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Financial sector structure, governance quality, and access to finance

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ABSTRACT
This paper compares financial sector concentration and competition within the same framework and examines how they relate to firms' access to finance across different levels of reported obstacle severity. Higher financial sector concentration is associated with a greater likelihood that firms report severe obstacles to accessing finance, and lower financial sector competition is likewise associated with a greater likelihood of severe obstacles. Stronger governance strengthens the relationship whereby greater financial sector competition is associated with fewer reported obstacles to accessing finance. For financial sector concentration, the moderating role of governance varies with obstacle severity and the sample window, and concentration-based associations are more sensitive to the sample period, especially in recent years. These findings can guide how policymakers interpret proxies for concentration and competition and underscore the relevance of governance when considering conditions for firms' access to finance.

IMPACT STATEMENT
This paper examines the relationship between financial sector structure and firms' access to finance, and how this relationship is shaped by governance. Its findings highlight the importance of considering institutional context when interpreting financial sector indicators and designing policies to improve financing access.

HIGHLIGHTS
- Analyses finance market structure and firms' access to finance.
- Compares CR3, CR5, HHI, and Panzar–Rosse indices for assessing financial access.
- Examines the impact of governance quality on financial access and sector structure.
- Utilises a generalised ordered logit model to robustly analyse ordinal access data.
- Employs data from 132 countries covering the period 2005 to 2021/23.

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SUBJECTS
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1. Introduction

Access to finance is central to firm performance and aggregate growth because many firms depend on external funds for working capital and investment. Since 2022, reports document tighter and more costly SME finance in many markets, while patterns of market power evolve across competition metrics after the global financial crisis (Igan et al., 2021; OECD, 2024; 2025). These shifts increase the need for evidence on how financial sector concentration and financial sector competition relate to access to finance and how governance conditions these relationships. Policymakers face choices on competition policy, credit information systems, collateral frameworks, and supervisory design under changing market conditions. Managers face credit terms that depend on both financial sector concentration and financial sector competition. A clear mapping from financial sector structure to access to finance supports policy design and private decisions.

Financial sector concentration and financial sector competition are conceptually distinct and carry different policy content. Financial sector concentration captures the distribution of market shares across

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financial institutions. Financial sector competition captures conduct and the elasticity of revenues with respect to input prices. The literature differentiates these concepts, yet many empirical studies use financial sector concentration as a proxy for financial sector competition when studying market power (Claessens & Laeven, 2004; Demirguc-Kunt et al., 2004; Ijaz et al., 2020). Governance then mediates how financial sector structure maps into access to finance. Enforcement, information production, and predictable regulation shape the extent to which financial sector competition translates into credit supply and the extent to which financial sector concentration coincides with relationship lending or market power (Love & Martínez Pería, 2015; World Bank, 2020).

As a result, the paper addresses three questions. First, how do financial sector concentration and financial sector competition relate to the likelihood that firms report severe financial obstacles along the ordered severity scale? Second, does governance change these relationships, and at which points along the severity scale are these links most visible? Third, do these relationships remain stable across periods when financing conditions shift?

The paper contributes along methodological, empirical, and policy dimensions. Methodologically, the paper applies an estimator that respects the ordered design of the financial obstacle measure and tests whether slopes differ across severity thresholds. Empirically, the paper benchmarks financial sector concentration against financial sector competition within one framework and sample, and quantifies how governance changes these links. Substantively, the paper shows that proxy choice and governance affect inference on how financial sector structure relates to access to finance. Policy that raises financial sector competition aligns with improved access to finance, especially when governance supports enforcement and information. Monitoring frameworks benefit from conduct metrics alongside financial sector concentration indices because the concentration–access relationship is period sensitive. Governance interacts with financial sector structure, gains from competition policy are larger where governance reduces loss given default and improves contract enforcement. These implications guide competition policy, credit information infrastructure, collateral systems, and supervisory capacity, and they inform managerial decisions on lender search, relationship management, and reporting practices.

2. Literature review

Foundational studies link finance to growth through capital allocation and risk sharing (Gerschenkron, 1962; Goldsmith, 1969). Endogenous growth work formalises these links and shows that finance supports investment and innovation (Aghion & Howitt, 1998; Romer, 1994). Empirical studies connect financial development to lower information costs and broader access to external finance (De Gregorio & Guidotti, 1995; Levine, 1991; Love & Martínez Pería, 2015). Financial systems mobilise savings and enable diversification when capital markets are thin (Benhabib & Spiegel, 2000; Chinoda & Mashamba, 2021).

Financial sector structure shapes access to finance because financial sector concentration and financial sector competition influence pricing and lending technology. Financial sector concentration reflects dominance in market shares and asset holdings. Financial sector competition reflects conduct and rivalry in the provision of credit. These measures carry different policy content and can yield distinct signals (Barbosa et al.,2015; Claessens & Laeven, 2004; Ijaz et al., 2020; Wang et al., 2020b). Governance mediates how structure maps into credit supply and firm access to finance. Stronger institutions reduce frictions and improve enforcement, which supports lending and entry (World Bank, 2020).

2.1. Theoretical framework

Financial development supports firm growth by easing external finance frictions and reallocating capital (Aghion & Howitt, 1998; Benhabib & Spiegel, 2000; Goldsmith, 1969; Levine, 1991). Access to finance matters because many firms rely on financial institutions for working capital and investment (Beck & Demirguc-Kunt, 2006). Market power and lending technology link financial sector structure to access to finance outcomes. Higher financial sector concentration can raise spreads and tighten credit for opaque firms (Allen & Gale, 2004; Repullo, 2004). Market power can also support relationship lending by strengthening incentives to gather soft information (Allen & Gale, 2004).

Financial sector concentration and financial sector competition are distinct in industrial organisation. Financial sector concentration is a structure outcome captured by the Herfindahl–Hirschman Index and ratios such as CR3 and CR5. Financial sector competition is a conduct concept measured by revenue elasticities in the Panzar–Rosse framework (Claessens & Laeven, 2004; Panzar & Rosse, 1987). Because competitive conduct is hard to observe, many studies rely on financial sector concentration when the theory concerns market power (Demirguc-Kunt et al., 2004). Governance shapes these links through enforcement quality and information production.

2.2. Hypothesis development

We hypothesise that higher financial sector concentration increases the likelihood of reporting severe financial obstacles, with effects most visible at higher severity thresholds in ordered scales. We hypothesise that higher financial sector competition reduces the likelihood of severe financial obstacles across margins. We measure competitive conduct using the Panzar–Rosse H statistic. We hypothesise that higher governance quality strengthens the association between financial sector competition and improved access to finance and weakens the association between financial sector concentration and reported financial obstacles at some margins. We also test whether these relationships change in the most recent period.

2.3. Recent literature on the topic

Early cross-country evidence links financial sector concentration to stronger reported financial obstacles in firm surveys (Beck et al., 2004). Institutions and regulation shape intermediation costs and the pass-through to firms (Demirguc-Kunt et al., 2004). Firm–financial institution studies show that market power matters for SME outcomes under different informational margins (Carbó-Valverde et al., 2009; Wang et al., 2020b).

Recent evidence sharpens the conduct interpretation and expands the proxy set. European matched data show that market power can lower SME borrowing costs through relationships (Wang et al., 2020a). Firm-level evidence across developing economies links higher financial sector competition to lower financial obstacles, with effects varying by information and policy settings (Khan & Kutan, 2023).

Related studies examine switching costs and information frictions under different competitive conditions (Ornelas et al., 2022). Other work connects financial sector competition and market power to credit provision under macroprudential and crisis-related regimes (Ćehajić & Košak, 2022). Institutional and informational environments remain central across these results. Credit information and enforcement alter how financial sector structure maps into firm outcomes (Demirguc-Kunt et al., 2004; Love & Martínez Pería, 2015). Corporate finance evidence links market power to reporting and monitoring incentives, which supports governance channels (Mi et al., 2024). These links motivate interaction designs that include governance indicators.

Two empirical gaps guide the paper's design. Many studies use financial sector concentration to proxy market power, while fewer benchmark it against financial sector competition in one framework (Claessens & Laeven, 2004; Khan & Kutan, 2023). Firm survey work often applies ordered models without testing the parallel lines restriction, which affects slope interpretation (Beck et al., 2004; Williams, 2006).

The policy backdrop remains relevant for access to finance. Patterns of market power evolve after the global financial crisis, with differences across competition metrics (Igan et al., 2021). Since 2022, reports document tighter and more costly SME finance in many markets (OECD, 2024; 2025). Conditions vary across countries and sectors and can shift over time. This context increases the value of understanding how access to finance relates to financial sector structure and governance. It motivates analysis of links between financial sector competition, financial sector concentration, and institutional design.

3. Data

The analysis combines firm-level outcomes from the World Bank Enterprise Surveys with country-level indicators. The baseline sample covers 2006 to 2021 and uses a uniform core questionnaire. This design

Table 1. Summary statistics.

Variable	Obs	Mean	Std dev	Min	Max
Firm–level data					
FinancialObs	92445	1.67	0.93	1	4
Government	92445	0.01	0.07	0	1
Foreign	92445	0.06	0.25	0	1
Exporter	92445	0.27	0.44	0	1
Manufacturer	92445	0.59	0.49	0	1
LnSales	92445	16.46	2.70	1.65	23.03
Country-level data					
Inflation	132	1.08	1.03	−1.61	3.25
Growth	132	4.48	4.08	0.20	25.70
WGI	132	0.04	0.44	−0.90	0.15
CR3	132	57.91	15.06	20.73	93.02
CR5	132	74.24	14.69	31.99	99.17
HHI	132	1684.89	923.58	390.00	6812.32
H-stat	121	0.59	0.42	−0.23	1.49

Note: Financing obstacle is the response to the question: "How problematic is financing for the operation and growth of your business?" Answers vary between 1 (no or minor obstacle), 2 (moderate obstacle), 3 (major obstacle), and 4 (very severe obstacle); Government, Foreign, Exporter, and Manufacturing are dummy variables indicating if a firm is government-owned, foreign-owned, exporting firm or manufacturer; Growth stands for growth rate of GDP per capita (PPP); Inflation for the inflation rate of average consumer prices; WGI for the average of the six WGI indicators; CR3 and CR5 for the concentration ratio of the 3 and 5 largest financial institutions.

supports comparability of financial obstacle responses across countries and waves. It avoids earlier modules with different wording and coverage that shift measurement. The extended sample covers 2006 to 2023 and keeps identical definitions and matching. Reporting both windows uses available information while preserving consistent measurement. The two windows support comparisons over time without changing the survey instrument or institutional series.

Firm-level data come from the Enterprise Surveys and include the financial obstacle outcome. The dependent variable is the reported severity of financial obstacles, from 1, no or minor obstacle, to 4, very severe obstacle. The outcome is subjective and reflects experience and reporting behaviour, which motivates an ordinal approach. Firm controls include government, foreign, and export ownership, manufacturing status, and total sales. These variables capture observable differences in scale, product market exposure, and ownership.

Financial sector structure measures come from ORBIS Bank Focus using financial institution balance sheet and income data. We compute CR3, CR5, and the Herfindahl–Hirschman Index from asset shares. We estimate the Panzar–Rosse H statistic from reduced-form revenue equations to proxy competitive conduct. All measures aggregate to the country–year to match survey timing. Using both structure and conduct proxies supports a comparative assessment of market power channels.

Country-level macroeconomic and institutional variables come from the IMF and the Worldwide Governance Indicators. The macro series include growth and inflation. The governance series covers voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption. These indicators support tests of whether institutions condition links between financial sector structure and access to finance.

Sample construction matches firms to financial sector structure and country indicators by country and year. We retain observations with complete outcomes, structure measures, macro controls, and governance scores. The ordinal obstacle scale supports ordered and generalised ordered models with threshold variation. We cluster standard errors at the country–year level to address intra-country correlation. Summary statistics appear in Table 1, and variable definitions appear in Appendix Table A1. Appendix Table A2 shows modest pairwise correlations among the main covariates, while CR3, CR5, and HHI are strongly correlated because they are alternative measures of financial sector concentration, so they are used in separate specifications.

4. Methodology

CR3 and CR5, respectively, measure the proportion of total assets held by the three and five largest financial institutions. The Herfindahl–Hirschman Index (HHI) is calculated as the sum of squared market shares for each financial institution. Lower HHI indicates more fragmented market structure.

$$CR_{j,c,t} = \frac{\sum_{n=1}^{j} totassets_{n,c,t}}{\sum_{n=1}^{N} totassets_{n,c,t}} \cdot 100 \quad \text{where} \quad j = 3, 5 \tag{1}$$

$$HHI_{c,t} = \sum_{n=1}^{N} s_{n,c,t}^{2} \tag{2}$$

The Panzar–Rosse H statistic measures the elasticity of financial institution revenue with respect to input prices. It is estimated from a reduced-form revenue equation and proxies financial sector competition (Panzar & Rosse, 1987). The Panzar–Rosse H statistic is defined as the sum of β_1, β_2, and β_3 and can lie between 0 and 1.[1]

$$\begin{aligned} lnRevenues_{c,t} = \alpha_0 \sum_{c=1}^{C} [\beta_c(lnw_{1,c,t}) + \gamma_c(lnw_{2,c,t}) + \delta_c(lnw_{3,c,t})] iso_c \\ + \alpha_1 lnAssets_{c,t} + \alpha_2 lnEquitytoAssets_{c,t} \end{aligned} \tag{3}$$

where

$$Hstat_{c,t} = \beta_{c,t} + \gamma_{c,t} + \delta_{c,t} \tag{4}$$

We utilise a generalised ordered logit model, as the parallel lines assumption underlying standard models is rejected (Table A3). This approach allows effects to vary across obstacle thresholds where diagnostics support it and is appropriate given the ordinal nature of the dependent variable. Models incorporate standard firm- and country-level controls and year dummies. All inferences are correlational and we assess multicollinearity via variance inflation factors.

$$\begin{aligned} FinancingObstacle_{j,c,t} = \beta_0 + \beta_1 Government_{j,c,t} + \beta_2 Foreign_{j,c,t} + \beta_3 Exporter_{j,c,t} \\ + \beta_4 Manufacturing_{j,c,t} + \beta_5 Size_{j,c,t} + \beta_6 Inflation_{c,t} \\ + \beta_7 Growth_{c,t} + \beta_8 Concentration_{c,t} + \epsilon_{j,c,t} \end{aligned} \tag{5}$$

In addition, the above equation is expanded to include governance indicators and their interaction with both financial sector structure and financial sector competition, using the WGI score (Eq. (6)).

$$\begin{aligned} FinancingObstacle_{j,c,t} = \beta_0 + \beta_1 Government_{j,c,t} + \beta_2 Foreign_{j,c,t} + \beta_3 Exporter_{j,c,t} \\ + \beta_4 Manufacturing_{j,c,t} + \beta_5 Size_{j,c,t} + \beta_6 Inflation_{c,t} \\ + \beta_7 Growth_{c,t} + \beta_8 Concentration_{c,t} + \beta_9 GovIndicator_{c,t} \\ + \beta_{10} GovIndicator_{c,t} \cdot Concentration_{c,t} + \epsilon_{j,c,t} \end{aligned} \tag{6}$$

Benchmark estimators include ordered probit and ordered logit, which match prior work on ordinal financial obstacles and allow comparison to earlier studies (Beck et al., 2004; Love & Martínez Pería, 2015). Generalised ordered logit serves as the main estimator because proportional odds is rejected and determinants differ across severity thresholds (Williams, 2006). Financial sector concentration and financial sector competition enter in separate specifications to avoid multicollinearity and to compare the information content of structure and conduct measures (Allen & Gale, 2004; Claessens & Laeven, 2004). Additionally, Table A4 reports variance inflation factors based on auxiliary linear regressions using the ordered probit estimation sample, and the values are close to one in both structure specifications, indicating that multicollinearity is not a concern. Robustness checks replace HHI with CR3 and CR5, following practice in market structure research (Demirguc-Kunt et al., 2004; Wang et al., 2020b). Institutional heterogeneity is examined through interactions with WGI, in line with institutional channels and policy monitoring (Demirguc-Kunt et al., 2004; World Bank, 2020). Extended-sample estimates to 2023 and a post-2021 slope-shift design use the last available governance year while keeping the survey instrument and covariates unchanged.

We address model robustness along several dimensions. Proportional odds diagnostics confirm threshold variation and motivate partial proportional odds. Fit comparisons use information criteria and pseudo-R-squared across estimators. Threshold-specific marginal effects track how predictors relate to each obstacle cutpoint. Alternative functional forms test level and alternative normalisations of financial sector concentration and financial sector competition proxies.

Variable choices follow established practice in access to finance and market structure. The dependent variable is the Enterprise Surveys financial obstacle scale, which serves as an ordinal proxy for access to finance (Beck et al., 2004; Beck & Demirguc-Kunt, 2006; Love & Martínez Pería, 2015). Financial sector concentration proxies include HHI, CR3, and CR5 (Allen & Gale, 2004; Demirguc-Kunt et al., 2004). Financial sector competition is proxied by the Panzar–Rosse H statistic (Panzar & Rosse, 1987), with links to firm outcomes in Love and Martínez Pería (2015) and Schaeck et al. (2009). Governance is proxied by WGI to capture institutional design and enforcement conditions (Demirguc-Kunt et al., 2004; World Bank, 2020). Firm controls include ownership, exporter status, manufacturing, and size (Beck et al., 2004; Beck & Demirguc-Kunt, 2006). Country controls include inflation and growth to reflect macroeconomic conditions (Benhabib & Spiegel, 2000; De Gregorio & Guidotti, 1995).

5. Results and discussion

5.1. Financial sector structure and access to finance in the baseline period

Table 2 reports ordered probit and ordered logit estimates for 2006 to 2021. Ordered response models are common in the access to finance literature because the underlying survey measure is ordinal (Beck et al., 2004). The estimates relate financial sector concentration and financial sector competition to access to finance. Financial sector concentration enters as HHI. Financial sector competition enters as the Panzar–Rosse H statistic. Each proxy enters in a separate specification, which avoids multicollinearity and isolates the informational content of each measure.

The results show that firm-level control variables have the predicted signs. Government-owned, foreign-owned, service-oriented, and larger firms face lower financial obstacles and thus have more access to finance. Government-owned and foreign-owned firms typically have higher access due to perceptions of lower default risks, stemming from implicit or explicit government backing and established international reputations. Additionally, these entities generally have greater financial transparency, increasing lender confidence and facilitating access to finance. Larger firms benefit from economies of scale and established credit histories, making them more accessible to finance.

Country-level control variables also have the predicted signs. Firms in countries with low inflation or higher GDP growth levels have more access to finance, Countries with low inflation are generally deemed stable economic environments, reducing uncertainty and enhancing the predictability of returns, making them more attractive to investors and creditors. Similarly, higher growth levels indicate robust economic performance and increased capital inflows.

Financial sector concentration enters with a positive and statistically significant coefficient in ordered models. Financial sector competition enters with a negative and statistically significant coefficient in ordered models. The sign pattern implies that higher financial sector concentration associates with weaker access to finance, while higher financial sector competition associates with better access to finance.

Appendix Table A5 provides robustness checks for financial sector concentration using CR3 and CR5. The coefficients remain positive and statistically significant. The baseline conclusion therefore does not depend on one specific definition of financial sector concentration.

Managerial implications follow from this baseline pattern. For financial institution managers, higher financial sector competition relates to a business environment where lending terms are harder to sustain through market power alone. Screening technology, service quality, and relationship management become central sources of differentiation. For firm managers, higher financial sector competition relates to a higher return to active search and switching. Firms benefit from comparing offers and maintaining relationships with more than one lender. For policymakers, the results indicate that access to finance relates to financial sector structure, after conditioning on firm characteristics and macro controls.

5.2. Nonlinear access margins and the role of institutional design

Ordered probit and ordered logit impose the parallel lines restriction. This restriction requires the same slope across cutpoints of the ordered outcome. Appendix Table A3 rejects this restriction for ordered

Table 2. Ordered probit and ordered logit estimates of access to finance and financial sector structure, 2006–2021.

	Financial obstacle			
	Concentration measure		Competition measure	
Government	−0.177**	−0.319***	−0.184**	−0.331**
	(0.057)	(0.096)	(0.060)	(0.103)
Foreign	−0.218***	−0.379***	−0.204***	−0.362***
	(0.017)	(0.030)	(0.019)	(0.033)
Exporter	0.016	0.030	0.020	0.037*
	(0.010)	(0.016)	(0.010)	(0.017)
Manufacturing	0.081***	0.142***	0.092***	0.162***
	(0.008)	(0.014)	(0.009)	(0.015)
Ln sales	−0.044***	−0.074***	−0.044***	−0.075***
	(0.002)	(0.003)	(0.002)	(0.003)
Ln inflation	0.157***	0.262***	0.108***	0.177***
	(0.005)	(0.008)	(0.005)	(0.008)
Growth	−2.572***	−4.217***	−1.845***	−2.915***
	(0.138)	(0.237)	(0.162)	(0.279)
Ln HHI	0.029**	0.041**		
	(0.009)	(0.016)		
Ln PR-H-stat			−0.099***	−0.168***
			(0.006)	(0.010)
Year dummy	Yes	Yes	Yes	Yes
N	92445	92445	82005	82005
Pseudo R^2	0.028	0.028	0.028	0.028
χ^2	5303.550	5044.929	4624.712	4436.224

Note: Regression includes year dummies and clustering. *, **, and *** indicate significance levels of 10%, 5%, and 1%, respectively. Financial sector concentration is proxied by log HHI and financial sector competition by the log Panzar–Rosse H statistic.

Table 3. Generalized ordered logit estimates across access-to-finance severity margins, 2006–2021.

	Financial obstacle					
	Concentration measure			Competition measure		
	(1)	(2)	(3)	(1)	(2)	(3)
Government	−0.317***	−0.317***	−0.317***	−0.330**	−0.330**	−0.330**
	(0.094)	(0.094)	(0.094)	(0.102)	(0.102)	(0.102)
Foreign	−0.384***	−0.384***	−0.384***	−0.368***	−0.368***	−0.368***
	(0.030)	(0.030)	(0.030)	(0.033)	(0.033)	(0.033)
Exporter	0.030	0.030	0.030	0.037*	0.037*	0.037*
	(0.016)	(0.016)	(0.016)	(0.017)	(0.017)	(0.017)
Manufacturing	0.141***	0.120***	0.197***	0.164***	0.130***	0.226***
	(0.015)	(0.018)	(0.029)	(0.016)	(0.019)	(0.032)
Ln sales	−0.068***	−0.085***	−0.095***	−0.070***	−0.083***	−0.094***
	(0.003)	(0.003)	(0.005)	(0.003)	(0.004)	(0.006)
Ln inflation	0.239***	0.330***	0.345***	0.160***	0.238***	0.235***
	(0.008)	(0.011)	(0.018)	(0.009)	(0.012)	(0.020)
Growth	−3.757***	−4.694***	−4.731***	−2.262***	−4.258***	−4.545***
	(0.249)	(0.294)	(0.440)	(0.289)	(0.332)	(0.466)
Ln HHI	0.000	0.135***	0.122***			
	(0.016)	(0.019)	(0.030)			
Ln PR-H-stat				−0.165***	−0.165***	−0.165***
				(0.010)	(0.010)	(0.010)
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes
N	92445	92445	92445	82005	82005	82005
Pseudo R^2	0.032	0.032	0.032	0.032	0.032	0.032
χ^2	6021.746	6021.746	6021.746	5246.467	5246.467	5246.467

Note: Column 1 compares no/minor obstacle to moderate, major, and very severe obstacle. Column 2 compares no/minor and moderate obstacle to major and very severe obstacle. Column 3 compares no/minor, moderate and major obstacle to very severe obstacle. Regression includes year dummies and clustering. *, **, and *** indicate significance levels of 10%, 5%, and 1%, respectively. Financial sector concentration is proxied by log HHI and financial sector competition by the log Panzar–Rosse H statistic.

logit specifications with financial sector concentration ratios. This motivates generalised ordered models that allow threshold-specific slopes, as in Williams (2006). The ordered models remain benchmarks, since many prior studies report average ordered effects.

Table 3 reports generalised ordered logit estimates. The three columns represent three margins along the same access to finance scale. Column 1 compares low obstacles with at least moderate obstacles. Column 2 compares up to moderate obstacles with major or very severe obstacles. Column 3 compares very severe obstacles with all lower categories. This difference across columns does not imply different

Table 4. Institutional moderation of financial sector structure and access to finance, generalized ordered logit, 2006–2021.

	Financial obstacle					
	Concentration measure			Competition measure		
	(1)	(2)	(3)	(1)	(2)	(3)
Government	−0.352***	−0.352***	−0.352***	−0.362***	−0.362***	−0.362***
	(0.095)	(0.095)	(0.095)	(0.101)	(0.101)	(0.101)
Foreign	−0.393***	−0.393***	−0.393***	−0.373***	−0.373***	−0.373***
	(0.030)	(0.030)	(0.030)	(0.033)	(0.033)	(0.033)
Exporter	0.086***	0.027	0.023	0.104***	0.053*	0.034
	(0.017)	(0.021)	(0.034)	(0.018)	(0.023)	(0.038)
Manufacturing	0.130***	0.121***	0.201***	0.147***	0.124***	0.229***
	(0.015)	(0.018)	(0.029)	(0.016)	(0.020)	(0.033)
Ln sales	−0.068***	−0.085***	−0.094***	−0.073***	−0.084***	−0.094***
	(0.003)	(0.003)	(0.005)	(0.003)	(0.004)	(0.006)
Ln inflation	0.108***	0.231***	0.281***	0.035**	0.141***	0.188***
	(0.010)	(0.013)	(0.020)	(0.011)	(0.014)	(0.021)
Growth	−4.207***	−5.097***	−5.330***	−3.268***	−5.123***	−4.728***
	(0.253)	(0.301)	(0.450)	(0.293)	(0.350)	(0.524)
WGI	0.103	−0.467*	−1.565***	−0.477***	−0.360***	−0.299***
	(0.179)	(0.227)	(0.341)	(0.018)	(0.024)	(0.040)
Ln HHI	0.101***	0.231***	0.249***			
	(0.018)	(0.023)	(0.037)			
Ln HHI × WGI	−0.062*	0.025	0.187***			
	(0.024)	(0.031)	(0.046)			
Ln PR-H-stat				−0.242***	−0.169***	−0.254***
				(0.015)	(0.019)	(0.029)
Ln PR-H-stat × WGI				−0.176***	−0.069**	−0.164***
				(0.020)	(0.025)	(0.037)
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes
N	91190	91190	91190	81220	81220	81220
Pseudo R^2	0.035	0.035	0.035	0.037	0.037	0.037
χ^2	6515.290	6515.290	6515.290	5879.623	5879.623	5879.623

Note: Column 1 compares no/minor obstacle to moderate, major, and very severe obstacle. Column 2 compares no/minor and moderate obstacle to major and very severe obstacle. Column 3 compares no/minor, moderate and major obstacle to very severe obstacle.

models for unrelated outcomes. It reflects three ways of collapsing the same ordered outcome into a binary comparison, each one corresponding to a different margin of access to finance.

Financial sector competition is negative and statistically significant at each margin in Table 3. This implies that higher financial sector competition associates with lower odds of being in more severe obstacle groups across the severity scale. Financial sector concentration is most visible at the higher severity margin. In column 2, financial sector concentration is statistically significant and positive. This pattern is consistent with the idea that market structure matters most when firms approach credit rationing or face tightening non-price terms. Appendix Table A6 provides robustness checks for financial sector concentration using CR3 and CR5 and supports the same directional conclusion.

Table 4 links financial sector structure to institutional design through WGI interactions. Financial sector competition interacted with WGI is negative and statistically significant across margins. This implies that stronger governance strengthens the association between financial sector competition and improved access to finance. An interpretation is that governance affects the extent to which competition translates into effective credit allocation. In settings with stronger enforcement and supervision, financial institutions expand lending with lower expected losses. Financial sector concentration interacted with WGI is negative and statistically significant at some margins. This implies that governance weakens the association between financial sector concentration and weaker access where those effects are present. Appendix Table A7 provides the corresponding robustness checks using CR3 and CR5.

These interaction results sharpen the policy relevance of the structure measures. Competition policy can raise access to finance, but the association is stronger when institutional design supports lending. Examples include credit registry coverage, collateral registry reforms, insolvency procedures, and predictable enforcement of secured lending. For financial institution managers, stronger governance and higher financial sector competition increase the value of transparent underwriting systems and standardised products for smaller firms. For firm managers, stronger institutional design increases the value of audited reporting, formal collateral, and compliance histories, which improve bargaining power in competitive credit markets.

5.3. Period sensitivity and evidence of changing structure–access gradients

Appendix Tables A8–A10 extend the sample through 2023. Financial sector competition retains the same sign and remains statistically significant in the ordered and generalized ordered models. This pattern is consistent with conduct based evidence on access to finance, see Love and Martínez Pería (2015). Financial sector concentration is more sensitive to period coverage in these data (e.g. Appendix Table A8, Appendix Table A11). Appendix Table A9 shows that the generalized ordered association for financial sector concentration varies across thresholds. Appendix Tables A12 and A13 provide a targeted check for the most recent period. The interaction terms in Table A12 are statistically significant for both financial sector concentration and financial sector competition. Table A13 reports implied post-2021 slopes and indicates a change in sign in the last two years. The post-2021 window is short, so the evidence supports caution and does not identify mechanisms.

The baseline window remains the main reference point for interpretation, and the extended results provide a sensitivity check. The extended evidence highlights that financial sector concentration and financial sector competition need not move one-for-one over time. This interpretation follows the conceptual distinction between structure and conduct in Claessens and Laeven (2004). It also fits the theoretical ambiguity of concentration effects discussed in Allen and Gale (2004) and Beck et al. (2004). The extended results motivate future work that separates stress periods from normal periods and studies how policy regimes affect the structure–access gradient.

In general, findings motivate an agenda for future work that is relevant for policymakers and managers. For policymakers, the results imply that reforms focused on financial sector competition align with improved access to finance, especially under stronger governance. For managers, the results imply that lending strategies become more sensitive to policy regimes and macro-financial conditions in the most recent period. An extension separates stress periods from normal periods and studies whether crisis policy interventions change the relationship between financial sector concentration and access to finance. The paper contributes evidence on proxy choice, non-parallel access margins, and institutional heterogeneity.

6. Conclusion

This study examines how financial sector concentration and financial sector competition relate to access to finance and how governance conditions these links. The objective is to identify whether structure and conduct proxies deliver consistent signals for financial obstacles, to locate where along the severity scale these links are most visible, and to assess stability across periods when financing conditions change.

The analysis applies ordered and generalised ordered logit to an ordinal financial obstacle measure. Financial sector concentration and financial sector competition enter in separate specifications to avoid multicollinearity and to compare information content. The proportional odds assumption is tested and relaxed where it is rejected. Governance enters through interactions to capture institutional channels. Period sensitivity is examined by extending the sample and by estimating post-2021 slope shifts.

Three main results emerge from the paper. First, in the baseline period, financial sector concentration associates with higher odds of reporting severe financial obstacles, while financial sector competition associates with lower odds of reporting severe financial obstacles. Second, in generalised ordered models, the association of financial sector competition with lower financial obstacles appears across severity margins, while the association of financial sector concentration appears most clearly at higher severity margins. Third, governance strengthens the association between financial sector competition and improved access to finance and weakens the association between financial sector concentration and higher financial obstacles at some margins. In the extended period, financial sector concentration shows period sensitivity, including sign changes in parts of the severity scale, and post-2021 slope-shift evidence indicates that the mapping from structure and conduct to access to finance changes in the most recent years.

These patterns inform policy design and industry practice. They indicate that conduct matters alongside structure, that governance shapes how competition translates into lending, and that diagnostics based only on concentration can mislead when markets and policy regimes change.

Note

1. Revenue denotes total income; w1, w2, and w3 denote the prices of labour, physical capital, and borrowed funds, respectively; assets stands for total assets; equity to assets indicates the equity-to-total-assets ratio; c for country; C for total number of countries; iso is a country dummy; and t for time. The regression includes time dummies.

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Author contributions

CRediT: **Adele Agota Molnar**: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Resources, Software, Validation, Visualization, Writing – original draft, Writing – review & editing.

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Declaration of generative AI and AI-assisted

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Data availability statement

Data available on request from the authors.

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Appendices

Table A1. Overview of variables.

Symbol	Level of analysis	Definition	Source
Dependent variable			
Financing obstacle	Micro-level	General financing obstacle is the response to the question: "How problematic is financing for the operation and growth of your business?" Answers vary between 1 (no or minor obstacle), 2 $moderate obstacle), 3 (major obstacle), and 4 (very severe obstacle).	WBES
Explanatory variables			
FS structure	Meso-level	CR3, CR5, Herfindahl-Hirschman Index used as concentration measure for the financial sector.	Own Calculations
	Meso-level	Panzar-Rosse H-statistics used as competition measure for the financial sector.	Own Calculations
GovIndiors	Macro-level	World Governance Indicator (WGI).	World Bank WGI
Control variables			
Government	Micro-level	Dummy variable indicating if a firm is government-owned.	WBES
Foreign	Micro-level	Dummy variable indicating if a firm is foreign-owned.	WBES
Exporter	Micro-level	Dummy variable indicating if a firm is an exporter.	WBES
Manufacturing	Micro-level	Dummy variable indicating if a manufacturer or service provider.	WBES
Size	Micro-level	Logarithm of total sales.	WBES
Inflation	Macro-level	Inflation rate of average consumer prices.	IMF
Growth	Macro-level	Growth rate of GDP per capita (PPP).	IMF

Table A2. Pairwise correlations among regression variables.

	Government	Foreign	Exporter	Manufacturing	Log sales	Log inflation	Growth	CR3	CR5	HHI	H-stat
Government	1.000										
Foreign	−0.018	1.000									
Exporter	−0.002	0.196	1.000								
Manufacturing	−0.012	0.018	0.210	1.000							
Log sales	0.028	0.109	0.134	0.091	1.000						
Log inflation	0.025	−0.083	−0.165	0.056	0.117	1.000					
Growth	0.016	−0.035	−0.035	−0.002	−0.037	0.117	1.000				
CR3	0.008	0.083	0.081	−0.126	−0.052	−0.073	−0.011	1.000			
CR5	0.015	0.088	0.074	−0.152	−0.055	−0.113	−0.001	0.947	1.000		
HHI	0.003	0.043	0.049	−0.074	−0.021	0.048	0.076	0.852	0.754	1.000	
H-stat	−0.014	0.065	0.071	−0.006	−0.130	−0.179	0.220	0.066	0.049	0.058	1.000

Note: Pearson correlations computed on the regression sample. CR3, CR5, and HHI are alternative measures of financial sector concentration and are therefore strongly correlated. The paper uses these measures in separate specifications. H-stat denotes the Panzar–Rosse H statistic for financial sector competition.

Table A3. Tests of the proportional odds assumption in ordered logit models.

	Test	X^2	df	$p > X^2$
CR3	Wolfe Gould	865.4	42	0.000
	Brant	804.3	42	0.000
	score	772.7	42	0.000
	likelihood ratio	836.5	42	0.000
	Wald	768.1	42	0.000
CR5	Wolfe Gould	892.9	42	0.000
	Brant	835	42	0.000
	score	801.3	42	0.000
	likelihood ratio	863.8	42	0.000
	Wald	797.3	42	0.000
LnHHI	Wolfe Gould	864.9	42	0.000
	Brant	803.6	42	0.000
	score	773.1	42	0.000
	likelihood ratio	836.5	42	0.000
	Wald	769.4	42	0.000
H-Stat	Wolfe Gould	714.8	42	0.000
	Brant	669.4	42	0.000
	score	646.4	42	0.000
	likelihood ratio	692.7	42	0.000
	Wald	640.7	42	0.000

Note: Tests the parallel regression assumption in a ordered logit model.

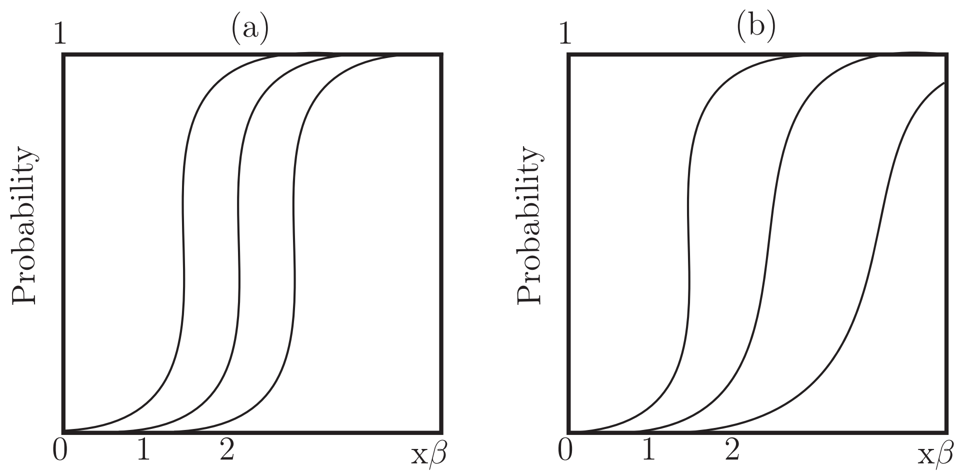

Figure A1. Graphical representation of the proportional odds assumption. *Note:* (a) the parallel lines assumption holds; (b) the parallel line assumption is violated. The model assumes a continuous variable y with a structural model $y = \beta x + \epsilon$, where x presents the observed predictions and a parameter β are related to the continuous variable y.

Table A4. Variance inflation factors for financial sector structure specifications.

Government	1.00	1.00
Foreign	1.06	1.06
Exporter	1.14	1.14
Manufacturing	1.07	1.06
Ln sales	1.06	1.07
Ln inflation	1.08	1.12
Growth	1.02	1.09
HHI	1.02	–
H-stat	–	1.13
Mean VIF	1.06	1.08

Note: The table reports variance inflation factors computed from auxiliary linear regressions that use the same right-hand-side variables as the ordered probit specifications, excluding year fixed effects. The sample is restricted to the ordered probit estimation sample using `e(sample)`. VIF is a diagnostic of collinearity in the regressor matrix and is reported for the financial sector concentration specification and the financial sector competition specification separately.

Table A5. Ordered probit and ordered logit robustness using concentration ratios, 2006–2021.

	Financial obstacle			
	Concentration measure		Concentration measure	
	OProbit	OLogit	OProbit	OLogit
Government	−0.176**	−0.317***	−0.179**	−0.322***
	(0.057)	(0.096)	(0.057)	(0.096)
Foreign	−0.218***	−0.379***	−0.223***	−0.385***
	(0.017)	(0.030)	(0.017)	(0.030)
Exporter	0.017	0.031	0.014	0.026
	(0.010)	(0.016)	(0.010)	(0.016)
Manufacturing	0.081***	0.141***	0.086***	0.149***
	(0.008)	(0.014)	(0.008)	(0.014)
Ln sales	−0.044***	−0.074***	−0.044***	−0.074***
	(0.002)	(0.003)	(0.002)	(0.003)
Ln inflation	0.158***	0.263***	0.159***	0.264***
	(0.005)	(0.008)	(0.005)	(0.008)
Growth	−2.574***	−4.218***	−2.531***	−4.149***
	(0.138)	(0.237)	(0.138)	(0.237)
CR3	0.001*	0.001*		
	(0.000)	(0.001)		
CR5			0.002***	0.003***
			(0.000)	(0.001)
Year dummy	Yes	Yes	Yes	Yes
N	92445	92445	92445	92445
Pseudo R^2	0.028	0.028	0.028	0.028
χ^2	5294.724	5037.711	5334.017	5068.748

Note: Regression includes year dummies and clustering. *, **, and *** indicate significance levels of 10%, 5%, and 1%, respectively.

Table A6. Generalized ordered logit robustness using concentration ratios, 2006–2021.

	Financial obstacle					
	CR3 measure			CR5 measure		
	(1)	(2)	(3)	(1)	(2)	(3)
Government	−0.316***	−0.316***	−0.316***	−0.320***	−0.320***	−0.320***
	(0.094)	(0.094)	(0.094)	(0.094)	(0.094)	(0.094)
Foreign	−0.384***	−0.384***	−0.384***	−0.390***	−0.390***	−0.390***
	(0.030)	(0.030)	(0.030)	(0.030)	(0.030)	(0.030)
Exporter	0.031	0.031	0.031	0.026	0.026	0.026
	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)
Manufacturing	0.140***	0.121***	0.199***	0.146***	0.135***	0.217***
	(0.015)	(0.018)	(0.029)	(0.015)	(0.018)	(0.029)
Ln sales	−0.068***	−0.086***	−0.096***	−0.067***	−0.085***	−0.095***
	(0.003)	(0.003)	(0.005)	(0.003)	(0.003)	(0.005)
Ln inflation	0.240***	0.334***	0.349***	0.240***	0.337***	0.352***
	(0.008)	(0.011)	(0.018)	(0.008)	(0.011)	(0.018)
Growth	−3.752***	−4.749***	−4.785***	−3.716***	−4.597***	−4.606***
	(0.249)	(0.294)	(0.440)	(0.249)	(0.294)	(0.439)
CR3	−0.000	0.004***	0.004***			
	(0.001)	(0.001)	(0.001)			
CR5				0.001*	0.006***	0.007***
				(0.001)	(0.001)	(0.001)
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes
N	92445	92445	92445	92445	92445	92445
Pseudo R^2	0.032	0.032	0.032	0.032	0.032	0.032
χ^2	6003.567	6003.567	6003.567	6069.097	6069.097	6069.097

Note: Column 1 compares no/minor obstacle to moderate, major, and very severe obstacle. Column 2 compares no/minor and moderate obstacle to major and very severe obstacle. Column 3 compares no/minor, moderate and major obstacle to very severe obstacle. Regression includes year dummies and clustering. *, **, and *** indicate significance levels of 10%, 5%, and 1%, respectively.

Table A7. Institutional moderation robustness using concentration ratios, generalized ordered logit, 2006–2021.

	Financial obstacle					
	CR3 measure			CR5 measure		
	(1)	(2)	(3)	(1)	(2)	(3)
Government	−0.350***	−0.350***	−0.350***	−0.359***	−0.359***	−0.359***
	(0.095)	(0.095)	(0.095)	(0.095)	(0.095)	(0.095)
Foreign	−0.395***	−0.395***	−0.395***	−0.402***	−0.402***	−0.402***
	(0.030)	(0.030)	(0.030)	(0.030)	(0.030)	(0.030)
Exporter	0.086***	0.032	0.029	0.083***	0.028	0.025
	(0.017)	(0.021)	(0.034)	(0.017)	(0.021)	(0.034)
Manufacturing	0.130***	0.121***	0.204***	0.140***	0.140***	0.225***
	(0.015)	(0.018)	(0.030)	(0.015)	(0.018)	(0.030)
Ln sales	−0.068***	−0.086***	−0.095***	−0.068***	−0.085***	−0.095***
	(0.003)	(0.003)	(0.005)	(0.003)	(0.003)	(0.005)
Ln inflation	0.110***	0.239***	0.294***	0.109***	0.235***	0.286***
	(0.010)	(0.013)	(0.020)	(0.010)	(0.013)	(0.020)
Growth	−4.255***	−5.072***	−5.079***	−4.140***	−4.823***	−4.770***
	(0.252)	(0.297)	(0.447)	(0.252)	(0.296)	(0.446)
WGI	−0.300***	−0.300***	−0.300***	−0.285***	−0.285***	−0.285***
	(0.048)	(0.048)	(0.048)	(0.065)	(0.065)	(0.065)
CR3	0.003***	0.007***	0.006***			
	(0.001)	(0.001)	(0.001)			
CR3 × WGI	−0.001	0.000	0.002**			
	(0.001)	(0.001)	(0.001)			
CR5				0.005***	0.010***	0.010***
				(0.001)	(0.001)	(0.001)
CR5 × WGI				−0.001	−0.000	0.001
				(0.001)	(0.001)	(0.001)
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes
N	91190	91190	91190	91190	91190	91190
Pseudo R^2	0.035	0.035	0.035	0.036	0.036	0.036
χ^2	6496.029	6496.029	6496.029	6612.776	6612.776	6612.776

Note: Column 1 compares no/minor obstacle to moderate, major, and very severe obstacle. Column 2 compares no/minor and moderate obstacle to major and very severe obstacle. Column 3 compares no/minor, moderate and major obstacle to very severe obstacle. Regression includes year dummies and clustering. *, **, and *** indicate significance levels of 10%, 5%, and 1%, respectively. Financial sector structure is interacted with governance (WGI).

Table A8. Ordered probit and ordered logit estimates of access to finance and financial sector structure, 2006–2023.

	Financial obstacle			
	Concentration measure		Competition measure	
	OProbit	OLogit	OProbit	OLogit
Government	−0.173**	−0.312***	−0.190**	−0.341***
	(0.055)	(0.094)	(0.058)	(0.100)
Foreign	−0.242***	−0.423***	−0.237***	−0.419***
	(0.016)	(0.028)	(0.018)	(0.031)
Exporter	0.012	0.020	0.009	0.018
	(0.009)	(0.015)	(0.009)	(0.016)
Manufacturing	0.070***	0.128***	0.080***	0.146***
	(0.007)	(0.013)	(0.008)	(0.014)
Ln sales	−0.030***	−0.052***	−0.030***	−0.053***
	(0.001)	(0.002)	(0.002)	(0.003)
Ln inflation	0.169***	0.285***	0.113***	0.188***
	(0.005)	(0.008)	(0.005)	(0.008)
Growth	−2.649***	−4.529***	−2.076***	−3.470***
	(0.135)	(0.232)	(0.156)	(0.268)
Ln HHI	−0.095***	−0.161***		
	(0.008)	(0.014)		
Ln PR-H-stat			−0.061***	−0.098***
			(0.005)	(0.009)
Year dummy	Yes	Yes	Yes	Yes
N	116678	116678	100594	100594
Pseudo R^2	0.025	0.025	0.023	0.023
χ^2	5802.686	5637.724	4573.487	4461.913

Note: Regression includes year dummies and clustering. *, **, and *** indicate significance levels of 10%, 5%, and 1%, respectively. Financial sector concentration is proxied by log HHI and financial sector competition by the log Panzar–Rosse H statistic.

Table A9. Generalized ordered logit estimates across access-to-finance severity margins, 2006–2023.

	Financial obstacle					
	Concentration measure			Competition measure		
	(1)	(2)	(3)	(1)	(2)	(3)
Government	−0.309***	−0.309***	−0.309***	−0.342***	−0.342***	−0.342***
	(0.092)	(0.092)	(0.092)	(0.099)	(0.099)	(0.099)
Foreign	−0.429***	−0.429***	−0.429***	−0.440***	−0.370***	−0.274***
	(0.028)	(0.028)	(0.028)	(0.031)	(0.042)	(0.071)
Exporter	0.020	0.020	0.020	0.018	0.018	0.018
	(0.015)	(0.015)	(0.015)	(0.016)	(0.016)	(0.016)
Manufacturing	0.135***	0.101***	0.122***	0.153***	0.112***	0.141***
	(0.013)	(0.016)	(0.026)	(0.014)	(0.018)	(0.029)
Ln sales	−0.047***	−0.061***	−0.073***	−0.049***	−0.059***	−0.070***
	(0.002)	(0.003)	(0.005)	(0.003)	(0.003)	(0.005)
Ln inflation	0.265***	0.344***	0.355***	0.176***	0.242***	0.224***
	(0.008)	(0.011)	(0.018)	(0.009)	(0.012)	(0.019)
Growth	−4.441***	−4.441***	−4.441***	−3.140***	−4.340***	−3.612***
	(0.231)	(0.231)	(0.231)	(0.279)	(0.333)	(0.495)
Ln HHI	−0.195***	−0.063***	−0.123***			
	(0.014)	(0.018)	(0.029)			
Ln PR-H-stat				−0.085***	−0.110***	−0.175***
				(0.009)	(0.011)	(0.018)
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes
N	116678	116678	116678	100594	100594	100594
Pseudo R^2	0.029	0.029	0.029	0.026	0.026	0.026
χ^2	6726.085	6726.085	6726.085	5333.124	5333.124	5333.124

Note: Column 1 compares no/minor obstacle to moderate, major, and very severe obstacle. Column 2 compares no/minor and moderate obstacle to major and very severe obstacle. Column 3 compares no/minor, moderate and major obstacle to very severe obstacle. Regression includes year dummies and clustering. *, **, and *** indicate significance levels of 10%, 5%, and 1%, respectively. Financial sector concentration is proxied by log HHI and financial sector competition by the log Panzar–Rosse H statistic.

Table A10. Institutional moderation of financial sector structure and access to finance, generalized ordered logit, 2006–2023.

	Financial obstacle					
	Concentration measure			Competition measure		
	(1)	(2)	(3)	(1)	(2)	(3)
Government	−0.356***	−0.356***	−0.356***	−0.382***	−0.382***	−0.382***
	(0.093)	(0.093)	(0.093)	(0.098)	(0.098)	(0.098)
Foreign	−0.432***	−0.432***	−0.432***	−0.427***	−0.353***	−0.241***
	(0.029)	(0.029)	(0.029)	(0.032)	(0.043)	(0.072)
Exporter	0.075***	0.018	0.034	0.081***	0.035	0.040
	(0.016)	(0.019)	(0.032)	(0.017)	(0.021)	(0.035)
Manufacturing	0.119***	0.119***	0.119***	0.139***	0.105***	0.143***
	(0.013)	(0.013)	(0.013)	(0.014)	(0.018)	(0.029)
Ln sales	−0.047***	−0.061***	−0.073***	−0.053***	−0.062***	−0.073***
	(0.002)	(0.003)	(0.005)	(0.003)	(0.003)	(0.005)
Ln inflation	0.111***	0.214***	0.247***	0.039***	0.104***	0.094***
	(0.010)	(0.013)	(0.019)	(0.010)	(0.014)	(0.022)
Growth	−5.066***	−5.066***	−5.066***	−4.043***	−5.173***	−4.371***
	(0.233)	(0.233)	(0.233)	(0.282)	(0.339)	(0.505)
WGI	−0.322*	−1.832***	−3.815***	−0.574***	−0.514***	−0.588***
	(0.140)	(0.179)	(0.252)	(0.017)	(0.024)	(0.041)
Ln HHI	−0.029	0.145***	0.192***			
	(0.016)	(0.021)	(0.032)			
Ln HHI × WGI	−0.013	0.198***	0.473***			
	(0.019)	(0.024)	(0.034)			
Ln PR-H-stat				−0.215***	−0.168***	−0.281***
				(0.014)	(0.019)	(0.029)
Ln PR-H-stat × WGI				−0.267***	−0.145***	−0.226***
				(0.019)	(0.024)	(0.038)
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes
N	115423	115423	115423	99809	99809	99809
Pseudo R^2	0.034	0.034	0.034	0.033	0.033	0.033
χ^2	7817.863	7817.863	7817.863	6370.330	6370.330	6370.330

Note: Column 1 compares no/minor obstacle to moderate, major, and very severe obstacle. Column 2 compares no/minor and moderate obstacle to major and very severe obstacle. Column 3 compares no/minor, moderate and major obstacle to very severe obstacle. Regression includes year dummies and clustering. *, **, and *** indicate significance levels of 10%, 5%, and 1%, respectively.

Table A11. Generalized ordered logit robustness using concentration ratios, 2006–2023.

	Financial obstacle					
	CR3 measure			CR5 measure		
	(1)	(2)	(3)	(1)	(2)	(3)
Government	−0.314***	−0.314***	−0.314***	−0.319***	−0.319***	−0.319***
	(0.092)	(0.092)	(0.092)	(0.092)	(0.092)	(0.092)
Foreign	−0.431***	−0.431***	−0.431***	−0.439***	−0.439***	−0.439***
	(0.028)	(0.028)	(0.028)	(0.028)	(0.028)	(0.028)
Exporter	0.015	0.015	0.015	0.011	0.011	0.011
	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)
Manufacturing	0.137***	0.105***	0.128***	0.134***	0.134***	0.134***
	(0.013)	(0.016)	(0.026)	(0.013)	(0.013)	(0.013)
Ln Sales	−0.046***	−0.060***	−0.072***	−0.045***	−0.059***	−0.071***
	(0.002)	(0.003)	(0.005)	(0.002)	(0.003)	(0.005)
Ln inflation	0.258***	0.340***	0.348***	0.254***	0.340***	0.346***
	(0.008)	(0.011)	(0.017)	(0.008)	(0.011)	(0.017)
Growth	−4.426***	−4.426***	−4.426***	−4.479***	−4.479***	−4.479***
	(0.231)	(0.231)	(0.231)	(0.232)	(0.232)	(0.232)
CR3	−0.005***	−0.001	−0.002*			
	(0.000)	(0.001)	(0.001)			
CR5				−0.003***	0.001	−0.000
				(0.000)	(0.001)	(0.001)
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes
N	116678	116678	116678	116678	116678	116678
Pseudo R^2	0.029	0.029	0.029	0.029	0.029	0.029
χ^2	6696.702	6696.702	6696.702	6623.587	6623.587	6623.587

Note: Column 1 compares no/minor obstacle to moderate, major, and very severe obstacle. Column 2 compares no/minor and moderate obstacle to major and very severe obstacle. Column 3 compares no/minor, moderate and major obstacle to very severe obstacle. Regression includes year dummies and clustering. *, **, and *** indicate significance levels of 10%, 5%, and 1%, respectively.

Table A12. Post-2021 slope shift test for financial sector structure in ordered probit models.

	Concentration measure	Competition measure
Government	−0.177***	−0.184***
	(0.055)	(0.058)
Foreign	−0.233***	−0.231***
	(0.016)	(0.018)
Exporter	0.010	0.011
	(0.009)	(0.009)
Manufacturer	0.079***	0.081***
	(0.007)	(0.008)
Ln sales	−0.035***	−0.032***
	(0.001)	(0.002)
Ln inflation	0.157***	0.107***
	(0.005)	(0.005)
Growth	−2.596***	−1.753***
	(0.135)	(0.159)
Ln HHI	0.031***	
	(0.009)	
Ln HHI × Post-2021	−0.614***	
	(0.022)	
Ln PR-H-stat		−0.094***
		(0.006)
Ln PR-H-stat × Post-2021		0.117***
		(0.013)
Year dummy	Yes	Yes
N	116678	100594
Pseudo R^2	0.029	0.023
χ^2	6624.79	4706.32

Note: Regression includes year dummies and clustering. *, **, and *** indicate significance levels of 10%, 5%, and 1%, respectively. Post-2021 equals one for 2022–2023. The interaction term captures the change in the structure–access association after 2021.

Table A13. Implied post-2021 slopes from interaction models.

	Pre-2022 slope	Post-2021 slope shift	Post-2021 implied slope	*p*-Value
Concentration measure				
Ln HHI	0.031***	−0.614***	−0.583***	0.000
	(0.009)	(0.022)	(0.020)	
[0.8em] Competition measure				
Ln PR-H-stat	−0.094***	0.117***	0.023**	0.039
	(0.006)	(0.013)	(0.011)	

Pre-2022 slope is the main effect in Table A12. Post-2021 implied slope equals pre-2022 slope plus the interaction term. The post-2021 slopes and standard errors come from `lincom` output.

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