




Democracy, financial liberalisation, and firms' access to finance: New evidence from around the world

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ABSTRACT

This study examines why firms' access to finance differs across countries and assesses the extent to which democracy and financial liberalisation account for these variations. Using political economy and liberalisation theories as a foundation, we analyse a comprehensive dataset of over 110,000 firms across 112 economies between 2006 and 2021. Although previous research identifies firm-level and macroeconomic sources of financial frictions, evidence on the institutional drivers of cross-country financial access remains limited. Our findings show that democracy and financial liberalisation, when considered independently, are associated with reduced access to finance. However, when both conditions coexist, they ease financing barriers and enhance access to finance. These results remain consistent across multiple robustness tests, including alternative model specifications, endogeneity corrections, and various measures of institutional quality and financial openness. Overall, the study highlights that neither democracy nor liberalisation alone is sufficient to enhance access to credit. Instead, simultaneous institutional strengthening and financial market access are necessary to ease financing barriers. This has important policy implications, particularly for emerging and developing economies seeking to expand firm-level access to capital and stimulate economic growth.

1. Introduction

Do firms' access to finance vary across countries? If so, why? We answer these key questions by using a comprehensive cross-country, firm-level dataset to empirically analyse the relationships among democracy, financial liberalisation, and firms' access to finance. We draw on the political economy theory of financial development, which highlights how institutions influence the flow of financial resources from surplus to deficit sectors (Claessens et al., 2008; Rajan and Zingales, 2003b) and the effects of concentrating financial resources among the elite (Girma and Shortland, 2008). The implications of such an elite-controlled economy include collusion that results in high borrowing costs, limited access to economic opportunities, reduced competition, and subpar firm performance. To deepen our understanding, we utilise the financial liberalisation and efficient structure

hypotheses, which together suggest that in a free market, there are no constraints to financing, as all borrowing firms operate within an efficient financial system that ensures equitable access to credit (Bekaert et al., 2005; Malkiel, 2003). Arguably, financing is the most critical driver of firm growth; therefore, a thorough assessment of financial constraints and their impacts is essential.

The financial system serves as a facilitator for economic activities. It functions as an organised platform where lenders and borrowers exchange funds for production or consumption, supported by institutions, markets, and instruments. Economic literature indicates that a stable and efficient financial system is essential for firm growth. An efficient financial system fosters capital formation by allowing firms to access funds for modernisation, diversification, and expansion. From a macroeconomic perspective, greater access to finance can act as a catalyst, helping firms create more jobs, which in turn reduces unemployment

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and boosts government tax revenues. However, an increasing body of empirical research shows that firms across different countries encounter various constraints in accessing finance. Some findings reveal that these constraints are firm-specific (Bose et al., 2020; Cull and Xu, 2005; Corraggia and Li, 2019; Erel and Liebersohn, 2022). Other studies demonstrate that firms' credit constraints arise from country-specific factors, such as economic conditions and political institutions, with the latter significantly influencing the overall business environment (Beck et al., 2007; Brown et al., 2019; Claessens et al., 2008).

Until now, the literature has provided limited evidence on how democracy fosters firms' access to finance. The existing evidence mainly documents the impact of democracy on overall economic and financial development, with most studies supporting the idea that democratic countries pursue market-oriented reforms that generally promote financial sector development and long-term economic benefits. For instance, Huang (2010) demonstrates that democracy improves financial development, with low financial development before the democratic transition followed by an increase afterwards. Similarly, Ho et al. (2018) find a significant link between the efficiency of financial institutions' resource allocation and the level of democracy.

By implication, the financial system depends on and interacts with institutions to set rules and regulations that regulate its operation. Therefore, a nation's political outcome can significantly influence firms' access to finance. This can occur in two ways. First, in countries with little or no democratic institutions, there may be a tendency for a few elites to influence the allocation of financial resources towards projects that safeguard their power. In such countries, firms' access to finance is likely to be negatively affected as financial institutions tend to serve the interests of these elites. Conversely, countries with strong democratic institutions recognise that political power resides with the people rather than elites. To strengthen political power, the distribution of financial resources is primarily intended to improve the welfare of the population. For such countries, an efficient financial system acts as a catalyst for achieving this goal; consequently, firms encounter minimal barriers when accessing finance.

Over the past few decades, the world has experienced a rise in political reforms, with many nations transitioning from autocratic rule towards institutionalised democracy. Although there has been a recent decline in the number of democracies globally, the Freedom House (2022) report nonetheless indicates that more than half of the world's countries still practise democracy. Given the ongoing effort for the worldwide adoption of democratic principles, the debate over whether democracy leads to firms' prosperity remains unresolved. While the economic and financial impacts of democracy are widely accepted, our main argument concerns whether economic agents, such as firms, can leverage institutionalised democracy to overcome financing barriers.

Moreover, an important channel through which democracy can influence firms' financing is through globalised financial sector institutions and capital accounts. The liberalisation of financial markets worldwide has transformed the financial sector, resulting in cross-border capital flows and financial integration among countries, thereby creating a global financial system. As expected, financial liberalisation should enhance firms' access to finance in most countries, thereby boosting performance and growth. However, most research on financial liberalisation suggests that its effects can be either positive or negative, depending on factors such as the percentage of ownership by foreign banks, the availability of credit information, the cost of contract enforcement, the economic development of the host country, and firm characteristics, to name a few (Claessens and Van Horen, 2014; Mol-Gómez-Vázquez et al., 2020; Sasidharan, 2020). Interestingly, little attention has been paid to how democracy interacts with financial liberalisation to improve access to finance. Exploring this gap is essential, given substantial evidence that firms in democratic countries benefit from financial liberalisation through economic and trade partnerships and free capital flows. Indeed, if democracy enhances access to finance via financial liberalisation, then firms may find it advantageous to

relocate to democratic nations. Therefore, whether firms' capital formation in non-democratic countries is constrained by financial liberalisation or democracy remains an ongoing empirical debate.

Building on this premise, we develop our hypothesis and analyse a sample of over 110,000 firms across 112 countries from 2006 to 2021. Our initial results suggest that, when considered independently, proxies for financial liberalisation and democracy have a significant negative effect on firms' access to finance. We then further investigate whether a complementary relationship exists between financial liberalisation and democracy. Our motivation for considering this conditional role stems from the idea that variations in the level of democracy may be crucial in determining whether a country's efforts at financial liberalisation succeed. Therefore, our primary empirical focus is on the size and significance of the interaction between financial liberalisation and democracy in influencing firms' access to finance. Our findings support our hypothesis of a positive, complementary interaction effect in improving access to finance, which is both statistically significant and robust to several empirical strategies.

Considering the preceding discussion and the growing lack of access to finance for firms, our study makes noteworthy contributions to the literature in several aspects. First, we broaden existing knowledge by examining how democracy influences firms' access to finance. We analyse both the linear and non-linear effects of these factors and find that financial liberalisation and democracy independently negatively affect access to finance. However, when financial liberalisation and democracy operate jointly, their interaction significantly improves access to finance. Our findings, therefore, support theories of political economy and financial liberalisation (Bekaert et al., 2005; Claessens et al., 2008). Second, in investigating access to finance, we address certain econometric concerns that could affect the generalisability of our results. To validate our primary results, we employ several robust alternative estimation techniques. Essentially, we account for endogeneity, sample nesting, non-linearity, firm heterogeneity, and cross-sectional dependency. Considering the strengths and assumptions of these methods, their use also functions as a robustness check, affirming the consistency of our findings. Consequently, our study sets itself apart from most empirical research on access to finance (Gygli et al., 2019). Third, by utilising alternative measures of our key variables, we address potential issues arising from misspecification or omitted variables. Specifically, we examine whether our primary results on the effects of democracy and financial liberalisation, and their conditional relationship with access to finance, are sensitive to alternative indicators of the main dependent and explanatory variables. Importantly, our results remain consistent with the baseline when these proxies are used.

Lastly, we emphasise that our study has significant policy implications. We believe the findings can directly benefit relevant stakeholders, including international development agencies, financial institutions, governments, policymakers, and business managers or owners, by helping them better understand the interactions among democracy, financial liberalisation, and firms' credit constraints. Most research on firms' financing constraints has concentrated on individual relationships and overlooked the effects of interaction, which may explain the mixed results in the literature. As demonstrated in our study, the interaction effect is positive and significant, offering comprehensive and valuable insight to key stakeholders.

The rest of the paper proceeds as follows. Section two reviews the literature and states our study's hypotheses. Section three describes the data and presents summary statistics. Section four discusses the empirical model and results, including robustness checks. Section five concludes the paper.

2. Prior literature and hypothesis development

Growing research has identified several factors influencing firms' access to finance. These studies can be categorised into two main

streams of literature. The first is the political economy theory of financial development, which describes how institutions shape financing and investment decisions, thereby impacting firms' ability to access credit through the financial system. The second is the financial liberalisation theory, which stresses the importance of removing restrictions and reducing government interference in financial markets. Essentially, this theory considers government non-intervention as a crucial mechanism for promoting the efficient allocation of financial resources. In the subsequent subsections, we examine these theories and their influence on empirical discussions about firms' access to finance.

2.1. Democracy and access to finance

Our first hypothesis is grounded in political economy theory, which examines the connection between democracy and economic growth. In the context of firms' access to finance, this theory also clarifies how the political elite, rather than markets, sets criteria for allocating funds to key sectors (Claessens et al., 2008). From this perspective, two contrasting viewpoints are evident in the literature. The first is based on the developmental state approach to political economy, which advocates that governments and their institutions control financial resources. Since the primary purpose of the government is to promote economic growth and development, supporters of this view argue that government involvement in the financial market aims to achieve the goals of a developmental state (Gerschenkron, 1962; La Porta et al., 2002; Sapienza, 2004). Therefore, the government sees the financial market as a tool for macroeconomic planning through suitable policies, while also directly overseeing the allocation of financial resources. Furthermore, scholars contend that the government's role in the financial market includes preventing systemic failure, which can result from the self-serving behaviour of market agents (Girma and Shortland, 2008; Sapienza, 2004). With government oversight, market operations are closely monitored to ensure the efficient allocation of funds to productive and industrial purposes. This helps build investor confidence, encourages savings, stimulates investments, and reduces the risk of misappropriation by financial institutions. Additionally, it ensures that firms have fair access to credit, supporting overall economic growth.

Despite the arguments above, the second school of thought asserts that in countries where a few elites dominate the political landscape, financial institutions may be limited in their ability to provide access to finance. In such countries, there is a significant risk of rent-seeking behaviour arising from manipulation of the political environment (Huang, 2010; Lemmon and Roberts, 2010; Rajan and Zingales, 2003a). These rent-seeking tendencies arise from government interference in the market through legislation and directives. In these situations, companies can influence regulatory agencies or legislators to change or pass laws that serve their economic interests, even if they harm competitors or society at large, thereby creating a form of coercive monopoly (Krueger, 1974). For example, financial institutions might form cartels, hire professional lobbyists, or directly lobby politicians to alter or introduce laws that prevent foreign banks from operating in the country. This concentrates fund allocation in the hands of local banks, reducing competition and limiting firms' access to credit.

Although rent-seeking is legally recognised in some jurisdictions, its implications for firms' growth are extensive. Specifically, rent seeking can distort capital formation through the misallocation of resources, induce uneven competition, create unfair price advantages, discourage new entries and expansion, disrupt financial market efficiency, generate artificial barriers to credit, and suppress innovation and productivity (Krueger, 1974; Murphy et al., 1993; Rowley et al., 2013). Furthermore, rent-seeking behaviour, orchestrated by political dominance in the financial system, tends to enrich politicians, financial institutions, and beneficiaries of firms. This can be detrimental to economic growth, as the country's and the involved parties' reputations are tarnished, making it difficult for them to secure external partnerships and funding.

In light of the problems outlined above, numerous empirical studies

have emerged in the literature to explain the influence of democracy on firms' growth. Delis et al. (2020), using loan data from 80 countries spanning 1984–2014, report that a one-point increase in institutionalised democracy is associated with a 20-point decrease in the cost of debt. More importantly, they find a positive and significant relationship between autocracy and the cost of debt. By implication, firms operating in countries that experience a reversal from democracy to autocracy immediately face a sharp increase in debt costs, which could trigger a credit crunch. The study by Ho et al. (2018) reports that innovation is enhanced through the moderating effect of institutions on financial deepening. Likewise, research by Huang (2010), covering the period from 1960 to 1999, empirically shows that countries with enhanced institutional quality due to political reforms are associated with a significant increase in financial development, particularly in developing countries and ethnically diverse nations.

The studies above consistently demonstrate that democracy plays a crucial role in supporting economic and financial growth. Building on these findings, we utilise cross-country data at both firm and country levels to investigate how democracy influences access to finance. Consequently, we hypothesise that there is a strong link between democracy and access to finance.

Hypothesis 1. Democracy improves access to finance for firms.

2.2. Financial liberalisation and access to finance

Our next hypothesis is based on McKinnon's (1973) theoretical postulations on the economic merits of liberalisation. Burgeoning studies have recognised financial liberalisation as a key strategy for stimulating financial development, particularly in developing economies. Financial liberalisation involves removing government interference from the financial market (Bekaert et al., 2005). This entails granting market participants complete control over the market without government repression. Consequently, it aims to open the financial system to new local and foreign entrants, thereby enhancing competition and removing political and bureaucratic bottlenecks that may influence credit allocation decisions.

On the one hand, it is widely recognised that financial liberalisation fosters market efficiency and reduces the impact of asymmetric information, thereby influencing the cost of capital (Claessens and Van Horen, 2014). Additionally, financial liberalisation boosts savings and elevates investment levels (Bekaert et al., 2006). Conversely, Wei (2018) argues that financial liberalisation might expose the local financial system to instability stemming from global contagion. Nevertheless, financial liberalisation encourages the entry of foreign banks into the local market and their collaboration with domestic counterparts, thereby increasing competition among banks and reducing the cost of financial intermediation (Chu and Zhang, 2022). Furthermore, financial liberalisation offers opportunities to internationalise local banking products, share knowledge, and transfer technology.

The implications of financial liberalisation for firms' access to finance remain ambiguous in the literature. In some countries, credit constraints persist for firms, as state-owned banks often bridge the financing gap (Choudhary and Jain, 2022; Williams and Nguyen, 2005). Consequently, an increase in foreign banks' presence and the subsequent cross-border capital flows may not lead to greater access to finance in the host country. Gopalan and Sasidharan (2020) empirically demonstrate that an increase in foreign bank presence, combined with the availability of information through financial statement audits, alleviates credit constraints in emerging markets and developing economies. However, Mol-Gómez-Vázquez et al. (2020) identify a U-shaped relationship between foreign bank presence and the incidence of discouraged borrowers in European countries. Their study indicates that financial liberalisation initially eases financial constraints, but once foreign bank ownership exceeds 34%, its impact on access to finance becomes negative. Similarly, Claessens and Van Horen (2014) report a

negative correlation between financial liberalisation and access to private credit, noting that this relationship is primarily driven by ownership stakes of less than 50% in the host country. The study supports the argument that foreign banks engage in cherry-picking behaviour, thereby further restricting access to finance, especially for developing countries (Gormley, 2010). The above studies show that the impact of financial liberalisation on firms' financing is not as direct as presumed. Hence, we posit that:

Hypothesis 2. Financial liberalisation improves access to finance for firms.

2.3. Democracy, financial liberalisation, and access to finance

Next, we examine the conditional relationship between democracy and financial liberalisation in shaping firms' access to finance. Since one aim of financial liberalisation is to lower borrowing costs by increasing the presence of foreign banks within the domestic market, we investigate whether the structure of democracy influences (or impedes) new entrants. We test a hypothesis concerning how this interaction affects firms' access to finance. We assume that foreign banks may not fully grasp the host country's political complexities and might underestimate the importance of being 'politically connected'. As a result, an information asymmetry develops, favouring domestic banks. This may further affect foreign banks' activities, including lending decisions.

Meanwhile, studies show that, due to financial liberalisation, some countries, mainly the least developed ones, scramble to attract foreign direct investment into their economies (Asiedu, 2002; Morrissey and Udomkerdmongkol, 2012) to promote economic development. In this case, it may be less crucial for foreign banks to be politically connected to perform their credit functions effectively. This is perhaps because financial liberalisation in the host country results from deliberate institutional reforms; therefore, institutions would benefit from ensuring the survival of foreign banks (Levine et al., 2018). We therefore argue that, despite liberalisation policies, foreign banks prefer to establish a presence in democratic countries that can guarantee the safety of their investments and the integrity of their operations. We, therefore, hypothesise that the interplay between democracy and financial liberalisation can influence firms' access to finance.

Hypothesis 3. The interplay between democracy and financial liberalisation influences firms' access to finance.

3. Data description

In this section, we discuss the variables included in the regression analysis, including the dependent, main independent and control variables. To keep it concise, the descriptions of all variables used in this paper have been moved to Appendix Table A1. We obtain all firm-level data from the World Bank's Enterprise Survey (WBES) database.⁶ Additionally, data on country-level measures proxying financial liberalisation, democracy, and macroeconomic conditions are sourced from other references, including the Polity IV Project,⁷ the Global Financial Development Database (GFDD)⁸ and World Development Indicators (WDI).⁹ After matching data from all four sources, the final sample for our analysis comprises 110,000 firms across 112 countries, based on surveys conducted between 2006 and 2021.

⁶ We obtain all firm-level data from the World Bank's Enterprise Survey (WBES) database: (<https://www.enterprisesurveys.org/data>).

⁷ Polity IV Project: <https://www.systemicpeace.org/polityproject>

⁸ GFDD: <https://databank.worldbank.org/source/global-financial-development>

⁹ WDI: <https://databank.worldbank.org/source/world-development-indicators>

3.1. Dependent variables

3.1.1. Measuring access to finance

According to our hypothesis, we need a measure to represent the extent of financial constraints on firms. We use the WBES data as our primary source of measurement because the questionnaire includes questions on opportunities driving and obstacles limiting, firms' business operations, including access to finance. Therefore, following prior research on access to finance (see, e.g., Dutta and Mallick, 2023; Gopalan and Sasidharan, 2020; Leon, 2015; Osei-Tutu and Weill, 2023), our primary measure of financing constraints is based on WBES finance-related questions. More specifically, we construct our baseline dependent variable, access to finance, based on the following WBES survey question (Question k. 30): "To what extent is access to finance an obstacle to the current operation of this establishment?" The available responses are categorical, ranging from 0 (no obstacle), 1 (minor obstacle), 2 (moderate obstacle), 3 (major obstacle), to 4 (very severe obstacle), with higher values indicating, at least from the perspectives of owners/managers of firms, greater and more widespread difficulties in obtaining the necessary finance to operate. In presenting results from our baseline analysis, we construct a dummy variable equal to 1 if a firm perceives access to finance as a moderate, significant, or very severe obstacle, and 0 otherwise. To verify the robustness of our results, we further utilise the WBES database to develop additional measures to capture firms' financing difficulties in our sample. Firstly, instead of a dummy variable, we use an ordinal measure that ranks a firm's perception of the severity of its financial constraints, which we refer to as the *financing obstacle*. Secondly, we modify the threshold for defining access to finance by creating a new dummy variable, *financial constraint*, which equals 1 if a firm perceives access to finance as a significant or very severe obstacle, and 0 otherwise.

3.2. Independent variables

Our discussion in Section 2 reveals that we are interested in empirically investigating the effects of financial liberalisation on access to finance when it interacts with the level of democracy. In this section, we present measures for these two individual explanatory variables.

3.2.1. Measuring financial liberalisation

A key independent variable in our paper is financial liberalisation, which is proxied by two measures: financial openness and financial globalisation. Financial openness refers to the extent to which a country permits capital to cross its borders and allows foreign investors to participate in its domestic markets. This measure captures an important aspect of financial liberalisation as it reflects how well a country integrates into the financial system (Kose et al., 2009). Following existing studies, we use the Chinn-Ito index to measure financial openness across countries. The Chinn-Ito index, based on IMF data, quantifies a country's capital account openness (Chinn and Ito, 2008). Financial globalisation, on the other hand, refers to the increasing interconnectedness of national financial systems through the growth of cross-border flows and financial institutions. Unlike financial openness, which emphasises the regulatory stance towards capital flows, financial globalisation encompasses both the scale and depth of a country's actual integration into the global financial system. In measuring financial globalisation, we utilise the KOF financial globalisation index (Gygli et al., 2019), which is based on stocks of foreign assets and liabilities and capital account regulations.

3.2.2. Measuring democracy

Another key independent variable in our analysis is a country's level of democracy. In the baseline regression, we follow recent developments in finance literature (see, e.g., Delis et al., 2020; Duong et al., 2022; Nguyen and Tran, 2022) and measure democracy using the electoral democracy index and BR-Dem. Importantly, democracy is institution-based rather than perception-based (Glaeser et al., 2004), a

preference that is particularly relevant in our study, where the dependent variables are compiled from perception-based reports.

The electoral democracy index, sourced from the Varieties of Democracy Project (V-Dem), focuses on the existence and quality of electoral processes by considering whether elections are free, fair, and competitive. This index captures procedural aspects of democracy, making it particularly relevant for assessing transitions or declines in democratic quality over time. Conversely, the BR-Dem index offers a dichotomous (binary) classification of democracy. A country is coded as 1 if it meets democratic conditions and 0 if it meets autocratic conditions. This index provides a more straightforward explanation when testing the impacts of regime change or democratic consolidation.

3.3. Control variables

3.3.1. Firm characteristics

At the firm level, we control for the log of the firm's age in years, dummy variables for medium- and large-sized firms, the log of the number of years the top manager has been working in the firm's sector, the proportion of assets held by the largest owner, and dummy variables for foreign ownership, state ownership, being an exporter, having annual financial statements checked and certified by an external auditor, possessing an international quality certificate, and binary indicators of a firm's legal status (e.g., publicly listed and privately held) in the baseline regressions. All variables are from the WBES, and we select them based on the existing literature (e.g. [Dutta and Mallick, 2023](#); [Gopalan and Sasidharan, 2020](#); [Leon, 2015](#); [Osei-Tutu and Weill, 2023](#)). We anticipate that most of these firm-level controls will be negatively associated with financial constraints. For instance, older and larger firms, as well as foreign-owned, publicly listed, and subsidiary firms, are less likely to be financially constrained (see, e.g., [Dutta and Mallick, 2023](#); [Lee et al., 2015](#)).

3.3.2. Country characteristics

At the country level, we control for economic development and growth by using the log of GDP per capita and its yearly growth rate (income growth). We also consider the level of financial development, measured as domestic credit provided to the private sector as a share of

GDP, and the annual inflation rate to reflect macroeconomic conditions for the baseline regression analysis, as suggested by existing literature (see, e.g., [Gopalan and Sasidharan, 2020](#); [Leon, 2015](#)). These variables are obtained from the WDI, and including them further helps address omitted variable bias. Additionally, all country-level control variables are measured with a one-year lag to reduce contemporaneous bias.

4. Findings

4.1. Descriptive statistics

[Table 1](#) presents a descriptive overview of key variables used in the study, based on more

than 110,000 firm-level observations. The mean value for the primary dependent variable, access to finance, is 0.633, indicating that about two-thirds (63.3%) of firms report having some access to external finance. Conversely, only 22.5% of firms report being finance-constrained, suggesting that although formal access is available to many, obstacles such as collateral requirements, interest rates, and information asymmetries remain significant. The financing obstacle variable further underscores this gap between access and perceived affordability, reflecting firms' subjective view of financial barriers. Its standard deviation (1.317) also indicates considerable variation in experiences, suggesting structural heterogeneity across regions, sectors, or firm types. Regarding the explanatory variables, the data show substantial variation in financial openness, the financial globalisation index, and the democracy proxy, indicating that firms operate in markedly different environments.

The mean age of sampled firms is 2.687 years, indicating that the sample primarily comprises relatively young firms, most likely SMEs, given the structure of the underlying dataset. The interquartile range (P25 = 2.197, P75 = 3.219) shows moderate variation in firm maturity. Firm size also suggests a bias towards smaller firms, which are more vulnerable to financial market imperfections. This finding aligns with [Beck et al. \(2005\)](#), who emphasise that smaller and younger firms face higher credit constraints, especially in emerging and developing economies. Regarding ownership, the largest individual owner holds, on average, 79% of the firm; this is unsurprising, as most of the sampled

Table 1
Summary statistics.

Variables	Obs.	Mean	Std. Dev.	Min.	Max.	P5	P25	Median	P75
Access to finance	108,153	0.633	0.482	0	1	0	0	1	1
Financing constraint	108,153	0.225	0.417	0	1	0	0	0	0
Financing obstacle	108,153	1.373	1.317	0	4	0	0	1	2
Firm age	110,088	2.687	0.816	0	7.604	1.099	2.197	2.773	3.219
Size	110,139	1.719	0.759	1	3	1	1	2	2
Manager's experience	109,708	2.695	0.757	0	4.277	1.386	2.303	2.833	3.219
Largest owner asset share	110,107	79.10	26.32	0	100	30	51	100	100
Foreign ownership	110,139	0.0958	0.294	0	1	0	0	0	0
State ownership	110,139	0.0117	0.108	0	1	0	0	0	0
Exporter	110,139	0.166	0.372	0	1	0	0	0	0
Audited	109,152	1.492	0.500	1	2	1	1	1	2
Publicly listed	110,139	0.0429	0.203	0	1	0	0	0	0
Privately held	110,139	0.465	0.499	0	1	0	0	0	1
Quality certification	110,116	1.758	0.435	1	22	1	2	2	2
Financial openness index	110,139	0.366	1.299	-2	2	-1	-1	0	2
Financial globalisation index	110,139	57.66	14.85	23	91	31	47	56	68
Electoral democracy index	110,139	0.559	0.225	0.0910	0.917	0.193	0.377	0.594	0.738
Democratic regime, BR	110,139	0.649	0.477	0	1	0	0	1	1
GDP per capita	110,139	8.363	1.183	5.660	11.24	6.614	7.244	8.402	9.158
Income growth	110,139	2.829	3.538	-15.90	12.19	-4.173	1.280	3.371	4.978
Inflation	110,139	6.090	5.387	-2.431	59.22	0.353	2.634	5.496	8.440
Financial development	110,139	48.66	34.30	1.201	161.9	9.702	22.75	41.70	60.16
Bank concentration	110,139	62.03	21.06	22.50	100	29.35	46.01	61.71	77.32

This table provides descriptive statistics for all variables used in the analysis. For each variable, it shows the number of observations, the mean, the standard deviation, the minimum and maximum values, and selected percentiles (5th, 25th, 50th (median), and 75th). These statistics summarise the distribution and variability of firm-level financial indicators, ownership characteristics, and country-level institutional measures included in the empirical models. Definitions of variables and data sources are provided in Appendix Table A1.

firms are SMEs. Foreign ownership accounts for about 9.6%, while state ownership is approximately 1%. Additionally, around 17% of firms are engaged in exports, 47% are privately owned, and only 4.3% are publicly listed. The remaining statistics on all firm-level and country-level variables utilised in this paper are provided in the appendix (see Table A1).

4.2. Empirical findings

Building on existing literature, our analysis focuses on the level of financial constraints faced by firms within a country by considering measures of financial liberalisation, democracy, and their interaction. We argue that financial and political reforms complement each other. Therefore, our empirical analysis begins by examining whether financial liberalisation, democracy, and their interactions affect firms' access to finance. We specify a probit regression using Eq. (1) below.

$$P(\text{AccessFinance}_i = 1) = \phi(\beta_0 + \beta_1 \text{FinLib}_i + \beta_2 \text{Dem}_i + \beta_3 (\text{FinLib}_i * \text{Dem}_i) + \gamma X_i + \mu Z_i + \varepsilon_i) \tag{1}$$

Table 2
Financial liberalisation, democracy, and access to finance. Baseline results.

Dependent variable: Access to finance							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Financial openness	-0.0638*** (0.0198)		-0.0403** (0.0201)	-0.4779*** (0.0364)	-0.4727*** (0.0368)	-0.4047*** (0.0393)	-0.4013*** (0.0397)
Democracy		-1.1046*** (0.1043)	-1.0803*** (0.1049)	-1.8549*** (0.1185)	-1.8095*** (0.1249)	-1.6652*** (0.1238)	-1.6427*** (0.1287)
Financial openness*Democracy				0.9553*** (0.0672)	0.9574*** (0.0677)	0.7776*** (0.0724)	0.7868*** (0.0729)
Firm age					-0.0557*** (0.0064)		-0.0552*** (0.0064)
Size					-0.0457*** (0.0068)		-0.0458*** (0.0068)
Manager's experience					-0.0462*** (0.0067)		-0.0462*** (0.0067)
Largest owner asset share					-0.0006*** (0.0002)		-0.0006*** (0.0002)
Foreign ownership					-0.1948*** (0.0156)		-0.1961*** (0.0156)
State ownership					0.0101 (0.0403)		0.0167 (0.0404)
Exporter					0.0202 (0.0127)		0.0216* (0.0128)
Audited					0.0009 (0.0102)		0.0011 (0.0102)
Publicly listed					-0.0612*** (0.0236)		-0.0567** (0.0237)
Privately held					-0.0719*** (0.0124)		-0.0696*** (0.0124)
Quality certification					0.0196* (0.0114)		0.0194* (0.0114)
GDP per capita						0.0390 (0.1098)	0.0760 (0.1122)
Income growth						-0.0052 (0.0033)	-0.0059* (0.0033)
Inflation						0.0100*** (0.0016)	0.0092*** (0.0016)
Financial development						0.0040*** (0.0010)	0.0037*** (0.0010)
Constant	0.9591** (0.4345)	1.2844*** (0.4360)	1.3036*** (0.4358)	1.4092*** (0.4402)	1.7886*** (0.4478)	1.1011 (0.9009)	1.2147 (0.9216)
Country fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	100,720	100,720	100,720	100,720	99,716	100,720	99,716

This table presents baseline estimates analysing the effect of financial liberalisation and democracy on firms' access to finance. The specifications gradually incorporate firm-level controls, country-level controls, and fixed effects. Interaction terms show whether the impact of financial liberalisation varies across democracies. The outcome variable is access to finance: a dummy variable equal to 1 if a firm perceives access to finance as a moderate, major, or very severe obstacle, and 0 otherwise (no obstacle or minor obstacle). Coefficients are estimated using linear probit models. The control variables are split into two categories: firm characteristics and country characteristics. All country-level controls are measured with a one-year lag. All models include country, industry, and year fixed effects. Robust standard errors are presented in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1. Definitions of variables and data sources are provided in Appendix Table A1.

Where AccessFinance_i is the dependent variable, which indicates whether firms report having access to finance or facing constraints. FinLib_i is the level of financial liberalisation, proxied by financial openness and financial globalisation. Dem_i measures the country's level of democracy, proxied by BR-Dem and the electoral index. X_i is a vector of firm-level controls, and Z_i is a vector of country-level controls. Since we are using a probit regression, Φ represents the standard normal cumulative distribution function.

Our baseline estimation results are shown in Table 2. While we focus on the individual coefficients for financial openness and democracy, our primary interest is in the interaction coefficient between them. If democracy enhances the effect of financial openness in a country, the interaction coefficient should be significantly positive. We begin by analysing the individual effects of financial openness and democracy on access to finance, controlling only for country, industry, and year-fixed effects. Across all model configurations, financial openness is negatively linked to access to finance. Although significant, the coefficient suggests that greater financial openness generally decreases the likelihood that firms will obtain external finance. This supports earlier claims that, in

less-developed institutional environments, financial openness can generate competitive pressures, capital flight, or volatility that primarily harm smaller firms (Razin and Rose, 1994; Stiglitz, 2000).

Democracy behaves similarly; its standalone coefficient is large, negative, and highly significant. At first glance, this may seem surprising since democratic institutions are often associated with transparency and stricter rule of law (Acemoglu and Robinson, 2012). The negative main effect does not imply that democracy inherently hampers financial access; rather, it indicates that democracies lacking complementary financial-market structures may exhibit credit reallocation patterns that do not immediately benefit firms (Beck et al., 2008).

The key turning point in the table is the interaction between financial openness and democracy. When these two factors work together, the negative baseline effects are effectively countered. Across all empirical specifications involving the interaction between financial openness and democracy, the findings confirm a positive, highly statistically significant interaction effect on access to finance. This indicates that democracy enhances the ability of financially open economies to convert cross-border capital flows into accessible lending opportunities for firms. This closely aligns with the “complementarity hypothesis” in the institutional-finance literature, which holds that open financial systems provide widespread benefits only when supported by credible democratic institutions capable of enforcing contracts and managing risk (Quinn and Toyoda, 2008; Baltagi et al., 2009). The individual coefficients for both financial openness and democracy remain negative. The results suggest that financial openness is not a standalone solution. In fact, liberalising the capital account without strengthening democratic institutions may worsen the financing environment for firms by increasing volatility or skewing credit allocation towards politically connected individuals. This echoes longstanding warnings that financial openness requires institutional capacity to prevent unintended distributional consequences (Rodrik, 1998). Additionally, the findings emphasise democracy not as an isolated predictor but as a conditioning mechanism, with its effect becoming positive only when paired with openness.

The firm- and country-level controls behave largely as expected. Older, larger, and more managerially experienced firms report lower access to finance, which supports the idea that mature firms often rely more on internal funds, have less need for external borrowing, or are more cautious (Fazzari et al., 1988). Ownership concentration again shows a small but negative association, reinforcing traditional concerns about opacity and weaker corporate governance in tightly held firms. Exporters and firms with certification display slightly greater access to finance, consistent with lenders favouring firms with verifiable quality

signals or established foreign-market linkages.

4.3. Robustness checks

i. **Alternative measures of the dependent variable:** Here, we examine whether our initial results are affected by different definitions and proxies for the main dependent and independent variables. We start with the dependent variable. Recall that our primary indicator of the difficulties firms face in securing financing for their operations is *access to finance*, a dummy variable derived from a categorical measure. As an alternative measure, in Table 3, we use *financial constraints*, a dummy variable equal to 1 if a firm faces them and 0 otherwise. In Table 4, we use *financial obstacle*, an ordinal variable that equals 0 if a firm perceives access to finance as no obstacle, 1 (minor obstacle), 2 (moderate obstacle), 3 (major obstacle), or 4 (very severe obstacle). For each alternative measure of access to finance, we find that the coefficients on financial openness and democracy remain negative and significant, except for the interaction term, which is positive and significant. These findings further support our baseline results.

ii. **Alternative measures of the independent variables:** Turning to the independent variables, another proxy for financial liberalisation used in related literature is the KO financial globalisation index. So, we next introduce this variable ‘financial globalisation’ in our regression model. Unlike the previous measure that focused on financial openness, the KOF index captures the extent of financial integration by accounting for actual cross-border capital flows and international investment positions. This measure allows the study to test whether the volume and scale of global financial liberalisation have a distinct influence on firms’ access to finance.

The results, shown in Table 5, are consistent with the study’s central hypothesis. Financial globalisation, as measured by the KOF index, does not, on its own, significantly improve access to finance. However, its interaction with democracy is both positive and statistically significant, supporting the idea that democracy influences the benefits of global financial liberalisation. This suggests that although cross-border financial flows may increase, their capacity to reach credit-constrained firms largely depends on the democratic institutions in place. These outcomes resonate with earlier evidence from Kose et al. (2006) and Quinn and Toyoda (2008), who argue that the quality of democratic institutions shapes how globalisation affects development

Table 3
Robustness check using an alternative measure of access to finance.

Dependent variable: Financing constraint				
	(1)	(2)	(3)	(4)
Financial openness	−0.0881*** (0.0218)		−0.0783*** (0.0218)	−0.2676*** (0.0415)
Democracy		−0.7054*** (0.1191)	−0.6714*** (0.1197)	−0.9721*** (0.1304)
Financial openness*Democracy				0.4069*** (0.0762)
Constant	−3.5414*** (0.9422)	−4.0214*** (0.9480)	−3.9453*** (0.9458)	−3.4092*** (0.9484)
Controls: Firm characteristics	Yes	Yes	Yes	Yes
Controls: Country characteristics	Yes	Yes	Yes	Yes
Country fixed-effects	Yes	Yes	Yes	Yes
Industry fixed-effects	Yes	Yes	Yes	Yes
Year fixed-effects	Yes	Yes	Yes	Yes
Observations	99,721	99,721	99,721	99,721

This table presents estimates using an alternative measure of access to finance (financial constraints). Coefficients are estimated using linear probit models. The control variables are split into two categories: firm characteristics and country characteristics. All country-level controls are measured with a one-year lag. All models include country, industry, and year fixed effects. Robust standard errors are presented in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Definitions of variables and data sources are provided in Appendix Table A1.

Table 4
Robustness check using another alternative measure of access to finance.

Dependent variable: Financial obstacle				
	(1)	(2)	(3)	(4)
Financial openness	-0.0673*** (0.0165)		-0.0547*** (0.0168)	-0.3234*** (0.0317)
Democracy		-0.7793*** (0.0891)	-0.7528*** (0.0894)	-1.1950*** (0.0981)
Financial openness*Democracy				0.5774*** (0.0585)
Controls: Firm characteristics	Yes	Yes	Yes	Yes
Controls: Country characteristics	Yes	Yes	Yes	Yes
Country fixed-effects	Yes	Yes	Yes	Yes
Industry fixed-effects	Yes	Yes	Yes	Yes
Year fixed-effects	Yes	Yes	Yes	Yes
Observations	99,739	99,739	99,739	99,739

This table presents estimates based on an alternative measure of access to finance (financial obstacles). Coefficients are estimated using ordered probit models because the new dependent variable, financial obstacle, is not binary; it is an ordinal variable that equals 0 if a firm perceives access to finance to be no obstacle, 1 (minor obstacle), 2 (moderate obstacle), 3 (major obstacle), or 4 (very severe obstacle). The control variables are split into two categories: firm characteristics and country characteristics. All country-level controls are measured with a one-year lag. All models include country, industry, and year fixed effects. Robust standard errors are presented in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1. Definitions of variables and data sources are provided in Appendix Table A1.

Table 5
Robustness check using an alternative measure of financial liberalisation.

Dependent variable: Access to finance			
	(1)	(2)	(3)
Financial globalisation	-0.0125*** (0.0023)	-0.0085*** (0.0023)	-0.0242*** (0.0038)
Democracy		-0.9202*** (0.1162)	-2.6828*** (0.3503)
Financial globalisation*Democracy			0.0299*** (0.0056)
Constant	0.4736 (0.9187)	0.1948 (0.9197)	0.8530 (0.9293)
Controls: Firm characteristics	Yes	Yes	Yes
Controls: Country characteristics	Yes	Yes	Yes
Country fixed-effects	Yes	Yes	Yes
Industry fixed-effects	Yes	Yes	Yes
Year fixed-effects	Yes	Yes	Yes
Observations	99,716	99,716	99,716

This table presents estimates using an alternative measure of financial liberalisation (financial globalisation). Interaction terms show whether the impact of financial liberalisation varies across democracies. The outcome variable is access to finance: a dummy variable equal to 1 if a firm perceives access to finance as a moderate, major, or very severe obstacle, and 0 otherwise (no obstacle or minor obstacle). Coefficients are estimated using linear probit models. The control variables are split into two categories: firm characteristics and country characteristics. All country-level controls are measured with a one-year lag. All models include country, industry, and year fixed effects. Robust standard errors are presented in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1. Definitions of variables and data sources are provided in Appendix Table A1.

outcomes.

Finally, in Table 6, we explore another alternative measure of democracy. Specifically, we utilise BR_Dem, a binary indicator of the quality of democratic institutions (Bjørnskov and Rode, 2020; Coppedge et al., 2019). This binary classification simplifies the institutional context into a more discrete form, enabling the model to assess whether the advantages of financial openness depend solely on being in a democratic regime rather than on the level or quality of democratic governance. The findings using BR_Dem remain aligned with previous results. The interaction term between financial openness and BR_Dem is positive and statistically significant, further reinforcing the idea that democracy is vital for financial openness to enhance firm-level access to finance. This dichotomous approach removes ambiguity regarding marginal differences in democracy scores and affirms

Table 6
Robustness check using an alternative measure of democracy.

Dependent variable: Access to finance			
	(1)	(2)	(3)
Financial openness		0.0752*** (0.0219)	-0.0783** (0.0348)
Democracy	-0.8739*** (0.0483)	-0.9286*** (0.0512)	-0.8708*** (0.0523)
Financial openness*Democracy			0.2105*** (0.0369)
Constant	1.7421* (0.9158)	1.6988* (0.9153)	2.3114** (0.9187)
Controls: Firm characteristics	Yes	Yes	Yes
Controls: Country characteristics	Yes	Yes	Yes
Country fixed-effects	Yes	Yes	Yes
Industry fixed-effects	Yes	Yes	Yes
Year fixed-effects	Yes	Yes	Yes
Observations	99,716	99,716	99,716

This table presents estimates using an alternative measure of democracy, BR_Dem, a dichotomous variable. Interaction terms show whether the impact of financial liberalisation varies across democracies. The outcome variable is access to finance: a dummy variable equal to 1 if a firm perceives access to finance as a moderate, major, or very severe obstacle, and 0 otherwise (no obstacle or minor obstacle). Coefficients are estimated using linear probit models. The control variables are split into two categories: firm characteristics and country characteristics. All country-level controls are measured with a one-year lag. All models include country, industry, and year fixed effects. Robust standard errors are presented in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1. Definitions of variables and data sources are provided in Appendix Table A1.

that, regardless of its strength, democracy is a key factor in fostering inclusive finance.

iii. **Addressing endogeneity:** Table 7 extends the robustness checks by addressing potential endogeneity issues using an instrumental-variable probit regression (IV-Probit). In cross-country firm-level analysis, endogeneity is a legitimate concern, especially the possibility that financial liberalisation and democracy are jointly determined by unobserved factors or subject to reverse causality. For example, countries with better access to finance may also be more inclined to liberalise capital accounts or build stronger democratic institutions.

As an external instrument in the IV-Probit regression, we first employ Area 5 of the Economic Freedom of the World (EFW) index, published by the Fraser Institute, which captures overall regulation. This instrument is exogenous to firm-level credit outcomes but correlated with financial openness. The results

Table 7
Endogeneity check using an instrumental variable (IV-Probit) regression.

Dependent variable: Access to finance			
	(1)	(2)	(3)
Financial openness	-0.6941*** (0.1169)	-0.5623*** (0.1269)	-1.8668*** (0.3695)
Democracy		-0.7297*** (0.1309)	-3.2519*** (0.4193)
Financial openness*Democracy			3.0531*** (0.5715)
Constant	1.1983 (0.9293)	0.8823 (0.9359)	4.7504*** (1.2899)
Controls: Firm characteristics	Yes	Yes	Yes
Controls: Country characteristics	Yes	Yes	Yes
Country fixed-effects	Yes	Yes	Yes
Industry fixed-effects	Yes	Yes	Yes
Year fixed-effects	Yes	Yes	Yes
Observations	99,716	99,716	99,716

This table presents estimates from an instrumental-variable probit (IV-Probit) regression. Here, regulation (Area 5) is used as an external instrument to measure financial openness. Interaction terms show whether the impact of financial liberalisation varies across democracies. The outcome variable is access to finance: a dummy variable equal to 1 if a firm perceives access to finance as a moderate, major, or very severe obstacle, and 0 otherwise (no obstacle or minor obstacle). The control variables are split into two categories: firm characteristics and country characteristics. All country-level controls are measured with a one-year lag. All models include country, industry, and year fixed effects. Robust standard errors are presented in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Definitions of variables and data sources are provided in Appendix Table A1.

from Table 7 confirm that the interaction between openness and democracy remains positive and statistically significant. This finding strengthens the causal interpretation of the study, which holds that democracy not only correlates with but also conditions the effectiveness of financial liberalisation in improving access to credit. Notably, the significance and direction of the coefficients in the IV-Probit model are broadly consistent with those in the baseline probit model, indicating that the earlier findings are not affected by endogeneity or omitted-variable bias.

- iv. **Additional endogeneity tests:** Another concern in our empirical setting is the potential endogeneity of democracy, which raises additional issues of omitted variable bias and reverse causality. To address this, we further implement an instrumental-variable strategy that treats democracy as endogenous. Following the political economy literature, we instrument for democracy using variables correlated with institutional development but plausibly exogenous to firm-level financing outcomes. Specifically, our instruments include (i) lagged democracy, capturing institutional persistence; (ii) regional democratisation waves, measured as the average level of democracy in neighbouring countries (excluding the country itself); and (iii) historical institutional determinants such as legal origin (see Appendix A2 for the definitions and construction of the instruments).

To further address the endogeneity of financial liberalisation, we employ external instruments that capture exogenous variation in global financial liberalisation. Specifically, we use (i) lagged financial openness, (ii) regional financial openness, excluding the country itself, and (iii) global financial openness, excluding the country itself. These instruments reflect external liberalisation pressures and diffusion effects rather than domestic regulatory conditions, thereby mitigating concerns that they directly affect firm-level access to finance. Importantly, this approach differs from regulatory-based instruments, which may directly influence credit allocation and violate the exclusion restriction. By relying on regional and global variation, our identification strategy isolates exogenous shifts in financial openness that are plausibly unrelated to firm-specific financing conditions (see Appendix A2 for the

definitions and construction of the instruments).

Given the inclusion of an interaction term between democracy and financial openness, we instrument both democracy and the interaction term. The interaction between the instruments and financial openness serves as an endogenous mechanism. The IV-Probit estimates are obtained using a control-function approach, where residuals from the first-stage democracy equation are included in the second-stage probit model. This allows us to correct for endogeneity while preserving the nonlinear structure of the model. For completeness and comparability with the baseline linear probability framework, we also report IV-2SLS estimates as a robustness check. The results are consistent across both approaches. Across all specifications, the interaction between democracy and financial openness remains positive and statistically significant. First-stage statistics indicate strong instrument relevance, and over-identification tests support instrument validity. While these strategies mitigate endogeneity concerns, we interpret our findings as evidence of a robust conditional relationship rather than strict causality.

Table 8 reports the first-stage regressions for the instrumental-variable strategy. The excluded instruments are strongly correlated with the endogenous regressors. In particular, lagged democracy, regional democracy, and legal origin significantly predict democracy, while lagged financial openness, regional financial openness, and global

Table 8
Addressing the endogeneity of democracy, financial liberalisation, and their interaction.

First-stage IV regression			
Variables	(1) Democracy	(2) Financial Openness	(3) Democracy × Financial Openness
Lagged Democracy	0.6841*** (0.0522)		0.2410*** (0.0613)
Regional Democracy	0.2170*** (0.0731)		0.1042** (0.0470)
Legal Origin	0.1189** (0.0490)		0.0561* (0.0329)
Lagged Financial Openness		0.7310*** (0.0580)	0.2260*** (0.0673)
Regional Financial Openness		0.1942*** (0.0611)	0.0871** (0.0410)
Global Financial Openness		0.1630** (0.0660)	0.0715* (0.0396)
Instrumented Democracy × Financial Openness			0.4137*** (0.0842)
Firm Controls	Yes	Yes	Yes
Country Controls	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	106,780	106,780	106,780
Countries	112	112	112
First-stage F-statistic	28.47	24.13	19.86
Kleibergen–Paap rk Wald F	26.91	23.89	18.72

This table reports first-stage regressions for the instrumental-variable strategy used to address the endogeneity of democracy, financial liberalisation (proxied by financial openness), and their interaction. Column (1) presents the first-stage equation for democracy. Column (2) reports the first-stage equation for financial openness. Column (3) reports the first-stage equation for the interaction between democracy and financial openness. Democracy is instrumented using lagged democracy, regional democracy averages excluding the country itself, and legal origin. Financial liberalisation is instrumented using lagged financial openness, regional financial openness excluding the country itself, and global financial openness. The interaction term is instrumented using the corresponding interacted instruments. See Appendix A2 for the definition and construction of instruments. All regressions include firm-level controls, country-level controls, industry fixed effects, and year fixed effects. Standard errors are clustered at the country level and reported in parentheses. The reported first-stage F-statistics and Kleibergen–Paap rk Wald F-statistics indicate that the excluded instruments are sufficiently strong according to conventional thresholds. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

financial openness significantly predict financial openness. The first-stage results for the interaction term are also statistically strong. The reported F-statistics and Kleibergen–Paap statistics exceed conventional thresholds, suggesting that weak-instrument concerns are unlikely to drive the second-stage results.

Table 9 presents the second-stage IV estimates addressing the endogeneity of democracy and financial openness. Column (1) instruments democracy and the interaction term, while Column (2) adopts a more stringent specification in which all key variables are treated as endogenous. Across both specifications, the interaction between democracy and financial openness remains positive and statistically significant. The magnitude and significance of the interaction term are stable across specifications, indicating that the complementarity effect is not driven by endogeneity in either democracy or financial openness. The results from the linear probability model reported in Column (3) are consistent with the IV-Probit estimates. First-stage diagnostics reported in Panel B indicate that the instruments are relevant and sufficiently strong, and over-identification tests support their validity. Overall, the findings provide robust evidence that the effect of financial liberalisation on firms’ access to finance depends critically on the level of democracy.

Table 9
Second-Stage IV Regression Estimates.

Variables	IV-Probit (Democracy IV)	IV-Probit (Full IV Model)	IV–2SLS (Full IV Model)
Financial Openness	−0.0901*** (0.0243)	−0.0833*** (0.0264)	−0.0821*** (0.0213)
Democracy (IV)	−0.1482*** (0.0521)	−0.1212** (0.0580)	−0.1262*** (0.0461)
Financial Openness × Democracy (IV)	0.1720*** (0.0440)	0.1515*** (0.0480)	0.1497**** (0.0390)
Firm Controls	Yes	Yes	Yes
Country Controls	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	106,780	106,780	106,780
Countries	112	112	112
Panel B: Identification diagnostics for IV–2SLS			
First-stage F-stat (Democracy)	28.47		
First-stage F-stat (FinLib)	24.13		
First-stage F-stat (Interaction)	19.86		
Kleibergen–Paap rk Wald F	23.89		
Hansen J-test (p-value)	0.27		

This table reports second-stage estimates from instrumental-variable models that address the endogeneity of democracy and financial liberalisation (proxied by financial openness). Panel A presents IV-Probit estimates for the binary dependent variable (access to finance). Panel B reports linear probability model estimates using 2SLS for robustness. In Column (1), democracy and the interaction term are instrumented, while financial openness is treated as exogenous. Column (2) presents a fully instrumented specification in which democracy and financial openness are instrumented. The interaction term is instrumented using the excluded instruments’ interactions with the corresponding endogenous variables. Democracy is instrumented using lagged democracy, regional democracy averages (excluding the country itself), and legal origin. Financial openness is instrumented using lagged financial openness, regional financial openness (excluding the country itself), and global financial openness. See Appendix A2 for the definition and construction of instruments. All models include firm-level controls, country-level controls, industry fixed effects, and year fixed effects. Standard errors are clustered at the country level. Panel C reports first-stage diagnostics. The Kleibergen–Paap rk Wald F-statistic exceeds conventional thresholds, suggesting that weak instrument concerns are limited. The Hansen J-test does not reject the null of instrument validity, supporting the exclusion restriction. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

4.4. Further analysis

i. **Moderating effects of banking sector characteristics:** This section examines whether the relationship between democracy, financial liberalisation, their interaction, and access to finance is influenced by the characteristics of a country’s banking sector. Existing literature highlights the significance of a banking sector’s market power, competition, and liberalisation costs on firms’ ability to access finance (Carbó-Valverde et al., 2009; Hauswald and Marquez, 2006; Leon, 2015). In Table 8, we introduce a new dimension to the analysis by adding bank competition as an explanatory variable. This approach aims to determine whether the structure of the domestic banking sector affects the link between financial openness, democracy, and access to finance. The rationale is that in more competitive banking environments, firms might benefit from better loan terms, lower information asymmetries, and greater lender responsiveness. These dynamics could, in turn, interact with external financial liberalisation and democratic governance in shaping credit availability.

The empirical results in Table 10 show that bank competition has a statistically significant, positive effect on firms’ access to finance. This suggests that, regardless of international capital flows or democratic institutions, a competitive banking system encourages access to finance. The interaction between financial openness and democracy remains positive and significant even after accounting for bank competition, indicating that institutional quality remains an important moderating factor. Including bank competition improves the model’s fit and robustness, suggesting that omitting domestic market structure may have introduced bias in earlier models. These findings support the existing literature, which highlights the pro-access effects of

Table 10
Additional analysis using a new explanatory variable – bank competition.

Dependent variable: Access to finance			
	(1)	(2)	(3)
Financial openness	−0.0269 (0.0208)	−0.0215 (0.0208)	−0.2090*** (0.0292)
Democracy	−1.0350*** (0.1143)	−1.9949*** (0.2237)	−1.5985*** (0.1299)
Bank competition	−0.0025*** (0.0008)	−0.0105*** (0.0018)	−0.0070*** (0.0009)
Democracy*Bank competition		0.0144*** (0.0029)	
Financial openness*Democracy*Bank competition			0.0063*** (0.0007)
Constant	0.3093 (0.9204)	1.0289 (0.9340)	2.2543** (0.9413)
Controls: Firm characteristics	Yes	Yes	Yes
Controls: Country characteristics	Yes	Yes	Yes
Country fixed-effects	Yes	Yes	Yes
Industry fixed-effects	Yes	Yes	Yes
Year fixed-effects	Yes	Yes	Yes
Observations	99,716	99,716	99,716

This table presents estimates introducing a new variable - bank competition. Interaction terms show whether the impact of financial liberalisation varies across democracies and bank competition. The outcome variable is access to finance: a dummy variable equal to 1 if a firm perceives access to finance as a moderate, major, or very severe obstacle, and 0 otherwise (no obstacle or minor obstacle). Coefficients are estimated using linear probit models. The control variables are split into two categories: firm characteristics and country characteristics. All country-level controls are measured with a one-year lag. All models include country, industry, and year fixed effects. Robust standard errors are presented in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1. Definitions of variables and data sources are provided in Appendix Table A1.

competition, especially in reducing barriers for SMEs (Claessens et al., 2008).

ii. **Multilevel analysis:** In Table 11, we deepen the analysis by employing a multilevel (hierarchical) modelling approach. Given the nested nature of the data, which has firms within countries, the multilevel method enables the separation of within-country and between-country variation and accounts for potential unobserved heterogeneity at the country level. By explicitly modelling country-level random intercepts, the study can estimate how much of the variation in access to finance is due to national-level factors, beyond firm-level characteristics. Furthermore, multilevel analysis supports the argument that democracy is important not only for overall economic development but also for individual firms' credit outcomes.

The multilevel results support the paper's baseline findings. The interaction between financial openness and democracy remains positive and statistically significant, illustrating that democracy's effect on financial openness endures even after accounting for country-level differences. These findings align with the work by Rajan and Zingales (2003a) and Acemoglu and Johnson (2005), who emphasise that institutions influence economic outcomes at both macro and micro levels.

iii. **Heterogeneity by regional classification of firms:** In Table 12, we introduce a regional dimension to the analysis, offering further insight into how the relationship among financial openness, democracy, and access to finance varies across regions worldwide. By categorising firms into regions such as Sub-Saharan Africa, South Asia, East Asia and the Pacific, and Latin America, the model tests for heterogeneity in the interaction effect across geographical contexts.

The findings suggest that the positive moderating effect of democracy is most evident in regions with relatively well-established democratic institutions, particularly Latin America and East Asia. Conversely, in Sub-Saharan Africa and South Asia, the democratic ability to turn financial openness into widespread credit access remains weaker. This implies that regional differences in legal enforcement, governance standards, and financial infrastructure can shape how domestic firms absorb and utilise global financial flows.

While the interaction between openness and democracy remains significant overall, the regional breakdown indicates that

the effect varies across regions. Theoretically, the regional analysis supports the idea that broader regional factors limit access to finance. This aligns with insights from the institutional economics literature (Khanna and Palepu, 2010), which argues that underdeveloped institutional environments create gaps in market functioning that external capital alone cannot overcome.

iv. **Heterogeneity by firm characteristics:** Further, we present results in Table 13 to show that our main results are retained when we carry out the analysis by considering firm characteristics such as sectors (see Fang et al., 2022). The existing literature suggests that firms across sectors face financial constraints. So, we check for this and consider whether sector matters for the baseline results. We examine the sectoral heterogeneity in the relationships among financial openness, democracy, and access to finance by performing baseline estimations for the manufacturing and services sectors. Exploiting these sub-samples, we find that the interaction of financial openness and democracy continues to hold positive and significant.

v. **Dimensions of institutional quality:** Although the literature often refers broadly to political or democratic institutions, it is important to recognise that this concept encompasses multiple dimensions, including the rule of law, constraints on the executive, bureaucratic quality, and regulatory enforcement. In this study, our main empirical focus is on democracy, which reflects the electoral and participatory aspects of political institutions. Democratic institutions differ from other institutional components by prioritising accountability, representation, and political competition over administrative capacity or legal enforcement. Therefore, democracy should not be regarded as a comprehensive indicator of political institutions, but rather as a specific mechanism through which political incentives influence economic outcomes.

This distinction is especially relevant in the context of financial liberalisation. While broader institutional quality, such as effective legal systems and strong regulatory enforcement, may influence contract security and financial intermediation, democratic institutions mainly affect how political power is distributed and how financial resources are allocated among economic agents. In democratic settings, increased political accountability can limit elite capture and promote more inclusive financial systems. However, without supporting institutional

Table 11
Multilevel probit model.

Dependent variable: Access to finance				
	(1)	(2)	(3)	(4)
Financial openness	-0.0356 (0.0861)	-0.0319 (0.0859)	-0.0247 (0.0864)	-0.3450* (0.2025)
Democracy	-0.8560 (0.5591)	-0.7889 (0.5899)	-0.7230 (0.6271)	-1.2746* (0.6673)
Financial openness*Democracy				0.6696** (0.3246)
Constant	0.4467 (0.7827)	0.9716 (0.9990)	1.1979 (1.0130)	1.6593* (1.0064)
Controls: Firm characteristics	Yes	No	Yes	Yes
Controls: Country characteristics	No	Yes	Yes	Yes
Industry fixed-effects	Yes	Yes	Yes	Yes
Year fixed-effects	Yes	Yes	Yes	Yes
Observations	99,716	100,720	99,716	99,716
Number of groups	109	109	109	109
Log likelihood	-59,281.46	-60,211.38	-59,219.14	-59,171.1
AIC	118,714.9	120,562.8	118,600.3	118,504.2

This table presents estimates using a multilevel probit model. Interaction terms show whether the impact of financial liberalisation varies across democracies and bank competition. The outcome variable is access to finance: a dummy variable equal to 1 if a firm perceives access to finance as a moderate, major, or very severe obstacle, and 0 otherwise (no obstacle or minor obstacle). Coefficients are estimated using linear probit models. The control variables are split into two categories: firm characteristics and country characteristics. All country-level controls are measured with a one-year lag. All models include industry and year fixed effects. Robust standard errors are presented in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1. Definitions of variables and data sources are provided in Appendix Table A1.

Table 12
Regional classification of firms.

Dependent variable: Access to finance						
	(1)	(2)	(3)	(4)	(5)	(6)
Financial openness	AFR −0.1555** (0.0757)	EAP −0.1635 (0.1084)	ECA −0.1314*** (0.0324)	LAC 0.0070 (0.0528)	MNA −1.6842*** (0.1442)	SAR −0.0821 (0.2545)
Democracy	−1.2576 (1.2011)	4.0127*** (0.8933)	−0.1043 (0.2124)	−0.4465* (0.2614)	−7.2752*** (2.0407)	−1.6981*** (0.3304)
Constant	5.6170** (2.4296)	6.3946 (4.6667)	−3.7498 (2.8222)	9.7913*** (2.5549)	−10.7028*** (1.1308)	3.2476*** (1.2007)
Controls: Firm characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Controls: Country characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	17,227	10,664	35,099	19,877	4490	12,340

This table presents estimates based on the regional classification of firms. ECA represents the Eastern European and Central Asia region; LAC, the Latin America and the Caribbean region; EAP, the East Asia and Pacific region; SAR, the South Asia region; AFR, the Africa region; MENA, the Middle East and North Africa region. Interaction terms show whether the impact of financial liberalisation varies across democracies and bank competition. The outcome variable is access to finance: a dummy variable equal to 1 if a firm perceives access to finance as a moderate, major, or very severe obstacle, and 0 otherwise (no obstacle or minor obstacle). Coefficients are estimated using linear probit models. The control variables are split into two categories: firm characteristics and country characteristics. All country-level controls are measured with a one-year lag. All models include country, industry, and year fixed effects. Robust standard errors are presented in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Definitions of variables and data sources are provided in Appendix Table A1.

Table 13
Sectoral classification of firms.

Dependent variable: Access to finance				
	(1)	(2)	(3)	(4)
Financial openness	Manufacturing sector −0.0117 (0.0298)	−0.4130*** (0.0548)	Services sector −0.0593* (0.0327)	−0.4745*** (0.0666)
Democracy	−0.8168*** (0.1628)	−1.4767*** (0.1782)	−1.5068*** (0.1778)	−2.3205*** (0.2149)
Financial openness*Democracy		0.8885*** (0.1029)		0.8404*** (0.1191)
Constant	−1.0283 (1.1745)	−0.3045 (1.1684)	−3.6613** (1.6410)	0.7236 (1.7518)
Firm characteristics	Yes	Yes	Yes	Yes
Country characteristics	Yes	Yes	Yes	Yes
Country fixed-effects	Yes	Yes	Yes	Yes
Industry fixed-effects	Yes	Yes	Yes	Yes
Year fixed-effects	Yes	Yes	Yes	Yes
Observations	58,209	58,209	41,479	41,479

This table presents the regression results by sector. The outcome variable is access to finance: a dummy variable equal to 1 if a firm perceives access to finance as a moderate, major, or very severe obstacle, and 0 otherwise (no obstacle or minor obstacle). Coefficients are estimated using linear probit models. The control variables are split into two categories: firm characteristics and country characteristics. All country-level controls are measured with a one-year lag. All models include country, industry, and year fixed effects. Robust standard errors are presented in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Definitions of variables and data sources are provided in Appendix Table A1.

capacity, democratic processes alone may not ensure efficient credit allocation. In line with this view, our empirical analysis concentrates on democracy as a conditional institutional factor rather than a comprehensive indicator of political institutions. To address this limitation, we supplement our baseline models with additional measures capturing other aspects of institutional quality, including the rule of law and government effectiveness. The results are presented in Panels A and B of Table 14. The results in Panel A indicate that, independently, the dimensions of institutional quality have positive and significant coefficients, while the proxies for democracy and financial liberalisation remain unchanged and are negative, as in the baseline estimates. In Panel B, where we further test for interactive effects, while the individual coefficients of financial openness remain negative, its interaction with the dimensions of institutional quality is significantly positive, indicating that the joint impact of financial liberalisation and institutional quality fosters access to finance for firms.

Conclusion and policy implications

Access to finance has long been a significant obstacle to firms' growth, increasingly hindering businesses from pursuing projects with positive net present value and engaging in innovative processes. In this study, we provide evidence on how democracy and financial liberalisation affect firms' access to finance across 112 countries from 2006 to 2021. Our results demonstrate that, when considered independently, both financial liberalisation and democracy negatively affect access to finance, suggesting that liberalisation or democracy alone may be insufficient to alleviate firms' credit constraints. Crucially, the interaction between financial liberalisation and democracy is positive and statistically significant across all model specifications, robustness checks, and alternative measures of dependent and independent variables. This finding underscores the complementarity hypothesis that democracy enables financially open economies to translate cross-border capital flows into tangible lending opportunities for firms. Multilevel and regional analyses further confirm that the benefits of this interaction

Table 14
Dimensions of institutional quality.

Panel A				
Variables	1	2	3	4
	Baseline	Baseline + Rule of Law	Baseline + Gov. Effectiveness	Baseline + Regulatory Quality
Financial openness	-0.4013*** (0.0397)	-0.3819*** (0.0410)	-0.3712*** (0.0420)	-0.3811*** (0.0410)
Democracy	-1.6427*** (0.1287)	-1.5121*** (0.1350)	-1.4780*** (0.1329)	-1.5010*** (0.1361)
Financial openness × Democracy	0.7868*** (0.0729)	0.7422*** (0.0751)	0.7210*** (0.0780)	0.7332*** (0.0761)
Rule of law		0.2140** (0.0910)		
Government effectiveness			0.2671*** (0.0952)	
Regulatory quality				0.2310** (0.0931)
Controls	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	99,716	98,450	98,120	98,300
Panel B				
Variables	Rule of Law Interaction	Gov. Effectiveness Interaction	Regulatory Quality Interaction	
Financial openness	-0.3718*** (0.0042)	-0.3650*** (0.0413)	-0.2947*** (0.0156)	
Rule of law	0.1981** (0.0920)			
Government effectiveness		0.2519*** (0.0907)		
Regulatory quality			0.1850*** (0.0120)	
Financial openness × Rule of law	0.2112** (0.0843)			
Financial openness × Gov. effectiveness		0.2361** (0.0890)		
Financial openness × Regulatory quality			0.3061** (0.0554)	
Controls + FE	Yes	Yes	Yes	
Observations	98,450	98,120	98,120	

This table presents additional estimates, using three different aspects of institutional quality: rule of law, government effectiveness, and regulatory quality. The outcome variable is access to finance: a dummy variable equal to 1 if a firm perceives access to finance as a moderate, major, or very severe obstacle, and 0 otherwise (no obstacle or minor obstacle). Coefficients are estimated using linear probit models. The control variables are split into two categories: firm characteristics and country characteristics. All country-level controls are measured with a one-year lag. All models include country, industry, and year fixed effects. Robust standard errors are presented in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Definitions of variables and data sources are provided in Appendix Table A1.

are strongest in regions with well-established democratic governance and institutional capacity. Firm-level heterogeneity analyses indicate that the positive interaction persists across sectors, confirming the broad

applicability of our findings. Our findings provide strong empirical support for political economy and financial liberalisation theories, highlighting the critical role of institutional quality in shaping the allocation of financial resources. Specifically, the positive and significant interaction between democracy and financial liberalisation demonstrates that the benefits of financial liberalisation for firm-level access to finance are contingent upon the presence of robust democratic institutions. This conditional relationship reinforces theoretical perspectives emphasising that government-controlled financial resources and cross-border capital flows translate into broader credit access only when underpinned by credible and accountable democratic institutions.

Our findings carry important implications for academia, industry, and policymakers. From an academic perspective, we contribute to the literature on firm financing by demonstrating that access to finance is not solely determined by democracy or financial liberalisation, but by their interaction. Using cross-country firm-level data, we address econometric and sampling concerns that may have affected prior studies and offer new evidence supporting the complementarity hypothesis, showing the importance of democracy and financial liberalisation for firms' financing. For industry practitioners, our results highlight the importance of democracy in shaping an efficient financial system. Politically motivated allocation of financial resources can reduce credit market efficiency by creating information asymmetries and fostering rent-seeking, thereby adversely affecting both borrowers and lenders. By contrast, financial liberalisation supported by credible democratic governance promotes transparency, competition, and fairer access to credit, encouraging participation by new players and facilitating capital formation. For policymakers, particularly in emerging and developing economies, the evidence underscores that financial liberalisation alone is insufficient to improve firm-level access to finance. Reforms must be coordinated with efforts to strengthen democratic institutions, enforce contracts, protect investors, and curb the influence of interest groups over resource allocation. Additionally, developing competitive domestic banking sectors can complement these reforms, enhancing both the efficiency and inclusivity of credit allocation. Collectively, these strategies can foster firm growth, financial inclusion, and broader economic development.

Finally, our study provides a foundation for future research. Building on the empirical interaction between democracy and financial liberalisation, subsequent studies could examine how these factors affect firms' innovation, research and development (R&D), or international expansion, offering further insights into the mechanisms through which institutional and financial environments shape firm performance and economic outcomes.

CRediT authorship contribution statement

Rilwan Sakariyahu: Writing – original draft, Visualization, Supervision, Conceptualization. **Shima Amini:** Writing – original draft, Supervision, Project administration, Conceptualization. **Dosumu Oluwatoyin:** Writing – original draft, Validation, Project administration, Conceptualization. **Olayinka Oyekola:** Writing – original draft, Visualization, Software, Resources, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Sofia Johan:** Writing – original draft, Project administration, Conceptualization.

Appendix

Table A1

Definitions of variables and data sources

Variable	Description
A. Outcome variables	
Access to finance	A dummy variable that equals 1 if a firm perceives access to finance to be a moderate obstacle, major obstacle, or very severe obstacle, and 0 otherwise. Source: World Bank Enterprises Surveys.
Financing obstacle	An ordinal variable that equals 0 if a firm perceives access to finance to be no obstacle, 1 (minor obstacle), 2 (moderate obstacle), 3 (major obstacle), or 4 (very severe obstacle). Source: As above.
Financial constraint	A dummy variable that equals 1 if a firm perceives access to finance to be a significant obstacle or a very severe obstacle, and 0 otherwise. Source: As above.
B. Independent variables	
Financial openness index	An index measuring a country's degree of capital account openness. The variable is based on the binary dummy variables that codify the tabulation of restrictions on cross-border financial transactions documented in the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER). Source: https://web.pdx.edu/~ito/Chinn-Ito_website.htm , Chinn and Ito (2008).
Financial globalisation index	The degree of globalisation of financial flows in a country-source: Gygli et al., (2019).
Democratic regime, BR	A dichotomous measure of democracy. Source: Cheibub et al. (2010); Bjørnskov and Rode (2020).
Electoral democracy index, V-Dem	Electoral democracy index from the Varieties of Democracy Project.
C. Firm-level characteristics	
Firm age	Log of firm age in years. Source: World Bank Enterprises Surveys.
Small-sized firm	A dummy variable that equals 1 if a firm has fewer than 20 employees, and 0 otherwise-source: As above.
Medium-sized firm	A dummy variable that equals 1 if a firm has between 20 and 99 employees, and 0 otherwise. Source: As above.
Large-sized firm	A dummy variable that equals 1 if a firm has 100 or more employees, and 0 otherwise. Source: As above.
Manager's experience	Log of the number of years the top manager has been working in the firm's sector-source: As above.
Largest owner asset share	Proportion of assets held by the largest owner. Source: As above.
Foreign ownership	A dummy variable that equals 1 if 50% or more of a firm is owned by a foreign entity, and 0 otherwise. Source: As above.
State ownership	A dummy variable that equals 1 if 50% or more of a firm is owned by the government, and 0 otherwise. Source: As above.
Exporter	A dummy variable that equals 1 if 10% or more of a firm's sales are exported, and 0 otherwise. Source: As above.
Audited	A dummy variable that equals 1 if the annual financial statement of a firm is checked and certified by an external auditor, 0 otherwise. Source: As above.
Quality certificate	A dummy variable that equals 1 if a firm holds internationally recognised quality certification, and 0 otherwise. Source: As above.
Publicly listed	A dummy variable that equals 1 if a firm has the legal status of a publicly listed company, and 0 otherwise. Source: As above.
Privately held	A dummy variable that equals 1 if a firm has the legal status of a privately held limited liability company, and 0 otherwise. Source: As above.
Sole proprietorship	A dummy variable that equals 1 if a firm has the legal status of sole proprietorship, and 0 otherwise. Source: As above.
Partnership	A dummy variable that equals 1 if a firm has the legal status of a partnership, and 0 otherwise. Source: As above.
Limited partnership	A dummy variable that equals 1 if a firm has the legal status of limited partnership, and 0 otherwise. Source: As above.
D. Industry indicators	
Industry dummies	A vector of dummy variables that equals 1 if a firm indicates the industry of operation is Mining (or Construction or Manufacturing or Transportation & utilities or Wholesale & retail trade or Finance, insurance & real estate, or Services or Other), and 0 otherwise-source: World Bank Enterprises Surveys.
E. Country-level controls	
GDP per capita	Log of GDP per capita -source: World Development Indicators.
Income growth	Annual GDP per capita growth rate. Source: As above.
Inflation	Annual change in consumer prices. Source: As above.
Financial development	Domestic credit to the private sector as a percentage of GDP. Source: As above.

Appendix A2. Definition and Construction of Instruments

- i. Lagged democracy: This is the lagged value of the democracy score for each country.
- ii. Regional democracy: Regional democracy is constructed as the average level of democracy across countries within the same geographic region, excluding the country itself, using data from the V-Dem database. This captures regional waves of democratisation and the effects of institutional diffusion.

$$\text{RegionalDem}_{-c,t} = \frac{1}{N_r - 1} \sum_{j \in r, j \neq c} \text{Dem}_{j,t} \quad (2)$$

$\text{Dem}_{j,t}$ is the democracy score for country j at time t ; N is the total number of countries. $j \neq c$ ensures the country itself is excluded.

- iii. Legal origin: This is sourced from the La Porta et al. dataset and is widely used in finance and institutional literature. It is a dummy variable that is used as a proxy for deep historical institutional development that shapes long-run political and economic structures but is plausibly exogenous to contemporaneous firm-level financing outcomes.
- iv. Lagged financial openness: This is the lagged value of the financial openness score for each country.
- v. Regional financial openness: This is constructed as the cross-country regional average level of financial openness excluding the country itself, using the Chinn-Ito index. This measure captures regional trends in capital account liberalisation and regional financial integration. By construction, it reflects exogenous shifts in the regional financial environment rather than domestic policy conditions. As such, it provides a plausible source of variation in financial liberalisation that is unlikely to directly affect firm-level access to finance, satisfying the relevance and exclusion conditions required for a valid instrument.

$$\text{RegionalOpenness}_{-c,t} = \frac{1}{N-1} \sum_{j \neq c} \text{FinOpenness}_{j,t} \quad (3)$$

$\text{FinOpenness}_{j,t}$ is the financial openness score for country j at time t ; N is the total number of countries. $j \neq c$ ensures the country itself is excluded.

- vi. Global financial openness: Similar to the regional financial openness, this is constructed as the cross-country global average level of financial openness excluding the country itself, using the Chinn–Ito index. This measure captures global trends in capital account liberalisation and financial integration.
- vii. Interaction term, which captures the interaction among the instruments.

First Stage 1: Democracy Equation

$$\text{Dem}_{ct} = \alpha_0 + \alpha_1 Z_{ct}^{\text{Dem}} + \alpha_2 X_{ict} + \mu_c + \lambda_t + \varepsilon_{ct} \quad (4)$$

Where: Z^{Dem} includes lagged democracy, regional democracy, and legal origin.

First Stage 2: Financial Openness Equation

$$\text{FinOpenness}_{ct} = \delta_0 + \delta_1 Z_{ct}^{\text{Fin}} + \delta_2 X_{ict} + \mu_c + \lambda_t + u_{ct} \quad (5)$$

Where: Z^{Fin} includes lagged financial openness, the regional financial openness trend (excluding the country), and global financial openness.

First Stage 3: Interaction Term

$$(\text{Dem} \times \text{FinOpenness})_{ct} = \theta_0 + \theta_1 (Z^{\text{Dem}} \times \text{FinOpenness}) + \theta_2 (Z^{\text{Fin}} \times \text{Dem}) + \theta_3 X_{ict} + \mu_c + \lambda_t + \eta_{ct} \quad (6)$$

Second Stage (IV-Probit / Control Function)

$$P(\text{AccessFinance}_{ict} = 1) = \Phi(\beta_0 + \beta_1 \widehat{\text{FinOpenness}}_{ct} + \beta_2 \widehat{\text{Dem}}_{ct} + \beta_3 \widehat{\text{Interaction}}_{ct} + \gamma X_{ict}) \quad (7)$$

Data availability

Data will be made available on request.

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