Research Square

Preprints are preliminary reports that have not undergone peer review.
They should not be considered conclusive, used to inform clinical practice,
or referenced by the media as validated information.

Firm Performance and Capital Account Liberalization

Seun Emmanuel Fabiyi
sfabiyi@radford.edu

Radford University

Research Article

Keywords: capital account liberalization, firm performance, macroeconomics, financial institutions, institutional quality

Posted Date: January 21st, 2026

DOI: https://doi.org/10.21203/rs.3.rs-8564953/v1

License: This work is licensed under a Creative Commons Attribution 4.0 International License. Read Full License

Additional Declarations: No competing interests reported.

Abstract

This paper examines whether and under what conditions firms benefit from capital account liberalization. Using firm-level data on more than 33,000 publicly listed firms across 106 countries over the period 1980–2019 and employing an instrumental variables two-stage least squares (IV-2SLS) approach to address endogeneity concerns, the analysis shows that capital account liberalization improves firm performance by increasing profitability and reducing leverage. However, these benefits are highly conditional. Firms operating in countries with deeper financial markets and greater macroeconomic stability experience significantly larger gains, while firms in low-income economies derive limited benefits. Moreover, larger and more mature firms benefit disproportionately from liberalization, whereas younger and smaller firms may experience adverse effects. These findings highlight the importance of financial development and institutional readiness in shaping the firm-level outcomes of capital account liberalization.

JEL classification numbers: D24, F36, F43, G10

1 Introduction

Capital account liberalization remains one of the most debated policy reforms in international macroeconomics and international finance. While theoretical models emphasize its potential to lower the cost of capital, improve risk sharing, and enhance allocative efficiency, empirical evidence on its real-sector effects remains mixed (Henry, 2007; Eichengreen, 2001). However, cross-country growth studies have struggled to establish robust and consistent links between capital account openness and economic performance, raising questions about whether, when, and through which channels liberalization benefits the real economy (Quinn and Toyoda, 2008; Kraay, 1998).

A growing strand of the literature argues that aggregate analyses may obscure important microeconomic mechanisms. Firms are the primary agents through which capital inflows are transformed into investment, productivity, and growth, yet relatively little is known about how capital account liberalization affects firm performance across heterogeneous institutional and financial environments (Manova, 2008; Mitton, 2006). Existing firm-level studies have largely focused on equity market liberalization or specific episodes, often within narrow regional samples, leaving open the question of whether broader capital account openness improves firm outcomes globally and under what conditions (Bekaert and Harvey, 2000; Henry, 2000).

This paper contributes to this debate by providing large-scale firm-level evidence on the effects of capital account liberalization on firm performance. Using a panel of more than 33,000 publicly listed firms across 106 countries from 1980 to 2019, the paper examines how capital account openness affects firm profitability and leverage – two core dimensions of firm financial performance. The analysis adopts an instrumental-variables framework to address endogeneity concerns arising from reverse causality and policy selection, thereby offering more credible causal estimates than conventional fixed-effects approaches (Grilli and Milesi-Ferretti, 1995; Baltagi et al., 2009).

The empirical results show that capital account liberalization leads to statistically and economically significant improvements in firm performance. Firms operating in more open capital account regimes experience higher profitability and lower leverage, suggesting that liberalization improves access to external finance while enabling firms to adopt more sustainable capital structures. These findings are consistent with theoretical predictions that financial openness reduces financing frictions and enhances capital allocation, but they also reveal important conditionalities that help reconcile mixed findings in the macro literature (Bekaert et al., 2005; Eichengreen et al., 2011).

A central contribution of the paper is to show that the benefits of capital account liberalization are not uniform. The positive effects are significantly stronger in countries with deeper financial markets and greater macroeconomic stability. In contrast, firms operating in environments characterized by weak financial systems or macroeconomic volatility do not experience comparable gains. Interaction analyses indicate that capital market development rather than bank credit alone plays a critical role in amplifying the firm-level benefits of liberalization (Klein and Olivei, 2008; Larrain and Stumpner, 2017).

The paper further documents substantial heterogeneity across firms. Larger and more mature firms benefit disproportionately from capital account liberalization, while smaller and younger firms experience weaker or even negative effects. This pattern suggests that absorptive capacity, scale, and access to financial networks condition firms' ability to exploit new financing opportunities created by openness, consistent with models emphasizing financial constraints and firm selection (Manova, 2008; Gopalan and Sasidharan, 2020).

Cross-country heterogeneity is equally pronounced. Sub-sample analyses reveal that firms in advanced and emerging economies experience significant profitability gains following liberalization, whereas firms in low-income countries do not. These results underscore the importance of institutional quality, financial depth, and regulatory capacity in shaping the real-sector consequences of capital account policies (Eichengreen et al., 2011; Quinn and Toyoda, 2008).

By combining a broad global firm-level dataset with a credible identification strategy, this paper makes three contributions to the international finance literature. First, it provides robust micro-level evidence that capital account liberalization improves firm performance on average. Second, it identifies financial development and macroeconomic stability as key conditioning factors that determine whether liberalization translates into real-sector gains. Third, it highlights distributional effects across firms and countries, explaining why aggregate growth effects of liberalization are often weak or inconclusive.

The remainder of the paper proceeds as follows. Section 2 reviews the related literature. Section 3 outlines the empirical strategy and identification approach. Section 4 describes the data. Section 5 presents the main empirical results and heterogeneity analyses. Section 6 reports robustness checks. Section 7 discusses the findings and outlines their policy implications. Section 8 concludes.

2 Capital Account Liberalization, Financial Development, and Firm Performance

Capital account liberalization has long occupied a central position in debates on financial globalization and economic development. Standard theoretical models emphasize its potential to lower the cost of capital, improve international risk sharing, and enhance allocative efficiency by enabling capital to flow from capital-abundant to capital-scarce economies (Henry, 2007; Bekaert et al., 2005). Despite these predictions, empirical evidence on the real-sector effects of capital account liberalization remains mixed, particularly in cross-country growth studies, where results vary substantially across institutional contexts (Kraay, 1998; Quinn and Toyoda, 2008; Eichengreen, 2001).

A large macroeconomic literature examines the relationship between capital account openness and aggregate growth, often finding that positive effects depend critically on domestic institutions, financial depth, and macroeconomic stability (Eichengreen et al., 2011; Klein and Olivei, 2008). While some studies report growth gains following liberalization, others emphasize increased volatility and crisis risk, especially in economies with weak regulatory frameworks or shallow financial systems (Stiglitz, 2000; Henry, 2007). These mixed findings have motivated a shift toward micro-level analyses that focus on firm behavior as a key transmission channel between financial openness and real economic outcomes.

2.1 Firm-Level Channels and Financial Constraints

At the firm level, access to external finance is widely recognized as a central determinant of investment, productivity, and growth (Ang, 2008; Beck et al., 2015). Financial constraints limit firms' ability to exploit profitable investment opportunities, particularly in developing and emerging economies where domestic financial markets are underdeveloped. Capital account liberalization may alleviate these constraints by expanding access to foreign capital, increasing competition among financial intermediaries, and reducing financing costs (Manova, 2008; Bekaert and Harvey, 2000).

Existing firm-level studies provide evidence that financial liberalization can improve firm outcomes through several channels. Research on equity market liberalization and foreign bank entry shows that openness is associated with higher investment, productivity, and operating performance, particularly for financially constrained firms (Mitton, 2006; Giannetti and Ongena, 2007; Christoffersen et al., 2006). However, much of this literature focuses on specific dimensions of liberalization such as stock market openness or on limited regional samples, leaving open the question of whether broader capital account openness generates similar firm-level benefits across countries and institutional environments (Henry, 2000; Manova, 2008).

Moreover, firm-level gains from liberalization are unlikely to be evenly distributed. Firms differ in size, age, reputation, and access to financial networks, all of which shape their ability to attract and efficiently deploy external capital. As a result, capital account liberalization may dis- proportionately benefit larger and more established firms, while smaller or younger firms may face intensified competition without commensurate improvements in financing access (Gopalan and Sasidharan, 2020; Bilir et al., 2019).

2.2 Financial Development, Institutions, and Conditional Effects

A central insight emerging from the literature is that the effects of capital account liberalization are highly conditional on domestic financial development and institutional quality. Countries with deep financial markets, effective regulation, and strong legal frameworks are better positioned to channel foreign capital toward productive uses, thereby translating financial openness into real-sector gains (Levine, 1997; Eichengreen, 2001). In contrast, weak financial systems may misallocate capital inflows, amplify financial fragility, or fail to transmit openness to firms (Stiglitz, 2000; Mishkin, 2009).

Empirical studies emphasize the importance of sequencing. Domestic financial reforms and institutional strengthening should precede or accompany capital account liberalization to ensure that foreign capital contributes to sustainable economic development (Johnston et al., 1997; Klein and Olivei, 2008). Capital market development plays a critical role by providing firms with alternative financing channels beyond bank credit and by improving transparency, governance, and investor protection (Larrain and Stumpner, 2017; Eichengreen et al., 2011).

Despite these insights, systematic firm-level evidence linking capital account liberalization, financial development, and firm performance across a broad set of countries remains limited. Much of the existing literature either focuses on aggregate outcomes or examines firm-level effects within narrow institutional or regional settings, leaving open questions about how financial openness interacts with domestic financial structures to shape firm performance (Quinn and Toyoda, 2008; Eichengreen et al., 2011).

This paper addresses these gaps by providing large-scale firm-level evidence on the effects of capital account liberalization using a comprehensive global dataset covering 106 countries over four decades. By employing an instrumental-variables strategy to address endogeneity concerns arising from policy selection and reverse causality (Grilli and Milesi-Ferretti, 1995; Baltagi et al., 2009), the paper offers credible causal estimates of how capital account openness affects firm profitability and leverage. Importantly, the analysis explicitly examines how financial development, macroeconomic stability, firm size, and firm age condition these effects, thereby clarifying the mechanisms through which financial openness influences real-sector outcomes.

3 Methodology

This section outlines the empirical strategy used to examine the effect of capital account liberalization on firm behavior and performance. The analysis exploits variation in capital account openness across countries and over time and adopts a lagged policy framework to capture delayed firm responses to changes in capital account policy.

The baseline empirical specification is given by:

$$Per\,f\,ormance_{cit} = \beta_1 * ka_open_{ct-1} + v_1 X_{ct} + \lambda_{it} + K_c + T_t + \epsilon_{cit}, \quad (1)$$

where $Per\ f ormance_{cit}$ is the dependent variable for firm i in country c at time t. ka_open_{ct-1} is the independent variable of interest for country c at time t. It measures the effect of previous capital account liberalization on current firm performance. X_{ct} is a vector control variable, including inflation, GDP per capita, unemployment, domestic credit to private sector and market capitalization, λ_{it} is firm characteristics including age and size, K_c is country-specific effect, and T_t is time-specific fixed effect to control for changes in the global economic cycles, and ϵ_{cit} is an idiosyncratic error term.

Firm age and size are included to account for systematic differences in performance associated with firm maturity and scale. These characteristics influence access to finance, managerial capacity, and exposure to competition, and controlling for them ensures that estimated effects are not confounded by compositional differences across firms.

Macroeconomic conditions and financial development are also controlled for, as they shape the environment in which firms operate. Inflation, GDP per capita, and unemployment capture

macroeconomic stability and aggregate demand conditions that may influence firm performance. Domestic credit to the private sector and stock market capitalization reflects the depth and structure of the domestic financial system, accounting for variation in financing conditions across countries and over time. Country and year fixed effects further mitigate concerns related to unobserved heterogeneity.

- Endogeneity and Identification Strategy

A key empirical challenge is the potential endogeneity of capital account liberalization. Improvements in firm performance may influence policymakers' decisions to liberalize capital accounts, leading to reverse causality. While fixed effects mitigate bias arising from time-invariant unobservable, they do not address reverse causation or simultaneity concerns.

To address this issue, the analysis employs an instrumental variables two-stage least squares (IV-2SLS) approach. Following the existing literature (Grilli and Milesi-Ferretti, 1995; Baltagi et al., 2009), the lagged value of capital account openness is used as an instrument. The model is overidentified using two instruments: the second lag of capital account openness and an index of political stability and absence of violence.

Political stability is a valid instrument insofar as it affects governments' capacity and willingness to implement capital account reforms but does not directly influence firm-level profitability or leverage once macroeconomic conditions, financial development, and fixed effects are con- trolled for. Endogeneity tests support the relevance of instruments. Over-identification tests are not reported due to clustering at the firm level (see Appendix IV for details).

- Financial Development Interactions

To examine whether financial development moderates the impact of capital account liberalization, interaction terms between capital account openness and two indicators of financial development are introduced: domestic credit to the private sector and stock market capitalization, both expressed as percentages of GDP and transformed using natural logarithms. The extended specification is given by:

$$Per\ f ormance_{cit} = \alpha_1 * ka_open_{ct-1} + \alpha_2 * ldcps_{ct} + +\alpha_3 * lsmc_{ct}$$

$$+ \alpha_4 * (ka_open_{ct-1} * ldcps_{ct}) + \alpha_5 * (ka_open_{ct-1} * lsmc_{ct})$$

$$+ v_1 X_{ct} + \lambda_{it} + K_c + T_t + \epsilon_{cit} \quad (2)$$

This specification allows the effect of capital account liberalization on firm performance to vary with the depth and composition of the domestic financial system.

3.1 Expectations

Based on existing empirical evidence, capital account liberalization is expected to enhance firm performance by increasing competition in financial markets, lowering the cost of capital, and improving access to external finance (Bekaert and Harvey, 2000; Henry, 2000; Mitton, 2006). Accordingly, a positive association between capital account liberalization and firm profitability, measured by gross margin, is anticipated.

The effect of capital account liberalization on leverage is theoretically ambiguous. Liberalization may reduce leverage if firms substitute toward equity financing or internal funds as financing constraints ease. Alternatively, leverage may increase if firms exploit lower borrowing costs to expand debt-financed investment (Henry, 2007). The empirical analysis therefore allows for either sign.

4 Data

This section describes the data used to examine the relationship between capital account liberalization and firm performance. A detailed description of the data sources and variable construction is provided in Appendix A.

The analysis employs an unbalanced panel of 33,390 publicly listed firms from 106 countries over the period 1980–2019, yielding 465,870 firm-year observations. Firm-level financial data are obtained from S&P Capital IQ, while capital account liberalization is measured using the Chinn–Ito capital account openness index. Macroeconomic and financial development variables are sourced from the World Bank's World Development Indicators. Countries are classified by region and market category following the International Monetary Fund's financial development classifications.

The initial dataset comprises 46,945 publicly traded firms with nonzero market capitalization. Firms founded after 2015 are excluded due to insufficient financial histories. Data coverage is relatively sparse in the early years of the sample, particularly prior to 1997. In addition, the Capital IQ database records zeros for periods prior to firm establishment, which represent missing observations rather than true economic values. To avoid misclassification and potential bias, firm year observations consisting entirely of zeros are excluded. After merging firm-level data with country-level variables and applying these filters, the final sample consists of 33,390 firms.

Firm performance is measured using profitability and leverage. Profitability is proxied by gross margin, which captures operating efficiency and is less sensitive to reporting anomalies associated with taxes, interest expenses, and accounting conventions. Conventional profitability measures such as return on assets and return on equity exhibit a high incidence of zero values in the data, approximately 87 percent for ROA and 80 percent for ROE, reflecting missing or inconsistently reported observations. In contrast, gross margin contains relatively few zero observations (approximately 6 percent), making it the most reliable profitability measure for the present analysis. Alternative profitability measures are nevertheless considered in robustness checks.

Leverage is measured using the debt-to-assets ratio, which captures the extent to which firms finance their assets through debt. This measure provides a standard indicator of firms' capital structure and financial risk exposure.

The analysis controls for firm age and firm size. Firm age is computed as the difference between

the observation year and the firm's founding year and range from 8 to 123 years in the sample. Firm size is measured as the logarithm of total assets. These controls account for systematic differences in performance related to firm maturity and scale.

Capital account liberalization is measured using the Chinn–Ito index, which is based on information from the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER). The index aggregates four binary indicators reflecting restrictions on capital and current account transactions, export proceeds repatriation requirements, and exchange rate arrangements. The index ranges from − 1.93 to 2.31, with higher values indicating greater openness to cross-border financial transactions.

Table 1 reports summary statistics for the main variables used in the analysis.

Table 1
Descriptive Summary Statistics

Variable	Obs	Mean	Std. dev.	Min	Med	Max
lagged ka_open	464,167	0.86	1.6	-1.93	2.06	2.31
Gross margin -Pro f itability	465,870	68.26	24,140.10	-2142	27.17	16475094
Debt ratio- Leverage	465841	2.74	456.57	0	2.06	218147.67
Firm age	465,870	45.65	26.02	8.00	38.00	123.00
Firm size	465,870	7.15	3.50	-11.51	7.12	23.40
In f lation	463,075	3.05	11.58	-4.86	2.18	2075.89
Unemployment	464,241	5.62	3.00	0.10	4.68	27.47
GDP per capita	464,309	25,046.55	19,691.63	388.45	28094.92	96,677.53
log Domestic private credit	435,682	4.64	0.61	-1.68	4.85	5.72
log Market Cap	428,179	4.39	0.75	-4.69	4.42	7.21
Political stability & absence o f violence	418,378	0.12	0.87	-2.81	0.29	1.76

5 Empirical Results

This section presents the empirical results on the relationship between capital account liberalization and firm performance. The analysis proceeds in four steps. First, baseline estimates examine the average effect of capital account liberalization on firm profitability and leverage. Second, the role of macroeconomic stability and financial development is assessed. Third, interaction effects explore the moderating role of financial markets. Finally, heterogeneity across firms, regions, and income groups is examined.

5.1 Baseline Effects of Capital Account Liberalization

Table 2 reports the baseline results from Eq. 1 for the fixed-effects (FE) and instrumental variables two-stage least squares (IV-2SLS) estimations. Columns (I) and (II) present FE estimates for profitability and leverage, respectively. While the FE coefficient on capital account liberalization is positive for profitability, its magnitude is implausibly large and statistically imprecise, suggesting potential upward bias due to endogeneity.

Columns (III) and (IV) report the IV-2SLS results, which form the basis for interpretation. The coefficient on lagged capital account openness is positive and statistically significant for profitability. Specifically, a one-unit increase in the capital account openness index increases firm profitability by 0.674 percent, significant at the 1 percent level. At the same time, capital account liberalization reduces leverage, with a coefficient of − 0.514, although this estimate is not

statistically significant at conventional levels. These results indicate that capital account liberalization improves firm performance primarily through higher profitability, with suggestive evidence of balance-sheet strengthening.

Firm-level controls behave as expected. Firm age is negatively associated with profitability (– 0.104, significant at the 1 percent level) and positively associated with leverage (0.162, significant at the 1 percent level), consistent with lifecycle effects. Firm size is strongly positively related to profitability (1.264, significant at the 1 percent level) and negatively related to leverage (–6.968, significant at the 1 percent level), indicating that larger firms are both more profitable and less reliant on debt financing.

Table 2
Capital Account Liberalization and Firm Performance

	(I)(II)		(III)	(IV)
Outcome variable	Profitability	Leverage	Profitability	Leverage
lagged ka_open	28.489	-1.200	0.674***	-0.514
	(27.380)	(0.813)	(0.154)	(0.731)
Firm age	-1.099	0.163***	-0.104***	0.162***
	(1.016)	(0.052)	(0.007)	(0.059)
Firm size	41.145	-6.972***	1.264***	-6.968***
	(40.773)	(2.209)	(0.064)	(2.377)
Observations	464,071	464,045	416,789	416,770
Method	FE	FE	IV-2SLS	IV-2SLS
Control for macroecon.	No	No	No	No

Note: Table 2 shows the estimation outcomes of Eq. 1. FE model outcomes reported robust standard errors in parentheses; IV- 2SLS estimations are clustered at the firm level. ***, **, * denote significance at 1, 5, and 10 percent levels, respectively. Dependent variables are the annual percent growth. Estimations include country, and time fixed effect (estimates not reported).

5.2 Macroeconomic Stability and Financial Development

Table 3 extends the baseline specification by incorporating macroeconomic controls and indicators of financial development. Columns (I) and (II) include inflation, unemployment, and GDP per capita. The coefficient on capital account liberalization remains positive and statistically significant for profitability, with an estimated effect of 0.860 percent (significant at the 1 percent level). The corresponding effect on leverage is negative (–1.454) but statistically insignificant.

Macroeconomic instability adversely affects firm performance. Inflation and unemployment are both negatively and significantly associated with profitability, with coefficients of – 0.143 and – 0.335, respectively, both significant at the 1 percent level. These results highlight the importance of macroeconomic stability in shaping firm outcomes.

Columns (III) and (IV) further incorporate financial development measures. Once domestic private credit and stock market capitalization are included, the profitability effect of capital account liberalization remains robust, with a coefficient of 0.757 percent, significant at the 1 percent level, while leverage declines by – 2.105, although this estimate remains statistically insignificant. Stock market capitalization is positively and significantly associated with profitability (1.949, significant at the 1 percent level), suggesting that capital market depth plays a key role in enhancing firm performance.

The impact of capital account liberalization on firm performance is further examined by firm

Table 3
Role of Financial Development and Capital Account Liberalization on Firm Performance

	(I)(II)		(III)(IV)	
Outcome variables	Profitability	Leverage	Profitability	Leverage
lagged ka_open	0.860***	-1.454	0.757***	-2.105
	(0.183)	(1.332)	(0.193)	(1.808)
Firm age	-0.105***	0.166***	-0.109***	0.184***
	(0.007)	(0.060)	(0.008)	(0.070)
Firm size	1.277***	-7.021***	1.091***	-7.975***
	(0.063)	(2.395)	(0.069)	(2.843)
In f lation	-0.143***	0.441***	-0.213**	0.113
	(0.053)	(0.154)	(0.097)	(0.150)
Unemployment	-0.335***	0.440	-0.285***	0.419
	(0.049)	(0.610)	(0.052)	(0.691)
GDP per capita	-0.000**	0.001	-0.000**	0.001
log Domestic private credit	(0.000)	(0.000)	(0.000)	(0.001)
			-0.973	-3.489
			(0.929)	(3.005)
log Market Cap			1.949***	-0.050
			(0.278)	(0.431)
Observations	415,679	415,660	364,712	364,695

Note: Table 3 shows the estimation outcomes of Eq. 1. The estimations incorporate macroeconomics variables and financial development as control variables. Standard errors in errors in parentheses are clustered at the firm level. ***, **, * denote significance at 1, 5, and 10 percent levels, respectively. Dependent variables are the annual percent growth. Estimations include country, and time fixed effect (estimates not reported).

size and age. Firms are classified as small or young if they fall below the 25th percentile of the size and age distributions, respectively, corresponding to thresholds of 5.05 for firm size and 26 years for firm age. Eq. (1) is re-estimated with financial controls, and the sample is partitioned accordingly (see Appendix III for details).

The results indicate pronounced heterogeneity across firms. Larger and more mature firms benefit disproportionately from capital account liberalization. Following liberalization, profitability among large and older firms increases by 0.681 percent, a magnitude comparable to the baseline estimates.

In contrast, young and small firms experience adverse effects. For these firms, profitability declines by 4.042 percent following capital account liberalization. Firm age and size remain significant predictors of performance within this group: a one-year increase in firm age raises profitability and leverage by 0.367 percent and 4.739, respectively, while an increase in firm size raises profitability by 2.320 percent and reduces leverage by 43.143.

These findings suggest that firm maturity and scale play a critical role in shaping firms' responses to capital account liberalization. While larger and established firms are better positioned to exploit new financing opportunities, smaller and younger firms may face intensified foreign competition without commensurate improvements in access to finance. As a result, capital account liberalization may widen performance disparities across firms unless accompanied by policies that support financially constrained firms.

5.3 Interaction Effects and Moderating Channels

Table 4 examines whether financial development moderates the effect of capital account liberalization. The interaction between capital account liberalization and stock market capitalization is positive and statistically significant for profitability, with a coefficient of 5.759, significant at the 5 percent level. In contrast, the interaction between capital account liberalization and domestic private credit is negative (–3.585), significant at the 10 percent level.

Average marginal effects provide further insight. Capital account liberalization increases profitability by 1.661 percent on average, significant at the 5 percent level, while stock market capitalization increases profitability by 4.451 percent, significant at the 1 percent level. These findings indicate that capital account liberalization is most effective in countries with deep capital markets, whereas bank-dominated financial systems appear less effective at transmitting the benefits of openness to firms.

For leverage, average marginal effects indicate that capital account liberalization and stock market development are associated with statistically significant reductions in leverage, reinforcing the interpretation that well-developed capital markets allow firms to substitute away from debt financing.

Table 4
Interaction of Capital Account Liberalization with Financial Development

	I	II	III	IV
Outcome variables	Profitability		Leverage	
Estimations	Est. coeff.	AME	Est. coeff.	AME
Capital Account Liberalization (CAL)	-7.002	1.661**	113.795**	-11.206*
	(13.848)	(0.650)	(58.028)	(5.775)
Market-Cap to GDP	0.135	4.451***	11.907	-22.494*
	(0.576)	(1.384)	(14.921)	(13.475)
Private Credit to GDP	5.854***	3.167**	-51.595	-39.170
	(1.987)	(1.622)	(54.062)	(26.224)
Capital Account Liberalization *Market-Cap	5.759**		-45.899	
	(2.382)		(37.250)	
Capital Account Liberalization*Private Credit to GDP	-3.585*		16.578	
	(1.860)		(39.355)	
Firm age	-0.108***		0.177***	
	(0.008)		(0.068)	
Firm size	1.091***		-7.991***	
	(0.068)		(2.845)	
Inflation, consumer prices (annual %)	-0.538**		2.696	
	(0.218)		(2.143)	
Unemployment, total (% of total labor force)	-0.018		-1.157	
	(0.109)		(3.015)	
GDP per capita	-0.000***		0.003**	
	(0.000)		(0.001)	
Observations	364,712		364,695	

Note: Table 4 shows the estimation outcomes of Eq. 2. The estimations incorporate macroeconomics variables and financial development as control variables. Standard errors in errors in parentheses are clustered at the firm level. ***, **, * denote significance at 1, 5, and 10 percent levels, respectively. Dependent variables are the annual percent growth. Estimations include country, and time fixed effect (estimates not reported).

5.4 Firm-Level and Cross-Country Heterogeneity

The analysis reveals substantial heterogeneity across firms and countries. Sub-sample estimates show that larger and older firms benefit disproportionately from capital account liberalization. For large and mature firms, capital account liberalization increases profitability by 0.681 percent, significant at conventional levels, while effects for small and young firms are negative. Specifically, profitability among young and small firms declines by −4.042 percent, significant at the 1 percent

level, suggesting that these firms may face intensified competition or barriers to accessing foreign capital following liberalization.

Regional analyses reported in Table 6 indicate that the effects of capital account liberalization vary widely across regions. Profitability increases significantly in Asia and the Pacific (0.717 percent, significant at the 1 percent level), while leverage rises significantly in the Western Hemisphere (12.546, significant at the 5 percent level). No statistically significant effects are observed for firms in Africa or Europe.

Income-based sub-sample results in Table 6, show that firms in advanced economies experience a 1.121 percent increase in profitability following capital account liberalization, significant at the 1 percent level, while firms in emerging markets experience a 0.814 percent increase, significant at the 5 percent level. In contrast, the effects for firms in low-income countries are statistically insignificant, underscoring the importance of financial development and institutional quality in shaping the real-sector consequences of capital account liberalization.

The empirical results indicate that the effects of capital account liberalization differ systematically across market classifications. Firms operating in advanced and emerging economies experience statistically significant gains in profitability following capital account liberalization, whereas no comparable effects are observed for firms in low-income economies. These differences align with variations in financial development and macroeconomic stability across market groups.

The magnitude and significance of the estimated effects suggest that capital account liberalization is more likely to translate into firm-level performance gains in economies characterized by mature financial systems and stable macroeconomic environments. In contrast, weaker financial structures and institutional constraints appear to limit the transmission of openness to firms. This pattern is consistent with the view that the benefits of capital account liberalization are conditional rather than universal and aligns with prior evidence linking the gains from financial openness to institutional and financial strength (Quinn and Toyoda, 2008).

Table 5: Capital Account Liberalization and Firm Performance: Subset Sample by Regions

Regions	**Africa**		**Asia & Pacific**		**Europe**		**Middle East &**	**Central Asia**	**Western Hemisphere**	
	(a)(b)		(c)(d)		(e)(f)		(g)(h)		(i)(j)	
Outcome variables	Profitability	Leverage	Profitability	Leverage	Profitability	Leverage	Profitability	Leverage	Profitability	Leverage
lagged ka_open	-7.473	-0.070	0.717***	0.547	-0.477	0.946	0.953	0.012*	0.590	12.546**
	(5.533)	(0.076)	(0.249)	(0.499)	(1.084)	(0.891)	(0.890)	(0.007)	(0.739)	(6.165)
Firm age	-0.152***	-0.001**	-0.114***	0.039*	-0.054***	0.026	-0.083*	-0.001***	-0.135***	0.670**
	(0.047)	(0.000)	(0.012)	(0.021)	(0.015)	(0.016)	(0.043)	(0.000)	(0.013)	(0.293)
Firm size	1.520**	-0.016	0.421***	-1.695*	0.667***	-1.687	1.956***	0.001	2.241***	-20.616**
	(0.696)	(0.018)	(0.105)	(0.935)	(0.174)	(1.226)	(0.450)	(0.019)	(0.105)	(8.361)
In f lation	-0.133	0.000	-0.265*	0.152	-0.271*	0.273*	0.053	0.000	0.041	-0.404
	(0.121)	(0.002)	(0.135)	(0.199)	(0.163)	(0.163)	(0.092)	(0.001)	(0.088)	(0.913)
Unemployment	0.443	0.006	-0.431***	0.095	-0.351***	-0.114	-0.293	-0.006	0.305*	0.403
	(0.563)	(0.008)	(0.136)	(0.287)	(0.075)	(0.140)	(0.332)	(0.004)	(0.173)	(1.169)
GDP per capita	-0.001	-0.000	-0.000*	-0.000	-0.000	-0.000	-0.000	-0.000	0.000	0.002
	(0.003)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.004)
log Domestic private credit	0.014	-0.022	-3.834*	3.578	2.997**	-2.288	-3.186	-0.009	-1.016	-2.716
	(3.013)	(0.047)	(2.236)	(2.818)	(1.169)	(1.731)	(2.259)	(0.027)	(1.783)	(12.287)
log Market Cap	0.005	0.015	2.876***	-0.580	1.099	-1.230	3.127**	0.015	1.269*	-8.743
	(2.044)	(0.024)	(0.406)	(0.461)	(1.103)	(2.034)	(1.558)	(0.020)	(0.735)	(6.788)
Observations	3,938	3,938	246,880	246,865	46,736	46,734	7,947	7,947	59,211	59,211

Note: Table 5 shows the sub-sample estimation outcomes of Eq. 1. The estimations incorporate macroeconomics variables and financial development as control variables. Standard errors in errors in parentheses are clustered at the firm level. ***, **, * denote significance at 1, 5, and 10 percent levels, respectively. Dependent variables are the annual percent growth. Estimations include country, and time fixed effect (estimates not reported).

Table 6
Capital Account Liberalization and Firm Performance: Subset Sample based on Income Classifications

Market Classifications	Advanced	markets	Emerging	markets	Low income	countries
	(I)(II)		(III)(IV)		(V)(VI)	
Outcome variables	Profitability	Leverage	Profitability	Leverage	Profitability	Leverage
lagged ka_open	1.121***	-4.703	0.814**	0.528	20.080	-0.037
	(0.254)	(3.442)	(0.319)	(0.425)	(29.194)	(0.206)
Firm age	-0.141***	0.336**	-0.062***	0.019	0.022	-0.001**
	(0.008)	(0.133)	(0.017)	(0.015)	(0.061)	(0.001)
Firm size	1.633***	-12.009***	0.212*	-1.288	3.211***	-0.001
	(0.076)	(4.502)	(0.124)	(1.078)	(0.896)	(0.008)
In f lation	0.169**	-0.463	-0.266**	0.187	0.209	-0.001
	(0.075)	(0.389)	(0.119)	(0.169)	(0.243)	(0.002)
Unemployment	-0.157**	0.533	-0.430***	0.162	-0.602	-0.013*
	(0.061)	(0.896)	(0.103)	(0.177)	(0.878)	(0.008)
GDP per capita	-0.000***	0.002*	0.001*	-0.000	0.036**	-0.000
	(0.000)	(0.001)	(0.000)	(0.000)	(0.017)	(0.000)
log Domestic private credit	-2.801***	-10.000*	-0.330	1.694	-14.941*	0.252***
	(0.641)	(5.616)	(1.364)	(2.315)	(7.851)	(0.071)
log Market Cap	2.159***	-2.072	1.926***	0.088	1.133	-0.034*
	(0.433)	(2.358)	(0.351)	(0.218)	(2.946)	(0.019)
Observations	195,928	195,922	166,474	166,463	2,310	2,310

Note: Table 3 shows the sub-sample estimation outcomes of Eq. 1. The estimations incorporate macroeconomics variables and financial development as control variables. Standard errors in errors in parentheses are clustered at the firm level. ***, **, * denote significance at 1, 5, and 10 percent levels, respectively. Dependent variables are the annual percent growth. Estimations include country, and time fixed effect (estimates not reported).

6 Robustness Checks

To assess the robustness of the baseline findings, Eq. 1 is re-estimated using alternative estimation techniques and performance measures. First, the instrumental variables fixed effects (IV-FE) estimator, and the instrumental variables limited information maximum likelihood (IV-LIML) estimator are employed. The IV-FE estimates yield coefficients that are consistent in sign and magnitude with the baseline IV-2SLS results, although they are statistically insignificant. In contrast, the IV-LIML estimates closely mirror the IV-2SLS results in both magnitude and statistical significance. Given that the IV-LIML estimator is less sensitive to weak instruments and provides more reliable confidence interval coverage, these results reinforce confidence in the baseline IV-2SLS estimates (see Appendix I for details).

Second, alternative measures of firm performance are considered. Return on equity (ROE) is used as an alternative measure of profitability, while the liquidity ratio serves as an alternative proxy for leverage. Re-estimating the model with these dependent variables yields results that are qualitatively consistent with the baseline findings, although the estimated magnitudes differ, as expected (see Appendix II for details).

Overall, these robustness checks indicate that the main results are not driven by the choice of estimator or performance measure.

7 Discussion and Policy Implications

This paper examines whether and under what conditions firms benefit from capital account liberalization. Using firm-level data covering more than 33,000 publicly listed firms across 106 countries from 1980 to 2019, and adopting an instrumental-variables strategy to address endogeneity concerns, the analysis provides causal evidence that capital account liberalization improves firm performance by increasing profitability and, on average, reducing leverage. These findings lend micro-level support to theoretical arguments that financial openness lowers financing frictions and improves the allocation of capital (Henry, 2007; Bekaert et al., 2005).

At the same time, the results demonstrate that the benefits of capital account liberalization are far from automatic. The positive effects on firm performance are strongly conditioned by domestic macroeconomic stability and financial development. In countries with deeper financial markets and more stable macroeconomic environments, liberalization translates into higher profitability and more sustainable capital structures. By contrast, weak financial systems and macroeconomic volatility substantially limit firms' ability to benefit from increased financial openness. This evidence is consistent

with earlier work emphasizing the importance of complementary domestic institutions and financial depth in shaping the real-sector consequences of capital account liberalization (Eichengreen, 2001; Klein and Olivei, 2008; Eichengreen et al., 2011).

A further contribution of the paper lies in documenting pronounced firm-level heterogeneity. Larger and more mature firms benefit disproportionately from capital account liberalization, while smaller and younger firms experience weaker or even adverse effects. This pattern suggests that absorptive capacity, scale, and access to financial networks play a critical role in determining whether firms can exploit new financing opportunities created by liberalization. Rather than uniformly easing financial constraints, capital account openness may intensify competitive pressures that disadvantage firms lacking sufficient size, experience, or credibility in capital markets, echoing insights from the firm-level finance and trade literature (Manova, 2008; Gopalan and Sasidharan, 2020).

Cross-country heterogeneity reinforces these conclusions. Firms operating in advanced and emerging economies experience significant performance gains following capital account liberalization, whereas firms in low-income countries do not. This finding helps explain why cross-country growth studies often report weak or mixed average effects of capital account liberalization (Kraay, 1998; Quinn and Toyoda, 2008). Aggregate outcomes mask substantial variation across institutional environments, with firm-level gains materializing only where financial systems and regulatory frameworks are sufficiently developed.

These results carry important policy implications. First, capital account liberalization should be viewed as part of a broader reform package rather than a stand-alone policy. Sequencing matters: developing domestic financial markets, strengthening prudential regulation, and ensuring macroeconomic stability are critical preconditions for firms to benefit from financial openness (Johnston et al., 1997; Mishkin, 2009). Premature liberalization in the absence of these foundations is unlikely to yield firm-level gains and may increase financial vulnerability.

Second, policymakers should recognize the uneven distribution of benefits across firms. Targeted measures aimed at improving access to finance for small and young firms such as credit guarantee schemes, improvements in financial disclosure, and the development of alternative financing instruments may help mitigate the unequal effects of liberalization and support more inclusive firm growth.

Third, for low-income countries, the findings caution against one-size-fits-all liberalization strategies. Strengthening domestic institutions, improving governance, and deepening financial markets may generate greater real-sector benefits than rapid capital account opening. International financial institutions can support these efforts by prioritizing capacity building and regulatory reforms alongside liberalization initiatives.

Overall, this paper provides firm-level evidence that capital account liberalization can enhance real-sector performance, but only under appropriate domestic conditions. By identifying the mechanisms and constraints through which financial openness affects firms, the analysis contributes to a more nuanced understanding of financial globalization and offers guidance for designing capital account policies that maximize benefits while limiting risks.

8 Conclusions

This paper investigates whether firms benefit from capital account liberalization and identifies the conditions under which such benefits materialize. Using a large firm-level dataset covering 106 countries over four decades and an instrumental-variables approach, the analysis shows that capital account liberalization improves firm performance on average, as reflected in higher profitability and more sustainable capital structures.

The findings highlight that the effects of capital account liberalization are highly conditional. Firms benefit most in environments characterized by macroeconomic stability and well-developed financial markets, particularly deep capital markets. In contrast, firms operating in weak institutional settings or low-income economies experience limited or no gains. These results help explain why the aggregate growth effects of capital account liberalization documented in the macro literature are often weak or inconclusive.

By documenting firm-level and cross-country heterogeneity, this paper contributes to the literature on financial globalization by clarifying the mechanisms through which capital account openness affects real-sector outcomes. Rather than supporting a uniform policy prescription, the evidence points to the importance of sequencing, institutional readiness, and complementary reforms.

Future research could explore how capital account liberalization affects privately held firms, employment dynamics, and innovation outcomes, as well as how crisis episodes alter the transmission of capital flows to firm performance. Extending the analysis to incorporate firm-level exposure to foreign currency borrowing and financial risk would further deepen our understanding of the real-sector implications of financial openness.

Declarations

1. **Conflict of Interests**

The author declares no conflict of interest.

2. **Data Availability Statement**

Firm-level financial data used in this study are obtained from S&P Capital IQ, which is a propriety database and subject to licensing restrictions. Data on capital account liberalization are measured using the Chinn-Ito capital account openness index, and macroeconomic variables are sourced from the World Bank's World Development Indicators. The data supporting the findings of this study are available from the respective data providers and can be accessed subject to their terms and conditions.

3. **Research Funding**

This research did not receive any specific grant from funding agencies in the public, commercial, or non-profit sectors.

Author Contribution

S.F. conceived the study, designed the empirical strategy, collected and analyzed the data, and wrote the manuscript.

References

1. Ang JB (2008) A survey of recent developments in the literature of finance and growth. J Economic Surveys 22(3):536–576. https://doi.org/10.1111/j.1467-6419.2007.00542.x
2. Beck T, Lu L, Yang R (2015) Finance and Growth for Microenterprises: Evidence from Rural China. World Dev 67:38–56. https://doi.org/10.1016/j.worlddev.2014.10.008
3. Bekaert G, Harvey CR (2000) Foreign Speculators and Emerging Equity Markets. J Finance 55(2):565–613. https://doi.org/10.1111/0022-1082.00220
4. Bekaert G, Harvey C, Lundblad C (2005) Does financial liberalization spur growth? J Financ Econ 77(1):3–55. https://doi.org/10.1016/j.jfineco.2004.05.007
5. Bilir LK, Chor D, Manova K (2019) Host-country financial development and multinational activity. Eur Econ Rev 115:192–220. https://doi.org/10.1016/j.euroecorev.2019.02.008
6. Chinn MD, Ito H (2006) What matters for financial development? Capital controls, institutions, and interactions. Journal Dev Economics 81(1):163–192. https://doi.org/10.1016/j.jdeveco.2005.05.010
7. Christoffersen P, Chung H, Errunza V (2006) Size matters: The impact of financial liberalization on individual firms. J Int Money Finance 25(8):1296–1318. https://doi.org/10.1016/j.jimonfin.2006.09.003
8. Eichengreen B (2001) Capital Account Liberalization: What Do Cross-Country Studies Tell Us? World Bank Econ Rev 15(3):341–365. https://doi.org/10.1093/wber/15.3.341
9. Eichengreen B, Gullapalli R, Panizza U (2011) Capital account liberalization, financial development and industry growth: A synthetic view. J Int Money Finance 30(6):1090–1106. https://doi.org/10.1016/j.jimonfin.2011.06.007
10. Giannetti M, Ongena S (2007) Financial Integration and Firm Performance: Evidence from Foreign Bank Entry in Emerging Markets*. Rev Financ 13(2):181–223. https://doi.org/10.1093/rof/rfm019
11. Gopalan S, Sasidharan S (2020) Financial liberalization and access to credit in emerging and developing economies: A firm-level empirical investigation. J Econ Bus 107:105861. https://doi.org/10.1016/j.jeconbus.2019.105861
12. Grilli V, Milesi-Ferretti GM (1995) Economic Effects and Structural Determinants of Capital Controls. Staff Papers - Int Monetary Fund 42(3):517. https://doi.org/10.2307/3867531
13. Henry PB (2000) Stock Market Liberalization, Economic Reform, and Emerging Market Equity Prices. J Finance 55(2):529–564. https://doi.org/10.1111/0022-1082.00219
14. Henry PB (2003) Capital-Account Liberalization, the Cost of Capital, and Economic Growth. Am Econ Rev 93(2):91–96. https://doi.org/10.1257/000282803321946868
15. Henry PB (2007) Capital Account Liberalization: Theory, Evidence, and Speculation. Journal Economic Literature [online] 45(4):887–935. https://doi.org/10.1257/jel.45.4.887.x
16. Johnston RB, Darbar SM, Echeverria C (1997) Sequencing Capital Account Liberalization: Lessons from the Experiences in Chile, Indonesia, Korea, and Thailand. SSRN Electron J. https://doi.org/10.2139/ssrn.882738
17. Klein MW, Olivei GP (2008) Capital account liberalization, financial depth, and economic growth. J Int Money Finance 27(6):861–875. https://doi.org/10.1016/j.jimonfin.2008.05.002
18. Kraay A (1998) In search of the macroeconomic effects of capital account liberalization. World Bank
19. Larrain M, Stumpner S (2017) Capital Account Liberalization and Aggregate Productivity: The Role of Firm Capital Allocation. J Finance 72(4):1825–1858. https://doi.org/10.1111/jofi.12497
20. Levine R (1997) Financial Development and Economic Growth: Views and Agenda. J Econ Lit 35(2):688–726
21. Manova K (2008a) Credit constraints, equity market liberalizations and international trade. J Int Econ 76(1):33–47. https://doi.org/10.1016/j.jinteco.2008.03.008
22. Mishkin FS Prudential Supervision What Works and What Doesn't., Chicago (2009) Il *University of Chicago Press*. Available at: https://chicago.universitypressscholarship.com/view/10.7208/chicago/9780226531939.001.0001/upso- 9780226531885-chapter-2
23. Mitton T (2006) Stock market liberalization and operating performance at the firm level. J Financ Econ 81(3):625–647. https://doi.org/10.1016/j.jfineco.2005.09.001
24. Quinn DP, Toyoda AM (2008) Does Capital Account Liberalization Lead to Growth? Rev Financial Stud 21(3):1403–1449. https://doi.org/10.1093/rfs/hhn034

25. Stiglitz JE (2000) Capital Market Liberalization, Economic Growth, and Instability. World Dev 28(6):1075–1086. https://doi.org/10.1016/s0305-750x(00)00006-1

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- Appendix.docx