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Title: Does financialisation threaten productive development?

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Abstract:

This paper explores financialisation's effects on productive development—proxied by the Economic Complexity Index (ECI)—in a panel of 78 countries from 1975 to 2019. Financial globalisation affects negatively ECI in Latin America, the Middle East and North Africa region, and South Asia. In Latin America, stock market capitalization also harms economic complexity by incentivising short-term capital gains at the expense of technological upgrading. In developed economies, liquid liabilities and financial globalisation support economic complexity, while private credit is detrimental.

JEL classification: F30, F40, O30, O16

1. Introduction

Over the past five decades, financial markets have expanded significantly, exerting a profound influence on the global economy (Epstein, 2005). This phenomenon, known as financialisation, has manifested itself across both international and domestic spheres. Internationally, financial globalisation has been driven by financial sector deregulation and a deeper cross-border financial integration, leading to an expansion of speculative international capital movements (Correa *et al.*, 2012; Oatley and Petrova, 2020; Tyson and McKinley, 2014), and the presence of foreign financial institutions in domestic financial markets (Lapavitsas and Soydan, 2022). Domestically, financialisation has unfolded through a growing reliance on market-based financial structures (Lapavitsas and Powell, 2013), a shift in lending from firms to households (Jordà *et al.*, 2020; Mian *et al.*, 2017), and changes in the corporate governance of non-financial corporations (NFCs) towards short-termism and shareholder value orientation (Lazonick and O'Sullivan, 2000; Stockhammer, 2008).

Together, these international and domestic dynamics have fuelled concerns about the broader macroeconomic effects of financial expansion. A large body of work has highlighted that the increased size and changing nature of financial activities can hinder real capital accumulation and economic growth (e.g., Lazonick and Mazzucato, 2013; Botta *et al.*, 2016; Lazonick, 2017). However, financialisation may not only slow down aggregate capital

accumulation but also profoundly transform productive structures. Despite this potentially far-reaching impact, much less is known about how the diverse dimensions of financialisation actually shape productive development. The limited literature in this area has primarily examined how financialisation globalisation influences deindustrialisation, commonly measured by the share of manufacturing in GDP (Benigno *et al.*, 2015; Botta, 2017; Botta *et al.*, 2023; Özçelik *et al.*, 2024; Özçelik and Özmen, 2023; Teimouri and Zietz, 2018; Tregenna *et al.*, 2021). However, by relying on a sectoral indicator, these studies overlook broader shifts in the sophistication and knowledge intensity of economies. To our knowledge, only a small number of studies have moved beyond this sectoral perspective by employing measures of economic complexity that capture diverse levels of sophistication and knowledge intensity in the economy (e.g., Botta *et al.*, 2023; Chu, 2020; Ndoya *et al.*, 2024; Nguyen *et al.*, 2020; Nguyen *et al.*, 2023). Yet, by employing single dimensions of financialisation, these studies fail to capture the multidimensional and heterogeneous nature of financialisation documented in the financialisation literature (Karwowski *et al.*, 2020; Karwowski, 2022).

This paper addresses this gap by offering a comprehensive analysis of how financialisation affects economic complexity, drawing on a broad set of financial indicators that incorporate both domestic and international dimensions. In doing so, we not only move beyond the sectoral focus that characterises much of the prior work, but also account for the multifaceted

nature of financialisation, absent in the existing literature on financialisation and complexity. As highlighted by Bonizzi and Karwowski (2024), recognising the interplay between global and domestic financialisation dynamics is crucial, as their interaction can generate a varied of financialisation outcomes.

Building on centre–periphery framework (Prebisch, 1949), which highlights the structural divide between advanced economies specialising in the exports of complex manufactures and peripheral economies concentrated in exporting primary commodities, we expect that financialisation has intensified these structural asymmetries by increasing the vulnerability of peripheral economies, thereby undermining their ability to develop technologically complex productive structures. This motivates our examination of how financialisation shapes economic complexity across world regions, distinguishing between advanced economies (the centre) and developing and emerging economies (the periphery). In today’s increasingly interconnected and technologically polarised global economy, the traditional commodity-manufacturing divide is blurred. The challenge for emerging and developing economies is to stimulate knowledge-intensive capabilities across the entire productive structure (de Medeiros, 2008; UCL-IIPP, 2024; UNCTAD, 2016). Recognising this need, we employ the Economic Complexity Index (ECI), which captures cross-sectoral diversity by measuring a country’s ability to export a wide range of sophisticated products (Hausmann et al., 2007; Hidalgo and Hausmann, 2009).

To capture these diverse dimensions of financialisation, this paper brings together multiple macroeconomic indicators of both domestic and international financialisation within a unified analytical framework. Specifically, for domestic financialisation we employ private credit, stock market capitalization and liquid liabilities, which proxy the depth of bank-based finance, the development of market-based finance, and the overall size of the financial system, respectively. For international financialisation, we use the stock of non-FDI foreign assets and liabilities, a standard measure of financial globalisation that captures the most volatile components of capital flows and reflects not only the effect of foreign capital on recipient countries but also the possibility that these countries themselves may be active players in international markets.

The empirical analysis is conducted using a panel of 78 countries from the mid-1970s to 2019. To explore potential heterogeneous effects of financialisation across different developmental contexts we distinguish between developed countries and six developing and emerging market regions that include Latin America, Europe and Central Asia, Middle East and North Africa (MENA), South Asia, East Asia and Pacific, and Sub-Saharan Africa.

The results from our fixed effect estimator reveal an asymmetry in how financialisation shapes productive development across regions. Financial globalisation negatively affects economic complexity, particularly in Latin America, MENA, and South Asia. In Latin America, stock market

capitalization also exerts a detrimental effect, which may be linked to shareholder value orientation and its emphasis on short-term capital gains at the expense of long-term productive investment. This pattern is consistent with the region's historical reliance on speculative financial inflows and its relatively weak institutional buffers against financial volatility. In developed economies, by contrast, the picture is different. Liquid liabilities and financial globalisation support economic complexity, while private credit, especially to households, emerges as a constraint. These asymmetrical effects reinforce centre-periphery inequalities, with financialisation deepening divergence rather than convergence. Yet the resilience of East Asia and Pacific, where sustained improvements in ECI coexist with relatively high levels of financialisation, suggests that institutional and policy contexts matter significantly. In this region, more strategic developmental policies and greater alignment between finance and productive sectors appear to have mitigated the adverse effects observed in other developing and emerging economies.

This paper offers several contributions to the literature. Our analysis advances the scarce literature examining the effects of financialisation on economic complexity by adopting a multidimensional perspective that integrates several domestic and international indicators of financialisation. This contrasts with existing work, which typically focuses on only one dimension of financialisation, either domestic or international, rather than recognising that each may shape development outcomes in different ways.

On the domestic side, Nguyen et al. (2020) show that a deeper domestic financial sector (measured by the IMF's financial development index) can hinder economic complexity in the long run; while Chu (2020), using domestic credit to the private sector, stock market value added, and stock market turnover, reports a positive association with the ECI. More recently, Ndoya et al. (2024) uncover a conditional relationship, showing that the impact of financial development (measured by the IMF's financial development index) on economic complexity is positive only in more political stable countries. Turning to the international dimension of financialisation, Nguyen (2023) explores financial globalisation, proxied by net foreign direct investment (FDI), and finds that FDI enhances economic complexity in middle-income countries. Meanwhile, Botta et al. (2023) show that capital-flow bonanzas exert a negative effect on economic complexity¹.

Also, by focusing on the ECI, we move beyond sectoral proxies of productive development (such as the share of the manufacturing sector), commonly used in the finance-development literature (see Table A1 in the Appendix, for a summary of existing empirical studies in this area). We further contribute to the finance-development literature by combining our multidimensional view of financialisation with a regional perspective. This approach moves beyond the uniform-benefits narrative of financial deepening (McKinnon, 1973; Shaw, 1973) to instead recognise how financial expansion can constrain productive capacity and exert varying effects across regions.

The rest of the paper is organised as follows: Section 2 review the relevant literature. Section 3 outlines the methodology and data. Section 4 presents the results. Section 5 concludes.

2. The financialisation-productive development nexus

2.1 International dimension of financialisation

As indicated in the introduction, financialisation has both an international and a domestic dimension. As shown in the existing literature (Becker *et al.*, 2010; Bonizzi, 2017; Bortz and Kaltenbrunner, 2018; Corrêa and Feijo, 2022), countries' integration into global financial markets is particularly important for understanding the finance-productive nexus in the periphery.

EMEs' integration into the international monetary-financial system is shaped by their subordinate position (Correa and Vidal, 2012; de Paula *et al.*, 2017; Fritz *et al.*, 2018), reflected in their place within the currency hierarchy and their limited ability to influence the rules governing the global financial infrastructure. The international currency hierarchy framework conceptualises currencies as international assets with unequal liquidity premia, drawing on Keynes's liquidity preference and rate-of-return theory in an open-economy context (Andrade and Prates, 2013; Dow, 1999; Kaltenbrunner, 2015; Keynes, 1936). This hierarchy is headed by the currency with the highest liquidity premium, currently the US dollar, which enjoys an 'exorbitant privilege' in the form of persistently low interest rates. By

contrast, EMEs currencies occupy subordinate positions, characterised by lower liquidity premia and structurally higher interest rates. Their lower liquidity premia require higher interest rates to attract foreign capital, encouraging short-term speculative flows, exposing them to heightened external vulnerability. As EMEs are perceived as riskier, shifts in global liquidity preference can rapidly trigger capital flight toward the top currency (Andrade and Prates, 2013; Fritz et al., 2018). This can lead to sudden stops and sharp currency depreciations (Arestis and Glickman, 2002; Botta, 2017; Frenkel and Rapetti, 2009; Kaltenbrunner and Paineira, 2015; Taylor, 1998). Such movements are not necessarily associated with misguided policies or misaligned ‘fundamentals’; rather, they stem from the endogenous nature of financial the global financial system. They reflect the uneven terms under which EMEs are integrated into the global economy, where capital flows are understood as an inherently monetary phenomenon (Isaacs and Kaltenbrunner, 2018), rather than merely as mechanisms to finance current account deficits (Bonizzi, 2017). Nevertheless, not all EMEs pursued full financial liberalisation, where China and India, for instance, have adopted far more selective approaches compared to their peers (Karwowski, 2022; Palma, 2012).

The new developmentalism literature argues that the attraction of foreign capital result in a persistent overvaluation of the exchange rate, which is identified as a key driver of deindustrialisation (Bresser-Pereira, 2008; Bresser-Pereira, 2020a; Bresser-Pereira, 2020b). In Latin America, capital

account liberalisation combined with the dismantling of state-led industrialisation strategies has contributed to a more financialised form of Dutch disease (Palma, 2005). Overall, a sustained overvalued exchange rate undermines the competitiveness of domestic manufactured goods by raising relative labour costs and harming export performance, thereby reducing sectoral profitability².

Financialisation has not only altered not only the volume of capital flows, but also their quality. Bortz and Kaltenbrunner (2018) argue that these flows have become increasingly short-term, directed towards domestic financial markets and motivated by potential capital gains. As a result, EMEs' currencies have become the object of unstable carry-trade operations pursued by both international and domestic actors (Kaltenbrunner and Paineira, 2015). This environment reinforces short-termism among institutional investors and undermines the conditions necessary for traditionally 'patient' capital (Mazzucato, 2013).

Overall, exposure to financial globalisation has adverse effects on productive structures in EMEs (Benigno *et al.*, 2015; Botta, 2017; Botta *et al.*, 2023; Frenkel and Ros, 2006; Özçelik and Özmen, 2023; Teimouri and Zietz, 2018; Tregenna *et al.*, 2021), although Özçelik *et al.* (2024) present evidence pointing in the opposite direction³.

Episodes of large capital inflows tend to reallocate capital and labour toward construction and services at the expense of manufacturing, a sector critical

for productivity growth and innovation (Rodrik, 2016). These effects can extend well beyond the duration of financial inflow/outflow episodes (Botta 2021). Moreover, increased financial investment by domestic NFCs has deepened their integration into global financial markets, introducing additional fragilities. Currency and maturity mismatches threaten firm viability and leave lasting damage to structural change (Cimoli et al., 2020).

More broadly, financial globalisation heightens uncertainty and makes long-term physical investment less attractive, particularly in high value-added activities (Stockhammer, 2004; Stockhammer, 2008; Demir, 2009). An ‘investment push’ is essential for narrowing technological gaps with core economies (UNCTAD, 2016)—yet, as Ocampo et al. (2008) argue, the cyclical nature of global finance undermines the predictability companies need in order to invest. Furthermore, during periods of instability and crisis, governments are often forced to cut public spending on infrastructure and R&D, constraining their capacity to support structural transformation.

Another key dimension of relevance for EMEs concerns the interaction between capital flows and commodity prices. Akyüz (2020) notes that capital inflows tend to move pro-cyclically with commodity prices. Price increases incentivise output production and resource shifts to profitable sectors, often resulting in the reprimarisation of productive structures (Gallagher and Prates, 2014; UNCTAD and FAO, 2017). Conversely, negative commodity price shocks can undermine debt sustainability, particularly in economies where

public finances and the scope for productive diversification, depend heavily on export revenues (UNCTAD and FAO, 2017).

Finally, financial globalisation has not only rendered governments increasingly susceptible to the influence of international forces (Rey 2015) but also has subjected them to the disciplining power of international financial markets, as governments face pressures arising from the risk of sovereign rating downgrades (Chang, 2002; Chang and Andreoni, 2020; Streeck, 2017). In addition, conditionalities attached to debt restructuring programmes imposed by international financial institutions further restrict the adoption of long-term development strategies (Wade, 2003; Wade, 2018).

2.2 Domestic dimensions of financialisation

The global logic of financialisation brought deeper cross-border financial integration, accompanied by an expansion in the role of finance at the domestic level through new assets and markets (Dafermos *et al.*, 2023), and by reshaping the behaviour of organisations and individuals (Bonizzi and Karwowski, 2024).

Financial systems have expanded in size, marked by increased banking activity, the deepening of bond (Fastenrath *et al.*, 2017) and stock markets (Karwowski *et al.*, 2020), and the growing presence of non-bank financial institutions. These institutions, often referred to as ‘shadow banks’,

generally rely on short-term borrowing in financial markets to meet liquidity needs (Gabor, 2020). They include hedge funds, private equity funds, money market, and exchange-traded funds, and are subject to lighter regulations than banks, enabling them to engage in more speculative activities (Rossi, 2025). The variegated nature of financialisation is reflected in cross-country disparities across these dimensions, such as the size of stock market (Lapavitsas and Powell, 2013), with core countries, especially the UK and US, exhibiting higher levels of domestic financialisation (Karwowski and Stockhammer, 2017).

Domestic private credit emerges as a central component of financialisation (Lapavitsas, 2013; Tyson and McKinley, 2014), yet its effects are theoretically and empirically disputed. Mainstream economic theory suggests that financial intermediation facilitates firm investment and supports GDP growth (Levine, 2005; McKinnon, 1973; Shaw, 1973). In contrast, critical scholars argue that excessive private lending can fuel financial instability and trigger crises (Kindleberger, 1978; Minsky, 1978), particularly when borrowers are unable to generate sufficient cash flows to meet their obligations (Minsky, 1986: 79-80). A growing body of research further suggests that, beyond a certain threshold, further increases in private credit are associated with a decline in economic growth, indicating that an excessively large financial sector may become detrimental to the real economy (Arcand et al., 2012; Cecchetti and Kharroubi, 2012; Rousseau and Wachtel, 2017). Extending this line of inquiry, Özçelik et al. (2024) show that

the effects of private credit vary across development contexts. While overall private credit supports industrialisation in EMEs by alleviating financing constraints for firms, it is associated with deindustrialisation in advanced economies.

In parallel, the expansion of household credit has emerged as a distinctive feature of contemporary financialisation. Empirical evidence links household credit booms to deeper recessions and slower recoveries (Jordà et al., 2020; Mian et al., 2017). This shift in bank lending from firms to households reduces the funds available for productive investment, thereby hindering structural transformation (Erturk and Solari, 2007; Lapavitsas, 2013). To date, however, no study has analysed the effects of household credit on economic complexity.

In terms of firm behaviour, the financialisation literature has pointed out that since the 1980s, creating shareholder value has been a top priority for NFCs of the core, introducing changes in corporate behaviour, shifting from a 'retain and reinvest' to a 'downsize and distribute' model (Aglietta, 2000; Froud et al., 2000; Lazonick, 2017; Lazonick and O'Sullivan, 2000). In extreme cases, NFCs function primarily as financial investors, deriving gains from financial operations rather than sales. By contrast, NFCs based in EMEs face also the pressure to generate shareholder value but have more limited options for financial accumulation (Karwowski, 2022).

The empirical literature documents a negative relationship between firm-level investment in capital expenditures and financialisation in developed economies (Orhangazi, 2008; van Treeck, 2008; Barradas, 2017; Davis, 2018; Tori and Onaran, 2018; Tori and Onaran, 2020, among others)⁴. Similar effects are evidenced in the case of EMEs. Demir (2009), using data from publicly traded industrial firms, finds that the widening gap between returns on financial and fixed investment has a significant impact on the latter. Pérez Caldentey et al. (2019) found that Latin American bond-issuing firms exhibit increasing speculative behaviour and decreased use of hedging strategies over time. These firms play a significant role nationally in terms of long-term investment. Tori and Onaran (2022) argue that the effect of financialisation depends partly on the context of companies. Firms in countries with more developed financial markets and deeper integration into Global Value Chains tend to experience negative effects on real investment, driven by shareholder value orientation and financial performance pressures.

Financialisation is particularly detrimental to high-risk, long-term innovation, yet its effects on innovative activities remain empirically underexplored compared to its impact on conventional capital investment. Understanding this dimension is essential, as financialised business practices may undermine precisely the kinds of radical innovations upon which long-term productive development depends. Bernstein (2015) finds that firms listed on the Nasdaq experience a decline in patent filings, innovation novelty, and inventor productivity, compared to privately held

companies that withdraw from initial public offerings and remain privately held. Listed firms also increasingly rely on external innovation, acquiring patents through mergers and acquisitions (M&A). Similarly, Aggarwal and Hsu (2014) find that public offerings negatively impact innovation quality, and M&As lead to the prioritisation of short-term gains over long-term innovation. Also, Wies and Moorman (2015) find that when firms go public, they tend to introduce less risky innovations (fewer breakthrough innovations and innovations into unfamiliar categories). Lee et al. (2020) report similar findings for OECD countries, while Seo et al. (2012) for South Korean firms and Jibril et al. (2018) for Brazilian firms.

In sum, financialisation constrains productive development in EMEs through both international and domestic channels. Internationally, greater financial integration amplifies uncertainty, distorts macroeconomic variables, and can trigger Dutch disease effects that harm productive development, while limiting policy space for productive diversification. Domestically, the expansion of financial instruments and products fosters the misallocation of resources and embeds financial logics across economic actors. Firms prioritise short-term financial gains over long-term investment, while governments and households become increasingly indebted and financially fragile.

3. Methodology and data

3.1 Model specification

To estimate the effect of financialisation on productive development, we estimate the following equation:

$$ECI_{it} = \alpha + \beta_1 privatecred_{it} + \beta_2 stockmarkcap_{it} + \beta_3 liquidliab_{it} + \beta_4 tot_nonFDI_{it} + \gamma_1 GDP_{it} + \gamma_2 GDP_{it}^2 + \gamma_3 POP_{it} + \gamma_4 POP_{it}^2 + \gamma_5 tradeopen_{it} + \gamma_6 inflation_{it} + \theta_i + f_t + u_{it} \quad (1)$$

Where, ECI_{it} is the Economic Complexity Indicator developed by Hidalgo and Hausmann (2009), with i denoting the country and t the year. It captures the underlying productive capabilities embedded in countries' export structures. The ECI is computed from a country-product network based on Balassa's Revealed Comparative Advantage (Balassa, 1982) using an iterative method which assigns complexity scores to both countries and products. Higher country scores indicate more sophisticated and diversified productive capabilities.

The indicators of financialisation include three domestic measures: private credit to GDP ($privatecred_{it}$), stock market capitalization to GDP ($stockmarkcap_{it}$) and liquid liabilities to GDP ($liquidliab_{it}$). These capture, respectively, the depth of bank-based finance, the development of market-based finance, and the overall size of the financial system. These variables have been widely used in the literature and are expressed as a ratio to GDP (Cecchetti and Kharroubi, 2012; Karwowski et al., 2020; Levine, 2005).

Private credit to GDP reflects vulnerability-related dynamics, given that higher debt ratios require greater resources for their repayment. A larger stock market can introduce financialised practices, such as the shareholder value orientation discussed in Section 2, while the overall size of the financial system may also signal a growing decoupling of finance from the real economy.

Financial globalisation is proxied by the stock of total foreign financial assets and liabilities (including portfolio equity, debt, and financial derivatives) as a share of GDP (tot_nonFDI_{it}). FDI is excluded as it is the least volatile component of capital flows (Griffith-Jones and Ocampo, 2021) and is generally driven by productive motives, such as resource-seeking, rather than financial interests (Milberg and Winkler, 2013: 132). We employ a *de facto* measure of financial globalisation rather than a *de jure* indicator such as the Chin–Ito index. While the Chin–Ito index captures the legal openness of capital accounts, it does not necessarily reflect actual capital flows.

The regression model also includes country-fixed effects (θ_i) and time-fixed effects (f_t). u_{it} is the error term representing the residual variation in the dependent variable after accounting for the independent variables and the fixed effects.

Control variables include income level (GDP per capita, GDP_{it}) and country size (population, POP_{it}) and their squares in line with the literature on

deindustrialisation (Botta *et al.*, 2023; Rodrik , 2016)⁵. Imbs and Wacziarg (2003) find that economic complexity follows an inverted U-shape with economic development. Following Tregenna *et al.* (2021) population is expressed in millions and GDP in thousands. Trade openness, measured as exports plus imports divided by GDP ($tradeopen_{it}$), is included as access to foreign markets may facilitate technology transfer, knowledge exchange, and economies of scale, but without technological policies, it may push countries to specialise in their comparative advantages (for a discussion, see McMillan *et al.*, 2014). Additionally, the inflation rate is considered ($inflation_{it}$), as highly inflationary environments may distort decision-making regarding investment to upgrade productive structures.

The coefficient on private credit, β_1 , is conditional upon its allocation between firms and households. Where household credit dominates, standard indicators of private credit may obscure the degree to which financial resources are channelled toward productive investment (Mian *et al.*, 2017), yielding a negative coefficient. A positive coefficient, by contrast, would signal that private credit is largely directed to firms and supports productive investment. The rest of the coefficients are expected to be negative. β_2 is anticipated to be negative, as short-termism tends to be more prevalent in countries that rely heavily on financial markets. β_3 is expected to be negative, given that excessive financial depth can be detrimental to productive development, as discussed in Section 2. The same logic applies to β_4 ,

particularly in EMEs, where financial globalisation tends to generate more volatile environments that hinder real investment and R&D.

3.2 Descriptive statistics

The study is conducted using an unbalanced panel of 78 countries observed at an annual frequency over a maximum timespan of 45 years, from 1975 to 2019. The panel was constructed by including all countries worldwide with available data on the ECI and the financialisation variables. In practice, emerging and developing economies frequently have missing observations for the financialisation indicators and, occasionally, for control variables as well. To ensure a minimum level of within-country variation over time, we excluded countries with fewer than five years of observations.

According to the IMF country classification, the full sample is divided into two subsamples: developed countries, and emerging and developing economies (EMEs)⁶. EMEs are further divided into regions to allow for regional comparisons. Table A2 in the Appendix provides details on country coverage and the regional classification. The data are drawn from a variety of sources, primarily the World Bank's World Development Indicators (WBDI), the Atlas of Economic Complexity from the Growth Lab at Harvard University⁷, the Lane and Milesi-Ferretti database (2017) and the Global Financial Development Database from the World Bank (GFDD). In a second step, we conduct an additional exercise using a subset of countries for which

data on private credit is available, disaggregated into household credit and NFC credit. However, only a small number of emerging and developing economies report this disaggregated information. This data is sourced from the Bank for International Settlements (BIS).

A complete list of the variables is presented in Table 1 below, with further details in the Appendix (Table A3).

Table 1: Variable description.

Level	Variable name	Definition
Productive structure	eci	Economic Complexity Index
Financialisation	privatcred	Private credit by deposit money banks to GDP (%)
	stockmarket	Stock market capitalization to GDP (%)
	liquidliab	Liquid liabilities to GDP (%)
	tot-non FDI	Total external assets and liabilities excluding FDI to GDP (%)
Controls	gdp	GDP per capita (constant 2015 US\$), in thousands
	pop	Total population, in millions
	exports	Exports of goods and services (% of GDP)
	imports	Imports of goods and services (% of GDP)
	tradeopen	Exports plus imports (% of GDP)
	inflation	Consumer prices (annual %)

Table 2 below presents summary statistics for these variables and the control variables.

Table 2: Descriptive statistics.

Variable	All countries			Developed countries			EMEs		
	Obs.	Mean	Std. dev.	Obs.	Mean	Std. dev.	Obs.	Mean	Std. dev.
	ECI	3,259	0.55	0.71	1,346	1.14	0.34	1,913	0.13

privatecred	3,079	57.16	38.65	1,237	81.73	39.87	1,842	40.65	27.43
stockmarkcap	2,050	62.33	101.17	1,095	77.17	129.48	955	45.33	47.08
liquidliab	3,111	70.5	70.08	1,249	96.61	96.07	1,862	52.99	35.4
tot_nonFDI	3,231	350.27	1385.97	1,340	591.7	2076.44	1,891	179.21	397.03
GDP	3,307	18.6	19.79	1,380	32.35	18.41	1,927	8.74	14.04
POP	3,495	63.05	179.51	1,440	29.13	52.18	2,055	86.82	227.01
tradeopen	3,211	82.09	59.68	1,359	98.22	78.37	1,852	70.26	36.6
inflation	3,141	22.68	199.44	1,382	10.89	72.35	1,759	31.94	258.33

Source: Author' calculations based on data as reported in Table 1.

Notes: *** p<0.01, ** p<0.05, * p<0.1.

Table 3 presents the correlations among the explanatory variables, focusing on the pairwise correlations between the financialisation indicators. As shown, the correlation coefficients range from 0.16 to 0.78. The strongest correlation is observed between total non-FDI and liquid liabilities, suggesting a connection between the international dimension of financialisation and the broadest indicator of financial sector expansion. Correlations for the full set of model variables are included in the Appendix (Table A4) and are lower than those reported here.

Table 3: Correlation of explanatory variables.

Variables	(1)	(2)	(3)	(4)
(1) privatecred	1.00			
(2) stockmarkcap	0.473***	1.00		
(3) liquidliab	0.521***	0.403***	1.00	
(4) tot_nonFDI	0.163***	0.158***	0.771***	1.00

Source: Author' calculations based on data as reported in Table 2.

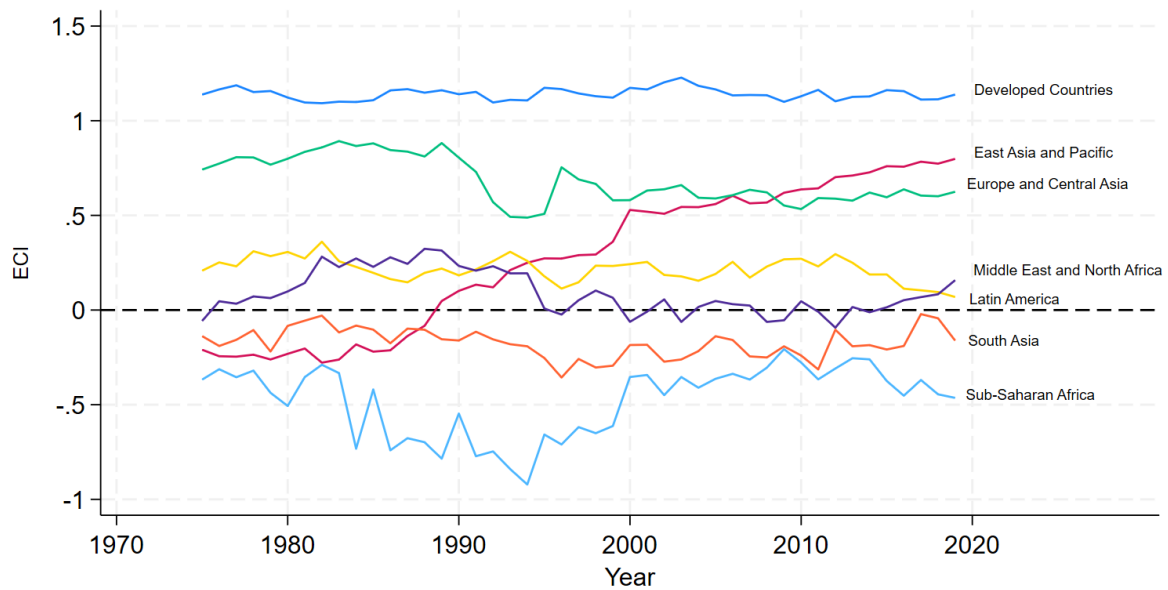
Notes: *** p<0.01, ** p<0.05, * p<0.1.

Multicollinearity was assessed also by calculating variance inflation factors (VIFs). With a maximum VIF of 5.93 and a mean VIF of 2.68, all values remain well below the conventional threshold of 10, confirming that multicollinearity is not a significant concern in the model (O'brien, 2007) (results are shown in Table A5 in the Appendix). Panel unit root tests have been conducted, rejecting the hypothesis of a common unit root at the 1 per cent level (Table A6 in the Appendix).

3.2.1 Regional trends in the ECI

We begin by examining regional patterns in the ECI, which, as mentioned in section 3.1, captures the underlying productive capabilities embedded in countries' export structures. Figure 1 illustrates the evolution of the ECI across world regions from 1975 to 2019.

Figure 1: Regional Trends in the Economic Complexity Index



It can be observed that developed countries consistently exhibit the highest and most stable levels of economic complexity, with Japan and Korea consistently ranking among the highest in the world. Among emerging regions, East Asia and Pacific stands out with a clear upward trajectory associated with sustained capability upgrading, surpassing Europe and Central Asia and emerging as the second region with the highest complexity index by the end of the period. China, in particular, shows a sharp upward trajectory, while Vietnam made considerable progress, shifting from negative to positive values after 2005. Europe and Central Asian countries occupy an intermediate position, with positive but moderately fluctuating ECI values.

Further down the distribution, Latin America display relatively stable ECI paths clustered below 0.5 and around the zero line, with a slight downturn toward the end of the period. The region is also quite heterogeneous, with some countries, such as Chile, Ecuador, and Peru, clustering around zero or below, while others (notably Mexico) exhibiting comparatively higher levels of economic complexity. A similar picture is observed in the Middle East and North Africa region, which displays relatively stable ECI paths clustered around the zero line, with limited long-run progression in productive capabilities.

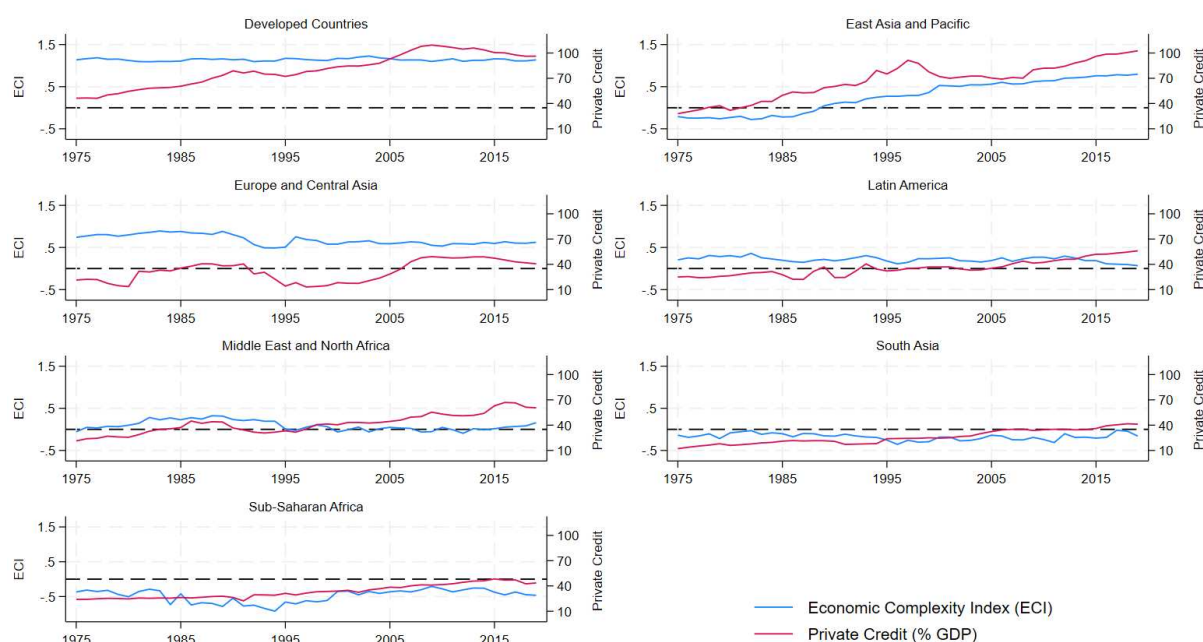
At the bottom of the distribution are South Asia and Sub-Saharan Africa, where ECI has remained persistently below zero, with the Sub-Saharan Africa showing the greatest volatility and the lowest average complexity. Yet, within these regions, there is also some degree of heterogeneity across countries.

3.2.2 Regional co-evolution of ECI and financialisation indicators

Before proceeding with our econometric analysis, in Figures 2-5 we present some graphical evidence on the evolution of the ECI alongside each financialisation indicator at the regional level.

3.2.2 Co-evolution of ECI and Private credit

Figure 2: ECI and Private Credit over time by region



Notes: Regional averages of the ECI and private credit (% of GDP), 1975–2019. Both variables are plotted using common vertical scales across regions to facilitate cross-region comparison of levels and variation.

Figure 2 reveals substantial cross-regional differences in access to private credit and its potential association with economic complexity. Developed countries display the highest levels of private credit, with a strong and sustained expansion over the period. However, their economic complexity has remained relatively flat, suggesting that rising access to credit alone might not necessarily translate into further capability upgrading and may even reflect forms of financial expansion with limited support for productive development.

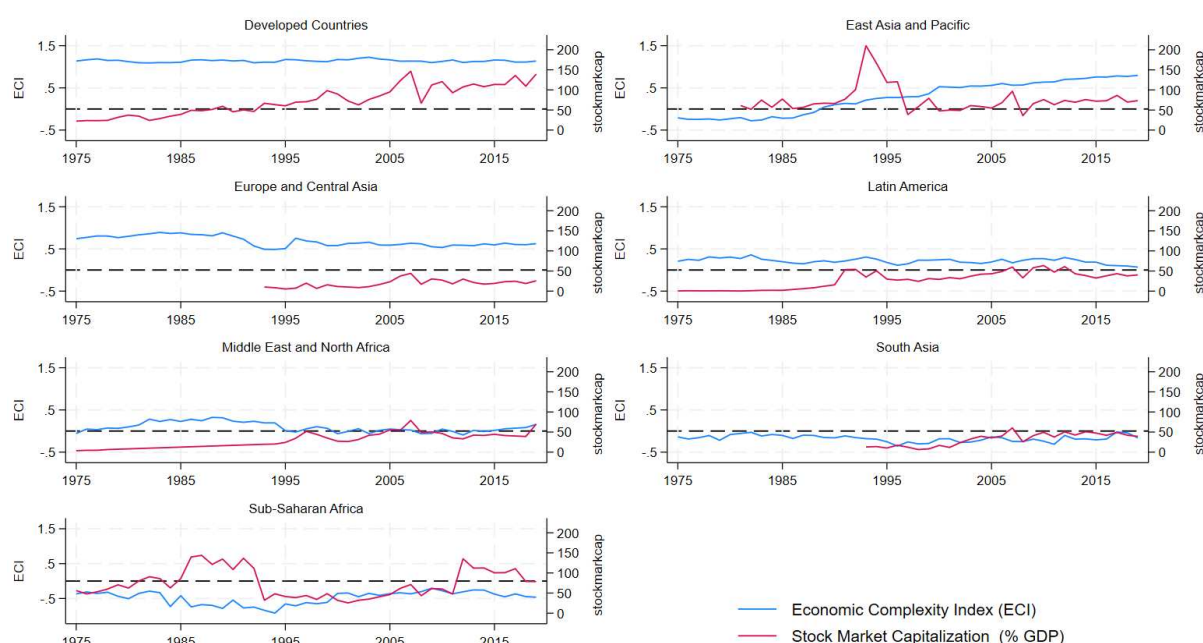
In East Asia and the Pacific, by contrast, both ECI and private credit have increased over time, although at different paces. This pattern suggests that rapid credit expansion may have either supported the region's strong

capability accumulation or, at the very least, not generated adverse pressures often associated with excessive credit growth.

Other regions show weaker or no apparent association between private credit and ECI. Private credit has increased gradually in Europe and Central Asia, Latin America, and MENA while their ECI trajectories remain relatively flat around zero. South Asia and Sub-Saharan Africa also record rising credit ratios, but from very low initial levels and alongside persistently negative and stable ECI values. In these economies, we anticipate that the low levels of credit, are unlikely to generate potential adverse effects commonly associated with excessive credit expansion.

3.2.2.2 Co-evolution of ECI and Stock market capitalization

Figure 3: ECI and Stock Market Capitalization over time by region



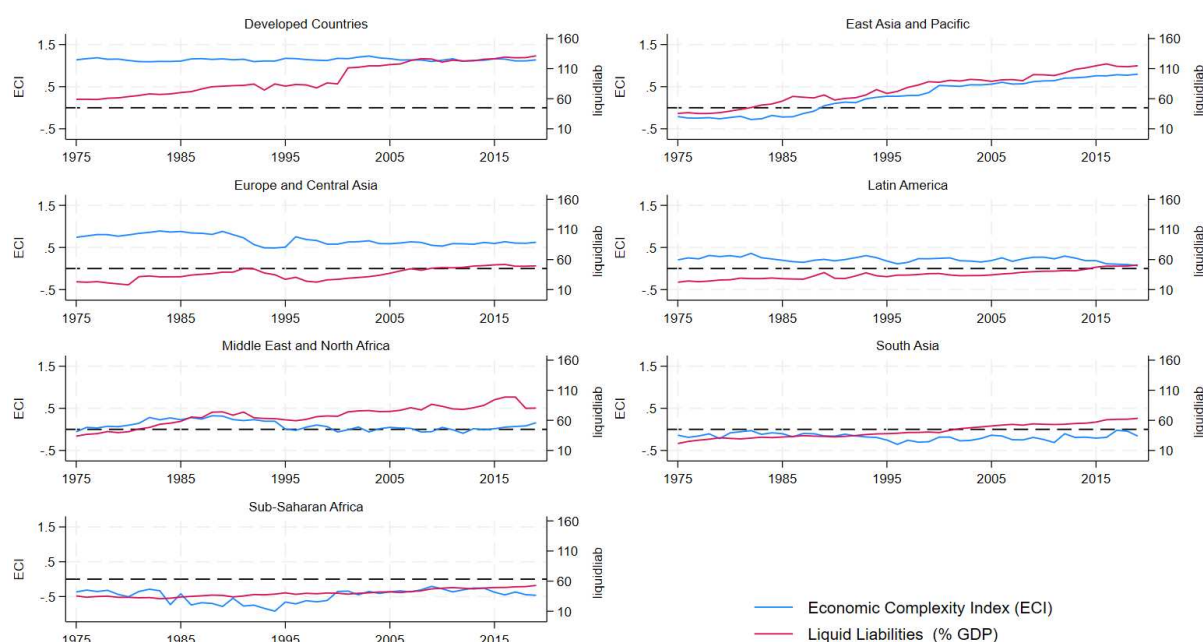
Notes: Regional averages of the ECI and stock market capitalization (% of GDP), 1975–2019. Both variables are plotted using common vertical scales across regions to facilitate cross-region comparison of levels and variation.

Figure 3 highlights substantial cross-regional differences in stock market capitalization and its relationship with economic complexity. In line with the other financialisation indicators discussed above, developed countries again display by far the deepest stock markets, with sharp increases from the mid-1990s onward, yet their ECI remains broadly flat, indicating that large and expanding capital markets do not necessarily coincide with further capability upgrading. East Asia and the Pacific shows a more moderate rise in stock market capitalization, with notable spikes in the 1990s, while ECI follows a steadier upward trajectory, suggesting that stock market growth and capability accumulation have advanced on separate paths. In Europe and Central Asia, Latin America, and MENA, stock market capitalization expands gradually but at much lower levels, and ECI remains mostly stable, offering little visual indication of a strong association between the two indicators.

South Asia and Sub-Saharan Africa begin with small stock markets. Although capitalization shows some moderate increases it does so from very low bases and alongside persistently negative ECI values. In such settings, limited stock-market depth provides little scope to influence productive capabilities.

3.2.2.3 Co-evolution of ECI and Liquid liabilities

Figure 4: ECI and Liquid Liabilities over time by region



Notes: Regional averages of the ECI and liquid liabilities (% of GDP), 1975–2019. Both variables are plotted using common vertical scales across regions to facilitate cross-region comparison of levels and variation.

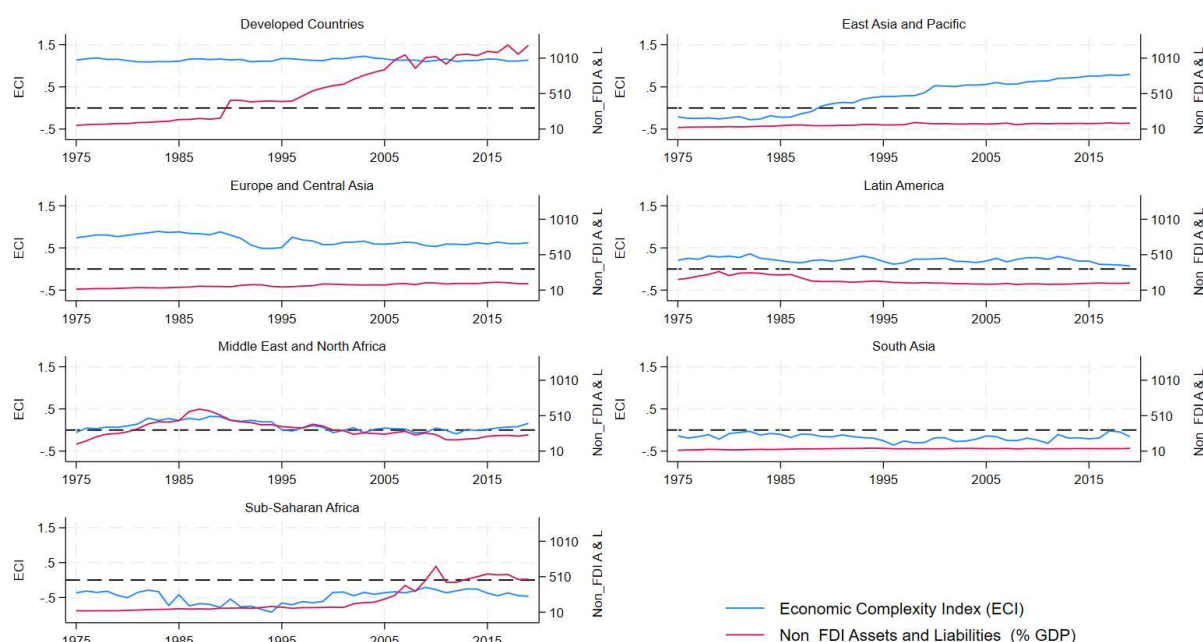
As with the other financial indicators discussed above, Figure 4 shows wide regional variation in the scale of liquid liabilities and its relationship with economic complexity. Developed countries and East Asia and the Pacific display the highest and most steadily rising levels of liquid liabilities. However, while the ECI remains broadly flat in developed economies, in East Asia these increases occur alongside sustained gains in economic complexity. This suggests that monetary deepening may have supported, or at least not hindered, the region's continued capability upgrading.

In Europe and Central Asia, Latin America, and the MENA, liquid liabilities grow moderately from low to mid-levels, while ECI remains relatively flat, giving little visual indication of a meaningful association.

South Asia and Sub-Saharan Africa start with very low liquid liability ratios and experience only modest increases over time, yet as mentioned earlier, their ECI stays persistently negative. In these settings, the limited depth of the monetary system offers little room for liquid liabilities to play a role in shaping productive capabilities.

3.2.2.4 Co-evolution of ECI and Non-FDI assets and liabilities

Figure 5: ECI and Non_FDI assets and Liabilities over time by region



Notes: Regional averages of the ECI and tot-non FDI (% of GDP), 1975–2019. Both variables are plotted using common vertical scales across regions to facilitate cross-region comparison of levels and variation.

Finally, Figure 5 shows large regional differences in exposure to non-FDI external assets and liabilities and how these evolve relative to economic complexity. Developed countries hold by far the largest and fastest growing non-FDI positions, yet their ECI remains broadly unchanged, suggesting that these external financial expansions occur largely independently of capability upgrading. In contrast, in East Asia and the Pacific, non-FDI exposures rise more gradually while ECI grows much more strongly, indicating no tight co-movement between the two.

Europe and Central Asia, Latin America, and MENA all show modest increases in non-FDI positions alongside mostly flat ECI trajectories, suggesting that deeper external financial integration has not been accompanied by comparable gains in productive capabilities.

South Asia and Sub-Saharan Africa start from the lowest levels of non-FDI exposure; although these positions increase slightly in later years, they do so from extremely low bases, while ECI remains persistently negative. In such settings, non-FDI is unlikely to exert upward pressure on complexity and may expose economies to external risks without delivering meaningful capability gains.

Overall, the above figures reveal substantial heterogeneity in the levels of financialisation and economic complexity and their joint evolution across regions. Developed economies consistently display the highest levels of every financialisation indicator, confirming their position at the core of the global

financial system. Yet, despite remaining the global frontier in economic complexity, their ECI has stayed broadly flat.

East Asia and the Pacific also register substantial increases in financial indicators, but unlike developed economies, these occur alongside sustained gains in ECI, highlighting their exceptional trajectory of productive transformation.

Further down the distribution, Europe and Central Asia, Latin America, and MENA exhibit moderate financial expansion from much lower baselines, but their ECI profiles remain relatively stable, showing little visible alignment with financialisation trends.

At the lower end, South Asia and Sub-Saharan Africa combine the smallest financialisation indicators with persistently negative ECI values.

Taken together, the plots reveal pronounced cross-regional heterogeneity in both financialisation and economic complexity. However, as they rely on unconditional regional averages that mask substantial country-level variation, they offer only limited insight into the true conditional relationship between the two. The next section therefore turns to an econometric analysis that examines this relationship at the country level, controlling for other determinants of the ECI while allowing for regional differences.

4. Results

4.1 Main results

Table 4 reports the results for the entire sample in column (1), while column incorporates (2) developed countries and (3) EMEs.

Table 4: Panel fixed effects regressions. Dependent variable: ECI.

	(1) All countries	(2) Developed countries	(3) EME countries
privatecred	-0.026** (0.013)	-0.032** (0.012)	-0.032 (0.024)
stockmark	0.000 (0.003)	0.002 (0.003)	-0.001 (0.009)
liquidliab	0.015* (0.008)	0.018** (0.007)	0.028 (0.031)
tot_nonFDI	0.000 (0.001)	0.001** (0.000)	-0.000 (0.001)
gdp	0.360 (0.309)	0.804** (0.320)	0.571 (0.508)
gdpsq	-0.005* (0.002)	-0.006** (0.003)	-0.010* (0.005)
pop	0.051 (0.047)	-0.213 (0.326)	-0.025 (0.052)
popsq	-0.000 (0.000)	0.000 (0.001)	0.000 (0.000)
tradeopen	0.005 (0.015)	-0.021* (0.011)	0.016 (0.012)
inflation	-0.025* (0.013)	-0.028 (0.066)	-0.007 (0.015)
_cons	64.790*** (3.900)	75.956*** (10.538)	45.738*** (4.375)
Time fixed effects	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes
N	1849	973	876
R2	0.153	0.417	0.287

Source: Authors' estimations. Robust standard errors in parenthesis. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. R2 is the coefficient of determination. N is the number of observations.

The results for the financialisation indicators indicate that private credit to GDP ($privatecred_{it}$) has a negative and statistically significant effect on economic complexity for the entire sample (column 1). This result remains robust for developed countries when the sample is split into developed economies and EMEs (column 2), with significance level of 5%. A similar effect is identified by Özçelik et al. (2024) between private credit and manufacturing in developed economies. Our results confirm an analogous result for economic complexity.

This finding indirectly challenges the mainstream literature on financial deepening (Levine, 2005), particularly the presumed positive link between private credit and GDP, especially given that high-income countries tend to produce more complex products (Felipe et al., 2012; Hausmann et al., 2013). As noted in Section 2, evidence from developed countries indicates that rapid private credit expansions are a strong predictor of future economic instability (Jordà et al., 2013). Such instability can discourage long-term investment in productive capabilities, potentially accounting for the negative coefficient found in countries with more deeply developed credit markets. For developed countries, liquid liabilities ($liquidliab_{it}$) and financial globalisation (tot_nonFDI_{it}) exhibit positive and statistically significant effects on economic complexity, suggesting that these economies are able to channel such resources toward more advanced productive structures. In contrast, stock market capitalization ($stockmarkcap_{it}$) is not significant. This lack of significance may be due to aggregation effects, as there is substantial

heterogeneity within the group of developed countries. For instance, Hong Kong exhibits a very deep stock market, with an average exceeding 450% of GDP, whereas Germany's stock market capitalization never surpassed 65% of GDP over the entire period. Such divergence could cancel out any observable effect at the aggregate level.

In the case of EMEs (column 3), none of the financialisation indicators are statistically significant. This may reflect the considerable heterogeneity within this group of countries⁸.

Table 5 provides a more granular analysis of the relationship between financialisation indicators and productive development in EMEs for the six regions.

Table 5: Panel fixed effects regressions. Dependent variable: ECI.

	(1)	(2)	(3)	(4)	(5)	(6)
	LAC	East Asia and Pacific	Europe and Central Asia	Middle East and North Africa	South Asia	Sub- Saharan Africa
privatecred	-0.059 (0.067)	0.018 (0.022)	-0.001 (0.096)	-0.045 (0.070)	0.292 (0.130)	-0.239 (0.146)
stockmark	-0.065** (0.027)	0.003 (0.012)	0.070 (0.057)	0.018 (0.028)	-0.006 (0.010)	-0.023 (0.027)
liquidliab	-0.066 (0.061)	0.008 (0.024)	-0.097 (0.110)	0.083 (0.065)	-0.103 (0.072)	-0.075 (0.127)
tot_noFDI	-0.023*** (0.006)	0.004 (0.023)	-0.043 (0.025)	-0.007*** (0.002)	-0.167* (0.068)	0.002 (0.002)
gdp	1.224 (2.115)	1.740 (1.378)	-0.996 (3.842)	-0.313 (0.614)	-7.094 (4.749)	14.897* (7.017)
gdpsq	-0.003 (0.078)	-0.165** (0.061)	0.049 (0.124)	-0.002 (0.005)	1.005 (0.443)	-0.710* (0.338)
pop	0.497 (0.308)	-0.153** (0.054)	-0.262 (1.116)	-1.595 (0.975)	0.215** (0.045)	1.468** (0.445)
popsq	-0.001* (0.001)	0.000* (0.000)	0.003 (0.009)	0.009 (0.006)	-0.000** (0.000)	-0.015* (0.007)
tradeopen	0.008 (0.043)	0.014 (0.026)	0.107** (0.038)	0.040 (0.042)	-0.088 (0.117)	0.086** (0.026)
inflation	0.020 (0.023)	0.010 (0.047)	-0.030 (0.040)	-0.179** (0.082)	-0.060 (0.044)	-0.058 (0.057)
_cons	49.368*** (12.779)	68.841*** (6.012)	77.536*** (19.721)	44.660*** (11.520)	19.270* (7.136)	0.920 (12.607)
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
N	186	148	136	206	77	123
R2	0.765	0.926	0.483	0.443	0.715	0.405

Source: Authors' estimations. Robust standard errors in parenthesis. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. R2 is the coefficient of determination. N is the number of observations.

The results by region indicate that Latin America (column 1) is the region most affected by financialisation with the largest effect sizes observed in the sample. Stock market capitalization ($stockmarkcap_{it}$) exhibits a negative and statistically significant effect on productive development, consistent with findings in Jibril *et al.* (2018) and Pérez Caldentey *et al.* (2019). Moreover, financial globalisation, proxied by (tot_nonFDI_{it}), contracts productive development in the region (at the 1% of significance). Latin America was the first developing region to open its capital account and deregulate its financial system (Díaz-Alejandro, 1985), and it continues to display a relatively open capital account (Chinn and Ito, 2008). In this context, capital movements may trigger 'Dutch disease-like' effects that directly undermine productive capacities. Private credit and liquid liabilities are negative but not statistically significant.

For MENA and South Asia, financial globalisation (tot_nonFDI_{it}) is negatively correlated with economic complexity, with significance at the 1% and 10% levels, respectively. This confirms that non-FDI capital flows are detrimental to productive development in these regions as well. The remaining financialisation indicators are not statistically significant.

In contrast, for East Asia and Pacific, Europe and Central Asia, and Sub-Saharan Africa (columns 2, 3, and 6), none of the financialisation indicators

are statistically significant. The lack of significance of the coefficients in East Asia and the Pacific is not surprising and aligns with Botta et al. (2023). As shown in Section 3.2.2, the region sustained increases across all financial indicators—with the exception of stock market capitalization, despite the peak during the East Asian crisis in the mid-1990s—along with sustained improvements in the ECI. East Asian economies successfully climbed the technological ladder, moving toward more technologically complex activities (Hartmann *et al.*, 2021), while actively containing the effects of financial liberalisation (Cimoli *et al.*, 2020) and mitigating finance-led real exchange rate appreciations (Bresser-Pereira, 2020a).

In Europe and Central Asia, the lack of significant coefficients suggests that moderate financial deepening has not translated into meaningful effects on stagnant ECI profiles, a relationship that warrants further investigation.

Lastly, in Sub-Saharan Africa, further research is needed to connect the region's stagnant productive development (Rodrik, 2016; Tregenna *et al.*, 2021) with its financialisation dynamics. With the exception of South Africa, this nexus remains underexplored (e.g., Karwowski, 2018).

Overall, among the financialisation indicators, total non-FDI to GDP (tot_nonFDI_{it}) emerges as the most influential variable for emerging regions, with statistically significant negative effects in Latin America, MENA, and South Asia. This underscores the vulnerability of these economies to the volatility and external constraints associated with international financial

integration. Moreover, the link between capital flows and commodity prices implies that financial globalisation can entrench primary-sector specialisation at the expense of technological upgrading, as argued by Akyüz (2020). The result aligns with previous studies focused on the manufacturing sector (e.g., Botta et al., 2023; Palma, 2005). This study extends that literature by confirming that a similar effect holds for economic complexity in the context of financialisation. Additionally, the findings may be linked to Bresser-Pereira's (2008) observation that both Latin America and the MENA region made limited progress in managing the consequences of Dutch disease for their productive structures.

4.2 Granular effect of private credit on ECI

Having examined the regional heterogeneity in the effects of financialisation, we then turn to a more granular analysis of credit composition. Specifically, we explore how different types of credit (household and NFCs credit) affect economic complexity in both developed economies and EMEs. However, due to data limitations, the analysis cannot be disaggregated by region. The availability of disaggregated credit data from the Bank for International Settlements (BIS) is significantly more restricted for developing countries, with observations for EMEs only available from the 1990s onwards. We therefore present the results for developed (column 2) and EMEs (column 3) as two broad groups, acknowledging that this

aggregation masks the regional diversity highlighted in the previous section but allows us to isolate the distinct roles of household and corporate credit in ECI. The countries with available data on credit composition are listed in Table A7 of the Appendix. The same set of control variables are used as in the previous specifications.

Table 6: Panel fixed effects regressions. Dependent variable: ECI.

	(1)	(2)	(3)
	All countries	Developed countries	EME countries
NFCdebt	-0.015 (0.019)	0.004 (0.017)	-0.037* (0.020)
housedebt	-0.052 (0.045)	-0.068* (0.038)	0.083 (0.050)
stockmarkcap	-0.003 (0.002)	-0.004 (0.003)	0.003 (0.007)
liquidliab	0.010 (0.007)	0.016** (0.007)	-0.071* (0.039)
tot_nonFDI	0.001*** (0.000)	0.001*** (0.000)	0.020 (0.017)
gpd	0.901*** (0.254)	1.073*** (0.270)	1.645* (0.775)
gdpsq	-0.008*** (0.002)	-0.009*** (0.002)	-0.046 (0.031)
pop	0.012 (0.021)	-0.152 (0.255)	-0.025 (0.070)
popsq	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
tradeopen	0.006 (0.016)	-0.011 (0.015)	0.018 (0.013)
inflation	-0.052***	-0.060	-0.011

	(0.015)	(0.076)	(0.015)
__cons	68.309***	70.252***	61.630***
	(3.148)	(8.504)	(9.520)
Time fixed effects	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes
N	1057	805	252
R2	0.415	0.510	0.696

Source: Authors' estimations. Robust standard errors in parenthesis. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.
R2 is the coefficient of determination. N is the number of observations.

The results presented in Table 6 show that household credit exerts a negative and statistically significant effect on economic complexity in developed countries, albeit at moderate significance levels. This finding is in line with previous studies mentioned in Section 2 regarding the negative effects of household credit on economic growth. Additionally, financial globalisation and liquid liabilities remain positive and significant for these countries.

In the case of EMEs, the results should be interpreted with caution. The negative and modest association between NFC credit and economic complexity may reflect that those firms that are more likely to access credit, are often concentrated in less technologically advanced activities, such as commodities. In such contexts, credit may be used to sustain existing operations rather than to upgrade productive processes. Nevertheless, further analysis is needed to fully understand the underlying mechanisms at play.

5. Conclusions

This paper explores the effects of financialisation on productive development, with a particular focus on EMEs. Empirically, we analyse a panel dataset covering 78 countries from 1975 to 2019. The results document a perverse effect of financial globalisation on economic complexity, particularly pronounced in Latin America, the MENA region, and to a lesser extent in South Asia. This finding is consistent with previous studies. Greater financial integration amplifies uncertainty, deteriorates the investment environment, and distorts key macroeconomic variables, while constraining governments' capacity to implement policies aimed at productive diversification. Notably, capital inflows can trigger Dutch disease effects that undermine high-value-added industries, a challenge that, as Bresser-Pereira's (2008) notes, both Latin America and the MENA region have struggled to manage. Moreover, as Cimoli et al. (2020) warn, the effects on productive development may be irreversible even under modest capital movements, underscoring the constraints associated with international financial integration.

In addition, stock market capitalization in Latin America appears to constrain productive development further, likely through the logic of shareholder value orientation, which leads firms to prioritise short-term financial gains over long-term productive expansion.

Perhaps the most telling result is the contrasting role of financialisation in developed economies. While developed countries appear capable of harnessing at least part of financialisation to sustain economic complexity—with significant and positive effects of liquid liabilities and financial globalisation on the ECI—private credit, and particularly household credit, exerts a detrimental effect. Özçelik et al. (2024), find that private credit drives deindustrialisation in advanced economies; this paper confirms a similar result for economic complexity.

These asymmetrical effects reinforce the centre–periphery perspective underpinning this paper: financialisation reproduces structural inequalities in the global economy, with particularly pronounced constraints for Latin America and the MENA region. In East Asia and the Pacific, by contrast, relatively high levels of financialisation have not translated into comparable negative effects on productive development, suggesting that institutional and policy contexts play a decisive mediating role.

Historical evidence from prosperous countries further underscores the importance of active policies in supporting technological activities (Chang, 1993; Wade, 1990). These policies encompass not only measures to support high-value-added activities but also capital controls, close monitoring of the financial sector, and the strategic allocation of credit toward key industries (Amsden, 2001; Chang, 1993; Chang, 2002; Wade, 1990). Today, countries aiming to implement developmental agendas must be more cautious and

determined than in the past, as financialisation has reshaped the role of finance and its connection to the real economy. As Erten and Ocampo (2017) demonstrate, capital flow management policies are effective tools for mitigating macroeconomic instability. Similar actions are needed in relation to other dimensions of financialisation. Developing new strategies that orient the financial sector to make a positive contribution to economic development is essential in a finance-led accumulation era.

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6. Appendix

Table A1. Summary of key empirical papers.

Paper	Financial variable		Productive structure main variable
	Domestic	International	
Beningno et al. 2015		Episodes of large capital inflows; Financial openness (Chinn-Ito indicator)	Manufacturing value added/GDP; Share of manufacturing in employment; Manufacture investment/total investment
Teimouri and Zietz, 2018		Net private capital inflows/GDP	Manufacturing value added/GDP; Share of manufacturing in employment
Lan Khanh Chu, 2020	Domestic credit to private sector; stock market turnover; stock market value traded		ECI
Nguyen et al., 2020	Financial development Index-IMF		ECI
Tregenna et al., 2021		Financial account openness (Chinn and Ito indicator)	Manufacturing value-added share/ GDP
Botta et al., 2023		Episodes of large capital inflows (using net non-FDI)	Manufacturing value added/GDP; Share of manufacturing in employment
Nguyen et al. 2023		net FDI/GDP	ECI
Özçelik and Özmen, 2023		External assets and liabilities/GDP	Manufacturing value added/GDP
Özçelik et al. 2024	Private credit/GDP	External assets and liabilities/GDP, and Chinn and Ito indicator	Manufacturing value-added share/ GDP

Ndoya et al., 2024	Financial development Index-IMF	ECI
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Table A2. Countries of the sample and regional division.

Developed countries			
Australia	France	Japan	Singapore
Austria	Germany	Korea, Rep.	Slovak Republic
Belgium	Greece	Luxembourg	Slovenia
Canada	Hong Kong	Malta	Spain
Croatia	Hungary	Netherlands	Sweden
Czech Rep.	Ireland	New Zealand	Switzerland
Denmark	Israel	Norway	UK
Finland	Italy	Portugal	US
EMEs: Latin America and the Caribbean			
Brazil	Ecuador		
Chile	Mexico		
Colombia	Panama		
Costa Rica	Peru		
EMEs: East Asia and Pacific			
China	Thailand		
Indonesia	Viet Nam		
Malaysia			
Philippines			
EMEs: Europe and Central Asia			
Bulgaria	Russia		
Kazakhstan	Serbia		
Poland	Türkiye		
Romania	Ukraine		
EMEs: Middle East and North Africa			
Algeria	Jordan	Oman	UAE
Bahrain	Kuwait	Qatar	West Bank and Gaza
Egypt	Lebanon	Saudi Arabia	
Iran	Morocco	Tunisia	
EMEs: South Asia			
Bangladesh			
India			
Pakistan			
Sri Lanka			
EMEs: Sub-Saharan Africa			

Cote d'Ivoire	Namibia
Ghana	South Africa
Kenya	
Mauritius	

Table A3. Variable description.

Variable name	Definition	Source	Update
eci	Economic Complexity Index	Atlas of Economic Complexity-Harvard	Feb-2026
privatcred	Private credit by deposit money banks to GDP (%)	GFDD	Sep-2022
stockmarket	Stock market capitalization to GDP (%)	GFDD	Sep-2022
liquidliab	Liquid liabilities to GDP (%)	GFDD	Sep-2022
tot-non FDI	Total external assets and liabilities excluding FDI to GDP (%)	Lane and Milesi-Ferretti database	Jan-2025
gdp	GDP per capita (constant 2015 US\$), in thousands	WDI	Feb-2026
pop	Total population, in millions	WDI	Feb-2026
exports	Exports of goods and services (% of GDP)	WDI	Feb-2026
imports	Imports of goods and services (% of GDP)	WDI	Feb-2026
inflation	Consumer prices (annual %)	WDI	Feb-2026
NFCdebt	NFCs debt over GDP (%)	BIS	Dec-2025
housedebt	Household debt over GDP (%)	BIS	Dec-2025

Table A4. Correlation matrix-all variables

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) eci	1								
(2) privatecred	0.53***	1							
(3) stockmarkcap	0.16***	0.47***	1						
(4) liquidliab	0.32***	0.52***	0.40***	1					
(5) tot_nonFDI	0.12***	0.16***	0.16***	0.77***	1				
(6) GDP	0.47***	0.48***	0.27***	0.45***	0.44***	1			

(7) POP	0.02	0.05**	-0.01	0.04**	-0.07***	-0.17***	1		
(8) tradeopen	0.23***	0.35***	0.51***	0.50***	0.45***	0.32***	-0.23***	1	
(9) inflation	-0.03	-0.06***	-0.14***	-0.04**	-0.02	-0.07***	-0.00	-0.06***	1

Table A5. Variance inflation factor test.

Variable	VIF	1/VIF
liquidliab	5.93	0.00
tot_nonFDI	5.33	0.19
privatecred	0	0.43
tradeopen	1.87	0.53
GDP	1.84	0.54
stockmarkcap	1.84	0.54
POP	1.15	0.87
inflation	1.14	0.88
Mean VIF	2.68	

Table A6. Fisher-type unit-root tests.

	ECI			
	levels		first difference	
	Statistic	p-value	Statistic	p-value
Inverse chi-squared P	467.28	0	1472.79	0
Inverse normal Z	-12.86	0	-32.79	0
Inverse logit t L*	-13.65	0	-46.02	0
Mod. inv. chi-squared Pm	17.62	0	74.55	0
	privatecred			
	levels		first difference	
	Statistic	p-value	Statistic	p-value
Inverse chi-squared P	451.31	0	933.65	0
Inverse normal Z	-12.69	0	-23.85	0
Inverse logit t L*	-13.09	0	-29.10	0
Mod. inv. chi-squared Pm	16.72	0	44.03	0
	stockmarkcap			
	levels		first difference	
	Statistic	p-value	Statistic	p-value
Inverse chi-squared P	446.65	0	890.94	0
Inverse normal Z	-13.24	0	-23.06	0

Inverse logit t L*	-13.61	0	-28.46	0	
Mod. inv. chi-squared Pm	17.13	0	43.18	0	
	liquidliab				
	levels		first difference		
	Statistic	p-value	Statistic	p-value	
	Inverse chi-squared P	455.58	0	1069.79	0
	Inverse normal Z	-13.07	0	-26.53	0
	Inverse logit t L*	-13.40	0	-33.39	0
	Mod. inv. chi-squared Pm	16.96	0	51.73	0
	tot_nonFDI				
	levels		first difference		
	Statistic	p-value	Statistic	p-value	
	Inverse chi-squared P	251.57	0	1076.55	0
	Inverse normal Z	-6.12	0	-26.99	0
	Inverse logit t L*	-5.95	0	-33.63	0
	Mod. inv. chi-squared Pm	5.41	0	52.12	0
	gdp				
	levels		first difference		
	Statistic	p-value	Statistic	p-value	
	Inverse chi-squared P	332.52	0	953.82	0
	Inverse normal Z	-7.29	0	-24.80	0
	Inverse logit t L*	-7.78	0	-29.78	0
Mod. inv. chi-squared Pm	9.99	0	45.17	0	
	pop				
	levels		first difference		
	Statistic	p-value	Statistic	p-value	
	Inverse chi-squared P	641.07	0	308.99	0
	Inverse normal Z	-15.95	0	-7.14	0
	Inverse logit t L*	-18.43	0	-7.42	0
Mod. inv. chi-squared Pm	27.46	0	8.66	0	
	tradeopen				
	levels		first difference		
	Statistic	p-value	Statistic	p-value	
	Inverse chi-squared P	418.36	0	1241.85	0
	Inverse normal Z	-11.59	0	-29.39	0
	Inverse logit t L*	-11.96	0	-38.80	0
Mod. inv. chi-squared Pm	14.85	0	61.47	0	
	inflation				
	levels		first difference		
	Statistic	p-value	Statistic	p-value	
	Inverse chi-squared P	640.94	0	1299.68	0
	Inverse normal Z	-17.37	0	-30.21	0
Inverse logit t L*	-19.80	0	-40.60	0	

Mod. inv. chi-squared Pm	27.45	0	64.75	0
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Table A7. Countries with information about credit types.

Developed countries	
Australia	Italy
Austria	Japan
Belgium	Korea, Rep.
Canada	Luxembourg
Czechia	Netherlands
Denmark	New Zealand
Finland	Norway
France	Portugal
Germany	Singapore
Greece	Spain
Hong Kong	Sweden
Hungary	Switzerland
Ireland	United Kingdom
Israel	United States
EMEs	
Brazil	Mexico
Chile	Poland
China	Russia
Colombia	Saudi Arabia
India	South Africa
Indonesia	Thailand
Malaysia	Türkiye

Footnotes

1 The study focuses on manufacturing shares but uses the Economic Complexity Index as a robustness exercise.

2 Exchange rate appreciation may encourage investment by lowering the price of capital goods needed to upgrade productive structures (Botta et al. 2023) but its damaging effects have generally prevailed.

3 Their analysis includes FDI when examining financial globalisation, whereas we exclude FDI in order to capture the more volatile components of financial inflows and outflows.

4 See Davis (2017) for a survey on the links of financialisation with productive investment.

5 Authors argue that as economies develop, labour and value added shift from agriculture to manufacturing and then to services, with manufacturing following an inverted U-shaped pattern (Palma, 2005; Rowthorn and Ramaswamy, 1997).

6 International Monetary Fund, 2023.

7 To ensure consistency and facilitate interpretation, the ECI is re-scaled to values between 0 and 100 for the regressions, following Botta et al. (2023). In this rescaling, 0 indicates the lowest level of complexity in the sample for a given year, and 100 the highest.

8 We estimated four separate models, each with a single financial indicator, to test whether individual dimensions behave differently when isolated from the broader domestic–international interplay of financialisation. As expected, the coefficients diverge from those in our full model, confirming the value of our multidimensional framework. Using isolated proxies removes the interdependencies that shape productive development. Results are available upon request.