt, especially in countries outside the OECD (Fang et al., 2022).

The ability to issue debt is important for governments, politically and economically. Debt issues require buyers, and borrowing costs reflect the relative difficulty with which governments can find someone to hold their debt. While banks and institutional investors frequently hold government debt because of market incentives, governments also have tools at their disposal to increase such debt holdings and to reduce their borrowing costs. We focus on a specific type of regulatory policy that has received relatively little systematic attention in the literature: policies that incentivize banks and institutional investors to allocate a portion of their assets to the government's own debt. These regulations ensure continued demand for government debt beyond market incentives.

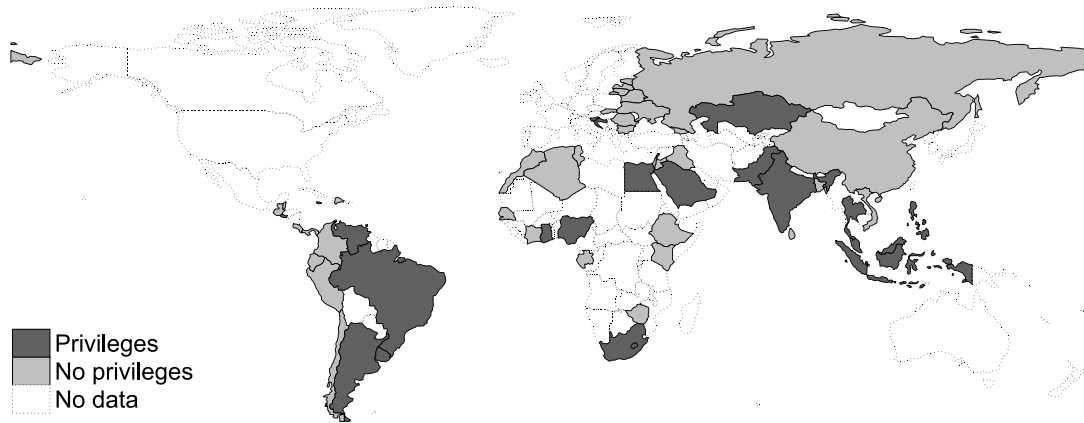


Fig. 2. Countries included in the sample displayed in gray. Countries with borrowing privileges for at least part of the sample period in dark gray. Coded for 1996–2015.

### Measuring borrowing privileges

Drawing on the IMF AREAER reports, we code a systematic measure of regulations that privilege government debt, or of what we call *borrowing privileges*.<sup>6</sup> Our variable captures regulations that require or incentivize domestic banks and institutional investors to allocate a specific portion of their asset holdings in the government's own debt. By favoring government debt over other assets, including the debt of other governments and highly rated assets, these regulations sustain demand for government debt and create an at least partially captive domestic market.

We exclude regulations that do not explicitly give preferential treatment to the domestic government's own debt over other assets. For example, we do not consider stipulations to hold assets rated highly by rating agencies, government debt of OECD members, or only domestic debt as borrowing privileges.<sup>7</sup> Although these policies may apply to government debt and therefore de facto increase demand for government debt, asset owners can still choose how to meet these obligations — and, thus, we do not consider such policies to be borrowing privileges.

The variable, *borrowing privileges*, is coded one in the presence of such regulations and zero otherwise. The data set includes all emerging markets in J.P. Morgan's EMBI Global Index by 2015, as well as several additional middle-income countries, for a total of 58 countries from 1996 through 2015. We focus on non-OECD countries because government debt from these countries is not considered a safe asset on global markets or in common prudential regulatory frameworks.<sup>8</sup> Our emphasis on low- and middle-income countries is also consistent with their need to replace declining trade tax revenues (Khattry and Mohan Rao, 2002). The countries included in the sample are shown in gray in Fig. 2; countries with borrowing privileges in place for at least part of the sample period are in dark gray. All countries in our sample have domestic banks and have issued bonds,<sup>9</sup> and the vast majority (with the exception of Belize and Ethiopia) have created a stock market.

Most commonly, the privileges take the form of policies that nudge banks and financial service providers (pension funds, money market funds, insurance companies) to hold some share of their assets in the form of government bonds. For example, in 1996, the Uruguayan government maintained a banking regulation, which included “an 11.5% mandatory holding in *dollar-denominated treasury notes* on foreign currency deposits and liabilities under the reserve requirement regime” (1997 IMF AREAER Report, emphasis added). In 1997, regulators added that “Private pensions must hold a minimum ratio of total assets (from 30% to 60%) in the form of *government securities*” (1998 IMF AREAER Report). Some variation of these two policies remained in place until 2008. These policies go considerably beyond forms of financial repression that are typically considered in the literature. They extend to a broader set of investors, including pension funds in this case, and compared to forced lending are less direct. We also highlight that recent data suggest that institutional investors absorb the majority of newly issued government debt (Fang et al., 2022). Beyond market incentives, borrowing privileges plausibly play a role in funneling a portion of newly issued government debt to this category of investors.

<sup>6</sup> The IMF AREAER reports are a common source for measures of capital account openness (Quinn and Inclan, 1997; Quinn, 2003; Chinn and Ito, 2008; Aizenman et al., 2013) and exchange rate policy (Ilzetzki et al., 2017), and they are produced annually by the IMF.

<sup>7</sup> Common prudential regulatory frameworks, such as the Basel Accords, consider some of these assets risk-free, which amounts to an advantageous position as well — however, the Basel Accords do not envision privileges for the government's own debt relative to other assets.

<sup>8</sup> We also coded the data for a larger sample of 87 countries that includes OECD members. All analyses in the following are based on the sample of non-OECD members. The main results, however, hold when including OECD members, as reported in the appendix.

<sup>9</sup> All the countries in our sample are included in the bond-issues sample reported by Ballard-Rosa et al. (2021) with the exception of Algeria, which has issued bonds but does not appear in their sample.

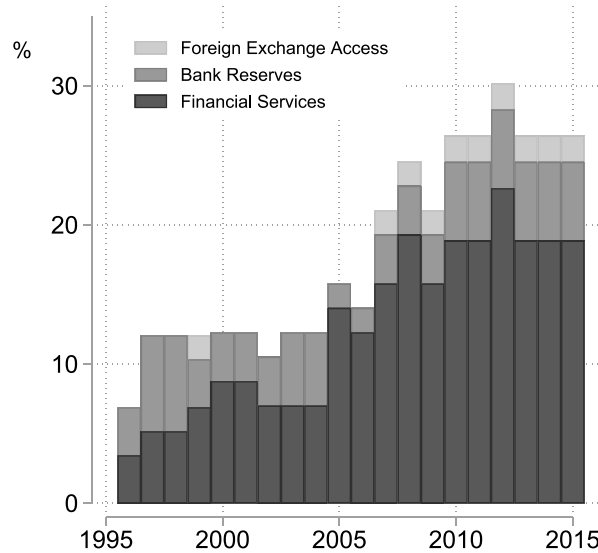


Fig. 3. Borrowing Privileges by Policy Area, distinguishing between financial service providers, bank reserves, and foreign exchange.

Borrowing privileges take other forms as well. For example, to stabilize banks, governments often maintain liquid asset requirements. Ideally, these ensure that banks are not caught with insufficient liquidity to meet liabilities. However, they can also be used to shore up demand for government debt. In South Africa, from 2010 to 2015, “government securities, treasury bills, land bank bills, and reserve bank securities” qualified as liquid assets and could be used to satisfy requirements (2011–2016 IMF AREAER Reports). This policy privileges South Africa’s debt, as holding sovereign debt is more lucrative than holding cash: government bonds pay interest, whereas cash pays no interest and loses value due to inflation.

Although less common, governments may also impose restrictions on foreign exchange to encourage domestic investors to purchase their debt. For example, in Argentina in 2006 the government restricted access to foreign exchange, allowing investors to convert up to \$2 million each month (in the form of a foreign exchange ceiling); however, waivers were provided if the foreign exchange was used to “underwrite primary issues of public securities by the national government in foreign currency” (2007 IMF AREAER Report). These restrictions on institutional investors and currency convertibility encourage domestic investors, who might otherwise invest in other assets, to invest instead in their own government’s debt.

Fig. 3 displays the proportion of borrowing privileges in the sample by policy area. It distinguishes between *financial services*, *bank reserves*, and *foreign exchange*. As the figure indicates, the bulk of borrowing privileges does not come in the form of reserve requirements for banks, a more traditional form of financial repression, but applies to financial service providers.

Common conceptualizations of financial or capital market liberalization do not consider these policies; they instead emphasize restrictions on the movement of capital into and out of markets, or they are based on the de facto competitiveness of the financial sector. De facto measures combine government policy with market behavior, and thus cannot disentangle, for example, borrowing privileges from other motivations of banks to hold government debt.

Incentivizing domestic institutional investors to hold government debt promises substantial benefits for governments. Larger debt holdings by domestic institutional investors are associated with yields on government debt that are both lower and more stable. A 10 percentage point increase in holdings by institutional investors is associated with a reduction in interest rates on government debt of about a quarter of a percentage point (Andritzky, 2012, 20). To put these effects into perspective, at 2018 debt levels, a reduction in interest rates of this magnitude corresponds to savings in annual interest payments of over US\$800 million for Argentina, of US\$1.4 billion for Mexico, and of US\$3.2 billion for Brazil. Institutional investors also contribute to more stable bond prices, and thus more stable interest rates on government debt, because institutional investors are likely to weather market downturns and to retain their holdings (Andritzky, 2012, 16). Elsewhere, we document that the implementation of these regulations indeed appears to be driven by fiscal motivations: they are more likely to be implemented when government bond yields increase (Betz and Pond, 2023).

With the privatization of pension and social security systems, domestic financial markets have become an increasingly attractive target for these policies. In many emerging and developing countries, the turn to privatized, defined-contribution pension systems led to increasing asset holdings by domestic institutional investors (Brooks, 2005; Sokhey, 2017; Kerner, 2020). Directing a portion of those assets to holdings of their own debt is tempting for governments. For example, a World Bank report notes that “the average growth of the pension systems’ holdings of government debt was equivalent to about two-thirds of the growth of commercial bank holdings between 1995 and 2004” (Hanson, 2007, 17).

Nonetheless, policies akin to borrowing privileges have been implemented by governments for a long time. For example, the U.S. Banking Act of 1863 and 1864 required newly formed banks to acquire government bonds. It was widely understood, and arguably an important motivation for policy-makers, that this increased demand for government bonds would ease the financing

burden on the government. Sylla (1969, p. 659), for example, observes that “Congress enacted the legislation primarily to increase the government’s borrowing power” in response to the costs of the civil war. Indeed, in his annual message in 1862, President Lincoln noted “the steady market demand for Government bonds which the adoption of the proposed system would create” (cited in Robertson 1968, pp. 42). Similar remarks were made by the Treasury Secretary, Salmon Chase. In Germany, a more subtle policy was implemented in 1934: it required firms to direct dividend payouts above 6% directly into government bonds (Kern and Seddon, 2020), thus inflating demand for government bonds artificially.

Central banks – whether independent or not – can play a key role in the implementation of these policies. For example, the ability of governments to implement borrowing privileges may depend on the extent to which these powers rest with the government or with an independent central bank (Copelovitch and Singer, 2008; Masciandaro and Romelli, 2018). Central banks also shape the incentives of governments to rely on fiscal versus monetary policy, and thus the attractiveness of borrowing privileges: where central banks tie a government’s hands with respect to monetary policy, retaining fiscal space might be more important (Clark and Hallerberg, 2000), but governments might also be more constrained in both their monetary and fiscal policy choices (Bodea and Higashijima, 2017; Aklin et al., 2021). We return to these points in the empirical section below.

Broadly speaking, there are two interpretations of borrowing privileges: as a prudential policy, which creates stable local credit markets; and as a predatory policy, which provides a fiscal benefit to governments.<sup>10</sup> Borrowing privileges share similarities with both prudential and predatory financial regulations. They could be implemented for prudential purposes. If reserve assets, especially denominated in domestic currency, are unavailable or rating agencies unreliable, government debt holdings may stabilize domestic markets. In many cases however, it is unlikely that borrowing privileges are driven by prudential motives. International financial regulators have settled on other recommendations for prudential regulation. If the objective is stability, governments often require that investors hold some share of their assets in the debt of high-income OECD countries or in AAA rated bonds, which are plausibly more stable than many other assets.

The Basel Accords, which stipulate recommendations on risk-weighted capital adequacy standards, do not recommend that banks hold their own government’s debt. They provide preferential treatment for holdings of sovereign debt – including considering AAA rated government bonds as risk-free – but this preferential treatment is not limited to holding debt of the domestic government. The Basel Accords do allow governments to effectively declare their own debt, as long as it is denominated and funded in domestic currency, as risk-free. Yet, whether to make this choice is left to the discretion of national governments, and the Basel Accords do not encourage governments to make this choice. Reform efforts increasingly strive to remove such exemptions for holdings of government debt (Basel Committee on Banking Supervision, 2017).

Prudential policies, including the Basel Accords, also generally encourage a diversification of asset holdings, as well as protection against exchange rate risk. The European Union encourages diversification across asset classes and across issuers. At the same time, it limits investors to investing “up to 30% of the assets in assets denominated in currencies other than those in which the liabilities are expressed;”<sup>11</sup> the other 70% must mirror liabilities. In contrast, the policies we identify move asset holdings away from diversified portfolios and currency matching, as they require or encourage investors to concentrate a substantial share of their holdings in a single asset that is often (but not always) denominated in domestic currency.

The World Bank highlights the problem of excessive government debt holdings by domestic investors, which risk “reducing returns, and imposing risks on holders of pensions, annuities, and life insurance policies” (Hanson, 2007, p. 1). In fact, excessively large government debt holdings are often associated with the opposite outcomes from those sought by prudential regulators. Holding government debt is associated with less diversification, lower returns (Andritzky, 2012), deeper recessions (Gennaioli et al., 2014), and the transfer of risk from governments to banks and other investors (Hanson, 2007, p. 1).

It is unlikely that borrowing privileges are used for prudential purposes in democracy. Democracies frequently supervise deeper banking and financial markets (La Porta et al., 2000; Rajan and Zingales, 2003; Acemoglu et al., 2005; Caprio et al., 2007), as they can credibly commit to property and shareholder rights (North and Weingast, 1989; Calomiris and Haber, 2014). In democracies, banks and institutional investors should have alternatives to government debt when seeking out reserve assets.

The ultimate welfare implications of borrowing privileges thus depend on which effect dominates. Prudential benefits could include market stabilization, if government debt is more secure than other assets. Benefits could also come from providing revenue for governments — the magnitude of the benefit here depends on what governments decide to do with this revenue. The costs come to creditors — through lower returns on their investments and the insecurity engendered by concentrating their holdings in a single type of asset. To the extent that these policies undermine growth, they also carry costs. Most importantly for considering the welfare implications, it is unlikely that borrowing privileges are exclusively targeted at resolving market failures. We therefore have little reason to believe that borrowing privileges would be welfare-improving overall.

### *Borrowing privileges compared to other financial indicators*

As discussed, borrowing privileges share similarities with existing conceptualizations of prudential and predatory regulation of financial markets. Borrowing privileges often require concentrated holdings of government debt, which may stabilize markets if government debt is less risky than other types of debt. But they also share similarities with existing conceptualizations of financial

<sup>10</sup> Central bank policies around collateral follow a similar course with some advocating smaller benefits for governments, especially in a counter-cyclical manner (Vestergaard and Gabor, 2021).

<sup>11</sup> <http://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetailDoc&id=28754&no=5>. Last accessed December 5, 2018.

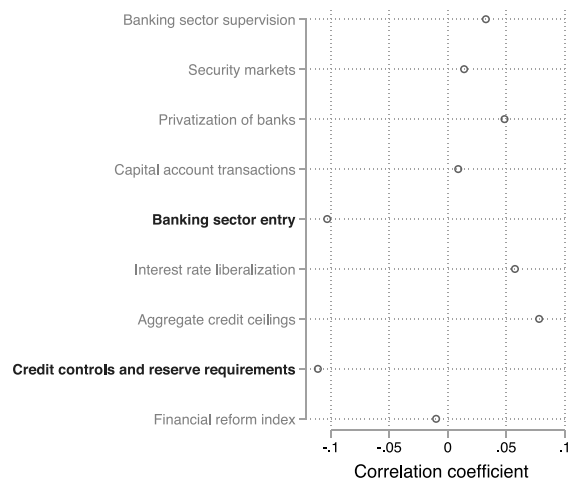


Fig. 4. Association between the Financial Reform Index and Borrowing Privileges. Bold: statistically significant correlation at 5% level.

repression. Concentrations of government debt privilege governments at the expense of other borrowers, they may limit competition in financial markets, they may reduce returns and diversification for creditors, and they may increase the risk of financial crises. In this section, we compare borrowing privileges to two widely used measures of financial market policies: the Financial Reform Index (Abiad and Mody, 2005; Abiad et al., 2008) and the Integrated Macprudential Policy (iMaPP) Database (Alam et al., 2019). Consistent with the idea that borrowing privileges could be prudential or predatory, these measures of financial regulation differ in their coding of reserve requirements. The Financial Reform Index considers reserve requirements as repression, while iMaPP considers them macroprudential. This difference in conceptualization shows up in the associations reported below.

The Financial Reform Index captures the extent of liberalization of the financial sector in the following areas: credit controls and reserve requirements, credit ceilings, interest rates, banking sector entry barriers, capital account transactions, privatization of banks, security markets, and banking sector supervision. All variables are coded such that higher values indicate a more liberal or less repressed market.

Fig. 4 presents the correlation coefficients between borrowing privileges and each variable in the Financial Reform Index, as well with the overall index, which sums up the other entries. The combined data cover 48 countries for 10 years from 1996–2005 with 480 observations. Bolded variables indicate that the association is significant at the 5 percent level. Perhaps unsurprisingly, the indicator capturing reserve requirements is negatively associated with borrowing privileges. The indicator is scaled such that higher values indicate lower reserve requirements (and less repressed financial markets). The measurement strategy is consistent with reserve requirements as financial repression (Reinhart and Sbrancia, 2011; Bumann and Lensink, 2016; de Haan et al., 2018). Because borrowing privileges frequently require that reserve requirements be held in the form of government debt, countries with higher reserve requirements are more likely to have them. Borrowing privileges are also negatively associated with banking sector entry. These negative associations are indicative of financial repression, rather than liberalization. Notably, none of the positive associations are statistically significant.

The iMaPP Database captures changes to macroprudential policy instruments. It covers instruments in 17 different areas, and it includes a composite index that sums up the other entries. For each instrument, it sums up all relevant policy changes, where policy changes take the value of 1 for tightening actions,  $-1$  for loosening actions, and zero for no change. The indices thus reflect the overall character of policy changes. The instruments include loan-to-value ratios, reserve requirements, capital requirements, and leverage limits. These variables take on higher values when the government strengthens macroprudential policies and lower values when the policies are weakened. The conceptualization here is consistent with reserve requirements as prudential regulation.

Fig. 5 presents the correlation coefficients between the variables in the iMaPP Database and borrowing privileges. The combined data cover 50 countries for 20 years from 1996–2015 with 960 observations. Bolded variables again indicate that the association is significant at the 5 percent level. There is no consistent relationship between macroprudential policies and borrowing privileges.<sup>12</sup> Only three policies are positively and statistically significantly associated with borrowing privileges, and many of the policies are negatively, albeit not significantly, associated with borrowing privileges. Taken together, these results indicate that borrowing privileges are plausibly neither strictly prudential, nor strictly repressive.

#### *Borrowing privileges and democratic institutions*

Democracies face conflicting incentives in regulating banking and financial markets: On the one hand, their hands are often tied by relative high-quality property rights institutions and credible enforcement. These characteristics have facilitated the growth of

<sup>12</sup> The results look similar when using differenced borrowing privileges, which might better capture changes.

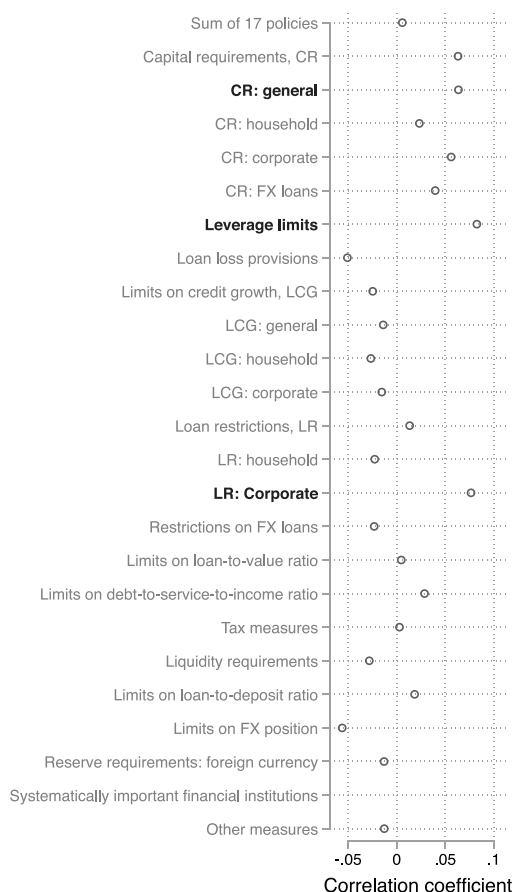


Fig. 5. Association between iMaPP Database of macroprudential policies and Borrowing Privileges. Bold: statistically significant correlation at 5% level.

markets in general and financial markets in particular. On the other hand, democracies face substantial revenue needs. They have opened markets, giving up tariff revenue and eroding their corporate tax revenue base, by granting firms access to tax havens. We argue that especially democracies are likely to balance these two incentives by implementing borrowing privileges, which provide them with a relatively intransparent policy lever to reduce borrowing costs and tap into their deep markets as borrowers.

We expect democratic institutions to shape the propensity to use borrowing privileges through multiple channels. First, democracies tend to have larger financial markets, which become an attractive market to tap. Relative to autocratic governments, democratic governments favor public good over private good provision (Bueno de Mesquita et al., 2003). Providing strong property rights and market liberalization have therefore been common in democracies. Democracies' preference for public goods frequently means that democratic governments supervise deeper financial markets (Levine, 1999), which allow policymakers to tap into a large pool of credit. Efficient financial markets are attractive in democracies, as they channel credit to high-return investments and thereby provide public good type benefits to the population as a whole. Democracies also tend to privatize banks (La Porta et al., 2002) and pension funds (Brooks, 2005; Kerner, 2020) and to liberalize capital markets (Milner and Mukherjee, 2009). As domestic financial markets grow, governments can substantially reduce their borrowing costs by encouraging institutional investors to hold government debt.

At the same time, governments in democracies tend to shy away from traditional forms of financial repression, which might have fiscal benefits but stifle financial markets. Indeed, more immediate forms of financial repression, like interest rate ceilings and credit lines channeled to state-owned firms, are frequently associated with autocratic regimes (Menaldo and Yoo, 2015; Menaldo, 2016). Borrowing privileges are therefore particularly attractive in democracies, where they allow tapping larger markets to reduce borrowing costs without severely stunting the growth of those markets.

Second, and relatedly, democratic governments tend to choose more obscure policies, which are unlikely to become the center of political debates, over transparent forms of rent-seeking and market interference. This is plausibly especially the case for policies with fiscal implications, for two reasons. Most immediately, democracies tend to be associated with increased norms of transparency, which is evident in the production and dissemination of economic statistics (Hollyer et al., 2011). Thus, it is easier for citizens to become aware of, for example, sudden increases in fiscal outlays or debt burdens.

Transparency also enters through another channel. Most forms of taxation – including income and trade taxes – are relatively transparent policies that easily enter political debates. By contrast, opaque policies are less likely to surface in political campaigns and



to grab political attention, which makes these policies particularly attractive in democracies (Kono, 2006). When policies are unclear or require highly specific expertise to understand, it is more difficult for the opposition to identify the policies and raise awareness among citizens of the costs associated with these policies. Thus, political competition increases the incentives for governments in democracies to rely on intransparent policies.

Even on trade taxes, democratic governments tend to disregard the costs for consumers at large (Betz and Pond, 2019). This effect is plausibly compounded for more obscure financial regulatory policies: Because citizens often lack even basic knowledge of finances and financial policy (Hastings et al., 2013), borrowing privileges are relatively intransparent to the public at large. While citizens may hold a substantial portion of government debt in their portfolios, they may not be aware of these holdings. They are also unlikely to learn that these holdings are mandated by the government and that their portfolio is consequently more risky (as it is concentrated on a single class of assets) and less profitable (they forfeit profits on more lucrative investments).

The opacity of financial regulation is also evident in reports by rating agencies. Standard and Poor's points out that it is difficult to evaluate sovereign default rates in local currency, because "it is hard to detect forced rollovers of domestic bank debt or coerced exchanges of local-law, local-currency debt when domestic financial institutions hold the debt" (S&P Global Ratings, 2017, p. 17). In other words, even professional rating agencies have a hard time documenting the implications of domestic financial regulation. Citizens are at an even greater informational disadvantage, and they have less incentive to inform themselves. In the context of opaque financial regulation, governments can expect little electoral punishment for imposing borrowing privileges.

Third, democratic governments in particular face multiple fiscal constraints. Historically, trade taxes, which are relatively easy to collect, have been a popular and important revenue source for governments. Demands for liberalization by both domestic constituents and membership in international organizations have eroded trade taxes as a viable revenue source in many countries. These demands have been pronounced in democracies, which frequently joined international organizations such as the World Trade Organization for geopolitical and foreign policy reasons and subsequently reduced trade barriers (Davis and Wilf, 2017), where domestic constituents favored trade liberalization and integration into global markets (Milner and Mukherjee, 2009), and where trade liberalization is often viewed as part of a suite of broader liberal policy reforms (Dornbusch, 1992; Aizenman and Noy, 2009). In conjunction with the declining revenue from trade taxes, trade liberalization also imposes new fiscal pressures on democratic governments, as citizens demand a deeper social safety net in exchange for liberal economic policies (Hays, 2009; Nooruddin and Rudra, 2014). The increasing internationalization of firms and membership in international tax treaties has further limited the fiscal autonomy of governments (Arel-Bundock, 2017).

Related to these fiscal challenges, democracies have more frequently faced economic crises (Lipsy, 2018), which have led them to seek out lending from the International Monetary Fund. The International Monetary Fund frequently imposes conditions on its lending that liberalize financial sectors and increase central bank independence (Kern et al., 2019).<sup>13</sup> Because democracies are more likely to comply with conditionality (Bauer et al., 2012), crises and the loan program participation they generate may be more likely to create fiscal pressure in democracies (Nooruddin and Simmons, 2006; Mukherjee and Singer, 2010). Democracies also have deeper banking and financial sectors, which may improve the implementation of policy reforms (Schuknecht and Siegerink, 2020) and make attractive targets for borrowing privileges.

Filling the fiscal gap created by liberalization with domestic taxes has proven difficult for many governments, and for democratic governments especially. Raising revenue through increased taxation is unpopular, and citizens can hold policymakers accountable under democratic institutions. The cost of taxation underpins Downs' economic theory of democracy (Downs, 1957): policymakers should increase the tax rate until the marginal revenue gain associated with tax increases equals the marginal cost in terms of vote loss. In competitive elections, increased taxation drives voters away from the incumbent party and toward the opposition. The unpopularity of tax increases in democracy is documented in public opinion surveys as well (Bowler and Donovan, 1995). Bastiaens and Rudra (2016) show the challenges of replacing revenue lost through tariff reductions under democratic institutions, because policymakers are subject to citizen and interest group demands for lower taxes. These trends are compounded by the need for fiscal transfers prior to competitive elections (Franzese, 2002).

Because borrowing privileges are intransparent policies with opaque effects on markets, we do not expect them to become overly politicized, including in electoral campaigns. This makes it challenging to identify anecdotal evidence of the mechanisms we highlighted. An exception is the U.S. Banking Act in the 1860s, discussed earlier: It provides a clear example where policies akin to borrowing privileges had been implemented, and the fiscal motivation behind the policies was openly acknowledged by policy-makers, including President Lincoln — and in that case justified with the costs of the civil war.

Additionally, circling back to the examples of borrowing privileges implemented in Uruguay in the 1990s and in South Africa in 2010 suggests further anecdotal evidence consistent with the argument. Both countries implemented very different types of policies, yet both fall under the umbrella of borrowing privileges. In Uruguay, the implementation of these policies followed a period of sustained economic growth, driven in part by trade liberalization in the context of MERCOSUR and other liberal economic reforms, which created a market to tap. At the same time, this period of trade liberalization heightened support for government spending and welfare programs, which required additional government revenue (Vanger et al., 2023). Shortly after a new government came to power in response to these challenges in 1995, borrowing privileges were intensified in 1997. In South Africa, similarly, borrowing privileges were introduced in 2010, on the heels of a considerable liberalization of the capital account and a major trade

<sup>13</sup> Central bank independence may thus be related to borrowing privileges, as independent central banks may be less willing to use monetary policy to reduce government borrowing costs, making privileges more attractive. At the same time, to the extent that the central bank is responsible for policy-making, it may be reluctant to impose borrowing privileges. We return to these points in the empirical robustness section below.

liberalization program that cut average tariffs in half. Trade taxes, as percent of total tax revenue, dropped from 7.9% in 1990 to 3.5% in 2002 (Hviding, 2006), leading to a revenue shortfall and increased needs to raise funds through alternative means.

In sum, the growth of financial markets and the increasing financialization of domestic economies increases the temptation of democratic policymakers to tap these markets; political competition raises the need for fiscal space, and the ability of citizens to identify more transparent sources of revenue raises the attractiveness of intransparent policies; and the revenue shortfalls from trade liberalization and global economic integration increase the needs of democratic policymakers to secure attractive borrowing conditions. The hypotheses follow from the above discussion.

**Hypothesis 1.** Governments in democracies are more likely than governments in autocracies to implement borrowing privileges.

**Hypothesis 2.** The relationship between democratic institutions and borrowing privileges is in part explained by differences between democracies and autocracies in

- the size of domestic financial markets,
- political competition and transparency,
- trade liberalization and global economic integration.

Before proceeding to the empirical section, we note that an established literature shows that democratic governments have advantages in borrowing, because their promise to repay debt is more credible (North and Weingast, 1989; Stasavage, 2003; Delis et al., 2020). The increased credibility of repayment by democratic governments stems from their greater accountability to creditors, who must absorb the costs of default, and their institutional constraints (Van Rijckeghem and Weder, 2009; Biglaiser and Staats, 2012; Dasgupta and Ziblatt, 2021). Borrowing privileges carry an important benefit in this regard. By encouraging citizens to hold government debt, they ensure that the costs of a potential default are dispersed widely throughout the population, reducing the benefit of default. Borrowing privileges turn citizens into creditors to the government. If governments in democracies are more responsive to the public, borrowing privileges offer an effective hands-tying mechanism to increase the credibility of repayment.

## 2. Empirical results

To assess the association between democratic institution and borrowing privileges, we first offer evidence from fixed effects regression models, relying on movements toward or away from democratic institutions over time within the same country. We also probe the robustness of the results when adding a series of additional control variables, when changing the measurement of democratic institutions, and with alternative estimators. These results establish the association between democratic institutions and borrowing privileges.

We then assess the underlying mechanisms that links democratic institutions to borrowing privileges, focusing on economic liberalization, political competition, transparency, and the size of financial markets. To do so, we include variables for each of the mechanisms we posited in the regression model and implement mediation analyses, following Baron and Kenny (1986) and for binary outcome variables MacKinnon et al. (2007). The analysis yields estimates of the degree to which the association between borrowing privileges and democratic institutions can be attributed to each mechanism.

As noted earlier, our sample includes 58 countries, from 1996 through 2015. Our sample includes all emerging markets in J.P. Morgan's EMBI Global Index by 2015, plus other middle-income countries. Our sample choice reflects several considerations. First, it represents a set of countries that undergo institutional change throughout the sample period, allowing for a counter-factual analysis that relies on within-country changes through fixed effects. Second, we focused on non-OECD countries, because OECD government debt is considered a safe asset in common prudential regulatory frameworks, making it more challenging to distinguish borrowing privileges from prudential regulation among OECD countries. Third, the countries in our sample satisfy an important scope condition: borrowing privileges require sufficiently developed financial markets for governments to meaningfully tap, but also sufficiently unattractive sovereign bonds that governments may have to provide an extra nudge for investors to hold their debt. We thus expect borrowing privileges to occur predominantly in emerging economies and middle-income countries — and especially after their political institutions become more democratic.

This sample choice, of course, also comes with drawbacks. Most notably, the non-democracies in our sample are unlikely to be representative of non-democracies not included in the sample: the countries included in our sample all have issued bonds, have domestic banks, and all but two have domestic stock markets. These features are likely correlated with other aspects, including state capacity and government effectiveness. While we account for some of these with control variables, and our main results rely on within-country differences, we note that sample selection remains a potential concern when interpreting the results.

### 2.1. Democracy and borrowing privileges

To capture democratic institutions, we rely on polity scores. We code a country as democratic when it reaches a polity score of at least seven, a common threshold in the literature. For countries that have no polity scores, we use the democracy dummy from Cheibub et al. (2010), updated by Bjørnskov and Rode (2018). Our sample displays substantial variation in democratic institutions, both within countries and across countries. The within-country standard deviation is, with a value of .22, about half the cross-country standard deviation, with a value of .45.

**Table 1**  
Borrowing privileges and democracy.

	(1)	(2)	(3)	(4)	(5)	(6)
Democracy	1.84*** (.41)	1.61*** (.41)	2.13*** (.63)	1.96*** (.57)	1.72*** (.42)	1.76*** (.41)
GDP per capita	-.10*** (.034)	-.23*** (.046)	-.087** (.039)	-.097*** (.037)	-.095*** (.034)	-.14*** (.037)
Log GDP	1.10*** (.14)	.88*** (.14)	1.11*** (.17)	1.09*** (.17)	1.00*** (.15)	.76*** (.14)
Regulatory quality			.12 (.43)			
Governance				.98** (.46)		
Bank concentration					-.024** (.010)	
Log international public debt						-.17 (.13)
Constant	-29.1*** (3.64)	-21.4*** (3.80)	-29.0*** (4.47)	-27.3*** (4.28)	-25.3*** (3.86)	-19.5*** (3.68)
<i>Marginal effect of democracy relative to autocracy</i>						
Difference	155%	123%	216%	190%	136%	153%
Country FE	yes	yes	yes	yes	yes	yes
Year FE	no	yes	no	no	no	no
Number Obs.	1,120	1,120	846	846	1,076	838
Number Countries	58	58	55	55	58	51

Coefficient estimates, standard errors in parentheses. Penalized maximum likelihood logit models, country-specific effects included (coefficients omitted). \* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%.

Our base model controls for log GDP and GDP per capita (from the World Bank) to account for market size and a country's wealth, which should correlate both with democratic institutions and with market characteristics that make borrowing privileges attractive to governments (including the attractiveness of the market to foreign creditors). Wealth should also be associated with state capacity, democracy, and regulatory capacity; market size might increase the temptation to use borrowing privileges.<sup>14</sup> We consider additional control variables below and in the appendix.

To rule out bias from unobserved country-specific factors, we include country fixed effects and estimate penalized maximum likelihood models (Firth, 1993). In contrast to conventional logit models, these models allow for the inclusion of countries with no change on the dependent variable during the sample period (such no-event countries would be dropped from the sample in the conventional conditional or unconditional fixed effects logit model); and because they are based on the logit, these models accommodate the binary dependent variable. Cook et al. (2020) provide discussion and evidence of the performance of this estimator in contexts with a binary outcome, unit fixed effects, and the presence of units with no change on the outcome, which corresponds to our case. We follow their recommendations and include separate country fixed effects for all countries that experience a change on the dependent variable during the sample period, and a common intercept for all countries without a change on the dependent variable. We report results from pooled, random effects, and linear fixed effects models in the Appendix.

Table 1 presents our main results, with the base model in column 1. The coefficient on democratic institutions is statistically significant and substantively large: governments in democracies are more than twice as likely to implement borrowing privileges than governments in autocracies, with an increase from about 9.6% to 24.5%.

The positive association between democratic institutions and borrowing privileges is robust to the inclusion of several control variables. In column 2, we add year fixed effects to capture time trends in democratization and in the adoption of borrowing privileges. In column 3, we add a variable for regulatory quality from the World Bank Governance Indicators, given that governments with higher-quality regulatory institutions may be in a position to implement borrowing privileges, but also might rely on less predatory policies to achieve their objectives. In column 4, we control for governance quality, also from the World Bank Governance Indicators, to rule out that the association between borrowing privileges and democratic institutions is driven by underlying differences in the quality of policy-making. For example, governments with higher governance quality may be able to implement borrowing privileges without immediately scaring off market participants, an intuition that is consistent with the results. In column 5, we control for the political strength of the domestic financial sector, which may oppose such regulations, by including a measure of bank concentration (from the Financial Structure Database). More concentrated financial sectors appear to be better able to oppose borrowing privileges. In column 6, we control for logged international public debt securities as a percent of GDP (data from the Global Financial Development Database), as democracies may be better able to access international debt markets and access may reduce pressure for borrowing privileges.

<sup>14</sup> Based on the existing literature, we expect GDP per capita and log GDP to have independent effects on borrowing privileges, and to be correlated with democratic institutions. Multicollinearity appears to not be a concern with these two variables. The correlation coefficient is .239. We also report in the appendix that the results remain robust to including just one of these variables at a time.

## Robustness

The fixed effects eliminate a large set of omitted variables based on country-specific characteristics. Nonetheless, the association between borrowing privileges and democratic institutions may be spurious if movements toward democratic institutions coincide with other developments that increase the attractiveness of borrowing privileges to governments. We discuss additional results in the following, which are reported in the Appendix.

*Economic conditions.* Economic conditions may be associated with both borrowing privileges and democratic institutions. For example, economic turmoil may be more common in democracies (Lipsy, 2018) and may lead to financial reforms (Abiad and Mody, 2005). We add controls for unemployment, inflation, the interest rate spread, the current account balance and total trade flows (variables from the World Bank). We also control for whether the country is under an IMF program (updated data from Dreher, 2006), because democracies may be more likely to participate in IMF programs, and IMF conditionality frequently includes provisions related to financial sector regulation (Kern et al., 2019). These results are reported in Table A.6 in the Appendix. The association between democracy and borrowing privileges remains in all models.

*Institutional and political conditions.* We control for a number of political and institutional variables that plausibly correlate with democratic institutions and financial regulation: Democracies may be more inclined to rely on formalized rules that privilege government debt, whereas non-democracies may implement similar measures through informal channels. We include four variables to control for the divergence between de facto and de jure measures. First, we include the (absolute) difference between a de facto and a de jure measure of globalization (from Gygli et al. 2018). Second, we include a variable for whether domestic laws are created publicly and enforced predictably, clearly, and coherently (from the Varieties of Democracy Project, VDEM). Third, we include a measure of bureaucratic quality (from ICRG). Fourth, we include a variable for the rule of law (from VDEM). The inclusion of these variables ensures that our results are not driven by systematic differences in the propensity of governments to lean on formal legal measures. We also add controls for legislative and executive elections, as politicians may be more willing to pursue economic reforms following an election (Frye and Mansfield, 2004). We control for government partisanship (from Cruz et al. 2021), given that left parties might be more likely to intervene in financial markets. Models with institutional and political controls are reported in Table A.7 in the Appendix. The association between democracy and borrowing privileges again remains in all models.

*Diffusion.* Just like capital account policies and other forms of regulatory policy (Simmons and Elkins, 2004), borrowing privileges may diffuse across countries. We thus control for the number of countries across the sample that have borrowing privileges in place in a given year; the number of countries within a country's region that have borrowing privileges in place in a given year; and the number of countries that had adopted borrowing privileges at some point in the past. We also control for a country's history of using borrowing privileges, including the count of years for which a country had borrowing privileges in place in the past. The results, reported in Table A.2 in the Appendix, remain robust when including any of these variables.

*Measures of democratic institutions.* The results remain similar when using alternative measures of democratic institutions, reported in Table A.3 and Table A.4 in the Appendix: continuous polity scores; the Freedom House political rights variable and the civil liberties variable (both inverted such that higher scores are more democratic); the combined Freedom House/Polity scores from VDEM; the Electoral Democracy Index, the Liberal Democracy Index, and the Deliberative Democracy Index from VDEM; and the democracy measures from Boix et al. (2013) as well as from Cheibub et al. (2010).

*Alternative estimators.* We estimated logit models with fixed effects using the penalized maximum likelihood estimator introduced by Firth (1993). In Table A.5 in the Appendix, we instead estimate a pooled logit model without any fixed effects; a random effects model; a linear fixed effects model; and models equivalent to survival models. In all models, democratic governments are statistically significantly more likely to implement borrowing privileges.

*Endogeneity.* We strove to account for endogeneity and omitted variable bias using control variables. In Tables A.8 and A.9 in the Appendix, we implement instrumental variables (IV) analyses in response to suggestions by reviewers, drawing on various definitions of democratic waves to obtain instruments. Although widely used in the literature, we urge caution in interpreting these models, given that such spatial instruments are unlikely to be exogenous (Betz et al., 2018): if democracy is endogenous to borrowing privileges, democracy in other units is plausibly endogenous as well.

Following the literature, we first use the spatial lag of polity scores in the region as an instrument for democracy.<sup>15</sup> The first stage indicates that neighboring democracy is a strong predictor of democracy, with a first-stage F-statistic in excess of 10. In a linear 2SLS model, democracy is positively associated with borrowing privileges. The results are statistically significant at the 10 percent level. The results gain statistical significance at the 1 percent level when using an IV probit model. Second, we use an instrumental variable proposed by Knutsen (2011), which considers whether the origins of the current political institutions are during a wave of democratization, drawing on the polity data to identify regime transitions. We follow Knutsen's definition of waves of democratization to code our instrumental variable. Unfortunately, the instrument is very weak in our sample. With a F-statistic of around 1.6, it fails common thresholds for instrument strength. Third, we use an instrumental variable proposed by Acemoglu et al. (2019), which is a refinement of the variable used above: in addition to limiting the instrument to the region of each country, it also limits the set of peer countries to those that at the beginning of the sample period had the same political institutions. Put differently, within each region, we calculate the regional average (ignoring the own country) separately for countries that in 1996 were democracies and for countries that in 1996 were non-democracies.<sup>16</sup> Following Acemoglu et al. (2019), we use the temporal lag of this 'jackknife instrument'. This instrument is strongly correlated with democratic institutions, with an F-statistic in excess of 10. The association between democratic institutions and borrowing privileges remains in this model, both in a linear model and in a probit model.

<sup>15</sup> We define regions following UN detailed regions, as provided by the 'kountry' package in Stata.

<sup>16</sup> We omit countries that have less than two peers created through this procedure.

### Mechanisms linking democracy and borrowing privileges

The above results document a strong association between democratic institutions and borrowing privileges. The association is not explained by plausible confounders, and it is robust to a wide variety of modifications. We now turn to an exploration of the underlying mechanisms that link democratic institutions and borrowing privileges. We highlighted several mechanisms that plausibly account for the association between democratic institutions and borrowing privileges: higher levels of global economic integration, the larger size of domestic financial markets, and heightened levels of political competition and transparency in democracies. Put differently, it is not democracy itself that we expect to lead to the adoption of borrowing privileges, but a set of characteristics associated with democratic institutions.<sup>17</sup>

This implies that (i) variables capturing these mechanisms should be associated with borrowing privileges and that (ii) the effect of democratic institutions should decline when controlling for these mechanisms. We therefore include control variables for each of these mechanisms in the regression model and draw on mediation analysis (as proposed by Baron and Kenny, 1986). This allows us to obtain the effects of democratic institutions net of these characteristics, and to assess how much of the association between democratic institutions and borrowing privileges is explained by each mechanism.

In the top half of Table 2, we report the association of democracy with borrowing privileges when controlling for each of the mechanisms. The coefficient on the mechanism variables indicates whether the respective variable is, indeed, associated with borrowing privileges. Because our models have binary dependent variables, we follow the recommendations outlined in MacKinnon et al. (2007) for calculating both *mediated effects* and the *proportion mediated* for each mechanism, and report these in the bottom half of Table 2, together with their standard errors. The mediated effect captures the indirect effect of democratic institutions, or the part of the total effect of democratic institutions that can be attributed to the mechanism; the proportion mediated expresses this indirect effect relative to the total effect of democratic institutions. For binary outcome models, MacKinnon et al. (2007) demonstrate that the product of coefficients method is the preferable method to estimate both mediated effects and the proportion mediated. They also derive the consistency of this estimator and provide simulation evidence.<sup>18</sup>

*Global economic integration.* To capture global economic integration we add, in column 1 of Table 2, the log-transformed, average applied tariff rate (data from the World Bank). In column 2, we include the KOF Index of Globalization (Gygli et al., 2018). As expected, we find that a decrease in applied tariffs and an increase in globalization is associated with a higher incidence of borrowing privileges. As we show in the bottom of Table 2, these variables also appear to account for a considerable part of the effect of democratic institutions, 27.7% and 32.9%, respectively. The mediating effect itself is also statistically significant. At least part of what makes borrowing privileges attractive to countries with democratic institutions seems to come from their liberalization of trade and financial markets, which in turn undermines their ability to raise revenue.

The tariff result is also notable because higher tariffs usually correlate with other measures of government intervention in the market. It is, therefore, unlikely that an omitted variable for economic orthodoxy or governance styles explains the association between democratic institutions and borrowing privileges. That higher tariffs are associated with fewer borrowing privileges is, instead, consistent with the notion that governments turn to these policies when other revenue sources become more difficult to mobilize.

*Financial markets.* Implementing borrowing privileges should also be more attractive where financial markets are more developed and thus provide an attractive and feasible source for government financing. In column 3 of Table 2, we include mutual fund assets as a share of GDP as a measure of the development of financial markets and, in particular, the reliance on pooled investment funds (from the Financial Structure Database).<sup>19</sup> The results are partially consistent with expectations. Larger financial markets increase the probability that governments use regulation to privilege their own assets. We do not, however, find evidence that this association accounts for the link between democratic institutions and borrowing privileges. As shown in the bottom of Table 2, the size of financial markets appears to pick up virtually none of the association between democratic institutions and borrowing privileges. Indeed, the coefficient on democratic institutions remains almost unchanged when including the variable for the size of the financial market. Accordingly, the mediated effect is small in size and statistically not significant.

*Political competition and transparency.* Turning to relatively obscure ways of financing government debt should be more attractive to governments subject to fiscal and political transparency. While we emphasized the effects of democratic institutions, we expect that much of this effect is attributable to transparency specifically. In column 4 in Table 2, we therefore add the transparency measure constructed by Williams (2015).<sup>20</sup> The variable captures to what extent governments have to provide information transparently and to what extent governments can be held accountable — in particular with respect to budgetary policies. The variable is available for all countries in our sample, but ends in 2010. Governments subject to stricter transparency standards are more likely to implement borrowing privileges on government debt.

<sup>17</sup> Note that we are not arguing that the effect of democratic institutions is conditional on these characteristics, which would imply the need to estimate interaction models. Instead, our argument is that the association between democratic institutions and borrowing privileges is driven by these underlying mechanisms.

<sup>18</sup> Specifically, the mediated effect is calculated as  $\alpha_z \gamma_m$  and the proportion mediated is calculated as  $\alpha_z \gamma_m / (\gamma_z + \alpha_z \gamma_m)$ , where  $\alpha_z$  is the coefficient on democracy in a linear regression of the respective mediator variable on democracy and all control variables, while  $\gamma_z$  is the coefficient on democracy and  $\gamma_m$  is the coefficient on the mediator in a logit regression of borrowing privileges on democracy, the respective mediator, and all control variables.

<sup>19</sup> We obtain similar results for other measures, such as stock market capitalization and domestic private debt (both from the Global Financial Development Database).

<sup>20</sup> We obtain similar results when using the transparency measure from Hollyer et al. (2011). However, that variable covers fewer countries, and we therefore present the results from the variable from Williams (2015).

**Table 2**  
Borrowing privileges: Mediation analysis.

	(1)	(2)	(3)	(4)	(5)
Democracy	1.17** (.48)	1.64*** (.42)	1.79*** (.44)	.45 (.61)	1.01** (.45)
Trade taxes	-1.00*** (.30)				
Globalization index		.16*** (.025)			
Market development			.055*** (.009)		
Transparency				.075** (.033)	
Political competition					.32*** (.094)
GDP per capita	-.12*** (.039)	-.24*** (.041)	-.15*** (.037)	-.10** (.047)	-.15*** (.037)
Log GDP	1.07*** (.16)	1.25*** (.15)	1.16*** (.16)	.90*** (.16)	1.37*** (.18)
Constant	-24.6*** (4.17)	-39.7*** (4.48)	-31.6*** (4.10)	-28.0*** (4.92)	-37.8*** (4.94)
<i>Mediation analysis:</i>					
Mediated effect	.447*** (.142)	.806*** (.165)	-.124 (.091)	1.171** (.514)	1.098*** (.321)
Prop. mediated	27.66%** (11.91)	32.89%*** (7.08)	-7.40% (5.92)	72.26%*** (10.53)	51.97%*** (12.87)
Country FE	yes	yes	yes	yes	yes
Number Obs.	914	1,118	1,100	804	1,027
Number Countries	57	58	58	55	55

Coefficient estimates, standard errors in parentheses. Penalized maximum likelihood logit models, country-specific effects included (coefficients omitted). \* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%. Mediated effect and proportion mediated calculated following [MacKinnon et al. \(2007\)](#).

Implementing borrowing privileges should also be more attractive where political competition is pronounced, reinforcing the competing demands on policy-makers to increase fiscal spending while limiting their ability to rely on transparent sources of revenue. We therefore add the measure of executive competition from the updated Polity data. The results, in column 5, corroborate our expectations: an increase in executive competition is associated with a significantly higher likelihood of borrowing privileges.

Both variables account for a substantial share of the effect of democratic institutions on borrowing privileges, and the mediating effect is statistically significant. Transparency accounts for almost three quarters of the association between democratic institutions and borrowing privileges. Similarly, executive competition accounts for almost half of the association between democratic institutions and borrowing privileges.

### Additional results

We explore a range of additional analyses and report these in the appendix.<sup>21</sup> First, we consider whether the effects of democratic institutions are conditional on global economic integration. As global economic integration reduces revenue and induces tax competition, democratic governments especially may look to alternative, less transparent policies to replace this lost revenue. We interact the democracy variable with the tariff rate and with the Globalization Index. The effect of democracy is not conditional on the tariff rate or on globalization. Both interaction terms have the opposite signs than what would be expected, are substantively small, and lack statistical significance. This reinforces our interpretation of global economic integration as a mediator of the relationship between democratic institutions and borrowing privileges.

Second, we explore whether the effects of democratic institutions are conditional on the size of the financial market. The incentives for democratic governments to implement borrowing privileges might be especially pronounced in countries with larger financial markets. We interact democracy with mutual fund assets as a share of GDP. While our earlier results provided no evidence that the size of the financial markets mediates the effects of democratic institutions, we find considerable evidence for a moderating effect: the association between democracy and borrowing privileges becomes significantly stronger in countries with more developed financial markets. This is consistent with democratic policymakers seeking out intransparent privileges from large financial markets.

Third, we explore the role of central bank independence. Prior work yields no clear expectations for the effects of central bank independence: central bank independence might increase or decrease the attractiveness of borrowing privileges, and this effect in turn might be conditioned by democratic institutions. Many governments have created independent central banks to reduce inflationary pressures ([Kyland and Prescott, 1977](#); [Barro and Gordon, 1983](#); [Rogoff, 1990](#); [Cukierman et al., 1992](#); [Alesina and](#)

<sup>21</sup> We thank anonymous reviewers for suggesting these models.

Summers, 1993). This might increase the temptation to rely on other expansionary policies (Clark and Hallerberg, 2000; Aklin and Kern, 2021), including fiscal policy, and thus raise the attractiveness of borrowing privileges. Additionally, the commitment to central bank independence is plausibly only binding under democratic institutions (Broz, 2002; Keefer and Stasavage, 2003; Bodea, 2013). If central bank independence places especially democratic governments under fiscal pressure, borrowing privileges may be an attractive strategy for governments to reduce that pressure. At the same time, because hawkish bankers have an incentive to publicly criticize deficit spending or to increase its costs by raising interest rates, independent central banks may also deter fiscal expansions (Bodea and Higashijima, 2017), making borrowing privileges less important to governments. Central banks are also often responsible for banking and financial regulation (Copelovitch and Singer, 2008). While this provides the necessary bureaucratic expertise to governments wanting to implement borrowing privileges, such central banks may also want to rein in government spending and thus be reluctant to implement borrowing privileges on behalf of governments.

To assess the association between central bank independence and borrowing privileges, we control for central bank independence, using data from Garriga (2016). To capture the distinction between independence and regulatory powers, we use data from Masciandaro and Romelli (2018), which detail the extent to which governments have delegated regulation of the banking, securities and insurance markets. The results indicate that countries with more independent central banks are less likely to implement borrowing privileges, whereas countries that delegate regulatory powers to their central banks are more likely to implement borrowing privileges. In additional results, we also assess whether the effect of democratic institutions is conditional on central bank independence and regulatory powers. We find evidence of such an association: democratic institutions have the largest effects on the adoption of borrowing privileges where central banks are independent and where central banks have less control over financial sector regulation. The results are thus consistent both with an independent central bank placing fiscal pressure on governments and with central banks refusing to impose borrowing privileges.

### 3. Conclusion

We showed that democratic governments are more likely to use financial regulations that privilege the government over other debtors in the domestic market. Democratic policymakers come under pressure to eliminate transparent revenue sources, and simultaneously face increasing revenue demands and constraints on their policy autonomy. At the same time, they oversee deep financial markets. The opaque costs of borrowing from citizens – through their savings, pensions, and insurance funds – become particularly attractive under democratic institutions.

We emphasize two implications. First, the literature on the democratic advantage observes that democratic governments can borrow on international capital markets more and on better terms than autocratic governments (Schultz and Weingast, 2003). The policies we identified allow the government to create a broad constituency of domestic creditors. By targeting banks, insurance companies, and pension funds, these policies create a wide class of voters that would be immediately hurt if the government defaults on its debt. Where governments are accountable to voters, this creates an effective hands-tying mechanism with few upfront political costs. In turn, this large and stable investor base in the domestic market may create advantages for governments when borrowing internationally. In this view, domestic creditors enhance the government's credibility on international markets.

Second, drawing on policies that offer preferential treatment to government debt, we made some advances toward distinguishing between prudential regulation and market restrictions, a challenge facing many scholars of the political economy of finance. For example, although the IMF pursued for decades an orthodoxy of market liberalization, there is a growing recognition that restrictions on capital account openness may be useful for economic stability (Ostry et al., 2018), and governments frequently justify restrictions in this way (Chwieroth, 2014). The challenge, of course, is that policy-makers can hide rent-seeking and predation under the guise of prudential regulation. Similar patterns are familiar from other policy domains. For trade policy, behind-the-border measures, such as domestic environmental and health regulations, can be barriers to trade, but they can also serve legitimate policy objectives. Similarly, the regime on the protection of international investment increasingly has to resolve competing interpretations of regulatory policies as serving legitimate purposes or as infringing on property rights. Disentangling rent-seeking behavior and regulation remains a challenge, both normatively and empirically, in the governance of global markets. With the increasing volume and complexity of traded goods and services, such contests over regulatory policies – and over their interpretation – are likely to increase in the future.

### Declaration of competing interest

The authors have no conflict of interest to declare.

### Data availability

Upon acceptance of the manuscript, the data will be made publicly available. Please contact the corresponding author for full replication files or with any questions.

### Appendix A. Supplementary data

Supplementary material related to this article can be found online at <https://doi.org/10.1016/j.ejpoleco.2023.102438>.

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