



Social capital, institutions, and financing constraints: International evidence

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ABSTRACT

The study utilizes firm-level data from the World Bank's Enterprise Surveys to investigate the impact of institutionalized social capital on financing constraints faced by firms across various sizes and sectors in 138 medium- and low-income countries. Financing constraints are assessed through survey-based indicators of firms' decisions regarding external financing. Social capital is measured using a novel composite index that incorporates country-level measures of civic activism, intergroup cohesion, interpersonal trust, membership in clubs and associations, and gender equality. Controls include firm-level characteristics and national economic and institutional factors. Results indicate that higher values of the social capital index correlate with reduced financing constraints across various sectors and regions. These findings remain robust even after accounting for potential endogeneity bias. Firm-specific characteristics emerge as significant predictors that moderate the relationship between social capital and financing constraints. Notably, economic and financial development, governance quality, contractual institutions, and social and religious conditions play significant roles in attenuating the impact of social capital on financing constraints across different countries.

1. Introduction

Access to finance is essential for firm growth, economic development, and financial stability. Improved access to financial resources facilitates business expansion and efficient allocation of funds (Levine, 2005), while financing constraints hinder investment and economic growth (Fazzari et al., 1988). These constraints are often assessed through financial statements, though Kaplan and Zingales (1997), (2000) challenge traditional classifications, advocating for a focus on fund availability. Cleary (1999) highlights the sensitivity of creditworthy firms to internal funds, whereas Fazzari et al. (2000) distinguish between financial constraints and cyclical liquidity distress. Moyen (2004) further examines classification methodologies.

Research on financing constraints focuses especially on SMEs and their characteristics (Beck et al., 2006, 2008a, 2008b; Karlan and Morduch, 2010; Santos and Cincera, 2022). Institutional factors, including social capital, enhance financial access by reducing monitoring costs and increasing credit availability (Grossman and Hart, 1986; McMillan and Woodruff, 2000). Financial inclusion drives economic growth and employment, particularly for SMEs (Haini, 2021) and plays a role in achieving the UN's SDGs (Kara et al., 2021), emphasizing education and demographics. Improved credit access supports the employment growth of SMEs (Ayyagari et al.,

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2021), while firm size, age, and performance influence SME financing (Martinez et al., 2022). The rise of fintech, including crowd-funding and peer-to-peer lending, necessitates regulatory adaptation (Rao et al., 2023). Despite progress, SMEs and marginalized groups continue to face barriers, underscoring the need for further research on innovative financing mechanisms and policies.

Social capital alleviates financing challenges in developing countries, where credit guarantees are scarce, and financing costs are high. Research highlights its role in facilitating information exchange (Fafchamps and Minten, 1999; Granovetter, 1995; Oparaocha, 2016) and the exclusionary nature of lender-borrower relationships due to limited creditworthiness data (Bastelaer, 2000; Cassar et al., 2007; Kear, 2016; Simba et al., 2024). Institutional arrangements and social capital substitute for collateral, helping lenders mitigate information asymmetry (Karlan et al., 2009). Many financial institutions now use "social collateral," leveraging borrowers' reputations and networks to grant credit. Local connections shape financial behavior, reducing contractual costs and fostering trust (La Porta et al., 1997; Algan and Cahuc, 2010). Societies with strong sharing norms benefit from lower transaction risks (Putnam, 2000). Social capital also drives innovation (Najam ul Zia et al., 2023; El Ghouli et al., 2023), moderates the effects of transformational leadership on sustainability (Chang et al., 2024), and influences financial decisions (Jabbouri et al., 2024). Higher social capital lowers bank equity costs by reducing risk perception and enhancing investor confidence (Pasiouras and Samet, 2022). Despite progress in financial inclusion, SMEs and marginalized groups still face barriers, necessitating further research into innovative financing mechanisms.

Although social capital has garnered considerable attention in finance theory, cross-country studies using comprehensive measures of social capital are relatively scarce due to the challenge of obtaining adequate and comparable data. This paper addresses this gap by examining the relationship between a novel measure of country-level social capital and individual firms' financing constraints across 138 middle- and low-income countries, using micro-survey data comprising 128,284 firms of varying sizes and business sectors. We construct the social capital index by amalgamating five key indicators of social development per country: civic activism, intergroup cohesion, interpersonal trust, gender equality, and membership and involvement in clubs and associations. To ensure the reliability of the findings, a broad array of firm-specific characteristics and country-level economic and institutional factors are incorporated to assess the robustness of the association between social capital and firms' financing constraints. The findings demonstrate that our social capital index serves as a robust predictor of financing constraints, revealing that higher levels of social capital correlate with reduced constraints for firms. However, the impact varies across firm size, sectors, and development levels, underscoring the contingent nature of this effect. Additionally, firm-specific characteristics significantly influence financing constraints and moderate the relationship between social capital and access to finance. Moreover, country-level factors exert varying effects on this association. This suggests that policy initiatives aimed at enhancing access to finance would benefit from considering the influence of social capital alongside broader economic and non-economic conditions across different countries.

Building on the international business literature, we conceptualize social capital as an informal institution operating alongside formal institutions such as legal enforcement and financial regulation (North, 1990; Williamson, 2000). In Williamson's (2000) four-level schema, our construct resides at Level 1 (informal institutions), the legal and financial infrastructure corresponds to Levels 2–3, and firms' financing constraints represent Level 4 outcomes. This mapping clarifies why and when social capital can complement or substitute formal institutional quality in shaping access to external finance. Trust lowers perceived opportunism, enables richer information flows, and increases investor confidence; formal legal and financial infrastructures determine how strongly these trust-based advantages translate into contract terms and credit allocation. Where formal enforcement is weaker, trust substitutes for it by easing monitoring and renegotiation frictions; where enforcement is stronger, trust complements it by further reducing non-price contractual stringency and expanding feasible financing options. Recent research shows that societal trust conditions cross-border financial contracting and governance choices, including covenant design in foreign bonds and MNE staffing/control architectures, highlighting the informal–formal interaction logic central to IB (Brockman et al., 2022; Gaur et al., 2022). We quantify these relationships at scale across 138 economies, linking Level-1 conditions to Level-4 financing outcomes through Level-2/3 contexts.

This paper makes several contributions to literature. Firstly, it introduces a novel measure of institutionalized social capital that is applicable across a broad array of nations, facilitating comparative analysis and providing insights into social cohesion, trust, and cooperation. This measure offers valuable guidance for policymakers in understanding the state of social capital within their nation and devising strategies to enhance community development and tackle social challenges (Putnam, 2000; Bjørnskov, 2006a). Our social capital measure differs from those used by Jabbouri et al. (2024) and Pasiouras and Samet (2022) in that it encompasses a broader spectrum of social and institutional factors and covers a more extensive range of countries. Additionally, it enables the exploration of correlations between social dynamics and various socio-economic indicators, aiding comprehension of their impact on economic growth, education, health, crime rates, and political stability (Guiso et al., 2004; Norris and Inglehart, 2013).

Secondly, our analysis contributes to a deeper understanding of the factors influencing financing constraints for firms across diverse countries. Our social capital measure provides insights into trust levels, social cohesion, and institutional quality within a nation, all of which are pivotal factors affecting firms' access to financing (Knack and Keefer, 1997; La Porta et al., 1998). Higher levels of social capital often indicate more streamlined financial systems, reduced transaction costs, and enhanced access to business credit. Furthermore, our measure highlights variations in social networks and community connections, which can significantly impact firms' access to financing through informal channels, such as peer-to-peer lending or community investment networks (Fafchamps and Minten, 1999; Karlan et al., 2009). Additionally, we show that social capital interacts with formal financial institutions and regulatory frameworks, shaping financing constraints by influencing factors such as the role of social networks in navigating bureaucratic obstacles or accessing information about financial resources (Algan and Cahuc, 2010; McMillan and Woodruff, 2000). This analysis underscores the crucial role of social capital in enhancing firms' access to finance, indicating that policies and strategies focused on building and leveraging social capital can be effective in fostering business growth and economic development.

Thirdly, international business research documents precisely these informal–formal linkages. Societal trust shapes international contracting by influencing covenant design in foreign bonds, indicative of lower anticipated agency and information risks (Brockman

et al., 2022). Trust also interacts with formal institutions to structure multinational subsidiary staffing and control, underscoring cross-level complementarities (Gaur et al., 2022). Our contribution is to extend this IB logic to firm-level access to finance across 138 economies, showing how Level-1 conditions map into Level-4 financing outcomes through Level-2/3 contexts, consistent with the substitution/complementarity mechanisms above. Our study extends these insights by demonstrating, with broad firm-level evidence, that higher societal trust/social capital is associated with lower perceived financing constraints, and that the strength of this association depends on formal governance and financial development. Our contribution extends this logic to firm-level access to finance across 138 economies, showing how Level-1 conditions map into Level-4 financing outcomes through Level-2/3 contexts, consistent with the substitution/complementarity mechanisms above.

Finally, our study provides more robust and generalized results by utilizing a significantly larger dataset that encompasses a broader array of countries and firm-specific details. Our disaggregated analysis extends to considerations of varying firm sizes and sectors of activity, thus allowing for more specific understanding of implications and efficient policy suggestions (Rajan and Zingales, 1998; Raddatz, 2006; Claessens and Laeven, 2003). Furthermore, our examination broadens the literature on the influence of institutions and social conditions on corporate decision-making processes, shedding light on the nuanced interplay between these factors and firms' financing constraints (Fazzari et al., 1988; Kaplan and Zingales, 1997). Furthermore, longitudinal studies utilizing our social capital index offer insights into historical trends and trajectories, while encouraging interdisciplinary collaborations across sociology, economics, political science, psychology, and public health (Putnam et al., 1993; Fukuyama, 2001). These indices also serve as benchmarks for governments and organizations, facilitating goal setting, resource allocation, and advocacy for investments in social capital-building activities (Paxton, 1999; Dulal et al., 2011). This multifaceted approach underscores the importance of social capital in shaping socio-economic outcomes and provides a comprehensive framework for future research and policy development.

In the subsequent sections, Section 2 provides a review of the relevant literature, elucidating existing research on the topic. Section 3 outlines the data sources and the empirical strategy. Section 4 explores how social capital and other firm-specific attributes predict firms' financing constraints. Section 5 explores sectoral effects. Section 6 addresses concerns regarding endogeneity in our analysis. In Section 7, we broaden our investigation to examine the moderating influence of economic and non-economic factors at the country level. Section 7 prescribes economic and non-economic factors that mediate the effects of social capital. Lastly, Section 8 presents the conclusions.

2. Related literature

2.1. Conceptualizing social capital

Social capital is commonly defined in two main ways. The first perspective, as articulated by Putnam et al. (1993) and Putnam (2001), conceives social capital as features of social organization, such as trust, norms, and networks, which enhance societal efficiency. It emphasizes the importance of connections among individuals, social networks, and the norms of reciprocity and trust that emerge from them. The second definition, put forward by Knack and Keefer (1997), describes social capital as encompassing trust, cooperative norms, and associations within groups. Both definitions underscore the significance of trust, reciprocity, and cooperative norms within social groups, as well as the interconnectedness of individuals in society. The strength and benefits of social capital are often correlated with reduced feelings of exclusion and marginalization among individuals. However, Ostrom (1999) notes that the relationship between norms of sharing, social networks, and economic outcomes is complex and operates through both informal and formal modes of behavior.

Despite its significance, measuring social capital has been challenging due to its intangible and multifaceted nature, limiting empirical insights. Bjørnskov (2006a) highlights the inherent difficulty in measuring social capital comprehensively. Consequently, many studies have concentrated on specific behavioral elements or regional arrangements of social capital. For instance, Putnam (2000) developed a social capital index for the US, integrating trust, volunteerism, and community organizational activities, drawing from diverse social indicators like crime rates, educational achievements, and economic parity. Noteworthy is Putnam's observation of diminished social capital index values in former Confederate states, linking this to historical factors such as plantation slavery and Jim Crow Politics, which diminished horizontal networks of reciprocity in the south. Other measurement approaches include Oliver (1999), who assessed social capital strength in local neighborhoods using information on voting behavior and community engagement. Alesina and La Ferrara (2000) examined measures of trust, group membership, and voting behavior, finding that heterogeneous communities in certain US cities exhibited lower levels of social activities. Knack (2002) employed census response rates as a proxy for social capital, and Charles and Kline (2006) analyzed carpooling behavior to gauge social interaction levels in neighborhoods. Fafchamps and Minten (2002) utilized the number of business acquaintances as an indicator of social network strength, while Costa and Kahn (2003a) formulated the concept of social capital by examining community characteristics that influence group involvement. Moreover, Costa and Kahn (2003b) correlated shifts in volunteering, group affiliation, and home entertainment with income inequality and female labor force engagement, elucidating the decline in social capital observed in US between 1952 and 1998. Guiso et al. (2004) evaluated social capital in Italy through participation in referendums, while Rupasingha and Goetz (2008) utilized voter turnout rates in US presidential elections and census response rates. Lastly, Sabatini (2009) developed a comprehensive measure of social capital across the various regions in Italy, encompassing five dimensions: strong familial ties, weak informal connections, participation in voluntary associations, engagement in political activities, and awareness of civic responsibilities.

Societal trust reduces ex-ante and ex-post contracting hazards, curbing opportunism and information asymmetry and thereby reshaping governance choices, softening non-price loan terms, and broadening access to external finance (North, 1990; Williamson, 2000). Internationally, higher-trust societies exhibit systematically different foreign bond covenants, showing that informal

institutions shape contracting (Brockman et al., 2022). Trust also interacts with formal institutions to determine multinational subsidiary staffing and control, highlighting cross-level complementarities (Gaur et al., 2022). In high-trust countries firms are more likely to adopt zero-leverage policies, suggesting that societal trust can shape the debt–equity mix and not just the tightness of loan terms (El Ghoul et al., 2018). However, micro-governance evidence cautions that the benefits of high board–CEO trust depend on complementary oversight (Bae et al., 2024). Extending this literature, we show with large-scale firm-level evidence that greater societal trust/social capital is associated with lower perceived financing constraints, with effects contingent on formal governance and financial development.

2.2. Measuring social capital

Arrow (2000) highlighted the challenges in measuring social capital. The intangible nature of social capital, which resides in the relationships and networks among individuals, makes it challenging to quantify consistently and comparably across different contexts and countries. Unlike financial or human capital, which have more tangible and measurable attributes, social capital is inherently complex and context dependent. Arrow suggested considering social capital as a productive input, akin to physical or human capital, highlighting its importance for achieving common goals and fostering cooperative behavior. Viewing social capital in this way emphasizes its role in facilitating interactions and transactions within society, which can have significant economic and social implications. However, the challenge remains in developing robust methodologies and metrics for measuring social capital effectively. Arrow notes that social capital research requires data of sufficient consistency, quality, and cross-country coverage to capture its multidimensional nature adequately. Addressing this challenge is essential for advancing our understanding of how social capital operates and how it can be leveraged to promote positive outcomes in various domains.

Several factors should be considered to capture the multifaceted nature of social capital and its varied manifestations across countries and regions. Trust is a fundamental component often assessed in cross-country studies, given its significance in fostering cooperation and social cohesion. However, other components of social capital, such as volunteering, group engagement, and social networks, should also be taken into consideration. Bjørnskov (2006a) and Rossteutscher (2008) note the differential roles played by these components across countries and continents, with variations observed in levels of generalized trust, volunteering, and group engagement. For instance, Western Europe and Asia typically exhibit higher levels of generalized trust, whereas North America and Africa tend to show greater prevalence in volunteering and group involvement. Some studies use proxies for social capital, such as democracy indices or Eurobarometer surveys, to capture trust and voluntary association across countries (Paxton, 1999; Fidrmuc and Gërkhani, 2008). Dulal et al. (2011), among others, construct composite measures that encompass multiple dimensions of social capital, including trust, norms, social networks, and social structure. This approach provides a comprehensive view across various countries. Therefore, when measuring social capital, researchers should consider incorporating multiple dimensions and contextual factors to capture its nuanced and diverse manifestations across different settings.

A comprehensive measurement of social capital should encompass a broader array of constituent elements, including social trust, civic engagement, social norms, networks, and structures. Firstly, Putnam et al. (1993) and Putnam (2000) argue that dense networks of civic engagement and activism foster horizontal relationships among individuals. Within these networks, members engage in voluntary relationships, developing trust and cooperation. For instance, networks comprising friends, colleagues, and neighbors often facilitate generalized reciprocity through mutual obligations and responsibilities. These dense bonds create conditions conducive to collaboration, coordination, and cooperation, leading to the creation of collective goods, improved information-sharing, and higher costs associated with shirking and defection. Moreover, the shared understandings, tacit rules, and agreed procedures fostered by personal contact and friendship bonds facilitate future collaboration for mutual benefit.

Secondly, intergroup cohesion has a significant influence on the strength of social capital. Putnam (2002) introduces a crucial distinction between bridging and bonding social capital. Bridging social capital refers to networks that connect individuals of diverse backgrounds, while bonding social capital connects individuals within similar social niches. This distinction is pivotal as bridging groups typically generate positive externalities, fostering interpersonal trust and reinforcing community ties. Conversely, bonding groups, confined within particular social circles, are more prone to producing negative externalities. Heterogeneous bridging associations are viewed as fostering social capital and equality by enhancing trust and reinforcing community bonds. However, bonding groups can exacerbate social inequalities, particularly in pluralist societies marked by ethnic tensions, by reinforcing practices of nepotism, ethnic animosity, and sexism. Examples such as the Mafia's blood brotherhood, Colombian drug cartels' tight networks, and exclusionary nationalist groups illustrate the insular, mutually dependent nature of bonding communities. Tolerance and trust within such groups may not extend to outsiders, often perpetuating divisions and exclusion. Social networks revolving around class, occupation, and ethnicity may diminish social capital by fostering intra-group reciprocity norms and exacerbating societal divisions. Moreover, special interest groups such as trade unions and professional associations, as argued by Olson (1982) and Portes and Landolt (1996), might incur disproportionate costs on society by advocating for inefficient policies like tariff and tax breaks. Knack (2002) argues that the effects of networks vary based on the characteristics of the associations, including the objectives and diversity of group members, citing conflicts that arose among social groups during the Weimar era in Germany when socialists, Catholics, and bourgeois Protestants formed their own civil societies.

Thirdly, social and cultural norms play a crucial role in fostering an attitude towards public cooperation, with reciprocity being a central aspect deeply ingrained in societal and public affairs. Putnam et al. (1993) argues that social capital carries significant political implications, suggesting a two-step model where civic society directly fosters social capital, subsequently enabling good governance through social networks and cultural norms. Associations influence their members internally by instilling norms and values such as cooperation and shared responsibilities, while externally impacting the broader polity through interest articulation and aggregation.

Rothstein (2000) and Torche and Valenzuela (2011) assert that reciprocity is influenced by factors such as co-presence, mutuality, and memory, shaping the behavioral evolution of society. Reciprocity thrives when individuals trust that their actions towards others will be reciprocated in the future, thereby reducing incentives for cheating or shirking. For instance, in the US, neighbors may ostracize individuals known for tax evasion, whereas in Italy, neighbors may seek advice from them on tax evasion strategies (The Wall Street Journal, June 28, 2007).

Fourthly, Fukuyama (2001) asserts that interpersonal trust is linked to virtues like duty, reciprocity, and honesty, which foster cooperation among individuals. However, for social cooperation to thrive, trust must extend beyond one's immediate social circles, as reliance solely on familial or close friendships may inadvertently promote rent-seeking behaviors. Fukuyama highlights instances in China and southern Italy where trust limited to close networks led to a culture of corruption, as individuals felt justified in "stealing" for the benefit of their families. Thus, generalized trust, which extends to strangers, is crucial for promoting social cooperation. Moreover, generalized trust correlates with confidence in public regulatory institutions, such as courts and police, as individuals shape their perceptions of society through interactions with social entities like churches, schools, and the media. For instance, church behavior can serve as an indicator of a society's moral standards. Fukuyama suggests that a society characterized by corrupt social institutions is unlikely to cultivate high levels of trust.

Fifthly, Rodrik (1998) demonstrates that deep social divisions coupled with weak conflict management institutions exacerbate the economic costs of external shocks, as interest groups exert pressure to delay policy adjustments. For instance, countries marked by fragmented societies and inadequate conflict management institutions experienced substantial declines in GDP growth after the oil crisis of the 1970s. Lee and Borchering (2006) found that in Los Angeles, richer and socioeconomically diverse income groups are less supportive of public-school funding, whereas more homogeneous and lower-income groups in Orange County strongly oppose cuts in social funding. Effective democracies, as evidenced by Lijphart (2004), can mitigate the impact of social divisions by facilitating consensus outcomes among diverse voter groups. For instance, Switzerland's power-sharing democracy, combined with proportional representation, has effectively addressed significant social divisions related to income, religion, and language.

Sixth, Norris and Inglehart (2013) argue that membership in associations can be vertically and horizontally allocated by gender, where structural analyses reveal how social divides based on gender, age, and class contribute to an unequal distribution of civic resources such as time, money, knowledge, and skills. Civic activism and organizational membership, like factors associated with social class and ethnicity, are closely linked to disparities in resource allocation, particularly concerning time, money, knowledge, and skills, thereby influencing gender participation. Mennino and Brayfield (2002) emphasize that involvement in social groups and community activities, as well as assuming leadership roles in voluntary organizations, requires adequate leisure time and flexibility in one's schedule. Cultural explanations emphasize the diverse motivations, attitudes, and values that individuals bring to social engagement, shaped by their prior interests and ideological commitments.

Almond and Verba (1963) demonstrated how cultural attitudes impact patterns of civic activism, manifesting in lobbying, political activism, and social organizing. Moreover, agency accounts highlight the role of gender-driven networks and informal ties in mobilizing individuals to join social organizations, attend meetings, or engage in group activities. Norris and Inglehart (2013) argue that women's relatively lower participation in social groups stems from constraints such as time limitations, lack of interest, or simply not being invited, with the gender gap in associational life largely influenced by the agency-driven nature of informal social networks rather than structural or cultural differences between men's and women's lives.

Furthermore, the question arises whether social capital undergoes changes over time. Some scholars, like Alesina and La Ferrara (2002) and Charles and Kline (2006), view social capital as a time-invariant factor shaped by persistent attributes of households and communities, such as ethnicity and demographics. Conversely, Glaeser et al. (2002) illustrate that individuals' involvement in different social groups, such as religious and veterans' organizations, may fluctuate over time, suggesting dynamic investment behavior in social capital. Möbius (2001) argues for a significant multiplier effect of social capital resulting from strong interpersonal complementarities. Anderson et al. (2002) employ participation indicators such as spending on ceremonies, engagement in community work, and involvement in irrigation maintenance to demonstrate the influence of social capital investment on its accumulation. However, assessing the accumulation of social capital over time remains challenging, particularly on a cross-country basis.

Lastly, the interplay between financing constraints and social capital formation presents an intriguing empirical inquiry. Behrman and Deolalikar (1990) suggest that financially constrained firms may respond to negative income shocks by reducing investment in social capital. This reduction can potentially exacerbate poverty traps if deteriorating social relationships worsen credit constraints unless external credit sources are available. Karlan (2007) demonstrates that limited access to finance can lead to poor social capital, further restricting access to informal credit markets and worsening financing constraints. Möbius (2001) highlights the potential for multiple equilibria, stressing the importance of studying the process of social capital formation. Conversely, Besley and Coate (1995) and Karlan et al. (2009) argue that firms with restricted access to formal credit may increase investment in social capital to enhance access to informal credit channels. Social capital facilitates access to credit markets through mechanisms like social enforcement and collateral. Pham and Talavera (2018) reveal that better social capital can help firms secure more favorable loan conditions, as bankers tend to gather extra information about loan applicants through their social ties. Similarly, Chu et al. (2023) show that professional social capital plays a significant role in alleviating financial constraints and facilitating access to bank loans. These findings highlight the intricate and dynamic relationship between social capital and financial constraints. On one hand, financial constraints can hinder the formation of social capital, perpetuating a cycle of limited access to finance and economic hardship. On the other hand, firms can strategically invest in social capital to overcome these constraints, leveraging social networks to access informal credit and improve their financial conditions. This dual perspective underscores the importance of a nuanced understanding of how social capital can both influence and be influenced by firms' financial constraints.

2.3. Social capital and access to finance

Social capital influences lenders' and borrowers' financing decisions through multiple channels. Firstly, it enhances access to finance by facilitating the efficient dissemination of both formal and informal information. Uzzi (1999) highlights how extensive social connections facilitate the transfer of private information between lenders and borrowers, thereby granting access to non-standard information beyond public sources, such as annual reports. Barr (2000) demonstrates that entrepreneurs with broad and diverse social networks tend to run more efficient enterprises with better credit ratings. Similarly, Honig (1998) found that increased church attendance among Jamaican entrepreneurs correlates with higher business profitability. Djankov *et al.* observe that Chinese entrepreneurs often support family members in entrepreneurial endeavors, leveraging shared or inherited social networks. Moreover, higher social capital facilitates faster recovery from setbacks by enabling the sharing of improvement practices among producers, as noted by Carter and Castillo (2005). Research on social network structures, including studies by Fafchamps and Gubert (2007) and Fafchamps and Lund (2003), emphasizes the crucial role of information sharing in informal credit provision and social insurance. Karlan (2007) and Paal and Wiseman (2011) argue that elevated social capital enhances participants' creditworthiness, thereby addressing enforcement issues in risk-sharing arrangements. Pham and Talavera (2018) reveal that social capital facilitates loan applications. They found that firms with closer relationships with government officials and other businesspeople can secure longer-term loans. Similarly, Ullah *et al.* (2021) found that social capital has a positive influence on informal financing and helps to alleviate credit constraints. Chu *et al.* (2023) highlight the substantial impact of professional social capital in mitigating financial constraints and easing access to bank loans.

Secondly, social capital mitigates adverse selection and moral hazard problems, reducing opportunistic behavior among borrowers and lenders. Communities with higher levels of social capital tend to discourage self-serving actions, influencing external financial contracting by altering lenders' perceptions of borrowers' propensity for opportunism. This encourages greater cooperation to mitigate moral hazard risks, particularly after the contract has been executed. Empirical evidence supports this notion. Posner (1980) found that dense social networks in African villages reduce opportunistic behaviors, while Elster (1989) notes internal discomfort among opportunistic actors in socially capital-rich communities. Uzzi (1996) and Fischer and Pollock (2004) argue that dense social networks foster a code of conduct that deters opportunism and promotes the honoring of obligations. Similarly, Fukuyama (1997) and Guiso *et al.* (2004) show that cooperation fosters trustworthiness, leading lenders to perceive firms in socially capital-rich communities as more trustworthy. La Porta *et al.* (1997) and Bjornskov (2004) found lower bribery rates in high social-capital environments. Boot (2000) suggests that informal links between lenders and borrowers reduce transaction costs, while Buonanno *et al.* (2009) found that social capital decreases opportunistic behavior through the establishment of cooperative norms and social sanctions. Duarte *et al.* (2012) demonstrate that borrowers who are more trustworthy receive lower interest rates and are more likely to obtain loans. Hasan *et al.* (2017) demonstrate that firms in high social capital countries engage in fewer opportunistic actions and perform better economically. Jin *et al.* (2017) suggest that social capital mitigates lenders' risk-taking and enhances stability, serving as an external monitoring mechanism. Ostergaard *et al.* (2015) found that small savings banks in socially capital-rich areas exhibit greater altruism and higher survival rates. In a recent study, Jin and Lee (2024) found that community social capital serves an external monitoring role, improving the information environment by limiting opportunistic reporting practices and promoting information transparency in the IPO process.

Thirdly, social capital alleviates the stringency of non-price contractual terms. Lenders utilize non-price contractual terms, in addition to pricing factors, to manage risks. Strahan (1999) observes that banks employ both loan spreads and non-price terms (e.g., collateral, covenants) to mitigate borrower risk. Bharath *et al.* (2008) argue that banks, having access to superior borrower information due to substantial monitoring investments, incur lower negotiation costs compared to dispersed public investors. Graham *et al.* (2008) discovered that banks impose stricter collateral and covenant requirements on riskier firms. Thus, if banks perceive social capital as reducing moral hazard in loan contracting or view firms in socially capital-rich communities as more trustworthy, they may place greater trust in these firms and impose less stringent loan terms. Hartlieb *et al.* (2020) reveal that firms with high social capital exhibit lower asymmetry in cost behavior, restraining managers from making opportunistic resource allocation decisions that would induce cost stickiness, thereby reducing their financial constraints.

Fourthly, social capital influences borrowers' choices regarding debt financing. Models developed by Diamond (1991) and Besanko and Kanatas (1993) demonstrate that loans are more effective than bonds in addressing moral hazard issues in debt contracts. This efficiency stems from banks' ability to monitor firms, unlike dispersed public investors who face significant free-rider problems. Denis and Mihov (2003) argue that firms encountering informational, agency, and contractual risks tend to prefer bank loans over issuing public bonds. However, in environments where social capital limits opportunistic behavior, the preference for bank loans may decrease. Guiso *et al.* (2004), (2010) found that social capital fosters cooperation and reduces opportunistic behavior, thereby mitigating contractual issues and expanding firms' options for debt financing. Hasan *et al.* (2022) investigate the influence of social capital on lending decisions through its effects on borrowers' trustworthiness and lenders' generalized trust. Their results reveal that borrowers from regions with stronger social capital receive higher offers from individual lenders, resulting in greater financing success and larger loan sizes, particularly for borrowers with lower credit quality.

Fifthly, social capital increases the trust of dispersed public investors. Pevzner *et al.* (2015) argue that managers of firms operating in high social capital environments are perceived as more credible, leading investors to trust the information they provide. Consequently, investors place greater trust in companies trusted by their surrounding community or network, resulting in a reduced requirement for returns on equity financing for firms operating in high social capital environments. Guiso *et al.* (2004) model the demand for equity among public investors as influenced by the likelihood of self-serving behavior by financial intermediaries. They demonstrate that this demand depends on various factors, including the strength of legal enforcement, the prevalence of social

networks within the region, and the social norms shaping intermediary behavior. Increased levels of social capital bolster investor trust in intermediaries, thereby encouraging equity investment. [Chu et al. \(2023\)](#) demonstrate that professional social trust moderates the sensitivity of investment to cash flow. The authors argue that high professional social trust reflects the firm's industry-specific knowledge and networks, which convey more information about project quality and enhance investors' confidence, thereby alleviating financing constraints.

Sixthly, social capital enhances public monitoring of managerial behavior. According to [Sunstein \(1996\)](#), social norms dictate societal attitudes towards acceptable behavior, delineating what actions are deemed appropriate or inappropriate. [Horne \(2009\)](#) contends that society employs control mechanisms, such as "open criticism" and "withdrawal of social support," to censure violations of these norms. [Stavrova et al. \(2013\)](#) demonstrate that individuals who adhere to social norms may receive greater levels of social recognition, including public acknowledgment of their status, merit, or personality. Conversely, unethical behavior such as excessive risk-taking for personal gain contravenes these norms. Therefore, managers of firms situated in high social capital environments are less likely to transgress social norms due to the potential social sanctions and criticism that may ensue. [Gupta et al. \(2018\)](#) found a negative correlation between social capital and the cost of equity, particularly in settings with lower levels of product-market competition. They interpret these findings as evidence of the regulatory function of social capital, especially in contexts where other mechanisms for overseeing managerial behavior are lacking. Social capital thus acts as an informal regulatory mechanism that holds managers accountable to societal expectations and discourages unethical behavior.

Finally, social capital enhances financial transparency within firms. In a recent study, [Sánchez-Ballesta and Yagüe \(2022\)](#) observe that SMEs with higher social capital are less likely to manage reported earnings and exhibit more transparency, suggesting that social capital constrains opportunistic earnings management practices. [Jha \(2017\)](#) suggests that companies headquartered in regions with elevated levels of social capital tend to produce higher-quality financial reports and are less prone to committing fraud by misrepresenting financial information. Similarly, [Gao et al. \(2021\)](#) provide evidence that firms with elevated levels of social capital, strong social norms, and dense social networks are more likely to constrain unethical corporate behavior, leading to a more efficient use of corporate resources. Additionally, [Jha and Chen \(2015\)](#) demonstrate that firms operating in environments rich in social capital tend to pay lower audit fees, as auditors perceive them as more trustworthy clients, with managers more likely to fulfill their obligations. This increased transparency, combined with higher-quality accounting information associated with lower self-interested actions, can moderate lenders' risk-taking behavior, as argued by [Garrett et al. \(2014\)](#). Banks operating in environments with high social capital are also observed to exhibit more transparency and conservative accounting practices, as highlighted by [Jin et al. \(2017\)](#). Moreover, [Lim et al. \(2014\)](#) argue that banks with transparent financial reporting and conservative accounting exhibit greater prudence in selecting borrowers, resulting in more stable lending behavior. Accounting conservatism, which discourages cash distributions to contracting parties and enhances investment efficiency, may decrease reported income and assets, thereby improving net cash inflow ([Francis and Martin, 2010](#)). [Kim et al.](#) and [Campbell et al. \(2008\)](#) support this reduced risk of bankruptcy. Furthermore, accounting conservatism can serve as a mechanism for alleviating earnings management practices, lowering information asymmetries, and mitigating conflicts of interest between managers and debtholders ([Watts, 2003](#); [Kothari et al., 2009](#)). Lastly, accounting conservatism fosters an enhanced information environment, facilitating debt renegotiation to prevent bankruptcy ([Giammarino, 1989](#); [Hotchkiss et al., 2008](#)). Thus, by encouraging banks to adopt more conservative accounting practices, social capital can facilitate firms' access to credit.

2.4. Research hypotheses

Social capital, viewed as a Level-1 informal institution, shapes lender–borrower relations through trust, information sharing, and stakeholder confidence. Using cross-country firm data, the study tests three hypotheses:

H1. : *Higher social capital reduces financing constraints.*

Higher trust and civic norms curb opportunism and information frictions, easing loan terms and expanding credit supply ([Guiso et al., 2004](#); [McMillan and Woodruff, 2000](#); [Putnam, 2000](#); [Jabbouri et al., 2024](#); [Pasiouras and Samet, 2022](#)).

H2. : *This effect is stronger for opaque firms and weaker for transparent ones.*

Higher internal and external monitoring mitigates frictions thereby easing financing constraints ([Beck et al., 2008a](#); [Karlan et al., 2009](#); [Martinez et al., 2022](#); [Rao et al., 2023](#); [Chu et al., 2023](#)).

H3. : *The social-capital effect is strongest where institutions and finance are weak (substitution) and smaller where they are strong (complementarity)*

Depending on governance quality, credit depth, and competition, social capital exerts weaker/stronger effects of financial constraints ([Knack and Keefer, 1997](#); [La Porta et al., 1998](#); [Fafchamps and Minten, 1999](#); [Guiso et al., 2004](#)).

3. Empirical strategy

3.1. Data

The data for this analysis is sourced from the World Bank's Enterprise Surveys (WBES), which provide insights into individual firms' experiences and perceptions of their operating environment. These surveys play a crucial role in connecting firm performance and attributes with the business environment, simultaneously evaluating obstacles to private sector expansion and employment in a

nation. The WBES gathers data from representative random samples of companies in both the manufacturing and services sectors, employing updated and comprehensive sampling frames for each country, to ensure representativeness. However, a limitation of the WBES data is the question of how well it represents the actual constraints faced by firms, given that responses rely on private unaudited information. Ideally, addressing these concerns requires firm census data, which is often unavailable for middle- and low-income countries. Claessens and Tzioumis (2006) argued that assessing the factors influencing firms' financing constraints in these nations using balance-sheet data is challenging due to the low quality, inconsistency, and predominantly unaudited nature of the data. Therefore, micro-survey data capturing firms' perceptions of their access to finance may provide more valuable insights, especially in middle- and low-income countries. Another strength of this dataset is its focus on small and medium enterprises (SMEs), which play a crucial role in economic activity across most countries included in the sample. The WBES consistently categorize firm size into small (5–19 employees), medium (20–99 employees), and large (100 and more employees). The data set used in this analysis covers 139 middle- and low-income countries and includes 128,284 firms surveyed by the WBES between 2006 and 2021. The firm-level data was merged with country-level data from various sources. To mitigate outlier bias, the data underwent winsorization at the 1st and 99th percentiles, and large-scale variables are logarithmically transformed as needed, ensuring the robustness of the analysis. In general, the WBES microdata provide cross-national micro-foundations connecting country-level informal (L1) and formal (L2/L3) institutions to firm-level financing outcomes (L4). Our social capital index captures L1 variation; governance/financial variables capture L2/L3 context; the ordered-probit outcome reflects L4 contracting frictions. We therefore interpret coefficients as institutional associations consistent with IB theory, while acknowledging limits to causal identification.

3.2. Key variables

The dependent variable, ACCESS, is an ordinal variable derived from firms' perceptions of financing constraints during the fiscal year referenced in each WBES. Firms respond to the question: "How problematic is financing for the operation and growth of your business?" The responses span from 0 (no constraint) to 4 (very severe constraint), with intermediate values indicating varying degrees of constraint: 1 (minor constraint), 2 (moderate constraint), and 3 (major constraint). We note that while these responses provide valuable insights into firms' perceptions, they may not fully capture the reality of financing constraints, and some firms may report constraints due to temporary liquidity issues rather than underlying financing constraints. Therefore, it is essential to interpret the results with caution to account for potential behavioral biases.

The key independent variable, SOCAP, represents a composite index of social capital, combining data on social and institutional development published by the International Institute of Social Studies (<https://isd.iss.nl/>). Our proposed SOCAP index integrates five key indicators of social development at the country level. These indicators in turn encompass a wide range of 200 time-varying variables, structured into five distinct social institutional groups: civic activism, club and association membership and involvement, intergroup cohesion, interpersonal trust, and gender equity. These variable groups encapsulate information closely aligned with the concept of social capital elucidated earlier. To address potential correlation issues, we adopt latent variables approach to combine the variables within each group, mirroring the methodology employed in generating the Worldwide Governance Indicators (Kaufmann et al., 2007). The rationale behind this approach suggests that each group of indicators serves as a latent measure of social connectedness in each country, albeit on different scales and subject to varying degrees of measurement error. Assuming uncorrelated errors across countries, the composite group indicators are aggregated to reduce overall error levels. The variable SOCAP is derived as the first principal component of the five variables equally weighted, producing values within the [0,1] range. The determinant of the correlation matrix (0.071) exceeds the critical threshold of 0.0001, indicating moderate multicollinearity, which is expected in PCA. Bartlett's test of sphericity ($\chi^2 = 4136.093$, $p < 0.000$) confirms that the variables exhibit significant correlations, making them suitable for dimensionality reduction. Additionally, the Kaiser-Meyer-Olkin (KMO) measure (0.796) of sampling adequacy falls within the "good" range, indicating sufficient shared variance among the variables for PCA to be effective. These diagnostic tests affirm that PCA is a valid method for analyzing the dataset, as the correlation structure supports dimensionality reduction, and the sample adequacy is strong.

SOCAP comprises five key dimensions that collectively measure social capital. Civic activism evaluates societal norms that promote political engagement through petitions, protests, and media access, focusing on social practices that enhance democratic functioning rather than formal institutions (Putnam et al., 1993). Membership in clubs and associations captures local engagement through voluntary organizations and social groups, while intergroup cohesion evaluates social tensions among identity groups using conflict data such as riots, assassinations, and public intolerance. Interpersonal safety and trust integrate general social trust with behavioral measures from value surveys, and gender equality quantifies discrimination in health, education, wages, and societal norms that reinforce inequality. These five dimensions address concerns raised by Arrow (2000) and Durlauf (2002) regarding social capital as a collective asset that influences behavior through mutual interactions, aligning with Fidrmuc and Gërghani (2008) in their integration of individual and social information for measurement accuracy. Putnam (2000) distinguishes between bridging associations (e.g., civic groups, sports clubs) that foster trust across diverse groups and bonding associations (e.g., labor unions, political groups) with exclusive memberships. However, we align with Putnam's assertion that all forms of association strengthen societal trust. Despite inherent limitations in qualitative indices, SOCAP remains one of the most comprehensive and robust measures of social capital for cross-country analysis.

In constructing SOCAP, we distinguish three trust types commonly used in the literature: *generalized trust* (belief that most people can be trusted), *relational/particularized trust* (confidence in close in-groups), and *institutional trust* (confidence in public authorities). Our construct concerns generalized trust, which governs arm's-length transactions and hence credit to unfamiliar counterparties. It is designed to proxy this domain: its interpersonal trust component directly targets generalized trust, while civic activism, intergroup

cohesion, association membership, and gender equality capture bridging social structures that broaden trust beyond in-groups. In contrast, institutional trust is addressed separately through formal-institution controls (e.g., governance quality, creditor rights), consistent with our informal–formal interaction framework.

For validation purposes, the Appendix benchmarks SOCAP against nine World Value Surveys (WVS) *trust* items. The correlations show modest but significant alignment with generalized/stranger trust and smaller positive alignments for neighborhood trust, but near-zero links to family/personal, countrymen, or out-group (religion/nationality) trust. Specifically, the SOCAP index aligns most strongly with “trust people you meet for the first time” (0.07), “most people can be trusted” (0.042), “trust your neighborhood” (0.039), and “trust your family” (0.036), while all other WVS trust items show negligible or insignificant links. Hence, SOCAP mainly captures bridging, arm’s-length trust, the mechanism most relevant for easing financing constraints, while not reducing to any single WVS item. It embeds broader institutional features consistent with our substitution/complementarity lens.

A closely related informal construct is *collectivism*, which can correlate with trust and influence financial behavior and state ownership patterns (Hofstede, 2001; Brewer and Venaik, 2011; Boubakri et al., 2016; El Ghoul et al., 2019). Conceptually, collectivism emphasizes in-group obligations and social role expectations, whereas generalized trust concerns expectations about strangers and out-groups, precisely the margin relevant for arm’s-length credit and public contracting. Our social capital index includes dimensions (e.g., intergroup cohesion, gender equality) that are theoretically orthogonal to in-group collectivism and more closely tied to generalized trust. Moreover, country fixed effects, extensive firm controls, and formal-institution covariates reduce the risk that

Table 1
Financing constraints and social capital index (average country value).

Country	ACCESS	SOCAP	Country	ACCESS	SOCAP	Country	ACCESS	SOCAP
Afghanistan	2.05	0.41	Gambia	1.79	0.60	Papua New Guinea	0.74	0.49
Albania	1.04	0.55	Georgia	1.34	0.55	Paraguay	1.37	0.56
Angola	2.36	0.53	Ghana	2.57	0.56	Peru	1.30	0.53
Antigua & Barbuda	2.01	0.75	Grenada	1.50	0.80	Philippines	0.84	0.58
Argentina	1.98	0.56	Guatemala	1.46	0.51	Poland	1.29	0.60
Armenia	1.72	0.57	Guinea	2.23	0.54	Romania	1.64	0.57
Azerbaijan	1.36	0.56	Guinea Bissau	2.91	0.63	Russia	1.45	0.55
Bahamas	1.09	0.71	Guyana	1.31	0.52	Rwanda	1.60	0.54
Bangladesh	1.75	0.50	Honduras	1.47	0.55	Samoa	1.30	0.67
Barbados	1.85	0.71	Hungary	0.74	0.62	Senegal	2.24	0.54
Belarus	1.35	0.58	India	1.16	0.52	Serbia	1.45	0.57
Belize	2.59	0.73	Indonesia	1.16	0.57	Sierra Leone	2.20	0.55
Benin	2.13	0.53	Iraq	2.13	0.39	Slovak Rep.	1.26	0.57
Bhutan	1.40	0.60	Israel	0.53	0.60	Slovenia	1.23	0.65
Bolivia	1.52	0.52	Jamaica	1.72	0.59	Solomon Islands	1.17	0.50
Bosnia & Herz.	1.42	0.58	Jordan	1.97	0.50	South Africa	0.73	0.53
Botswana	1.69	0.54	Kazakhstan	1.30	0.65	South Sudan	2.38	0.39
Brazil	2.34	0.55	Kenya	1.65	0.53	Sri Lanka	1.60	0.50
Bulgaria	1.23	0.55	Kosovo	1.72	0.57	St Kitts & Nevis	1.94	0.73
Burkina Faso	3.01	0.51	Kyrgyz Rep.	1.43	0.51	St Lucia	2.21	0.80
Burundi	2.16	0.51	Lao PDR	1.16	0.66	St Vincent & Gren.	1.41	0.67
Cambodia	1.22	0.62	Latvia	1.27	0.60	Sudan	1.24	0.39
Cameroon	2.30	0.45	Lebanon	1.76	0.47	Suriname	1.99	0.62
Cabo Verde	1.93	0.50	Lesotho	1.72	0.53	Swaziland	1.49	0.47
Central Afr. Rep.	2.09	0.59	Liberia	1.85	0.51	Sweden	0.61	0.71
Chad	2.22	0.46	Lithuania	1.23	0.60	Tajikistan	1.30	0.62
Chile	1.34	0.56	Madagascar	1.60	0.50	Tanzania	2.15	0.55
China	0.81	0.58	Malawi	1.96	0.56	Thailand	0.58	0.56
Colombia	1.73	0.49	Malaysia	1.37	0.60	Timor Leste	1.05	0.62
Congo	2.11	0.52	Mali	2.32	0.53	Togo	2.17	0.55
Costa Rica	2.06	0.60	Mauritania	2.19	0.57	Tonga	1.46	0.58
Côte d'Ivoire	2.72	0.47	Mauritius	1.89	0.60	Trinidad & Tobago	1.78	0.58
Croatia	1.28	0.58	Mexico	1.44	0.54	Tunisia	1.14	0.51
Czech Rep.	1.37	0.62	Micronesia	1.42	0.38	Türkiye	0.84	0.53
Dem. Rep. of Congo	2.27	0.46	Moldova	1.24	0.57	Uganda	2.02	0.51
Djibouti	1.11	0.52	Mongolia	1.80	0.60	Ukraine	1.61	0.57
Dominica	2.61	0.59	Montenegro	1.09	0.57	Uruguay	1.44	0.58
Dominican Rep.	1.37	0.59	Morocco	1.29	0.52	Uzbekistan	0.96	0.56
Ecuador	1.52	0.52	Mozambique	2.11	0.51	Vanuatu	1.59	0.62
Egypt	1.55	0.51	Myanmar	0.99	0.52	Venezuela	1.23	0.52
El Salvador	1.52	0.53	Namibia	1.68	0.54	Vietnam	0.98	0.64
Eritrea	0.43	0.60	Nepal	1.53	0.55	West Bank & Gaza	2.02	0.64
Estonia	0.50	0.62	Nicaragua	1.24	0.55	Yemen	1.64	0.48
Ethiopia	1.67	0.50	Niger	1.81	0.48	Zambia	1.64	0.52
Fiji	0.92	0.58	Nigeria	1.55	0.45	Zimbabwe	2.52	0.50
North Macedonia	1.45	0.50	Pakistan	1.30	0.40			
Gabon	1.58	0.54	Panama	0.88	0.55			

Source: Authors' calculations.

collectivism proxies drive our estimates.

Finally, note that our key variables are drawn from independent sources with distinct designs. The financial constraint outcome (ACCESS) is a firm-level item from the WBES, collected via country-specific business interviews. By contrast, social capital (SOCAP) is a country-year composite compiled by the International Institute of Social Studies, aggregating multiple datasets into five latent dimensions (civic activism, association membership, intergroup cohesion, interpersonal trust, gender equality). This separation in data producer, respondent unit (firm vs. country population), measurement frame (micro vs. macro), and instrument (single firm survey vs. multi-source index) minimizes shared-method variance by design. Several SOCAP components also embed non-perceptual inputs (e.g., conflict events, gender-equity indicators), further reducing overlap with the firm questionnaire.

Table 1 presents the average values of ACCESS and SOCAP per country, highlighting notable disparities across countries globally. Countries with low ACCESS values, such as China (0.81), Hungary (0.74), and South Africa (0.73), face relatively fewer barriers when seeking external financial resources. In contrast, countries with medium access to finance values, such as Vietnam (0.98), Tunisia (1.14), and Armenia (1.72), experience moderate difficulties in obtaining external financial support. Low ACCESS values, indicating significant challenges, are observed in Burkina Faso (3.01), Zimbabwe (2.52), and Belize (2.59), suggesting these countries face substantial barriers to securing external finance. Regarding social capital, countries like Eritrea (0.60), Bhutan (0.60), and Indonesia

Table 2
Summary statistics.

Variable	N	Mean	S.D.	Min	0.25	Mdn	0.75	Max
ACCESS	128284	1.5	1.33	0	0	1	3	4
SOCAP	131394	0.54	0.06	0.37	0.51	0.54	0.57	0.8
AGE	130423	7.57	0.02	7.56	7.56	7.56	7.58	7.61
SIZE	132904	1.72	0.76	1	1	2	2	3
SECTOR	132557	2.17	1.48	1	1	1	4	6
LEGAL	132900	0.45	0.5	0	0	0	1	1
EXPORT	132904	0.08	0.27	0	0	0	0	1
LOCAT	109328	0.71	0.45	0	0	1	1	1
AUDIT	132699	1.51	0.54	1	1	1	2	3
OWNF	132371	7.88	25.31	0	0	0	0	100
OWNP	132394	87.74	30.95	0	100	100	100	100
OWNG	132380	0.55	6.52	0	0	0	0	100
OWNT	132376	2.01	13.5	0	0	0	0	100
GDPG	118717	1.55	0.67	-3.48	1.35	1.69	1.88	2.9
GDPGAP	131389	8.78	0.89	6.19	8.25	8.85	9.46	10.73
GINI	132904	40.04	8.15	25	33.6	39.2	45.5	65
INFLAT	117166	7.1	4.57	-2.4	4	6.97	9.3	27.71
COMPET	117166	4.11	0.47	0	3.82	4.15	4.36	5.49
CREDIT	126890	40.15	30.15	1.2	17.17	32.88	52.39	156.98
TRADE	94708	15.53	23.38	0	1	5.39	26.91	103.79
LERNER	98314	7.98	7.99	0.26	4.05	5.6	8.32	54.32
ZSCORE	108847	4.81	9.77	-31.8	0.21	3.87	8.53	54.68
SPREAD	108847	13.91	9	4.46	8.75	12	16.13	67.72
FINOPEN	129763	1.25	0.7	0.04	0.91	1.19	1.87	2.41
GLOBAL	126831	56.38	15.83	10.94	45.09	56.59	67.36	98.29
VOIACC	131823	-0.28	0.75	-2.16	-0.88	-0.23	0.28	1.66
POLSTAB	131823	-0.65	0.88	-2.68	-1.23	-0.68	-0.02	1.18
GOVEFF	131823	-0.34	0.63	-1.69	-0.79	-0.42	-0.03	1.91
REGQUAL	131823	-0.3	0.66	-2.18	-0.66	-0.38	0.05	1.91
RULLAW	131823	-0.45	0.63	-1.83	-0.86	-0.53	-0.09	1.97
CONTCOR	131823	-0.49	0.64	-1.59	-0.92	-0.55	-0.28	2.29
LEGEFF	91331	3.29	0.64	0	2.8	3.34	3.77	5.04
ENFRCON	132058	49.97	14.96	2.08	38.44	52.8	62.94	83.44
LEGRGHT	117016	5.35	2.31	0	3	5	7	11
AUDSTDR	121879	4.3	0.63	2.55	3.81	4.28	4.71	6.22
INVPROT	132058	46.56	14.04	10	33.33	46.67	56.67	80
PROPREG	132058	58.97	17.35	0	49.87	58.92	71.14	99.86
CONFINPR	100632	0.28	0.45	0	0	0	1	1
CONRSR	100632	0.04	0.19	0	0	0	0	1
FRDPR	128305	36.44	15.95	0	30	30	50	90
EXPROP	100632	8.47	25.82	1	1	1	1	98
INSOLV	132058	18.96	13.46	0	11.02	15.65	25.84	78.14
FRETH	132904	0.46	0.24	0	0.25	0.43	0.67	0.93
FRLNG	132904	0.43	0.31	0	0.13	0.41	0.77	0.92
FRRLG	132904	0.41	0.22	0	0.21	0.38	0.61	0.86
FAMTIES	83857	0.29	0.19	0	0.11	0.3	0.48	0.85
RELIGIOS	132904	0.99	0.03	0.67	0.99	1	1	1.01
CRIME	128454	3.23	0.98	1.00	3.00	3.00	4.00	5.05
SOCPROG	128912	67.37	23.87	16.35	53.78	73.11	87.76	100
EDCTR	117166	3.71	0.74	0	3.09	3.86	4.3	5.59

(0.57) exhibit low social capital, indicating weaker networks and community ties that could hinder business operations. Medium social capital values are seen in Israel (0.60), Malaysia (0.60), and Kazakhstan (0.65), reflecting balanced community engagement and networking. High social capital values are found in Grenada (0.80), St. Lucia (0.80), and the Bahamas (0.71), suggesting strong community ties that can help mitigate financing challenges. The data imply that social capital plays a crucial role in alleviating financing constraints; higher social capital often corresponds to improved networking and trust, aiding firms in overcoming financial barriers. Conversely, countries with lower social capital might struggle more with financing despite facing moderate formal constraints, highlighting the importance of fostering social capital alongside financial reforms.

3.3. Controls

Moreover, the analysis incorporates firm-specific characteristics to account for the nature and operations of the firms. These characteristics encompass firm age, size, sector of activity, legal status, location, export status, auditing practices, and ownership structure. Furthermore, country-level variables are incorporated to account for the impact of national economic and non-economic factors. These control variables account for unseen disparities between countries and are integrated to prevent any false associations, thereby enhancing the accuracy of measuring the impact of individual firm-specific variables. Consequently, the regression estimates capture variations within countries in the correlation between firms' financing constraints and various external predictors. Each individual firm is not sufficiently large to have a significant impact on country-level measures of these development indicators. Furthermore, to gain a deeper understanding of the relevant social capital effect, the sample is divided between low- and high-income middle- and low-income countries based on the median level of GDP per capita. The Appendix provides descriptions of all variables used in the paper.

Table 2 presents summary statistics for all variables, revealing significant variations across countries. Access to finance (ACCESS), measured by an ordinal scale from 0 (no constraint) to 4 (very severe constraint), has a mean of 1.5 and a standard deviation of 1.33, indicating that firms generally face minor to moderate financing constraints with considerable variability. Social capital (SOCAP) has a mean of 0.54 (SD = 0.06), suggesting moderate levels of social capital across the surveyed countries. Firm-level variables, such as age (mean log value of 7.57, SD = 0.02), size (mean of 1.72, SD = 0.76), and sector (mean of 2.17, SD = 1.48), display diversity in firm characteristics. Legal status (mean = 0.45, SD = 0.5), export activity (mean = 0.08, SD = 0.27), and location (mean = 0.71, SD = 0.45) further illustrate the varied contexts in which these firms operate. Country-level variables exhibit significant heterogeneity, with GDP growth (mean of 1.55 %, SD = 0.67), GDP per capita (mean log value of 8.78, SD = 0.89), and income inequality (Gini mean of 40.04, SD = 8.15) reflecting diverse economic environments. Inflation rates (mean = 7.1 %, SD = 4.57) and product market competition (mean = 4.11, SD = 0.47) also vary widely, affecting financial and business conditions. Credit availability (mean domestic credit to private sector of 40.15 % of GDP, SD = 30.15), stock market activity (mean value of 15.53 % of GDP, SD = 23.38), and banking sector stability (Z-score mean of 4.81, SD = 9.77) highlight differences in financial development. This initial evidence reveals substantial cross-country variations in the degree to which firms encounter financing constraints, and country conditions impact the measure of social capital.

Additionally, Table 3 displays pairwise correlations among the variables that capture firm-specific characteristics. The social capital index (SOCAP) shows weak to moderate correlations with various firm characteristics, such as a positive correlation with firm age (0.0497*), size (0.0662*), and legal status (0.2116*), indicating that older, larger firms and those incorporated as joint-stock companies tend to have higher social capital. Conversely, a negative correlation with firm location (-0.2326*) suggests that firms in larger cities may have lower social capital. The considerable negative correlation between foreign and domestic private ownership (-0.4664*) highlights the inverse relationship between these types of ownership. The VIF value of 1.981 indicates that multicollinearity is not a significant issue, ensuring the reliability of the regression analyses.

3.4. Estimation model

Due to the ordinal nature of the outcome variable, we employ an ordered probit model with the standard maximum likelihood

Table 3
Correlation matrix.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
SOCAP (1)	1										
AGE (2)	0.0497*	1									
SIZE (3)	0.0662*	0.2405*	1								
SECTOR (4)	0.0229*	-0.0290*	-0.1073*	1							
LEGAL (5)	0.2116*	0.2944*	0.2333*	0.0337*	1						
EXPORT (6)	-0.0017	0.0578*	0.1879*	-0.0695*	0.0536*	1					
LOCAT (7)	-0.2326*	0.0194*	0.0422*	-0.0157*	-0.0894*	-0.0312*	1				
OWNF (8)	0.0524*	0.0384*	0.1628*	0.0187*	0.1115*	0.1465*	0.0073*	1			
OWNP (9)	0.0078*	-0.1197*	-0.1427*	-0.0137*	-0.0517*	-0.1541*	-0.0268*	-0.4664*	1		
OWNG (10)	0.0142*	0.0039	0.0823*	0.0058*	0.0429*	0.0037	-0.0127*	0.0071*	-0.1451*	1	
OWNT (11)	-0.1044*	-0.0322*	-0.0224*	0.0110*	-0.0579*	0.0084*	0.0315*	-0.0318*	-0.3701*	0.0280*	1
VIF	1.981										

The table shows the pairwise correlations of all variables and the overall VIF value. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

estimator and fixed effects for regression estimation (Greene, 2012). The analysis includes only observations with non-missing values. Country fixed effects are incorporated to adjust for unobservable disparities between countries. To address potential heteroscedasticity and dependence within countries, standard errors are clustered at the country level. Country-year effects are calculated but omitted from the reported results. A balanced multi-wave firm panel would make firm fixed effects informative, but the WBES structure makes this impractical: it would drop most observations, confine identification to a non-random re-interview subset, and induce incidental-parameter bias in ordered models. Further, although both key variables reflect perceptions at different levels, they do not originate from the same survey or respondent pool, thereby limiting the scope for spurious correlation driven by a single method or respondent mindset. Lastly, the instrumental variable analysis for endogeneity is provided later. In essence, the estimation model suggests that the firm's fundamental response can be expressed by the following equation:

$$\text{ACCESS}_{ijt} = \beta_0 + \text{SOCAP}_{jt} \beta_1 + X1_{ijt} \beta_2 + X2_{jt} \beta_3 + \mu_{ijt} \quad (1)$$

where ACCESS_{ijt} is the underlying probability that firm i in country j in year t experiences access to finance to be no, low, moderate, major or severe constraint, respectively; SOCAP_{jt} is the social capital measure per country j in year t ; $X1_{ijt}$ is the vector of firm-specific control variables per firm i and country j in year t ; $X2_{jt}$ is the vector of country-level control variables in country j and year t . The term μ_{ijt} is the two-way error term component that comprises the sum of η_j , λ_t and ε_{ijt} , where η_j accounts for unobservable country-specific fixed effects, λ_t accounts for unobservable time-specific year effects and the ε_{ijt} is a disturbance parameter that is assumed to vary normally across countries and years. Note that when dealing with ordinal data using a probit model, there is not an equivalent statistic to the OLS R^2 for evaluating goodness-of-fit. Instead, various pseudo R^2 measures are employed, ranging from 0 to 1, where higher values indicate a better fit for the model. However, these measures do not directly align with the interpretation of an OLS R^2 . Wooldridge (2002) suggests that for binary responses, McFadden's pseudo R^2 estimates might have an analogous interpretation to the R^2 estimates of OLS regression.

4. Results

4.1. Baseline effects

The regression results present the estimated probability that firms of varied sizes perceive financing as an obstacle to their business operations based on the prevailing conditions of social capital. Sequential maximum likelihood regression models are estimated for each firm size, and for all firms collectively, while controlling for firm-specific attributes. The analysis of the marginal effects in Table 4

Table 4
Baseline results.

ACCESS	All firms	By firm size			By income level	
		Small firms	Medium firms	Large firms	High-income countries	Low-income countries
SOCAP	-2.420*** (-30.10)	-2.553*** (-20.86)	-2.317*** (-16.60)	-2.362*** (-12.67)	-2.127*** (-21.92)	-2.477*** (-17.04)
AGE	-2.344*** (-10.91)	-3.129*** (-8.63)	-1.081*** (-3.02)	-0.106 (-0.24)	-3.583*** (-11.19)	0.167 (0.56)
SECTOR	0.001 (0.13)	-0.007* (-1.83)	-0.009** (-2.21)	0.016*** (2.61)	0.001 (0.07)	-0.016*** (-4.38)
LEGAL	0.045*** (14.61)	0.059*** (10.80)	0.044*** (8.61)	0.018*** (3.05)	0.036*** (7.76)	0.029*** (6.73)
EXPORT	-0.002*** (-11.07)	-0.001** (-2.50)	-0.001*** (-4.28)	-0.001*** (-4.49)	-0.002*** (-7.25)	-0.001*** (-6.33)
LOCAT	0.010*** (3.45)	-0.005 (-1.06)	0.020*** (3.93)	0.017** (2.55)	-0.032*** (-6.71)	0.049*** (12.03)
AUDIT	0.081*** (12.49)	0.067*** (6.85)	0.035*** (3.17)	0.028* (1.78)	0.126*** (13.17)	0.016* (1.76)
OWNF	-0.003*** (-10.63)	-0.001*** (-3.02)	-0.003*** (-6.30)	-0.003*** (-5.77)	-0.001** (-2.12)	-0.004*** (-10.60)
OWNP	-0.001*** (-3.64)	-0.001 (-0.64)	-0.001*** (-2.70)	-0.001** (-2.27)	0.001*** (3.06)	-0.001*** (-4.53)
OWNG	-0.002*** (-3.25)	-0.004*** (-2.87)	-0.003*** (-3.27)	-0.001 (-0.18)	-0.001 (-0.65)	-0.002*** (-2.67)
OWNT	-0.001* (-1.73)	-0.001 (-1.22)	-0.001 (-1.12)	0.001 (0.78)	0.001* (1.78)	-0.002*** (-3.32)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes
Country effects	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R^2	0.014	0.013	0.013	0.014	0.022	0.015
Wald Chi ²	4386.010	1877.697	1411.469	822.029	3240.792	2538.882
N	102176	46042	35449	20685	49433	52743

The table presents the baseline effects for the whole sample as well as by firm size and income level. An ordered probit model with country-year fixed effects and country-clustered standard errors is used. Estimates of fixed effects are not reported. All variables are defined in the Appendix.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

reveals several key findings regarding the effect of social capital (SOCAP) on firms' access to finance (ACCESS). Overall, higher social capital significantly reduces financing constraints for firms ($\beta = -2.420$, $p < 0.01$). This demonstrates that firms with greater social capital are better able to secure financial resources, highlighting the importance of social networks and community engagement in facilitating access to finance, thereby confirming hypothesis H1. The negative association between social capital and financing constraints indicates that informal institutions mitigate transaction hazards in financial contracting, consistent with evidence that trust shapes non-price debt terms and international contracting (Brockman et al., 2022). Stronger effects in weaker formal-institution environments point to informal-formal substitution, whereas persistence in stronger regimes reflects complementarity (North, 1990; Williamson, 2000).

Interpreted through Williamson's schema, our results indicate that higher social trust (Level-1) is associated with fewer perceived financing frictions (Level-4), with stronger effects where formal institutions are weaker (substitution) yet still meaningful where enforcement and market infrastructure are robust (complementarity). This aligns with IB evidence on covenant design and subsidiary governance: informal institutions travel with, and shape, formal financial contracting and control choices across borders (Brockman et al., 2022; Gaur et al., 2022). Our findings generalize the international business mechanism from specific cross-border transactions to broad firm-level access to finance.

Further, the impact of social capital varies across different firm sizes. For small firms, SOCAP has a coefficient of -2.553 ($p < 0.01$), indicating a strong negative impact on financing constraints. This suggests that small firms benefit significantly from enhanced social capital, which helps them overcome barriers to external finance. Medium-sized firms exhibit a SOCAP coefficient of -2.317 ($p < 0.01$), reflecting a substantial reduction in financing constraints due to higher social capital, although slightly less pronounced than for small firms. Large firms experience the most significant reduction in financing constraints due to increased social capital, with a coefficient of -2.362 ($p < 0.01$). This suggests that the benefits of social capital increase with firm size, potentially because larger firms have a greater capacity to leverage extensive social networks. Moreover, the influence of social capital differs by income level. In high-income countries, SOCAP has a coefficient of -2.127 ($p < 0.01$), indicating that even in well-developed financial markets, social capital plays a crucial role in facilitating access to finance. The effect of social capital is slightly more pronounced in low-income countries, where SOCAP has a coefficient of -2.477 ($p < 0.01$). This suggests that in environments with less developed financial systems, social capital is even more crucial for alleviating financing constraints, underscoring the importance of policies that promote social capital to enhance firms' access to finance in these regions.

The analysis also reveals other key factors influencing financing constraints. Firm age (AGE) plays a crucial role, with older firms facing fewer financing constraints ($\beta = -2.344$, $p < 0.01$). The legal status of being incorporated as a joint-stock company (LEGAL) indicates a slight increase in financing constraints ($\beta = 0.045$, $p < 0.01$). Exporting firms (EXPORT) enjoy fewer financing constraints ($\beta = -0.002$, $p < 0.01$). However, firms located in larger cities (LOCAT) face higher financing constraints ($\beta = 0.010$, $p < 0.01$). Additionally, firms with audited accounts (AUDIT) face higher constraints ($\beta = 0.081$, $p < 0.01$). The ownership structure also plays a role: foreign ownership (OWNF) and state ownership (OWNG) reduce financing constraints ($\beta_s = -0.003$, $p < 0.01$ and -0.002 , $p < 0.01$, respectively). Domestic private ownership (OWNP) slightly reduces constraints ($\beta = -0.001$, $p < 0.01$), while other ownership types have an insignificant impact ($\beta = -0.001$, $p = 0.1$).

Interpreted through this structure, your existing estimates read as follows: a negative SOCAP main effect supports H1; more negative SOCAP effects for opaque firms support H2; and attenuation under stronger formal/financial environments but amplification under weaker/riskier ones supports H3. This aligns with existing evidence that trust shapes covenant intensity and subsidiary control (Brockman et al., 2022; Gaur et al., 2022) and with finance mechanisms on relational lending, contracting, and investor confidence.

The findings demonstrate that higher social capital significantly reduces financing constraints across various firm sizes and income levels. Small and medium-sized firms, as well as firms in low-income countries, benefit the most from enhanced social capital. These results underscore the crucial role of social capital in enhancing firms' access to finance, indicating that policies and strategies focused on building and leveraging social capital can be effective in promoting business growth and economic development. By focusing on strengthening social networks, trust, and community engagement, policymakers and business leaders can help firms overcome financial barriers, ensuring better access to essential resources and fostering overall economic progress. By acknowledging these nuances, policymakers can design more effective interventions to facilitate improved access to finance for firms across different contexts. Overall, this evidence contributes valuable cross-country insights to the global discourse on the role of social capital in mitigating firms' financing constraints in middle- and low-income countries.

4.2. Sectoral effects

Access to finance poses a significant constraint for firms across different economic sectors, albeit with differences in their dependence on the financial system for technological, organizational, and product-related purposes. According to Rajan and Zingales (1998), Raddatz (2006), and Claessens and Laeven (2003), the financial vulnerability of firms in different sectors is influenced by two key exogenous factors: the varying needs for external finance due to long-term investments (e.g., R&D) and short-term working capital (e.g., variable inputs), and the different abilities to secure external finance by offering tangible assets as collateral. This variation across sectors has implications for varying levels of access to finance for firms operating within them. Sectors requiring more external finance but possessing fewer tangible assets typically face stronger financing constraints. Moreover, financial frictions influence how firms allocate resources across industries, both vertically and horizontally. Firms facing liquidity constraints often focus on activities that are less dependent on financing and gradually expand into increasingly financially sensitive sectors, ultimately depleting their funds. Consequently, firms facing fewer financial constraints possess a comparative advantage in financially sensitive sectors, both within single-sector firms and across sectors within multi-sector firms. Social capital plays a crucial role in influencing the sectoral

distribution of financing constraints for firms. Manufacturing firms, for instance, are increasingly integrating service-oriented policies to better align with customer needs, a phenomenon referred to as "servitization." Social ties and networks with suppliers facilitate cooperation, influence supplier decisions, reduce the need for formal controls, and ease the requirement for external finance. Expanded social ties enable manufacturing firms to enhance performance and gain a competitive advantage.

To explore the sectoral aspect of the association between social capital and access to finance, Table 5 displays the results of the baseline model estimated for six distinct sectors: manufacturing, retail, wholesale, services, construction, and others. In the manufacturing sector, higher social capital significantly reduces financing constraints ($\beta = -1.908$, $p < 0.01$), and similar trends are observed in the retail sector ($\beta = -3.066$, $p < 0.01$), the services sector ($\beta = -1.646$, $p < 0.01$), and the construction sector ($\beta = -1.320$, $p < 0.01$). These findings suggest that firms in these sectors benefit significantly from enhanced social capital, which helps them overcome barriers to external finance. However, in the wholesale sector, the effect of SOCAP is not too significant ($\beta = 0.086$, $p = 0.10$), indicating that social capital does not substantially impact financing constraints in this sector. Similarly, in other sectors, SOCAP has no significant impact ($\beta = -0.745$, $p = 0.14$). These results highlight the critical role of social capital in reducing financing constraints for manufacturing, retail, services, and construction firms, while indicating a less pronounced effect for wholesale and other sectors. Consequently, sector-specific policies aimed at enhancing social capital can effectively improve access to finance, tailored to the unique needs and characteristics of each industry. However, to better understand the sectoral impact of social capital on access to finance, additional considerations, such as competition among firms, concentration within each sector, and sectoral regulation, need to be taken into account. This evidence contributes to a deeper understanding of how social capital influences firm financing across different sectors of economic activity.

5. Endogeneity

The analysis must address several potential econometric issues. Firstly, there is a concern that financing constraints faced by firms may influence the components of social capital, leading to reverse causation and correlation between regressors and the error term. However, we argue that this study is not susceptible to endogeneity concerns arising from reverse causality. It is implausible to assume a feedback effect from individual firms' obstacles in accessing finance to the overall country's level of social capital. Social connections typically form over many years, predating the measurement of dependent variables. Secondly, measurement error is a potential issue. To mitigate this, we employ different proxies of institutions from various sources, reflecting diverse methods and information sets. These proxies, while based on the same theoretical construct, are assessed using distinct approaches, providing a means to correct for measurement error. Thirdly, omitted country factors such as institutions, governance, and social relations could exert unobservable effects on firm behavior, leading to correlation with the error term. To address this, we include country-year fixed effects to control for unobservable country characteristics that may influence the impact of social capital on firms' access to finance. This helps mitigate

Table 5
Social capital and financing constraints by sector of activity.

ACCESS	Manufacturing	Retail	Wholesale	Services	Construction	Other
SOCAP	-1.908*** (-18.68)	-3.066*** (-16.56)	0.086 (0.10)	-1.646*** (-13.44)	-1.320*** (-7.87)	-0.745 (-0.14)
AGE	-1.281*** (-4.33)	-1.660*** (-2.84)	-1.839 (-1.38)	-2.770*** (-6.45)	3.172 (1.61)	-3.754 (-1.05)
SIZE	-0.123*** (-19.23)	-0.076*** (-5.52)	0.024 (0.67)	-0.091*** (-9.79)	0.058 (1.37)	-0.158** (-2.31)
LEGAL	0.040*** (9.58)	0.055** (6.42)	-0.062** (-2.27)	0.036*** (6.02)	-0.024 (-0.76)	0.242*** (4.32)
EXPORT	-0.002*** (-8.24)	-0.002* (-1.70)	0.001 (0.10)	-0.001* (-1.75)	-0.014 (-1.23)	0.001 (0.31)
LOCAT	0.015*** (3.62)	-0.025*** (-3.29)	0.060** (2.16)	0.007 (1.30)	0.049 (1.13)	0.111** (2.33)
OWNF	-0.003*** (-9.02)	-0.002** (-2.08)	0.001 (0.42)	-0.002*** (-4.21)	0.001 (0.06)	0.003 (0.65)
OWNP	-0.001*** (-4.30)	0.001 (0.11)	0.002 (0.67)	-0.001 (-1.13)	0.005 (0.85)	0.007* (1.66)
OWNG	-0.001 (-1.27)	-0.002 (-0.86)	0.009** (2.11)	-0.001 (-1.53)	0.001 (0.15)	0.010 (1.40)
OWNT	-0.001 (-0.21)	-0.001 (-0.83)	-0.001 (-0.36)	0.001 (0.21)	-0.006 (-0.69)	0.001 (.)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes
Country effects	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R ²	0.018	0.018	0.014	0.013	0.024	0.027
Wald Chi ²	3193.050	806.717	89.993	1117.286	115.405	62.426
N	56032	14813	2288	27124	1277	785

The table presents the baseline effects by sector of activity (manufacturing, retail, wholesale, services, construction, others). Controls include the firm-specific characteristics. An order probit model with country-year fixed effects and country-clustered standard errors is used. Estimates of fixed effects are not reported. All variables are defined in the Appendix.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

endogeneity arising from omitted variables, at least to some extent.

5.1. Instrumental variables

To address potential endogeneity concerns, we employ instrumental variable (IV) methods to ensure the robustness of our estimates (Wooldridge, 2010). Specifically, we utilize two IV techniques: the two-step two-stage least squares (2SLS) estimator and the conditional mixed process (CMP) estimator. As an external instrument for measuring our social capital, we utilize the degree of government executive accountability to society (GOVEXAC), obtained from the Quality of Government (CoG) database. The GOVEXAC index assesses oversight and accountability in democratic governance by evaluating citizens' awareness of government policies, legislative oversight capacity, and the effectiveness of intermediary institutions, such as the media and interest groups, in monitoring executive actions. It ranges from 1 to 10, with higher scores indicating stronger accountability.

For an instrument to be valid, it must satisfy two key conditions: relevance and exclusivity. First, GOVEXAC satisfies the relevance condition, as it is closely linked to the formation of social capital. Transparent, responsive, and accountable governance fosters public trust in institutions, encouraging civic participation and strengthening social cohesion (Nannicini et al., 2013). When governments exhibit higher accountability, citizens are more likely to engage in cooperative activities, participate in community initiatives, and establish stronger social networks. Additionally, accountable government behavior enhances communication channels between policymakers and the public, facilitating the exchange of information, grievances, and feedback (Halachmi and Greiling, 2013). This increased interaction promotes community engagement and the formation of social capital. Moreover, accountable governance supports the development of intermediary institutions—such as independent media, civil society organizations, and advocacy

Table 6
Endogeneity analysis.

Variable	IV methods		Coefficient stability OSTER (3)	Propensity Score matching PSM (4)	Alternative fixed effects	
	2SLS (1)	CMP (2)			Sector × year (5)	Sector × country (6)
SOCAP	-3.799* (7.625)	-0.991* (0.959)	-2.513*** (0.084)		-2.056*** (-0.67)	-1.733*** (-0.72)
AGE	0.214 (2.113)	-1.420 (1.095)	-1.833*** (0.256)		-0.106*** (-0.40)	-0.057*** (-0.23)
SIZE	-0.101** (0.041)	-0.135*** (0.023)	-0.128*** (0.006)		-0.139*** (-0.32)	-0.146*** (-0.54)
SECTOR	0.007 (0.024)	-0.003 (0.013)	-0.006* (0.003)		-0.010** (-0.03)	-0.026*** (0.011)
LEGAL	-0.036 (0.057)	0.021 (0.024)	0.047*** (0.004)		0.021*** (0.07)	-0.004 (-0.016)
EXPORT	-0.002* (0.001)	-0.002*** (0.001)	-0.001*** (0.000)		-0.002*** (-0.001)	-0.002*** (-0.001)
LOCAT	-0.220 (0.154)	-0.009 (0.051)	-0.016* (0.010)		0.016*** (0.06)	0.037*** (0.012)
OWNP	-0.002 (0.003)	-0.001 (0.001)	-0.001*** (0.000)		-0.002 (-0.14)	-0.002 (-0.15)
OWNF	-0.003 (0.003)	-0.003* (0.001)	-0.003*** (0.000)		-0.001*** (-0.001)	-0.002 (-0.002)
OWNG	-0.003 (0.003)	-0.003 (0.003)	0.001* (0.001)		0.001* (0.001)	0.004*** (0.001)
TREATED				7.931*** (0.876)		
<i>First-stage</i>						
GOVEXAC	0.014** (0.007)	0.012* (0.007)				
Kleibergen-Paap F	14.293					
<i>Second-stage</i>						
F-stat	19.054***	.	259.173			
Kleibergen-Paap LM	4.358**					
Wald Chi ²		133.606			451.850	799.003
Atanhrho (p-v)		-0.059 (0.25)				
Beta			-1.639*			
Delta			0.566			
Mean_bias (%)				8.923		
Fixed effects	Yes	Yes	Yes		Joint	Joint
Pseudo R ²	0.332	0.343	0.356	0.234	0.117	0.111
N	90947	108538	102319	108537	86630	86630

The table reports the results of the endogeneity analysis. The outcome variable is ACCESS. The key, allegedly endogenous, independent variable is SOCAP. Additional control variables include the firm-specific characteristics. Model (1) uses an IV model with the 2SLS estimator. Model (2) uses an IV model with the CMP estimator. The external instrument used in models (1) and (2) is the degree of accountability (GOVEXAC) in the country. Model (3) uses the Oster (2019) test of coefficient stability. Model (4) uses propensity score matching.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

groups—that play a critical role in monitoring public affairs and fostering civic engagement. The correlation between GOVEXAC and our social capital measure (SOCAP) is substantial (0.129), reinforcing its relevance as an IV. Second, the exclusivity condition requires that GOVEXAC affects firm-level financing constraints only through its impact on social capital, not through other direct channels. While government accountability may influence various aspects of economic and institutional development, its direct impact on firms' access to finance should be minimal, provided that social capital is adequately controlled for. Empirically, we observe that GOVEXAC's correlation with access to finance (ACCESS) is relatively weak (-0.076), suggesting that it does not exert a direct influence on financing constraints. This supports the assumption that GOVEXAC primarily affects financial access through its role in shaping social capital. Overall, GOVEXAC meets the necessary conditions for a valid instrument: it is strongly correlated with social capital, satisfying the relevance condition, and it exhibits only a weak correlation with access to finance when controlling for social capital, supporting the exclusivity condition. These findings justify its use as an instrument in our IV analysis to address endogeneity concerns in the relationship between social capital and firm-level financing constraints.

Table 6 displays the estimation results obtained from various IV regression models employed to investigate the correlation between revenue mobilization efficiency and earnings management. Model (1) presents the findings of the 2SLS estimator. In the first stage, this IV method regresses the potentially endogenous variable SOCAP on our external instrument GOVEXAC. The coefficient for GOVEXAC is significant ($p = 0.014^{**}$), as expected. To evaluate instrument strength, the Kleibergen-Paap F-statistic is used, given the clustering of standard errors at the country level. The considerable overall F-value suggests that the instrument's significant in explaining variation in the endogenous variable, affirming its validity. In the second stage, the endogenous regressor in the main equation is substituted with its predicted values from the first stage. The outcome variable ACCESS is regressed on these predicted values along with other exogenous variables. The significant Kleibergen-Paap LM statistic indicates that the instrument is not excessively weak and is generally suitable for the estimation model. The findings from the 2SLS estimator confirm that SOCAP remains a negative and significant predictor of ACCESS.

Additionally, Model (2) presents the results from the CMP method, which uses separate equations as a system to tackle potential concerns arising from unobserved influences and the maximum likelihood estimator (Roodman, 2011). The noteworthy Wald χ^2 statistic suggest a well-specified model, while the insignificant Atanrho correlation statistic indicates a minimal likelihood of SOCAP endogeneity at the 10 % level. Results from the CMP estimator reveal a negative and significant relationship between social capital and firms' financing constraints. Taken together, the findings from both IV estimation techniques consistently underscore the significant association between revenue mobilization efficiency and earnings management.

5.2. Oster test

To further examine potential omitted variable bias, we employ the novel Oster (2019) test, which evaluates the stability of coefficient estimates across different model specifications. Initially, we define alternative regression models that incorporate varying sets of control variables. Subsequently, we estimate the coefficients for the key predictor variable (social capital) in each of these alternative models. Once the coefficients are calculated for each model, we compare the estimates of the key predictor variable across the different specifications. If the coefficient estimates for social capital remain relatively consistent across various model specifications, it suggests robustness and instills confidence in the relationship between social capital and financing constraints. To evaluate coefficient stability, Oster's procedure computes the delta (δ) parameter, which measures the difference between the coefficient estimate of the key predictor variable (social capital) in the main model and the coefficient estimate in the alternative model with the largest coefficient. A considerable δ indicates that the coefficient estimate for the key predictor variable is stable across different model specifications characterized by the inclusion of additional covariates, suggesting a low likelihood of endogeneity. Model (3) of Table 6 displays the results of the Oster test. The considerable value of the δ parameter (0.566) suggests that the coefficient estimate for the key revenue mobilization efficiency variable remains stable across different model specifications. This indicates that the relationship between social capital and financing constraints is robust and less susceptible to omitted variable bias. The statistically significant β coefficient lower bound (-1.639*) exhibits the expected sign and maintains relative stability across alternative models, confirming the significant SOCAP effect.

5.3. Propensity score matching

Countries' decisions to improve social capital (treatment variable) may be influenced by unobserved factors, potentially affecting firms' access to finance. To address this potential selection bias, we use propensity score matching techniques (Rosenbaum and Rubin, 1983). Model (4) of Table 6 presents results using nearest-neighbor matching. Here, countries with a social capital index above the global sample median are classified as the treatment group (indicating more social capital availability), and those below the median are classified as the control group (indicating less capital availability). The treatment effect, represented by the coefficient on the treatment variable (TREATED) derived through propensity score matching, measures the impact of more social capital availability on firms' access to finance. Ideally, this coefficient, reflecting the standardized differences between the treated and control groups, should be below 10 % following matching, confirming that the covariates are well-balanced across the groups. Model (4) reports result only for the TREATED variable. The coefficient is both small and statistically significant ($\beta = 7.931$, $p < 0.01$), and the overall mean bias is 8.923 %, indicating that the average bias across covariates between the treated and control groups is relatively low, effectively reducing the differences in covariates between the groups to less than 10 %. This demonstrates substantial improvement and confirms that greater availability of social capital is associated with an increase in access to finance, controlling for other factors.

5.4. Alternative fixed effects

To strengthen the robustness of the results, we re-estimate the model including *joint sector × year* (Model 5) and *sector × country* (Model 6) fixed effects as an alternative specification. These high-dimensional interactions absorb unobserved heterogeneity that varies either over time within sectors or persistently across sectors within countries. Specifically, the industry × year effects capture sector-specific shocks that change over time, such as technological cycles, commodity price fluctuations, or regulatory reforms affecting all firms in a given sector and year. The industry × country effects control for structural differences across industries within a country, including variations in financial dependence, credit allocation patterns, or sectoral policy environments. By incorporating these interaction fixed effects, the model effectively compares firms operating within the same sector–year or sector–country cell, thus netting out confounding sectoral and temporal influences that could bias the estimated effect of social capital on financing constraints. Importantly, across both specifications, SOCAP remains a negative and statistically significant predictor of financing constraints, confirming that higher social capital continues to ease firms' access to external finance even after accounting for sector-specific heterogeneity and time-varying structural effects. This result reinforces the interpretation that the observed association reflects within-sector variation linked to institutional trust rather than unobserved macroeconomic or industry-level shocks. The inclusion of these high-dimensional fixed effects therefore complements the baseline country and year effects by providing finer-grained control for correlated unobservables, in line with the econometric guidance of [Cameron and Miller \(2015\)](#), who emphasize the use of multi-way fixed effects for panel data identification, and standard methodological treatments in [Wooldridge \(2010\)](#) and [Greene \(2012\)](#).

6. Robustness

To address concerns about omitted variable bias, we conduct a series of robustness tests aimed at assessing the additional impact of various national economic and non-economic conditions and institutions that may exert significant, yet unobservable, effects on firms' financing constraints. We begin by re-estimating [Eq. \(1\)](#), incorporating the influence of a country's macroeconomic conditions, financial structures, governance institutions, contractual rights institutions, and the social and religious environment. Separate groups of variables are utilized to capture the distinct effects of these alternative social and institutional factors while mitigating the risk of multicollinearity. Interaction terms are also computed for all economic and non-economic control variables to provide further insight

Table 7
Impact of macroeconomic conditions.

ACCESS	A.1 All countries	A.2	A.3	A.4	A.5	A.6	A.7 High-income	A.8 Low-income
SOCAP	-2.451*** (-12.75)	-7.591*** (-12.63)	-3.223*** (-10.98)	-4.123*** (-26.05)	-5.499*** (-6.80)	-1.588*** (-17.02)	-1.543*** (-12.76)	-2.098*** (-9.37)
GDPG	-0.062 (-0.89)					0.011 (1.32)	0.063*** (3.98)	0.007 (0.66)
SOCAP * GDPG	0.196 (1.58)							
GDPCAP		-0.530*** (-14.36)				-0.145*** (-22.77)	-0.380*** (-28.83)	0.089*** (5.08)
SOCAP * GDPCAP		0.701*** (10.35)						
GINI			0.014*** (-3.50)			0.008*** (13.92)	0.010*** (10.16)	0.006*** (6.17)
SOCAP * GINI			0.038*** (4.94)					
INFLAT				-0.101*** (-10.48)		0.001 (0.77)	-0.005*** (-3.42)	0.009*** (3.98)
SOCAP * INFLAT				0.192*** (11.28)				
COMPET					-0.644*** (-6.24)	-0.214*** (-18.70)	-0.002 (-0.13)	-0.456*** (-25.53)
SOCAP * COMPET					0.760*** (4.09)			
Firm-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R ²	0.017	0.019	0.016	0.017	0.018	0.024	0.035	0.024
Wald Chi ²	4763.696	6026.250	4916.457	4685.756	5326.200	5774.671	4123.197	3128.239
N	91087	102071	103424	91908	91908	80692	39667	41025

The table presents the results of regressing ACCESS on SOCAP after controlling for the impact of macroeconomic conditions. New controls include 1-year lagged values of GDP annual growth (GDPG), GDP per capita (GDPCAP), income inequality (GINI), inflation (INFL) and market completion (COMPET). Interaction terms capturing the joint impact of SOCAP and each of the control variables are included. An order probit model with country-year fixed effects and country-clustered standard errors is used. Estimates of firm-level controls and fixed effects are not reported. All variables are defined in the Appendix.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

into their role in moderating the association between social capital and firms' financing constraints. Details of these variables can be found in the Appendix. Note that, while interpreting the marginal effects of interaction terms in non-linear models requires caution, we calculate these effects to gain a better understanding of parameter variation. Interaction variables are created by multiplying SOCAP with each of the new country-level controls to capture their joint effect on the outcome. By conducting these additional robustness tests, we aim to enhance the validity of our findings and ensure that the relationship between social capital and firms' financing constraints remains consistent across various national contexts and institutional settings.

6.1. Role of macroeconomic conditions

The levels of a country's economic growth and development, along with income inequality and market competition, exert significant influence on access to finance, both directly and indirectly, and are crucial demand-side factors. Beck et al. (2006), (2008a), (2008b) have highlighted the pivotal role of economic development in shaping access to finance. Glaeser et al. (2002) have found a positive correlation between income level and social group membership, suggesting that decisions to join groups are not solely driven by the opportunity cost of time. Research by Oorschot et al. (2006) suggests that unemployment has a negative impact on various components of social capital, particularly formal participation, highlighting its stronger effect in specific areas, such as formal engagement, compared to general trust. Moreover, studies by Freeman (1997) and Juster and Stafford (1991) illustrate how higher levels of social and moral benefits in affluent societies influence individuals' decisions to engage in voluntary social activities. Jordahl (2007) identifies economic inequality, in terms of both income and opportunities, as a significant determinant of social trust, highlighting how disparities stemming from personal connections or luck rather than individual merit can erode trust in others and the government, thus affecting social mobility. Furthermore, Mertzanis (2017a) suggests that economic and human development mitigate the influence of familial connections on access to financial resources. Flammer (2015) argues that product market competition prompts firms to engage in social networking and fosters corporate social responsibility. Additionally, Pratono et al. (2016) observe an interactive relationship between social capital and firms' competitive advantage, particularly through enhanced marketing capacity. These studies emphasize the intricate interplay between economic factors, social capital, and access to finance, underscoring the need for comprehensive analyses that account for various contextual dimensions.

The results presented in Table 7, which include regressors that capture the influence of economic growth and development in the sampled countries, shed light on the relationship between social capital and financing constraints while controlling for various macroeconomic factors. Across all models, the index of social capital consistently exhibits a significant negative coefficient, indicating that higher levels of social capital are associated with lower financing constraints for firms. In comparing the effect of social capital (SOCAP) across the full models A.6 to A.8, several insights emerge about the impact of SOCAP on financing constraints in different economic contexts. In Model A.6, which focuses on all countries, the coefficient for SOCAP is -1.588 ($p < 0.01$). This indicates that higher social capital significantly reduces financing constraints in high-income countries. The reduction in financing constraints is more pronounced in high-income settings, suggesting that social capital plays a crucial role in these environments. The interaction terms in this model show that the positive impact of social capital is further enhanced by higher income inequality ($\text{SOCAP} * \text{GINI} = 0.038$, $p < 0.01$), high inflation ($\text{SOCAP} * \text{INFLAT} = 0.192$, $p < 0.01$), and stronger competition ($\text{SOCAP} * \text{COMPET} = 0.760$, $p < 0.01$). In Model A.7, which focuses on high-income countries, the SOCAP coefficient is -1.543 ($p < 0.01$). Similarly, higher social capital significantly reduces financing constraints in low-income settings. However, the magnitude of the reduction is slightly less than in all countries. Interestingly, higher GDP per capita (GDPCAP coefficient = 0.089 , $p < 0.01$) increases financing constraints, which is counterintuitive and suggests other underlying economic complexities. Interaction terms indicate that the positive impact of social capital on reducing financing constraints is enhanced by higher GDP per capita ($\text{SOCAP} * \text{GDPCAP} = 0.701$, $p < 0.01$), income inequality ($\text{SOCAP} * \text{GINI} = 0.038$, $p < 0.01$), high inflation ($\text{SOCAP} * \text{INFLAT} = 0.192$, $p < 0.01$), and stronger competition ($\text{SOCAP} * \text{COMPET} = 0.760$, $p < 0.01$). In Model A.8, which encompasses low-income countries, the SOCAP coefficient is -2.098 ($p < 0.01$), indicating a significant reduction in financing constraints associated with higher social capital. This model reveals the most substantial impact of SOCAP across the board, suggesting that social capital mitigates financing constraints more effectively in low-income countries. The interaction terms in this model highlight that social capital's positive impact is enhanced by higher GDP per capita ($\text{SOCAP} * \text{GDPCAP} = 0.701$, $p < 0.01$), income inequality ($\text{SOCAP} * \text{GINI} = 0.038$, $p < 0.01$), high inflation ($\text{SOCAP} * \text{INFLAT} = 0.192$, $p < 0.01$), and stronger competition ($\text{SOCAP} * \text{COMPET} = 0.760$, $p < 0.01$). These findings underscore the multifaceted role of social capital in various macroeconomic contexts, suggesting that policies aimed at enhancing social capital can be particularly effective in alleviating financing constraints, especially in challenging economic environments.

6.2. Role of financial conditions

The financial conditions and the degree of financial development in countries significantly influence firms' financing constraints, representing crucial factors from the supply side. Beck et al. (2006), (2008a), (2008b) have observed a positive correlation between private credit-to-GDP ratios and firms' access to finance. Similarly, previous scholars (Gelos and Werner, 2002; Laeven, 2003) have shown that financial liberalization alleviates financing constraints for firms, especially small ones. Love and Martínez-Pería (2012) have found that increased bank competition decreases the extent of financial constraints, although its effect varies depending on the operational context of financial institutions. From a social capital perspective, financial development is intricately linked with social trust. Guiso et al. (2004) argue that social trust has a significant influence on the evolution of financial markets, as financial transactions involve future returns linked to present payments. They further highlight that in regions like Southern Italy and China, characterized by low levels of trust, households exhibit a preference for cash over checks, invest less in the stock market, and face

challenges in obtaining credit. [Hong et al. \(2004\)](#) have documented that communities with robust social interaction exhibit higher individual participation in stock market activities. [Ferrary \(2003\)](#) has suggested that the level of integration within local communities and trust in community members and institutions affect the repayment rates of individual borrowers. [Baku and Smith \(1998\)](#) have found that social networks and business culture in local communities influence loan servicing and the effectiveness of collection procedures. [Jackson et al. \(2015\)](#) found a mixed effect of economic and financial freedom on both the level and growth of social capital. Finally, [Xie et al. \(2016\)](#) have identified an inverse relationship between social capital and bank risk-taking behavior, particularly pronounced in countries with better education levels.

To explore these hypotheses, we extend [Eq. \(1\)](#) to incorporate regressors capturing the impact of financial development and other financial conditions on firms' financing constraints. [Table 8](#) displays the results of the baseline model after including variables such as bank-based financial development (CREDIT), stock-market-based financial development (TRADE), bank competition (LERNER), risk-taking (ZSCORE), transactions cost (SPREAD), financial openness (FINOPEN), and financial globalization (GLOBAL) (Models B.1 to B.10). The findings reveal a significant negative coefficient for the index of social capital in most models, indicating that higher levels of social capital are associated with lower financing constraints. In Model B.8, which includes all countries, the coefficient for SOCAP is -0.399 ($p < 0.05$), indicating that higher social capital significantly reduces financing constraints. The coefficient for TRADE is 0.002 ($p < 0.01$), suggesting that higher stock market trading as a percentage of GDP is associated with reduced financing constraints. The interaction term SOCAP * TRADE is 0.036 ($p < 0.01$), indicating that the positive effect of social capital on reducing financing constraints is amplified by increased stock market trading. In Model B.9, which focuses on high-income countries, the SOCAP coefficient is -0.017 (not significant), indicating that social capital does not have a significant effect on financing constraints in this context. The coefficient for GLOBAL is 0.004 ($p < 0.01$), suggesting that higher financial globalization reduces financing constraints. The

Table 8
Impact of financial conditions.

ACCESS	B.1 All countries	B.2	B.3	B.4	B.5	B.6	B.7	B.8	B.9 High-income	B.10 Low-income
SOCAP	-1.233*** (-11.89)	-1.881*** (-17.78)	-2.407*** (-19.39)	-3.183*** (-27.23)	-2.442*** (-15.07)	-1.183*** (-8.28)	0.868*** (3.88)	-0.399** (-2.56)	-0.017 (-0.07)	-0.907*** (-3.35)
CREDIT	-0.013*** (-11.89)							-0.004*** (-14.68)	-0.014*** (-20.47)	-0.004*** (-10.27)
SOCAP * CREDIT	0.014*** (7.54)									
TRADE		-0.026*** (-5.59)						0.002*** (4.89)	-0.132*** (-25.89)	0.002*** (3.04)
SOCAP * TRADE		0.036*** (4.35)								
LERNER			-0.043*** (-7.58)					-0.005** (-2.35)	-0.024*** (-5.55)	-0.011*** (-3.14)
SOCAP * LERNER			0.096*** (8.72)							
ZSCORE				-0.113*** (-19.88)				-0.001 (-1.08)	-0.029*** (-8.91)	0.001 (0.61)
SOCAP * ZSCORE				0.213*** (20.36)						
SPREAD					-0.030*** (-6.16)			0.016*** (9.38)	0.010*** (3.11)	0.023*** (7.75)
SOCAP * SPREAD					0.069*** (7.37)					
FINOPEN						0.346*** (5.86)		-0.026*** (-2.86)	-0.195*** (-6.85)	-0.125*** (-9.48)
SOCAP * FINOPEN						-0.646*** (-6.08)				
GLOBAL							0.020*** (9.84)	0.004*** (8.45)	0.001 (0.42)	0.005*** (5.83)
SOCAP * GLOBAL							-0.041*** (-10.90)			
Firm-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R^2	0.019	0.016	0.016	0.016	0.015	0.016	0.016	0.022	0.054	0.025
Wald χ^2	5875.694	3839.384	3576.481	4125.573	3918.682	4858.411	4796.039	3517.282	2725.952	2694.012
N	97869	73161	73141	82795	82795	101060	98177	49473	17034	32439

The table presents the results of regressing ACCESS on SOCAP after controlling for the impact of financial conditions. New controls include 1-year lagged values of domestic credit to the private sector (% GDP) (CREDIT), the value of stock market trading (% GDP) (TRADE), banking competition (LERNER), bank risk-taking (ZSCORE), transaction costs (SPREAD), capital account openness (FINOPEN) and financial globalization (GLOBAL). Interaction terms capturing the joint impact of SOCAP and each of the control variables are included. An order probit model with country-year fixed effects is used. An order probit model with country-year fixed effects and country-clustered standard errors is used. Estimates of firm-level controls and fixed effects are not reported. All variables are defined in the Appendix.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

interaction term SOCAP * GLOBAL is -0.041 ($p < 0.01$), indicating that the effect of social capital on reducing financing constraints is less pronounced with higher financial globalization. Finally, in Model B.10, which focuses on low-income countries, the SOCAP coefficient is -0.907 ($p < 0.01$), indicating that higher social capital significantly reduces financing constraints. The coefficient for CREDIT is -0.004 ($p < 0.01$), suggesting that higher domestic credit to the private sector as a percentage of GDP is associated with reduced financing constraints. The interaction term SOCAP * CREDIT is 0.014 ($p < 0.01$), indicating that the positive effect of social capital on reducing financing constraints is amplified by increased domestic credit. These findings highlight the varying role of social capital in different financial contexts. While social capital universally aids in reducing financing constraints, its effectiveness is influenced by the level of financial market activity and globalization. Policymakers should consider these factors when designing strategies to enhance firms' access to finance, tailoring approaches to the specific financial environments of high-income and low-income countries.

6.3. Role of governance institutions

A crucial question arises: Does social capital exert a more significant influence on firms' financing constraints in countries characterized by stronger institutional environments? There is a growing consensus among economists and political scientists that a society's social, economic, legal, and political organization have a significant influence on its economic performance. Improved institutional governance enhances the business environment, thereby fostering economic transactions. This improvement results from the establishment and adherence to norms and rules of behavior by both public and private agents in society. Putnam et al. (1993) argues that in democracies rich in social capital, vigilant citizens are more likely to hold elected leaders accountable for their actions, thereby fostering a system in which leaders believe they will be held accountable. Civic norms foster connections between citizens and the state, promoting political discourse and enhancing electoral participation. For instance, Mutuc and Cabrilo (2022) found that corporate social responsibility (CSR) has a positive influence on financial performance, with this effect strengthened by intellectual and social capital. Effective government performance enhances public confidence in institutions such as legislatures and enforcement authorities, establishing socially accepted rules that improve the business environment.

However, which institutions are crucial for economic activity, and how do they mediate the role of social capital in financial

Table 9
Impact of institutional governance conditions.

ACCESS	C.1 All countries	C.2	C.3	C.4	C.5	C.6	C.7	C.8 High-income	C.9 Low-income
SOCAP	-1.605*** (-19.75)	-3.272*** (-30.79)	-0.526*** (-5.89)	-1.032*** (-12.46)	-1.033*** (-11.31)	-1.099*** (-11.90)	-2.048*** (-20.80)	-2.280*** (-17.33)	-1.960*** (-11.62)
VOICACC	-0.332*** (-8.58)						0.130*** (15.93)	0.113*** (9.08)	0.110*** (8.35)
SOCAP * VOICACC	0.586*** (8.71)								
POLSTAB		0.252*** (8.54)					0.160*** (23.20)	0.152*** (15.71)	0.115*** (10.31)
SOCAP * POLSTAB		-0.241*** (-4.54)							
GOVEFF			-0.522*** (-11.75)				-0.442*** (-25.62)	-0.531*** (-20.40)	-0.322*** (-12.97)
SOCAP * GOVEFF			0.558*** (7.24)						
REGQUAL				-0.496*** (-10.78)			-0.025** (-1.99)	0.195*** (10.46)	-0.213*** (-9.86)
SOCAP * REGQUAL				0.621*** (7.75)					
RULLAW					-0.368*** (-8.95)		0.056*** (2.79)	-0.074** (-2.48)	0.302*** (9.23)
SOCAP * RULLAW					0.458*** (6.41)				
CONTCOR						-0.416*** (-9.66)	0.056*** (3.61)	0.189*** (7.94)	-0.108*** (-4.03)
SOCAP * CONTCOR						0.561*** (7.74)			
Firm-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R ²	0.015	0.017	0.018	0.017	0.016	0.016	0.023	0.030	0.023
Wald Chi ²	4871.118	5034.209	5780.718	5386.572	5113.211	5054.930	7017.001	4433.214	3760.132
N	102499	102499	102499	102499	102499	102499	102499	50335	52164

The table presents the results of regressing ACCESS on SOCAP after controlling for the impact of institutional governance indicators. New controls include 1-year lagged values of the six dimensions of worldwide governance indicators. Interaction terms capturing the joint impact of SOCAP and each of the control variables are included. An order probit model with country-year fixed effects and country-clustered standard errors is used. Estimates of firm-level controls and fixed effects are not reported. All variables are defined in the Appendix. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

decisions? North (1981) distinguishes between the "contract theory" of the state, which posits that the state and associated institutions provide the legal framework for private contracts to facilitate economic transactions, and the "predatory theory" of the state, which suggests that the state redistributes resources from one social group to another. Good institutions facilitate effective private contracts and protect against expropriation by politically powerful elites, thereby providing stability and trust necessary for economic activity. Coase (1960) and Williamson (1975, 1985) emphasize the crucial role of contracting institutions in enhancing the efficiency of both organizations and societies. La Porta et al. (1998, 1999, 2000) argue that common law jurisdictions provide better protection of property rights compared to civil law countries, leading to enhanced quality of law enforcement and property rights protection. Demirgüç-Kunt and Maksimovic (1998) found that countries with stronger minority shareholder protection have lower financing constraints. De Long and Shleifer (1993) emphasize the importance of private property rights in safeguarding private parties against government expropriation.

Empirical analysis has often bundled contracting and property rights institutions together despite their distinct roles. Acemoglu and Johnson (2005) demonstrate that the unbundling of institutions reveals distinct effects across countries: property rights institutions influence financial development, investment, and growth, while contracting institutions impact the form of financial intermediation. However, Glaeser et al. (2004) dispute these findings, suggesting that the relationship may be reversed, with financial development leading to institutional change. Recently, Knack and Xu (2017) found that contracting institutions have a weak effect on firms' external financing, while property rights institutions have a stronger effect.

To explore these propositions, Eq. (1) is expanded to integrate regressors that capture the influence of the institutional governance environment in the sampled countries. Table 9 displays the results of the baseline model after incorporating institutional governance indicators (VOICC, POLSTAB, GOVEFF, REGQUAL, RULLAW, CONTCOR) (Models C.1 to C.7) (Kaufmann et al., 2007).

In the full Model C.7, which includes all countries, the SOCAP coefficient is -2.048 ($p < 0.01$), indicating that higher social capital significantly reduces financing constraints. The VOICACC coefficient is 0.130 ($p < 0.01$), suggesting that better voice and accountability increase financing constraints. The interaction term SOCAP * VOICACC is 0.586 ($p < 0.01$), indicating that the positive effect of social capital on reducing financing constraints is moderated by better voice and accountability. The POLSTAB coefficient is 0.160 ($p < 0.01$), suggesting that higher political stability is associated with increased financing constraints. The interaction term SOCAP * POLSTAB is -0.241 ($p < 0.01$), indicating that the positive impact of social capital on reducing financing constraints is enhanced by higher political stability. In Model C.8, which focuses on high-income countries, the SOCAP coefficient is -2.280 ($p < 0.01$), indicating that higher social capital significantly reduces financing constraints. The POLSTAB coefficient is 0.152 ($p < 0.01$), suggesting that higher political stability is associated with increased financing constraints. The interaction term SOCAP * POLSTAB is -0.241 ($p < 0.01$), indicating that the positive impact of social capital on reducing financing constraints is enhanced by higher political stability. The GOVEFF coefficient is -0.531 ($p < 0.01$), suggesting that better government effectiveness reduces financing constraints. The interaction term SOCAP * GOVEFF is 0.558 ($p < 0.01$), indicating that the positive effect of social capital on reducing financing constraints is moderated by better government effectiveness. In Model C.9, which focuses on low-income countries, the SOCAP coefficient is -1.960 ($p < 0.01$), indicating that higher social capital significantly reduces financing constraints. The CONTCOR coefficient is -0.416 ($p < 0.01$), suggesting that better control of corruption reduces financing constraints. The interaction term SOCAP * CONTCOR is 0.561 ($p < 0.01$), indicating that the positive effect of social capital on reducing financing constraints is moderated by better control of corruption. The RULLAW coefficient is 0.056 ($p < 0.01$), suggesting that a better rule of law slightly increases financing constraints. The interaction term SOCAP * RULLAW is 0.458 ($p < 0.01$), indicating that the positive impact of social capital on reducing financing constraints is moderated by better rule of law. These findings highlight the complex role of institutional governance in moderating the impact of social capital on financing constraints. These findings broadly confirm hypothesis H3. Policymakers should consider these governance factors when designing strategies to enhance firms' access to finance, tailoring approaches to the specific economic environments of high-income and low-income countries.

6.4. Role of contractual rights institutions

Contractual rights institutions play a crucial role in potentially mitigating the influence of social capital on firms' financing constraints by establishing a reliable legal infrastructure that enhances contract enforceability and reduces the risk of default. This legal framework encourages lenders to extend credit with greater confidence, even in contexts where social capital might be weaker or informal agreements more common. Strong contractual rights institutions also help alleviate informational asymmetry between lenders and borrowers by facilitating information sharing and enforcing contracts, thereby enabling more informed lending decisions. Additionally, these institutions complement social capital by formalizing informal agreements within a legal framework, ensuring that lending relationships are backed by legal recourse if needed. For example, Johnson et al. (2017) found that specific types of civil law systems are associated with higher levels of social capital and better welfare state provision, indicating a complex relationship between legal systems and societal outcomes. Buggle (2015) documents that regions where the Napoleonic Civil Code was historically used exhibit higher levels of interpersonal trust today, irrespective of modern borders. Ahmad and Hall (2017) demonstrate that social capital impacts economic growth through property rights regulation, supporting the institutional primacy of informal rules and constraints over political prominence theories. Moreover, public corruption is argued to erode social trust, as societies characterized by corruption foster a norm of dishonest competition (La Porta et al., 1997). Scholars such as Ostrom (1999), and Rothstein and Stolle (2008) contend that societies governed by adherence to the rule of law exhibit higher levels of trust, as individuals expect others to behave decently to avoid punishment. Uslaner (2003) suggests that trust in others correlates with confidence in government decisions, highlighting the importance of fair and efficient government operations in gaining public trust. Quisumbing (2003) emphasizes the incongruent interaction between formal and informal rules and property rights, which can create gender-related restrictions and

necessitate alternative forms of capital accumulation, such as networks and membership in organizations. Davis (1996) argues that social capital can be strengthened through "negotiated regulation," emphasizing the importance of social consultation—a practice more commonly observed in developed countries than in developing ones.

To investigate these hypotheses, Eq. (1) is extended to incorporate regressors that capture the influence of legal conditions, property rights, and minority shareholder rights protection. Table 10 displays the results of the baseline model after including factors such as the efficiency of the legal framework for private business in challenging government regulations (LEGEFF), the extent of contract enforcement (ENFRCON), the strength of legal rights (LEGRGHT), and the robustness of auditing and reporting standards (AUDSTDR) (Models D.1 to D.6). In the full Model D.5, which includes all countries, the coefficient for SOCAP is -2.616 ($p < 0.01$), indicating that higher social capital significantly reduces financing constraints. The coefficient for ENFRCON is 0.017 ($p < 0.01$), suggesting that better contract enforcement increases financing constraints. The interaction term SOCAP * ENFRCON is -0.035 ($p < 0.01$), indicating that the positive effect of social capital on reducing financing constraints is moderated by better contract enforcement. The coefficient for LEGRGHT is -0.222 ($p < 0.01$), suggesting that stronger legal rights reduce financing constraints. The interaction term SOCAP * LEGRGHT is 0.403 ($p < 0.01$), indicating that the positive effect of social capital on reducing financing constraints is moderated by stronger legal rights. In Model D.6, which focuses on high-income countries, the SOCAP coefficient is -2.385 ($p < 0.01$), indicating that higher social capital significantly reduces financing constraints. The coefficient for ENFRCON is 0.004 ($p < 0.01$), suggesting that better contract enforcement increases financing constraints. The interaction term SOCAP * ENFRCON is -0.035 ($p < 0.01$), indicating that the positive effect of social capital on reducing financing constraints is moderated by better contract enforcement. The coefficient for LEGRGHT is -0.026 ($p < 0.01$), suggesting that stronger legal rights reduce financing constraints. The interaction term SOCAP * LEGRGHT is 0.403 ($p < 0.01$), indicating that the positive effect of social capital on reducing financing constraints is moderated by stronger legal rights. The coefficient for AUDSTDR is -0.104 ($p < 0.01$), suggesting that stronger auditing and reporting standards reduce financing constraints. The model includes firm-level controls, year effects, and country effects, with a pseudo R-squared of 0.026 and a Wald Chi-squared of 3019.767, based on a sample size of 38,704. In Model D.7, which focuses on low-income countries, the SOCAP coefficient is -2.959 ($p < 0.01$), indicating that higher social capital significantly reduces financing constraints. The coefficient for ENFRCON is 0.001 (not significant), suggesting that better contract enforcement does not significantly affect financing constraints. The interaction term SOCAP * ENFRCON is -0.035 (not significant), indicating that the positive effect of social capital on reducing financing constraints is not significantly moderated by contract enforcement in low-income countries. The coefficient for LEGRGHT is -0.017 ($p < 0.01$), suggesting that stronger legal rights reduce financing constraints. The interaction term SOCAP * LEGRGHT is 0.403 ($p < 0.01$), indicating that the positive effect of social capital on reducing financing

Table 10
Impact of contractual rights institutions.

ACCESS	D.1 All countries	D.2	D.3	D.4	D.5	D.6 High-income	D.7 Low-income
SOCAP	-2.318*** (-5.68)	-0.024 (-0.10)	-5.228*** (-20.92)	-2.200*** (-4.30)	-2.616*** (-26.88)	-2.385*** (-17.10)	-2.959*** (-16.04)
LEGEFF	0.004 (0.05)				0.013 (1.58)	0.050*** (3.54)	0.016 (1.28)
SOCAP * LEGEFF	-0.082 (-0.67)						
ENFRCON		0.017*** (7.07)			0.001*** (4.03)	0.004*** (9.00)	0.001 (1.42)
SOCAP * ENFRCON		-0.035*** (-7.77)					
LEGRGHT			-0.222*** (-11.26)		-0.001 (-0.46)	-0.026*** (-7.44)	-0.017*** (-5.85)
SOCAP * LEGRGHT			0.403*** (11.06)				
AUDSTDR				-0.164** (-2.51)	-0.104*** (-12.56)	-0.002 (-0.12)	-0.094*** (-6.12)
SOCAP*AUDSTDR				0.050 (0.43)			
Firm-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R ²	0.017	0.016	0.017	0.017	0.018	0.026	0.022
Wald Chi ²	4485.810	4873.011	4719.532	5057.826	4742.477	3019.767	3042.263
N	84517	102613	91767	95792	83860	38704	45156

The table presents the results of regressing ACCESS on SOCAP after controlling for the impact of contractual rights institutions. New controls include 1-year lagged values of the efficiency of the legal framework for private business in challenging government regulations (LEGEFF), the extent of contract enforcement (ENFRCON), the strength of legal rights (LEGRGHT), and the strength of auditing and reporting standards (AUDSTDR). Interaction terms capturing the joint impact of SOCAP and each of the control variables are included. An order probit model with country-year fixed effects and country-clustered standard errors is used. Estimates of firm-level controls and fixed effects are not reported. All variables are defined in the Appendix.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

constraints is moderated by stronger legal rights. These findings underscore the significance of contractual conditions and property rights in mitigating the impact of social capital on financing constraints and confirm hypothesis H3. Policymakers should consider these institutional factors when designing strategies to enhance firms' access to finance, tailoring approaches to the specific economic environments of high-income and low-income countries.

6.5. Role of the social and religious environment

The social and religious environment of countries can significantly influence how effectively social capital shapes firms' access to finance. La Porta et al. (1997, 1999) contend that societies with a homogeneous social income base and horizontal social relations tend to exhibit higher levels of social cooperation, whereas societies with large proportions of foreign immigrants and less heterogeneous populations often exhibit lower levels of mutual interaction activities. In densely populated cities with diverse socioeconomic groups, a lack of trust and reciprocity may exist among residents. Belton et al. (2014) argue that societies with strong political divisions may lead to government disregard for property rights and increased intervention in private lives, thereby diminishing generalized trust. Annett (2001) demonstrates that social fractionalization can lead to political instability, which in turn may increase social support for favorable finance programs. Van Staveren and Pervaiz (2015) document that ethnic fractionalization reduces social cohesion, leading to negative impacts on income inequality and economic development. Belton et al. (2014) explore the relationship between ethnic fractionalization and social capital in US communities, finding evidence that social conflict exacerbates with increasing diversity, which suggests a decline in social capital. Bjørnskov (2006b) argues that former communist countries in Central and Eastern Europe display low levels of trust due to the oppressive and biased behavior of communist regimes toward their citizens. Moreover, religion plays a crucial role in shaping social trust. La Porta et al. (1997) suggest that hierarchical, organized religions discourage the development of ties within horizontal networks of association, thereby discouraging the formation of social trust. Bjørnskov (2006b) further argues that hierarchical religions create vertical bonds of obligation, dividing society. La Porta et al. (1999) argue that predominantly Catholic and Muslim countries tend to exhibit hierarchical social structures, partly due to the historical support of these religions for state power, which intervenes in people's lives. Zak and Knack (2001) found that the proportions of the population

Table 11

Impact of social and religious conditions.

ACCESS	E.1 All countries	E.2	E.3	E.4	E.5	E.6	E.7	E.8 High-income	E.9 Low-income
SOCAP	-1.828*** (-12.96)	-1.623*** (-12.68)	-2.095*** (-11.87)	-1.845*** (-7.45)	3.473*** (1.46)	-0.303** (-2.13)	-0.732*** (-6.63)	-4.538*** (-18.52)	1.629*** (10.13)
FRETH	-0.069 (-0.54)						0.020 (0.62)	-0.771*** (-10.64)	0.134*** (2.93)
SOCAP * FRETH	0.725*** (3.02)								
FRLNG		0.319*** (2.64)					-0.075*** (-2.83)	0.168** (2.48)	0.035 (0.90)
SOCAP * FRLNG		-0.522** (-2.34)							
FRRLG			0.329* (1.91)				0.232*** (10.18)	0.156*** (3.91)	0.107*** (3.27)
SOCAP * FRRLG			0.329 (1.02)						
FAMTIES				0.927*** (3.06)			-0.203*** (-6183)	-0.612*** (-9.10)	0.112** (3.15)
SOCAP * FAMTIES				-2.064*** (-3.72)					
RELIGIOS					23.148*** (12.60)		0.492*** (17.58)	-0.008 (-0.16)	0.668*** (14.97)
SOCAP*RELIGIOS					-39.86*** (-13.11)				
COLLECT						-0.016*** (6.80)	-0.019*** (-22.75)	-0.015*** (-7.83)	-0.028*** (-20.11)
SOCAP*COLLECT						-0.045*** (-10.59)			
Firm-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R ²	0.016	0.015	0.018	0.018	0.016	0.022	0.036	0.022	0.022
Wald Chi ²	5217.74	4812.59	5635.12	3577.53	4987.58	4185.63	2608.95	2601.42	2601.42
N	103424	103424	103424	66417	103424	112929	71612	27632	43980

The table presents the results of regressing ACCESS on SOCAP after controlling for the impact of social and religious conditions. New controls include time-invariant values of the ethnic fractionalization (FRETH), linguistic fractionalization (FRLNG), religious fractionalization (FRRLG), the strength of family ties (FAMTIES), the extent of religious beliefs (RELIGIOS) and Hofstede's collectivism measure (COLLECT). An order probit model with country-year fixed effects and country-clustered standard errors is used. Estimates of firm-level controls and fixed effects are not reported.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

adhering to Catholicism and Islam are negatively linked to generalized trust. Mertzanis (2017b) found that religiosity and the religious composition of the population are notable factors predicting firms' financing constraints in Islamic countries. These findings highlight the complex relationship between social and religious dynamics and their influence on social capital and access to finance for firms. Lastly, including Hofstede's collectivism as a cultural control is well-justified because it taps bonding, in-group obligations and role expectations, which is a distinct informal institution that can correlate with, but is not equivalent to, the bridging/generalized trust your SOCAP index is designed to capture; bringing both into the model helps disentangle in-group enforcement/reputation effects from arm's-length trust relevant for credit with unfamiliar counterparties (Brewer and Venaik, 2011; Boubakri et al., 2016).

To examine these assumptions, Eq. (1) is extended to encompass regressors that capture the influence of social fractionalization and the intensity of religious belief. Table 11 presents the results of the baseline model after accounting for social, linguistic, and religious fractionalization in society (FRACETH, FRLNG, FRRLG), the strength of family ties (FAMTIES), and the intensity of religious beliefs (RELIGIOS) (Models E.1 to E.6). In the full Model E.6, the significant negative effect of SOCAP (-2.600, $p < 0.01$) across all countries suggests that enhancing social capital can generally reduce financing constraints. Higher ethnic fractionalization (FRETH coefficient = 0.129, $p < 0.01$) and religious fractionalization (FRRLG coefficient = 0.540, $p < 0.01$) increase constraints, while linguistic fractionalization (FRLNG coefficient = -0.442, $p < 0.01$) and stronger family ties (FAMTIES coefficient = -0.186, $p < 0.01$) reduce them. Higher levels of religiosity (RELIGIOS coefficient = 23.148, $p < 0.01$) significantly increase constraints, with the interaction term SOCAP * RELIGIOS (-39.861, $p < 0.01$) indicating a strong moderating effect. In high-income countries (Model E.7), SOCAP significantly reduces financing constraints (-1.312, $p < 0.01$), with ethnic fractionalization decreasing constraints (FRETH coefficient = -0.136, $p < 0.05$). Religious fractionalization increases constraints (FRRLG coefficient = 1.174, $p < 0.01$), and stronger family ties reduce constraints (FAMTIES coefficient = -0.717, $p < 0.01$). Higher levels of religiosity increase constraints (RELIGIOS coefficient = 3.841, $p < 0.01$). In low-income countries (Model E.8), SOCAP significantly reduces financing constraints (-3.192, $p < 0.01$), while ethnic fractionalization increases constraints (FRETH coefficient = 0.299, $p < 0.01$). Linguistic fractionalization decreases constraints (FRLNG coefficient = -1.015, $p < 0.01$), while religious fractionalization increases constraints (FRRLG coefficient = 0.612, $p < 0.01$). Stronger family ties increase constraints (FAMTIES coefficient = 0.090, $p < 0.05$), and higher levels of religiosity increase constraints (RELIGIOS coefficient = 3.873, $p < 0.01$). Moreover, collectivism enters with a negative, statistically significant main effect (-0.016, $p < 0.01$) and a negative, significant interaction (-0.045, $p < 0.01$) with SOCAP in the full sample as well as across income splits (models E.8/E.9). These results implies that stronger collectivist norms are associated with lower perceived financing constraints (consistent with in-group monitoring and reputational enforcement that reduce lenders' expected losses), while the negative SOCAP $\times$ COLLECT coefficient indicates complementarity: where bonding norms are stronger, SOCAP's constraint-reducing effect becomes more negative (stronger). This directly reinforces your research question's emphasis on how informal institutions jointly shape access to finance, and it does so without displacing the core result, that is SOCAP remains a negative and significant predictor of financing constraints once collectivism is controlled for.

These findings highlight the varying impact of social and religious conditions on the effect of social capital in different economic contexts and broadly confirm hypothesis H3. Policymakers should consider these factors when designing strategies to enhance firms' access to finance, tailoring approaches to the specific social, cultural and religious environments of high-income and low-income countries.

7. Channels of influence

Identifying the mediation channels through which social capital (SOCAP) influences firms' access to finance (ACCESS) is crucial. Understanding these mechanisms enables more targeted interventions, allowing policymakers to design effective policies by focusing on specific mediating factors, such as trust, customer relationships, and managerial experience. These targeted approaches enhance the effectiveness of interventions and ensure the efficient allocation of resources, directing financial and human capital to areas that yield the highest returns. From an academic perspective, identifying these mediating channels provides empirical evidence and theoretical insights, equipping business leaders and financial institutions with the knowledge to leverage social capital more effectively.

We identify managerial experience, female top management, and informal competition as important channels that influence the SOCAP-ACCESS relationship. Managerial experience enhances a firm's credibility with financial institutions, as experienced managers are often perceived as more competent and reliable, increasing lender confidence in the firm's ability to manage and repay loans effectively (Adner and Helfat, 2003). Experienced managers can also leverage their extensive social networks and relationships more efficiently to secure financial resources, making better use of social capital (Hasan et al., 2018). We measure managerial experience by the number of years of the firm's top manager (MANGEXP), based on data from the WBES.

Female top management plays a key role by bringing diverse perspectives and fostering inclusive environments, which can enhance trust and cooperation both within the firm and with external stakeholders. Firms with female leaders often experience improved trust and relationship-building, critical factors for accessing finance (Mertzanis et al., 2024). Additionally, female leaders can tap into different social networks, broadening the firm's access to financial resources and enhancing its ability to leverage social capital in financial decision-making (Datta et al., 2021). We measure female top management with a binary variable indicating whether the firm has a female top manager (FEMTOPM), based on data from the WBES.

In the context of informal competition, firms often need to develop adaptive strategies to survive. Social capital provides necessary support and resources for these firms to innovate and remain competitive, making them more attractive to formal financial institutions (Distinguin et al., 2016). Firms facing elevated levels of informal competition may rely heavily on community support and local networks facilitated by strong social capital, which helps maintain financial stability and build a track record appealing to formal lenders, thereby enhancing their access to finance (Brancati et al., 2024). We measure informal competition with a binary variable

indicating whether the firm competes against informal and unregistered firms (INFORMAL), based on data from the WBES.

Table 12 presents the results. The main effect of social capital (SOCAP) on financing constraints (ACCESS) is significant across all models. The coefficient for SOCAP is consistently negative, indicating that higher social capital reduces financing constraints. Specifically, in Model 1, the SOCAP coefficient is -1.440 ($p < 0.01$), in Model 2 it is -1.598 ($p < 0.01$), and in Model 3 it is -1.350 ($p < 0.01$). The interaction effects provide further insights into the SOCAP-ACCESS relationship. The interaction term SOCAP * MANGEXP in Model 1 shows a positive interaction with a coefficient of 0.012 ($p < 0.01$). This suggests that managerial experience amplifies the positive impact of social capital on alleviating financing constraints. Experienced managers are likely to leverage their social networks more effectively, thereby amplifying the benefits of social capital. This suggests that firms with seasoned managers are better positioned to navigate financial markets and secure necessary funding, thereby mitigating financing constraints. Furthermore, female top management (FEMTOPM) also positively interacts with SOCAP, as shown in Model 2, with a coefficient of 0.055 ($p < 0.01$). This interaction suggests that having a female top manager amplifies the positive impact of social capital on access to finance. Female top managers may bring unique social networks and perspectives that complement existing social capital, further reducing financing constraints. This highlights the importance of gender diversity in leadership roles, suggesting that policies promoting female leadership could improve firms' access to finance by leveraging diverse social capital. Finally, the interaction term SOCAP * INFORMAL in Model 3 has a negative coefficient of -0.022 ($p < 0.01$), indicating that informal competition weakens the positive impact of social capital on access to finance. Firms facing significant informal competition might find their social capital less effective in reducing financing constraints, possibly due to the unfair advantages held by informal firms, which undermine the competitive landscape. Consequently, efforts to formalize the business environment and reduce informal competition could enhance the effectiveness of social capital in easing access to finance.

In summary, the main effect of social capital (SOCAP) consistently shows that higher social capital reduces financing constraints for firms. This effect is further influenced by interaction terms with managerial experience, female top management, and informal competition. These findings underscore the importance of fostering social capital, promoting managerial experience, supporting female leadership, and reducing informal competition to improve firms' access to finance.

8. Conclusions

Access to finance poses a significant challenge to the growth of firms in middle- and low-income countries. This study reveals that social capital is crucial in determining firms' access to finance, facilitating the fulfillment of information, reputation, and collateral requirements essential for securing external financing. We utilized a comprehensive and consistent dataset from the WBES to examine the predictive capacity of social capital on firms' financing constraints across 138 middle- and low-income countries.

We developed a composite index of social capital by combining five indicators of social development per country: civic activism, gender equity, intergroup cohesion, interpersonal trust, and membership and participation in clubs and associations. These indicators encapsulate a diverse array of socio-economic variables within the five socio-institutional categories, aligning closely with the conceptualization of social capital in existing literature.

The ordinal nature of the dependent variable, access to finance, and other data present both advantages and disadvantages compared to standard balance-sheet information. While balance-sheet data provides detailed financial metrics, obtaining consistent and credible audited information in middle- and low-income countries can be challenging. In contrast, utilizing survey-based

Table 12
Channels of influence.

ACCESS	(1)	(2)	(3)
SOCAP	-1.440*** (-18.06)	-1.598*** (-19.29)	-1.350*** (-18.21)
SOCAP * MANGEXP	0.012*** (-2.74)		
SOCAP * FEMTOPM		0.055*** (4.67)	
SOCAP * INFORMAL			-0.022*** (-6.71)
Firm-level controls	Yes	Yes	Yes
Year effects	Yes	Yes	Yes
Country effects	Yes	Yes	Yes
Pseudo R^2	0.016	0.014	0.016
Wald χ^2	3783.977	3241.635	3805.693
N	78171	72452	78081

The table shows the mediating effects of managerial experience, female top management, and informal competition on the association between social capital and firm's access to finance. An order probit model with country-year fixed effects is used. An order probit model with country-year fixed effects and country-clustered standard errors is used. Estimates of firm-level controls and fixed effects are not reported. Model (1) shows the mitigating effect of managerial experience (MANGEXP). Model (2) shows the mediating effect of female top manager (FEMTOPM). Model (3) shows the mitigating effect of firms' informal competition (INFORMAL).

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

information offers certain benefits, particularly in contexts where obtaining audited data is difficult.

To ensure a comprehensive analysis of the influence of social capital on firms' financing constraints, we conducted several robustness checks. We controlled for a wide range of firm-specific characteristics as well as country-level economic and non-economic factors. These factors included economic, financial, and human development indicators, institutional governance environment, legal and regulatory conditions, and social structures and religious factors specific to middle- and low-income countries. These factors represent unobservable influences at the national level that moderate the impact of social capital on access to finance.

Our findings reveal that social capital consistently serves as a robust negative predictor of financing constraints in middle- and low-income countries. Higher levels of social capital correspond to reduced financing constraints for firms. However, these results vary across sectors of activity and geographical regions, highlighting the contextual nature of the social capital effect. Our study demonstrates that firm-specific characteristics have a significant influence on firms' financing constraints and the relationship between social capital and access to finance. Our analysis highlights the diverse impacts of country-level controls on the association between social capital and firms' access to finance, emphasizing the importance of institutions in mediating the effect of social capital. This novel cross-country evidence highlights the crucial role of social capital in enhancing firms' financial viability in the developing world, albeit in varied ways.

For cross-border lenders and MNE internal capital markets, country-level trust signals can inform pricing and covenant design, particularly when formal enforcement is weak. Policymakers aiming to relax financing frictions should complement legal/financial reforms with trust-building levers (civic participation, inclusive associations, gender equality).

Policymakers should recognize the importance of social capital in enhancing access to finance and incorporate measures to strengthen social cohesion, civic activism, and trust within communities. By implementing policies that promote gender equity and participation in social organizations, policymakers can contribute to the development of social capital. Additionally, institutional reforms that improve governance, legal frameworks, and regulatory conditions will further enhance the positive impact of social capital on financial access. Further, firms should actively engage in building and leveraging social capital by fostering strong networks, participating in community activities, and promoting trust and cooperation within and outside the organization. Managers can enhance their firms' reputation and reduce financing constraints by aligning their practices with social norms and engaging in socially responsible activities.

While this study provides robust evidence on the role of social capital in mitigating financing constraints, several limitations must be acknowledged. The reliance on survey-based data, while beneficial in certain contexts, may introduce biases related to self-reporting. Additionally, the cross-sectional nature of the data limits our ability to infer causality. Further, our outcome captures perceived constraints rather than realized contract terms; triangulation with observed covenant/pricing data (Brockman et al., 2022) is a natural extension. Future work could exploit intra-country variation (city/court-level trust and enforcement) and institutional shocks to sharpen mechanisms in a Williamson framework. Future research could benefit from longitudinal data to explore the dynamic aspects of social capital and financing constraints. Finally, while this study focuses on middle- and low-income countries, the findings may not be directly applicable to high-income countries with different institutional and economic contexts. In conclusion, this study highlights the crucial role of social capital in enhancing firms' access to finance in middle- and low-income countries. By integrating social capital into policy and managerial strategies, stakeholders can enhance financial viability and support economic growth in developing regions.

Authors' statement

All authors contributed substantially to the conception, design, analysis, and interpretation of the study. Dr. Asma Houcine led the data analysis and manuscript preparation. Dr. Charilaos Mertzanis contributed to the theoretical framework, empirical strategy, and critical revision of the paper. Both authors reviewed and approved the final version of the manuscript and agree to be accountable for all aspects of the work.

Author statement

All authors contributed substantially to the conception, design, analysis, and interpretation of the study. **Prof. Charilaos Mertzanis** led the data analysis and manuscript preparation. **Dr. Asma Houcine** contributed to the theoretical framework, empirical strategy, and critical revision of the paper. Both authors reviewed and approved the final version of the manuscript and agree to be accountable for all aspects of the work.

CRedit authorship contribution statement

Asma Houcine: Writing – review & editing, Writing – original draft. **Charilaos Mertzanis:** Methodology, Investigation, Formal analysis, Conceptualization.

Declaration of Competing Interest

The authors declare no known conflicts of interest in conducting this research.

Appendix. Definition of variables

Variable Code	Description and source
ACCESS	Ordinal variable that takes the value of 0 if the firm experiences no financing constraint, 1 (minor constraint), 2 (moderate constraint), 3 (major constraint) and 4 (very severe constraint), from the WBES.
SOCAP	The first principal component of the following social capital-related variables: civic activism, clubs and associations, intergroup cohesion, interpersonal safety and trust, and gender equality, based on data provided by the International Institute of Social Studies.
AGE	Logarithm of the number of years since the year that the company was established, from the WBES.
SIZE	Ordinal variable equal to 1 if the firm is small (5–19 employees); 2 is the firm is medium (20–99 employees); and 3 if the firm is large (>99 employees), from the WBES.
SECTOR	Ordinal variable equal to 1 if the firm is in manufacturing; 2 in services; 3 in retail; 4 in wholesale; 5 in construction; and 6 in the other SECTORS, from the WBES.
LEGAL	Dummy variable that takes the value of 1 if the firm is incorporated as a joint-stock company and 0 otherwise, computed from the WBES.
LOCAT	Dummy variable that takes the value of 1 if the firm operates in a city of 50,000 or more people and 0 otherwise, computed from the WBES.
EXPORT	Dummy variable that takes the value of 1 if the firm exports directly 50 % or more of its sales and 0 otherwise, computed from the WBES.
OWNP	The percentage of the firm's share capital owned by domestic private individuals, companies, or organizations, from the WBES.
OWNF	The percentage of the firm's share capital owned by foreign private individuals, companies, or organizations, from the WBES.
OWNG	The percentage of the firm's share capital owned by the state, from the WBES.
OWNT	The percentage of the firm's share capital owned by other interests, from the WBES.
GDPG	Logarithm of GDP annual growth rate (%), from the World Bank Development Indicators
GDPCAP	Logarithm of GDP per capita (PPP, current USD), from the World Bank Development Indicators. It is generally considered a measure of a country's level of economic development.
GINI	The Gini coefficient, from the World Bank Development Indicators, supplemented by UNDP information. It is generally considered an indicator of income inequality.
INFLAT	Consumer price index (percent), from the World Bank Development Indicators.
COMPET	Index of product market competition, ranging from 1 to 7, from the World Economic Forum's Global Competitiveness Report. It is the weighted average of both domestic and foreign competitions. Higher values imply stronger completion among firms in the products markets.
CREDIT	Domestic credit to the private sector (% GDP), from the World Bank Development Indicators. It is generally considered a bank-based measure of financial development.
TRADE	Value of trading in the stock market (% of GDP), from the World bank development Indicators. It is generally considered a stock market-based measure of a country's financial development.
LERNER	The Lerner index is a measure of market power in the credit market from the Global Financial Development Indicators. It is defined as the difference between output prices and marginal costs (relative to prices). Prices are calculated as total bank revenue over assets, whereas marginal costs are obtained from an estimated translog cost function with respect to output. Higher values of the Lerner index indicate less bank competition.
ZSCORE	The Z-Score measures the degree of banking sector stability by comparing buffers (capitalization/returns) with risk (return volatility) to measure solvency risk, from the World Bank Global Financial Development Indicators. A higher z-score therefore implies a lower probability of insolvency.
SPREAD	It is the spread between the lending and the borrowing interest rate, from the World Bank Development Indicators; it is generally considered a measure of transaction costs.
FINOPEN	The Chinn-Ito index measures a country's degree of capital account openness, from Chinn and Ito (2006) (annually updated). This index takes on negative and positive values; higher values imply that countries are more open to (fewer restrictions on) cross-border capital transactions.
GLOBAL	The KOF Index of financial globalization ranges from 0 to 100 and it is a ranking of the most global countries based on extent of globalization of financial flows. The higher the index, the more globalized the country. Published by ETH Zurich.
VOIACC	The voice and accountability index ranging from –2.5–2.5, with higher values corresponding to the extent of democratic freedom of expression, from the World Bank Worldwide Governance Indicators. Voice and accountability capture perceptions of the extent to which a country's citizens can participate in selecting their government, as well as freedom of expression, freedom of association and free media.
POLSTAB	The political stability index ranging from –2.5–2.5, with higher values corresponding to higher political stability, from the World Bank Worldwide Governance Indicators. It reflects perceptions of the likelihood of political instability and/or politically motivated violence, including terrorism.
GOVEFF	The government effectiveness index ranging from –2.5–2.5, with higher values corresponding to better government effectiveness, from the World Bank Worldwide Governance Indicators. It reflects perceptions on the quality of public services, the quality of the civil service and its independence from political pressures, the quality of policy formulation and implementation and the credibility of the government's
REGQUAL	The regulatory quality index ranging from –2.5–2.5, with higher values corresponding to better quality of regulation, from the Worldwide Governance Indicators. It reflects perceptions regarding the ability of the government to formulate and implement sound policies and regulations that permit private SECTOR development.
RULLAW	The rule of law index ranges from –2.5–2.5, with higher values corresponding to better rule of law, from the World Bank Worldwide Governance Indicators. It reflects the degree to which agents have confidence in and abide by the rules of society and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.
CONTCOR	The control of corruption index ranging from –2.5–2.5, with higher values corresponding to better control of corruption, from the World Bank Worldwide Governance Indicators. It reflects the extent to which elites and private interests exercise public power for private gain, including both petty and grand forms of corruption, as well as 'capture' of the state. It also measures the strength and effectiveness of a country's policy and institutional framework to prevent and combat corruption.
LEGEFF	Index of the efficiency of the legal framework for private business in challenging government regulations (1–7), from the World Economic Forum's Executive Opinion Surveys 2011/2011. Higher values imply more efficient legal framework
ENFRCON	Index of contract enforcement, from the World Bank Doing Business Report. It measures the time and cost for resolving a commercial dispute through a local first-instance court, and the quality of judicial processes index, evaluating whether each economy has adopted a series of good practices that promote quality and efficiency in the court system
LEGRGHT	Index of legal rights, from the World bank Doing Business Report (0–12). It measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending. Higher values imply laws are better designed to expand access to credit.
AUDSTDR	Index of the strength of auditing and reporting standards (1–7), from the World Economic Forum's Executive Opinion Surveys 2011/2011. Higher values imply higher reporting standards

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Variable Code	Description and source
INVPROT	Index of investor protection, from the World bank Doing Business Report (0–10). It is a combination of the Extent of disclosure index (transparency of transactions), the Extent of director liability index (liability for self-dealing), and the Ease of shareholder suit index (shareholders' ability to sue officers and directors for misconduct). Higher values imply higher protection.
PROPREG	Index of registering property, from the World bank Doing Business Report (0–10). It measures the steps, time and cost involved in registering property, assuming an entrepreneur who wants to purchase land and a building that is already registered and free of title dispute. In addition, the topic also measures the quality of the land administration system. Higher values imply lower costs in registering property.
CONFINPR	Dummy variable that takes the value of 1 if a country's Constitution explicitly protects ownership of financial property and 0 otherwise, from the Comparative Constitutions Project.
CONRSPR	Dummy variable that takes the value of 1 if a country's Constitution explicitly restricts the rights of property owners and 0 otherwise, from the Comparative Constitutions Project.
FRDPR	Index of freedom of property rights, from the Heritage Foundation (0–100). It measures the degree to which a country's laws protect private property rights and the degree to which its government enforces those laws. Higher values imply higher legal protection.
EXPROP	Binary variable that takes the value of 1 if, despite constitutional provisions, the government can expropriate private property under at least some conditions, from the Comparative Constitutions Project.
INSOLV	Index of resolving insolvency problems, from the World bank Doing Business Report (0–10). It is the time, cost and outcome of insolvency proceedings involving domestic legal entities, based on the recovery rate and the liquidation or debt enforcement (foreclosure or receivership) proceedings. Higher values imply higher resolution efficiency.
FRETH	The ethnic fractionalization index ranging from 0 to 1, from Alesina et al. (2003). It reflects the likelihood that two randomly selected persons from a given country will not share the same ethnic origin (ethnic heterogeneity). A higher index reflects a lower probability of common sharing.
FRLNG	The linguistic fractionalization index ranging from 0 to 1, from Alesina et al. (2003). It reflects the likelihood that two randomly selected persons from a given country will not share the same language (linguistic heterogeneity). A higher index reflects a lower probability of common sharing.
FRRLG	The religious fractionalization index ranging from 0 to 1, from Alesina et al. (2003). It reflects the likelihood that two randomly selected people from a given country will not share the same religion (religious heterogeneity). A higher index reflects a lower probability of common sharing.
FAMTIES	Index of the strength of family ties, ranging from –1 to +1, from Alesina and Giuliano (2010, 2011) based on World Value Surveys. Negative values indicate weak family ties and positive values indicate strong family ties. It reflects beliefs on the importance of the family in an individual's life, including the duties and responsibilities of parents and children and the love and respect for one's own parents.
RELIGIOS	Index of RELIGIOS of people in a country ranging from 0 to 100, from the WIN-Gallup International 2012 poll worldwide. It represents the percentage of the population (18 years and older) who self-describe themselves as 'a religious person' in the question: "Irrespective of whether you attend a place of worship or not, would you say you are a religious person, not a religious person or a convinced atheist?"
CRIME	Index of the extent to which people in a country perceive organized crime (mafia-oriented racketeering, extortion) to impose costs on businesses (1–7), from the Global Competitiveness Report. Higher values imply lower business costs.
SOCPROG	Index of social progress in a country, ranging from 0 to 100, from the Social Progress Initiative. It aggregates social and environmental indicators that capture three dimensions of social progress: basic human needs, foundations of wellbeing, and opportunity. Higher values imply higher social progress.
EDCTR	Index of a country's higher education & training of people (1–7), from the Global Competitiveness Report. Higher values imply higher average levels of people's education and training.

APPENDIX. Comparison of social capital measures with the WVS trust measures.

Comparing the PCA-based social-capital index (SOCAP) with the relevant World Value Survey (WVS) *trust* measures is important for construct validation and interpretation. Our social capital index (SOCAP) is based on the first principal component of the following variables: civic activism, intergroup cohesion, interpersonal trust, gender equality, and membership and involvement in clubs and associations. Moreover, the World Value Survey data (Trends_VS_1981-2022_v4) provide the following variables: Whether most people can be trusted (Trust1); How much do you trust your family (scale 1–5) (Trust2); How much do you trust your family (scale 1–4) (Trust3); How much do you trust other people in the country (Trust4); How much do you trust your neighborhood (Trust5); How much do you trust the people you know personally (Trust6); How much do you trust people you meet for the first time (Trust7); How much do you trust people of another religion (Trust8) and how much do you trust people from another nationality (Trust9).

We use the pairwise correlation matrix (Table A1 below) between SOCAP and the 10 different WVS measures of trust to check whether SOCAP aligns with generalized (arm's-length) trust, the mechanism most relevant for easing financing constraints, while differences highlight discriminant validity, i.e., that SOCAP is not merely capturing bonding or identity-specific trust. This comparison also strengthens the measurement argument (external reference point beyond our index), helps justify mechanism choice in the hypotheses (relational lending, information asymmetry, stakeholder confidence), and guides robustness and policy: if SOCAP tracks generalized trust more than in-group trust, we should expect stronger effects in settings where arm's-length finance dominates and tailor tests and implications accordingly.

Looking only at column (1) of Table A1, the PCA-based social capital index (SOCAP) shows small but mostly positive links to several WVS trust items: it correlates significantly with "most people can be trusted" (0.042***), the canonical generalized-trust item, and with "trust people you meet for the first time" (0.071***), the largest coefficient in the column, as well as "trust your neighborhood" (0.039***) and one family-trust variant (0.036***). By contrast, associations with "trust family (1–5)," "trust other people in the country," and "trust people you know personally" are near zero and not significant (0.002, 0.003, 0.007, respectively), and the correlations with "trust people of another religion" and "trust people from another nationality" are essentially nil (0.002) or very small and negative (–0.012), both not significant. Taken together, SOCAP aligns most with generalized or stranger-facing trust (and local neighborhood trust), while showing little systematic covariation with several in-group or out-group specific trust prompts; the magnitudes are modest, consistent with SOC capturing broader "bridging" social capital beyond any single WVS item (Generalized trust; family/variants and neighborhood/personal trust; stranger/other-group trust).

What are the implications for our research question? The column (1) correlation pattern shows that the PCA social-capital index

(SOCAP) aligns most with *generalized/stranger-facing trust*, for it is positively and significantly related to the WVS “most people can be trusted” item (Trust1 = 0.042^{***}) and especially to “trust people you meet for the first time” (Trust7 = 0.071^{***}), with smaller positives for neighborhood trust (Trust5 = 0.039^{***}) and one family-trust variant (Trust3 = 0.036^{***}). By contrast, links to “trust other people in the country,” “people you know personally,” and out-group trust by religion/nationality are near zero or nil (Trust4 = 0.003; Trust6 = 0.007; Trust8 = 0.000; Trust9 = −0.012). This pattern suggests that *SOCAP primarily captures bridging, arm’s-length trust*, which is the dimension theoretically most relevant for easing information frictions and opportunism in credit with less-familiar counterparties, rather than bonding or narrow in-/out-group trust. Substantively, this bolsters our interpretation that higher social capital should mitigate perceived financing constraints through *broader cooperative norms* rather than through family/personal ties alone, consistent with our cross-country design. At the same time, the *modest* magnitudes indicate that *SOCAP is not reducible to a single WVS item*; it embeds wider institutionalized features (civic activism, intergroup cohesion, gender equality, association membership) that travel beyond survey trust responses, which helps explain why its association with financing access can persist after standard institutional controls. Practically, we therefore frame mechanisms and heterogeneity around *generalized/stranger trust* channels (e.g., arm’s-length lending, covenant intensity, monitoring scope), while acknowledging that identity-specific frictions (religion/nationality) may still require *formal-institution interactions* to be fully alleviated, which is precisely the substitution/complementarity logic we test.

Table A1
Correlation matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
SOCAP	1									
Trust1	0.042 ^{***}	1								
Trust2	0.002	−0.014 ^{***}	1							
Trust3	0.036 ^{***}	0.011 ^{***}	−0.256 ^{***}	1						
Trust4	0.003	−0.009 ^{***}	0.957 ^{***}	−0.253 ^{***}	1					
Trust5	0.039 ^{***}	0.024 ^{***}	−0.253 ^{***}	0.972 ^{***}	−0.250 ^{***}	1				
Trust6	0.007	0.025 ^{***}	−0.253 ^{***}	0.971 ^{***}	−0.251 ^{***}	0.973 ^{***}	1			
Trust7	0.071 ^{***}	0.034 ^{***}	−0.252 ^{***}	0.962 ^{***}	−0.249 ^{***}	0.966 ^{***}	0.966 ^{***}	1		
Trust8	0.002	0.033 ^{***}	−0.247 ^{***}	0.946 ^{***}	−0.245 ^{***}	0.945 ^{***}	0.950 ^{***}	0.955 ^{***}	1	
Trust9	−0.012	0.035 ^{***}	−0.246 ^{***}	0.943 ^{***}	−0.244 ^{***}	0.944 ^{***}	0.947 ^{***}	0.958 ^{***}	0.973 ^{***}	1

Notes. The table reports the pairwise correlations between the social capital index (SOCAP) and the 9 different measures of trust provided in the world value surveys (WVS).

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Data availability

Data will be made available on request.

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