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Does greater financial openness promote external competitiveness in emerging markets? The role of institutional quality

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Abstract

Studies have shown that external capital account liberalisation can boost capital inflows and augment economic development. Nevertheless, in the case of developing and emerging economies (DEE), adverse currency fluctuations could hamper external competitiveness due to relative price differences creating currency overvaluation, which might not be mitigated via financial openness alone. Therefore, this paper uses annual panel data for 35 DEEs over 40 years to explore whether financial openness of countries can help preserve their external price competitiveness, in the presence of greater trade openness and better institutional quality. Our findings suggest that financial openness alone does not aid export competitiveness, unless it is supported by greater trade openness. In addition, both cross country and regional analyses show that financial openness can benefit economies in maintaining their export competitiveness if they have stronger quality of institutions. Our results remain robust when we estimate the role of financial openness and institutional quality jointly on external competitiveness across regions, and during the pre- and post-crisis periods. We conclude that financial openness alone is not sufficient to improve external competitiveness of an emerging economy, but it does help in the presence of greater trade openness or better institutions, enabling reduction in trade costs and thereby making these countries more price-competitive.

KEYWORDS

capital inflows, financial openness, quality of institutions, real effective exchange rates

1 | INTRODUCTION

Several studies emphasise the importance of external financial openness for the development of overall financial activity, including the banking sector, in developing and emerging economies (DEE) (Baltagi et al., 2009; Beck et al., 1999; Bekaert et al., 2005; Bussière & Fratzscher, 2008; Demetriades & Rousseau, 2010; Ito, 2006; Magud et al., 2011; Rajan & Zingales, 2003). However, limited attention has been given on the role of external financial

liberalisation in bringing about improvements in overall external competitiveness of DEEs. Some earlier studies like Santos-Paulino (2005) argue that trade liberalisation drives a general increase in welfare by promoting economic diversification. We investigate the channels and linkages through which greater external financial openness can boost competitiveness in relative terms—that is, compared to economies that are less financially open. Putting the question the other way around, does the existence of capital controls impair price competitiveness of DEEs? This question deserves attention since many DEEs continue to maintain closed capital accounts that can harm price competitiveness of a country, and the issue is far from settled. As in Quinn and Toyoda (2008), capital account openness does not always boost export competitiveness, and free capital movement is no guarantee for better utilisation of investment flows.

Trade liberalisation over the recent decades has contributed to greater trade and financial flows as highlighted by Atolia et al. (2020) from the experience of the 'Asian Tigers', leveraging openness to accelerate industrialisation and structural transformation and economic growth. An important part of that leverage stemmed from exchange rate regimes, as also discussed by Guzman et al. (2018). The maintenance of competitive exchange rates in the initial phase of this expansion was followed by more stable exchange rates and greater levels of industrialisation. Guzman et al. (2018) argue that exchange rate policies facilitate (or hinder) economic growth, including through promoting diversification and managing fluctuations in the terms of trade, especially in commodity-exporting countries.

The importance of exchange rate regimes—and wider monetary policy frameworks—has several related aspects. The choice of currency regime has been shown to be a major factor in predicting the probability of a currency crisis (Holtemöller & Mallick, 2013), with managed floats being significantly less prone to crises (Ghosh et al., 2014). Aman et al. (2022) find that currency misalignment in fixed regimes declines in the presence of stronger institutions or in countries with inflation-targeting type monetary policy frameworks. An important aspect of exchange rate management for the purpose of the analysis in this paper is that an 'undervalued' real effective exchange rate (REER) means more competitive relative prices for boosting trade. REER differences may result in countries having different levels of external competitiveness despite a similar level of development. However, trade openness alone is not enough to promote external competitiveness (Aman et al., 2022), as real depreciation may not always give economic competitiveness (see Nasir & Jackson, 2019), since the equilibrium exchange rate may shift with the changes in the structure of the economy. An alternative would be to consider using terms of trade to reveal comparative advantage which would require using disaggregated data at product level.

Our main focus here is the effect of better quality of institutions along with the degree of openness policies capturing economic transformation, on external price competitiveness of these DEEs, which we examine using a macro aggregate measure of relative price competitiveness between countries rather than a micro-level competitiveness measure as in Mallick and Marques (2016). Nevertheless, we use terms of trade as a control variable in all our regressions. Therefore, our approach captures the net effect of financial openness on price competitiveness using REER, rather than merely considering the relative prices through terms of trade alone. This means the effect is net of any terms of trade differences between countries. On the other hand, Bonizzi (2013) points out that domestic financial liberalisation reforms in developing countries frequently result in short-term booms, as higher interest rates boost returns on domestic assets. At the same time, the associated capital inflows give rise to real exchange rate appreciation, causing a gradual deterioration in the country's current account and external financial position. Palma (1998) highlights the importance of government regulation of the financial system for currency stability. Isaacs and Kaltenbrunner (2018), Kaltenbrunner and Painceira (2015) and Kaltenbrunner (2015, 2018) all find that the changing nature of DEEs' financial integration has created new forms of external vulnerability, causing large and volatile capital and exchange rate movements. This literature drives home the conclusion that DEEs may experience damaging volatility of capital flows if capital account liberalisation is not preceded by the construction of a well-functioning financing system. This task comprises economic, social and above all institutional challenges that are explored in another strand of literature examining the impact of institutional quality and legal enforcement on countries' financial position (Aizenman et al., 2015, 2018; Challe et al., 2019; Ehigiamusoe & Samsurijan, 2021; Nemlioglu & Mallick, 2020).

The importance of institutions for economic development has been well demonstrated in a variety of respects; but there has been no thorough investigation of the specific impact of institutional development on export competitiveness—a gap which this paper aims to fill. The most recent literature also argues that structural changes such as institutional arrangements play a crucial role in attracting capital inflows in the form of FDI and aid flows (see, e.g., Bournakis et al., 2018; Mallick & Moore, 2008). Those foreign inflows in the presence of better

institutional quality contribute to greater capital accumulation (see Nemlioglu & Mallick, 2020), which in turn could help maintain external competitiveness of countries via stabilising their REER. Therefore, this paper investigates to what extent the institutions within an economy can help realise the potential of greater financial openness in boosting a country's external competitiveness. We show that countries become externally more competitive in line with better institutional quality, and a greater degree of liberalised trade and financial policies. Although external financial openness may not be a sufficient condition for improving external competitiveness, it can boost competitiveness to a greater extent in countries with higher quality of institutions.

Using a data set of 35 emerging countries covering five different regions, this paper focuses on how external financial openness can drive price competitiveness in the presence of greater trade liberalisation and better institutional quality. It presents evidence that financial liberalisation is not the only channel to being competitive in the world market. At the aggregate level, financial openness together with trade openness can make a difference (Okada, 2013); and at the regional level, we observe varying results across regions depending on a country's quality of institutions. We further explore which types of capital inflows are important in determining external competitiveness of a country, considering the role of institutions. This analysis is framed around five different types of capital inflows: FDI, portfolio investment, debt, remittances, and overseas development assistance (ODA). We use a dynamic system GMM approach for the purpose of examining the impact of this financial openness-institutional quality relationship on external competitiveness across regions in the pre- and post-global financial crisis (GFC) periods. This approach makes our results robust to any potential endogeneity issues.

To sum up our main contribution, the purpose of this paper is to undertake an empirical analysis of the relationship between financial openness and external competitiveness of emerging markets, along with considering the composition of external capital flows (both short-term and long-term flows). Theoretically, financial openness can either boost capital accumulation or promote productivity growth, which has been hotly debated in the literature over the recent decades, but there is little consensus on an unconditional answer on its growth effect; thus we offer a conditional effect of financial openness on external competitiveness, dependent on various characteristics of the economy, including its degree of institutional development, the degree of trade openness and the level of macroeconomic stability. These conditioning factors across countries are critical to assess the relative price differences that we evaluate in this paper. The remaining sections of the paper are structured as follows. Section 2 reviews the literature. Section 3 discusses the data and methodology. In Section 4, we report our main empirical results. Section 5 offers concluding remarks.

2 | LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

The capital account of a country's balance of payments covers a variety of financial flows comprising equity and debt. Most equity-related inflows take the form of foreign direct investment (FDI) or portfolio flows, while borrowing is channelled through banks or capital markets. The common feature of these flows is the acquisition of assets in one country by residents of another (Kose et al., 2009). The literature has developed in several ways in assessing capital account regulation enforcement, quantifying the degree of financial openness and the extent to which a particular capital market is integrated into the global one. Yet the extent of capital account openness and their impact can be difficult to evaluate and measure (see Edwards, 2001; Eichengreen, 2001).

2.1 | Measuring financial openness

Various measures of financial openness (or capital controls) have been developed, broadly classified as de jure and de facto indicators. The de jure measure of financial openness refers to the removal of restrictions for capital account transactions between countries. This approach has the advantage of providing visibility of where countries stand on removing barriers to capital account transactions (Quinn et al., 2011), but the resulting picture can be blurred in cases where individual barriers are removed gradually over time with delayed or intermittent implementation (Baltagi et al., 2008; Schmukler & Kaminsky, 2003). The main source is the IMF's annual report on Exchange Arrangements and Exchange Restrictions (AREAER) which provides detailed information on capital account regulations for a wide range of countries. Until 1996, the IMF reported only a single binary variable to express the existence or absence of restrictions. The AREAER has since included 13 multiple sets of binary variables comprising most characteristics of the capital account.

These data have been widely used in various models to quantify the level of capital account openness. The main de jure indices are the KAOPEN index developed by Chinn and Ito (Chinn & Ito, 2002, 2006) and the financial openness index (FOI) developed by Johnston and Tamirisa (1998). These indices are obtained by

calculating an average of the variables presented in the IMF report (Johnston & Tamirisa, 1998). A dummy variable indicator was developed utilising information from this report to identify the favourable and unfavourable mechanisms generated by the restrictions imposed over the capital account (Grilli & Milesi-Ferretti, 1995). Another indicator used to quantify the degree of capital account liberalisation is based on the data provided by the IMF as well as the information included in the annual reports published by 15 developing or transition countries. The indicator values can be 0, 1, or 2, with 2 being used for countries that impose the most severe restrictions over the capital account (Montiel & Reinhart, 1999). Recently, another index was developed regarding the mobility of capital flows for 59 countries (Quinn, 1997; Quinn & Toyoda, 2008).

These AREAER-based methodologies have been criticised on various counts. First, they merely identify the existence of capital controls without taking account of the intensity of such controls. Second, these methods of quantifying financial openness are considered too aggregated to represent the complexity of actual capital controls (see Quinn et al., 2011 for a comprehensive review of de jure measures). Capital controls could be difficult to capture, as they depend upon the direction of capital outflows and inflows (Johnston & Tamirisa, 1998). Third, it is considered impossible to distinguish between de jure and de facto controls on capital transactions (Chinn & Ito, 2006). To monitor the volume or type of capital flows, capital control policies are often implemented without distinct policy objectives. Furthermore, most such de jure assessments of capital controls take little or no account of the success of the private sector in evading such capital account restrictions and thereby reducing or nullifying the expected effect of regulatory capital controls (Edwards, 1999).

As an alternative, the literature uses a de facto measure of openness. The logic behind this is that in countries pursuing financial openness, de jure policy announcements may not necessarily lead to a higher volume of inflows until they are implemented in practice. For de facto measurement, two new indicators are proposed to quantify the level of capital account opening and remaining controls—namely, the capital control effectiveness (CCE) index and the weighted capital controls effectiveness index (Reinhart & Magud, 2006). Therefore, researchers often view the degree of financial integration among countries with reference to de facto restrictions on capital transactions (Rajan & Zingales, 2003). For this purpose, new indicators were devised, especially after 2000, to characterise financial openness as precisely as possible in terms of the mechanisms involved in capital account liberalisation and the integration of financial markets (Magud et al., 2011; Mody & Murshid, 2005).

Moreover, the linkage between de jure openness and external competitiveness and the relationship between de facto financial openness and external competitiveness can raise questions from both policy and quantification perspectives. This study measures de jure openness by using the KAOPEN Chinn-Ito Index (See Chinn & Ito, 2002, 2006, 2008) to capture the legal restrictions dimension and combines that with a measure of de facto openness based on observations of actual inflows as a robustness check.

2.2 | Pros and cons of financial openness

Several studies suggest that capital account liberalisation can affect economic performance through financial development by enabling more efficient capital allocation and better diversification of financial risks, but there is limited evidence of a straightforward relationship whereby capital account liberalisation has a significant influence on economic growth via promoting financial development (Edwards, 2001; Eichengreen, 2001; Hussain, 2020, Quinn, 1997). At least, and as stressed by Klein and Olivei (1999), any such link is only demonstrable in developed countries—in contrast to developing countries where, as they argue, the beneficial effects of capital account liberalisation in promoting financial depth are achieved only in an environment in which there is a constellation of other institutions that can usefully support the changes brought about by the free flow of capital. Using 60 countries to quantify the degree of capital account liberalisation, the index proposed by Quinn (1997) shows that capital account liberalisation impacts economic growth depending on the level of economic development. In other words, the economically developed countries and some affluent emerging markets benefit from the amplification of capital mobility, while for countries with lower levels of GDP per capita, capital account liberalisation may not have favourable impacts (Edwards, 2001).

However, the benefit or cost of financial openness for FDI, portfolio, and debt flows (as discussed by Baltagi et al., 2008; Rajan & Zingales, 2003) does not divide simply between, respectively, high-income and middle-income countries on the one hand, and poorer developing countries on the other. Rather, and as shown by Areta et al. (2001), the benefits of capital account liberalisation across countries depend more on the extent of countries' macroeconomic stability than on their absolute levels of wealth. Bekaert et al. (2005) measure financial development by using equity market turnover, and private credit and financial openness by stock market liberalisation; and they find that financial liberalisation leads to a 1% increase in annual per capita GDP growth over 5 years. There are also other recent studies that focused on the economic impact of financial development (Nasir et al., 2015; Shahbaz et al., 2022) and both financial development and trade openness (Redmond & Nasir, 2020).

However, our paper mainly aims to explore the impact of external openness on price competitiveness across countries rather than domestic financial development, which would be more relevant to the question of domestic relative prices in terms of country-specific real interest rates. We therefore investigate the role of external financial openness in price competitiveness across countries boosting external demand and growth.

The case for capital account liberalisation has been called into question in the light of harmful effects of capital controls on macroeconomic variables. Such perspectives have given rise to a an alternative, and more sceptical, view regarding the effect of openness in enhancing the allocative efficiency of capital investments and expanding international trade together with the stock of productive assets. Such effects of capital account liberalisation on the allocation of resources were shown empirically by Rodrik (1998), who found no correlation between the openness of capital accounts and investment, economic growth, or any other variable. Conversely, as argued by Rodrik, such liberalisation has important costs, readily apparent in the form of persistent crises in emerging markets. In a similar vein, Levine and Zervos (1998), using data for 47 developed and developing countries over the period 1976–1993, find that capital account liberalisation has no effect on investment.

This tapestry of contending conclusions leads us to investigate whether capital account liberalisation is sufficient for emerging economies to gain price competitiveness as an intermediate channel at the aggregate and regional levels for better growth outcomes as argued in the literature. Furthermore, we hypothesise whether trade openness is also necessary in addition to financial openness, at the regional and aggregate levels, for better relative price competitiveness. By investigating the existing evidence in the literature, it is possible to conclude that neither financial openness nor trade openness alone is sufficient to promote emerging market countries' external competitiveness. Therefore, we investigate their complementarity, in a sense that whether they jointly help improving the external price competitiveness as our first hypothesis. We formulate the following hypothesis to be tested:

> **Hypothesis 1.** *Financial openness and trade openness alone are insufficient to promote external competitiveness of emerging market economies; however, they jointly tend to improve competitiveness.*

2.3 | Role of institutional quality

Regulatory mechanisms are sets of rules that can be key determinants of economic development (see Challe et al., 2019). For example, it has been shown that better institutional quality reduces the likelihood of default through greater ability to repay debts (Chen & Chen, 2018). Specifically, in open economies, having appropriate economic institutions is often seen as a precondition for capital inflows to lead to balanced economic activity and stable long-run growth. For example, the well-established institutional mechanisms that determine the ease of doing business have been found to create greater knowledge spillovers and thus greater productivity and higher growth (Bournakis et al., 2018; Gillanders & Whelan, 2014). These authors find that countries with better institutional quality and fewer barriers to doing business derive greater country-level productivity benefits from increased capital inflows. Bolen and Williamson (2019) strengthen the case that growth is affected by institutional quality. They find that the benefits for growth from volatile gains and setbacks in the quality of institutions are inferior to situations of more modest but stable institutional improvements. It follows that countries with similar average institutional quality, which is likely in groups of emerging economies, could have different levels of development owing to volatility in their institutional quality. Moreover, volatile institutional quality also reduces the growth rate of private investment. Putting another way, high levels of capital inflows in the form of investments result in low capital accumulation if the country has poor institutional quality (Dort et al., 2014). This is because of over-investment, and unproductive spending.

Conversely, Öhler and Nunnenkamp (2014) find countries with stronger political connections and better governance system are likely to receive a higher share of World Bank funds. A similar capital allocation bias is also found at the firm level, as shown by the cross-country firm-level empirical evidence of Lashitew (2014). Other relevant aspects of institutional quality are well-developed financial markets, which can allocate capital towards more productive firms boosting overall productivity, and the development of democracy. Tang and Tang (2018) found that countries with greater democracy have higher levels of innovation, both technological and institutional. Aizenman et al. (2018) suggest that countries with less political polarisation, and hence likely less policy uncertainty, stand to benefit from reduced volatility of growth around periodic shocks, and hence they could be more price competitive.

While the literature brings out how the quality of institutions plays a major role in countries' overall economic development, the role of institutional factors has been given less attention so far in determining specifically export competitiveness. Analysing that role stems from the premise that institutions—defined as the activities of the state related to policymaking and governance—determine the rule of trade. High-quality governance is therefore a fundamental pre-condition for receiving the full competitiveness

benefit from trade openness. It has been observed, for example, that bad public policy and ineffective legal systems can reduce the volume of trade (Anderson & Marcouiller, 2002), and that there is a positive relationship between trade openness and the rule of law (Dollar & Kraay, 2003). Contributing to trade openness, good governance also constitutes a crucial complement to financial openness by improving the prospects of the associated capital inflows being translated into productive investment. The literature thus points to the possibility that the higher quality of institutions will induce better export competitiveness through lowering REER and making countries more price competitive in lowering their cost of doing business due to better institutions, and thereby boosting their subsequent benefit in terms of greater trade and investment. This leads us to the second hypothesis considering the role of institutional quality in our openness-competitiveness relationship.

> **Hypothesis 2.** *Countries with better institutional quality tend to benefit more from financial openness in gaining external price competitiveness.*

Our testing of these two hypotheses on the openness-competitiveness relationship will reveal how financial (capital account) openness interacts with trade openness and institutional quality in determining the degree of improvement in emerging economies' external price competitiveness.

3 | DATA AND METHODOLOGY

3.1 | Data

We use data for 35 emerging countries comprised of five different regions: Africa (AF), Middle East North Africa (MENA), Latin America (LA), South East Asia (SEA), and Central & Eastern European Countries (CEEC) over the period 1975–2014, (see Table A1 for a full list of countries). Fixed effect models control for the effects of time-invariant variables with time-invariant effects. This controls for unobserved country-specific time-invariant effects in the data by conditioning them out and taking deviations from time-averaged sample means. The time-fixed effect has been used to control for temporal variations.

The dependent variable is log of REER. Table 1 presents the summary statistics of the primary variables. Our financial openness variable is based upon the capital account openness index, KAOPEN, developed by Chinn and Ito (2002).[1] The Chinn-Ito Index measures the intensity of capital controls which is correlated with the existence of other restrictions on international transactions. This de jure measure of capital account openness quantifies the extent of openness in capital account transactions. This index shows legal restrictions being removed from the current account, although these countries may also have other restrictions, for example, different exchange rate systems or requirements. All these restrictions can also impact export competitiveness.

For the robustness check and de facto openness measures, we examine six different flow variables. Specifically, the financial accounts include FDI, portfolio investment, and other investments, while in the current account data, the relevant items are remittances, aid, and income. Such foreign exchange flows can be very revealing as a de facto measure of openness across different regions.

To capture the quality of institutions, we employ the World Governance Indicators (WGI) (Kaufmann et al., 2010) which covers six dimensions of governance: the quality of the rule of law, governance effectiveness, voice and accountability, control of corruption, political stability, and regulatory quality. The rule of law captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Government effectiveness is defined as 'perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies'. Voice and accountability reflect perceptions of the extent to which a country's citizens can participate in selecting their government, as well as freedom of expression, freedom of association, and free media. The control of corruption captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as 'capture' of the state by elites and private interests. Political stability and absence of violence/terrorism measures perceptions of the likelihood of political instability and politically motivated violence. Regulatory quality reflects perceptions of government ability to formulate and implement sound policies and regulations that permit and promote private sector development. These indicators are based on over 30 individual data sources produced by a variety of survey institutes, think tanks, non-governmental organisations, international organisations, and private sector firms. The values vary between −2.5 and 2.5.

Using principal components analysis (PCA) technique, we combine these six aspects of the governance indicators and generate an institutional quality index. To the best of our knowledge, this paper is the first to analyse these factors in detail for export competitiveness.

TABLE 1 Descriptive statistics

		Mean	*SD*	Min	Max
REER	Real effective exchange rate	113.93	38.84	26.2	595
LnREER	REER in logarithm	4.69	0.28	3.3	6
TO	Trade openness = (imports + exports)/GDP	81.33	75.56	9.1	458
GCE	Government consumption expenditure (as % of GDP)	14.66	6.30	3.0	76
LnGCE	GCE in logarithm	2.61	0.39	1.1	4
GDPPC	GDP per capita	6401.68	6975.86	166.7	36,898
LnGDPPC	GDP per capita in logarithm	8.20	1.14	5.1	11
$(LnGDPPC)^2$	Squared ln GDP per capita	68.53	18.47	26.2	111
FO	Financial openness (by capital account) Chinn-Ito Index	0.11	1.54	−1.9	2
Inflows					
FDI	Foreign direct investments (% of GDP)	2.81	4.66	−16.2	51
Remit	Remittances (% of GDP)	1.90	2.62	0.0	15
DEBT	Total external debt (% of GDP)	16.31	11.42	0.0	67
PORT	Portfolio investments (% of GDP)	0.00	0.02	−0.1	0
ODA	Official development assistance (%of GDP)	0.01	0.03	−0.0	1
Institutions					
Cc	Control of corruption	0.02	0.77	−1.4	2
Ps	Political stability	−0.20	0.84	−2.8	2
Rq	Regulatory quality	0.29	0.73	−2.5	2
Va	Voice and accountability	0.03	0.74	−2.2	2
Rl	Rule of law	0.05	0.75	−1.7	2
Ge	Government effectiveness	0.21	0.71	−1.9	2
$N = 1400$					

Note: This table shows the summary statistics for the financial inflows, macroeconomic variables used in regressions throughout this paper. Macroeconomic data are compiled from the World Development Indicators (WDI). All the inflows have been converted as a percentage of GDP for uniformity of units. The FO (Kaopen) is obtained from the Ito-Chinn Index (2002). The full sample contains 1400 observations over the period 1975–2014.

Demetriades and Rousseau (2010) focus on financial openness, but their primary focus is on strengthening the development of the banking sector through financial openness. Baltagi et al. (2009) and Chinn and Ito (2006) also investigate this issue, but their focus is more on legal restrictions, such as creditor rights and protection as well as transparency.

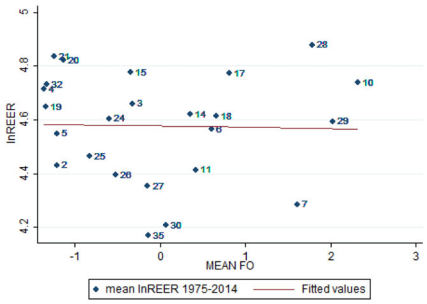
To test for the macroeconomic fundamentals of an economy, the empirical sections evaluate different macroeconomic indicators like private investment, per capita income as a proxy for the stage of development of a country, trade openness, and government consumption expenditure. These variables are used as a percentage of GDP and are consistent with the literature (Cooray et al., 2014; Holtemöller & Mallick, 2013). Transformation to natural logarithm has been used for government consumption expenditure, GDP per capita, and REER (see Table A1 for the detailed list of variables, sources, and their definitions).

Table 1 reports descriptive statistics, while Table 2 portrays the correlation matrix. The empirical models have 1440 observations for 40 years. The dependent variable REER is transformed to a natural logarithmic form. The maximum value of REER was for the Nigerian Naira currency against the US dollar in the year 1984, and the minimum value corresponds to Kuwait's dinar against the US dollar in 1990. The trade liberalisation measure (TO) shows that the minimum level of openness is observed in Turkey in the year 1979, while the maximum level of TO is observed as 458% of GDP for Hong Kong in 2013. Government consumption expenditure (LnGCE) remains at the same minimum level for Argentina in 1993 and maximum for Kuwait in 1991. Singapore has benefited from the highest GDP per capita—US $36,898 in 2013, while the minimum was recorded for China in 1976. The lowest level of FO is observed in Argentina at −1.9 during 1975 and 1976, while Chile reached the highest level of FO from 2005 to 2007.

TABLE 2 Correlation matrix

	LnREER	FO	FDI	ODA	DEBT	PORT	REMIT
LnREER	1.0000						
FO	0.0457	1.0000					
FDI	−0.0522	0.3060	1.0000				
ODA	0.0552	−0.0872	−0.1748	1.0000			
DEBT	−0.2063	−0.2474	−0.2775	0.2402	1.0000		
PORT	0.0295	−0.1039	−0.0243	−0.0795	−0.1676	1.0000	
REMIT	−0.0018	−0.0730	−0.0897	0.4887	0.0347	−0.0531	1.0000

Note: This correlation matrix provides the correlation between the capital inflows, and country-specific financial openness index used in this paper. It reports pairwise correlation coefficients and the indication of their significance in the correlation.



Country id	Country names	Country id	Country names	Country id	Country names	Country id	Country names	Country id	Country names	Country id	Country names	Country id	Country names
1	Argentina	6	Croatia	11	Hungary	16	Kuwait	21	Pakistan	26	Romania	31	Slovenia
2	Brazil	7	Czech.Rep.	12	India	17	Malaysia	22	Panama	27	Russian.Fed.	32	South.Africa
3	Chile	8	Ecuador	13	Indonesia	18	Mexico	23	Peru	28	Saudi.Arabia	33	Thailand
4	China	9	Egypt, A.R.	14	Israel	19	Morocco	24	Philippines	29	Singapore	34	Turkey
5	Colombia	10	Hong.Kong.	15	Korea,.D.R.	20	Nigeria	25	Poland	30	Slovak.Rep.	35	Venezuela,.R

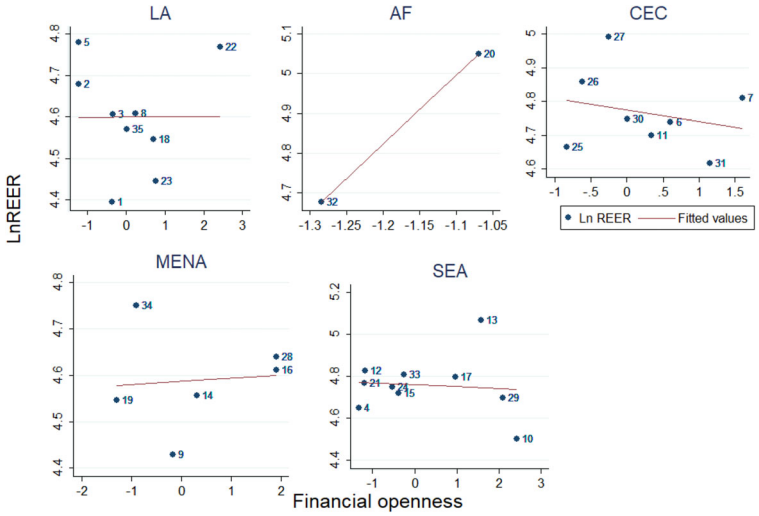
FIGURE 1 Scatter plot of export competitiveness and financial openness at aggregate level. Figure 1 represents the correlation between real effective exchange rate (REER) and financial openness (FO) measure of Ito-Chinn Index (2002) at aggregate level for 35 countries over the period 1974–2014. The data on REER in logarithm (LnREER) and FO is averaged from 1975 to 2014. FO seems to be positively correlated overall, the trend line shows positive relation as FO increases, exchange rate appreciates which implies loss of export competitiveness for countries such as Slovenia, Ecuador Malaysia and so forth. While we see that in some regions this relationship is more evident as compared to other economies [Colour figure can be viewed at wileyonlinelibrary.com]

The capital inflows summary statistics show that the minimum level for FDI was −16.2% of GDP in Hungary in 2010, while Hungary enjoyed a greater level of FDI at 51% of GDP. Brazil has an average level of FDI in our data set at 2.8% in 2011. In the data set, we observe that Chile received the minimum level of remittances at ∼0.0001% of GDP in 2013, while maximum remittances were received by Egypt at ∼14.6% in 1992. Argentina incurred the maximum level of debt of around 67 in 1987, while China had the lowest level of debt close to 0.4 as % of GDP in 2012.

Figure 1—the scatter plot of REER in logarithm (LnREER) and FO—shows that some countries are performing better while others are not gaining similar benefits. The pattern remains the same for Figure 1, if we include all the years until 2019 (see Figure A1). These results lead us to undertake further decomposition of the data at the regional level as shown in Figure 2. Some LA countries such as Panama and Mexico show a negative correlation between LnREER and FO. In the SEA region, many economies like Korea, Singapore, Malaysia, and India have higher FO with better external competitiveness. Meanwhile, in the CEEC region, some countries like the Czech Republic, Slovakia, Hungary, and Slovenia benefit from better competitiveness with higher FO. Therefore, we investigate this further empirically

3.2 | Stationarity and cross-sectional independence tests

The panel unit root test is conducted for all the variables. The results are summarised in Table 3. Column 1 reports the



Country id	Country names	Country id	Country names	Country id	Country names	Country id	Country names	Country id	Country names	Country id	Country names	Country id	Country names
1	Argentina	6	Croatia	11	Hungary	16	Kuwait	21	Pakistan	26	Romania	31	Slovenia
2	Brazil	7	Czech.Rep.	12	India	17	Malaysia	22	Panama	27	Russian.Fed.	32	South.Africa
3	Chile	8	Ecuador	13	Indonesia	18	Mexico	23	Peru	28	Saudi.Arabia	33	Thailand
4	China	9	Egypt, A.R.	14	Israel	19	Morocco	24	Philippines	29	Singapore	34	Turkey
5	Colombia	10	Hong.Kong.	15	Korea,.D.R.	20	Nigeria	25	Poland	30	Slovak.Rep.	35	Venezuela,.R

FIGURE 2 Scatter plot of financial openness (FO) and REER in logarithm (LnREER) across regions. Figure 2 represents the correlation of LnREER and FO measure of Ito-Chinn Index (2002) at aggregate level for 35 countries over the period 1974–2014 at regional level, IMF classifications of region has been used for sample. The data on LnREER and FO is averaged from 1975 to 2014. FO seems to be positively correlated overall; trend line shows positive relation, as FO increases, exchange rate appreciates which implies loss of export competitiveness, while we see that in some regions this relationship is more evident as compared to other economies [Colour figure can be viewed at wileyonlinelibrary.com]

results obtained from the IPS-test, while column 2 reports the outcomes of the Fisher-test. Outcomes from both tests confirm that there is no non-stationary series in the panel. The Im et al. (2003) test for unbalanced panels was performed with two lags that allow for the heterogeneous coefficient of y_{it-1}, and this non-stationarity was later confirmed by the Fisher-test for an unbalanced panel. The Fisher-test uses the Phillips–Perron option, which allows Newey–West *SE*s to account for serial correlation, to confirm stationarity. Hence, the series provided in the table have no panel unit root. As such, the null hypothesis for these tests states that all the panels contain a unit root. These results for remittances and portfolio flows have not been estimated, due to insufficient time dimension to compute W-t-bar.

Table 3 displays the results of the Fisher unit-root test and the IPS-test for LnREER, GDP per capita in logarithm (LnGDPPC), LnGCE, and capital inflows for 1975–2014. The rejection of the null hypothesis, performed at the 1%, 5%, and 10% significance levels, indicates that all variables are stationary.

Table 4 presents the results for cross-sectional independence, serial correlation, and heteroskedasticity. Friedman's test for cross-sectional dependence is followed by Frees' test of cross-sectional dependence. Table 4 reports that the CD test firmly accepts the null hypothesis results, there is no cross-sectional dependence as each cross-sectional unit is cross-sectionally independent. The null hypothesis is 'units are cross-sectionally independent'. As expected, the significant outcomes of the CID tests in Table 4 show that both Frees' and Friedman's tests do not reject the null of cross-sectional independence. Frees' test of cross-sectional independence also suggests that cross-sections are independent of each other by critical values of Frees Q distribution. Since $T \leq 30$, Frees' test provides the critical values for $\alpha = 0.10$, $\alpha = 0.05$, and $\alpha = 0.01$ from the Q distribution. Frees' statistic is larger than the critical value with at least $\alpha = 0.01$ (Newton et al., 2010). The results from test vales are within critical range of alpha's, that is, α at $0.10 = 0.02136$, for α at $0.05 = 0.02838$ and for α at $0.01 = 0.04252$.

4 | EMPIRICAL RESULTS

4.1 | FO and export competitiveness

Greater financial openness can contribute to a better level of competitiveness; however as different markets are projected to have different levels of financial openness (i.e., some countries have more financial controls, and some have fewer capital controls), its role on export competitiveness needs investigation. In the following analysis, we will examine how financial openness can improve export competitiveness and what are the channels through which it can create a positive impact.

To investigate the impact of financial openness on REER, a fixed effect regression model is introduced. In

TABLE 3 Unit-root test results

Level variables	$\bar{t}_{IPS}$	Fisher
LnREER	(−1.3495)	93.0148
	(0.0866)**	(0.0237)***
OPEN	−1.7393	118.5902
	(0.0410)**	(0.0000)***
LnToT	−8.2489	197.4752
	(0.0000)***	(0.0000)***
LnGCE	−4.0366	104.0074
	(0.0000)***	(0.0020)***
FDI_GDP	−5.9386	220.7289
	(0.000)***	(0.000)***
REMIT	-	76.4641
		(0.102)*
DEBT	−2.4183	77.2511
	(0.0078)***	(0.0014)***
PORT_GDP	-	594.4693
		(0.000)***
ODA_GDP	−10.0736	282.181
	(0.000)***	(0.000)***

Note: The numbers in the parenthesis indicate the *p* values. The Akaike information criterion (AIC) has been used to determine the optimum lag length for these tests. The *IPs unit-root test* has null hypothesis that all panels have unit root (H_0: $\rho_i = 0$ for all i). The alternative hypothesis is that the fraction of stationary panels is nonzero. *Fisher-type unit-root test*, based on augmented Dickey–Fuller tests with the Phillips–Perron tests, does not require strongly balanced data, and the individual series can have gaps. For Fisher, Inverse chi-squared has been reported. H0: All panels contain unit roots, while H1: At least one panel is stationary. Therefore, both tests confirm that all variables above are stationary. Test results were not calculated for one of the variables due to an insufficient number of periods to compute W-t-bar.

***Significant at 1% level.

**Significant at 5% level.

*Significant at 10% level.

Table 4, column 1 shows that the level of development profoundly increases export competitiveness. In contrast, in column 2, countries with higher government consumption expenditure certainly experience lower export competitiveness (see Table A1 for the expected signs and definitions of variables). In column 4, we have introduced Chinn-Ito Index (2002) of financial openness to explore the impact of this factor and find that it reduces export competitiveness (a negative sign would reflect real depreciation, implying greater price competitiveness). The positive and significant sign of financial openness shows a loss of competitiveness. This is an indication that countries that tend to have more capital controls may gain greater competitiveness and countries with less capital control do not benefit from capital account liberalisation. The results from Table 4 suggest that financial openness alone is not sufficient for deriving greater export competitiveness; so there might be gains from pursuing both trade and financial openness together that can help achieve greater price competitiveness, which leads us to further investigation in the next section.

Given that our dataset of emerging economies differs in terms of geographic and economic integration, the empirical analysis is decomposed at the regional level (see Table 4, from column 5 onwards). This allows us to determine whether the results vary. Our graphs show that some countries are benefiting from greater financial openness. The 35 emerging countries dataset has been divided into five broad regions, as per the World Bank Classification, namely AF, CEEC, SEA, LA, and MENA. Regional-level dummies show interesting interactions: FO × MENA and FO × SEA are negative and statistically significant; AF × FO is negative and insignificant; LA and CEEC, show a loss of competitiveness. Therefore FO is benefiting the MENA region and the SEA region in enhancing better competitiveness but not AF, CEEC, and LA.

These results have led us to further explore whether favourable impacts on competitiveness depend on both types of openness—that is, financial openness and trade openness—occurring at the same time. Table 4 benchmark models are defined as follows:

Benchmark Model—Aggregate

$$\begin{aligned}\mathrm{Ln(REER)}_{it} = {} & \beta_o + \beta_1 \mathrm{LnGDPPC}_{it} + \beta_2 (\mathrm{LnGDPPC})^2_{it} \\ & + \beta_3 \mathrm{TO}_{it} + \beta_4 \mathrm{LnGCE}_{it} + \beta_5 \mathrm{FO}_{it} + \vartheta_i + \psi_t \\ & + \varepsilon_{it} \end{aligned} \quad (1)$$

Benchmark Model—Regional

$$\begin{aligned}\mathrm{Ln(REER)}_{ijt} = {} & \beta_o + \beta_1 \mathrm{LnGDPPC}_{ijt} + \beta_2 (\mathrm{LnGDPPC})^2_{ijt} \\ & + \beta_3 \mathrm{TO}_{ijt} + \beta_4 \mathrm{LnGCE}_{ijt} + \beta_5 \mathrm{FO}_{ijt} \\ & + \beta_6 \mathrm{Regions}_j + \vartheta_i + \psi_t + \varepsilon_{ijt} \end{aligned} \quad (2)$$

where $\sum_{j=1}^{j=5} \mathrm{Regions}_{ijt}$ is the regional-wise dummy, authors calculation, according to IMF classification, with REGION1 = AF: Africa; REGION2 = CEEC: Central Eastern European Countries; REGION3 = LA: Latin America; REGION4 = MENA: Middle East North Africa; REGION5 = SEA: South East Asia. ϑ_i denotes the country fixed effects; ψ_t, the time fixed effect and ε_{ijt}, the disturbance term.

4.2 | The joint impact of trade and financial openness

To understand the impact of financial openness on REER, there is a need to identify further whether both trade and financial openness together can help improve

TABLE 4 The impact of financial openness on export competitiveness

	(1)	(2)	(3)	(4)	(5) Africa	(6) CEEC	(7) LA	(8) MENA	(9) SEA
LnGDPPC	−0.089***	−0.969***	−1.413***	−1.263***	−1.248***	−1.244***	−1.276***	−1.247***	−1.297***
	(0.0324)	(0.144)	(0.144)	(0.146)	(0.146)	(0.146)	(0.146)	(0.146)	(0.146)
$(LnGDPPC)^2$		0.0550***	0.0863***	0.0756***	0.0745***	0.0743***	0.0767***	0.0752***	0.0775***
		(0.0088)	(0.0090)	(0.0092)	(0.00920)	(0.00916)	(0.00916)	(0.00915)	(0.00914)
LnGCE			0.153***	0.125***	0.124***	0.134***	0.121***	0.129***	0.127***
			(0.0301)	(0.0297)	(0.0297)	(0.0298)	(0.0297)	(0.0296)	(0.0295)
TO			−0.0024***	−0.0021***	−0.00215***	−0.00221***	−0.00211***	−0.00215***	−0.00217***
			(0.00031)	(0.00032)	(0.000316)	(0.000317)	(0.000316)	(0.000315)	(0.000315)
FO				0.0509***	0.0523***	0.0435***	0.0334***	0.0566***	0.0612***
				(0.0066)	(0.00664)	(0.00717)	(0.00961)	(0.00690)	(0.00719)
FO × REGION					−0.0637	0.0426**	0.0324**	−0.0527***	−0.0660***
					(0.0425)	(0.0166)	(0.0130)	(0.0201)	(0.0190)
Country fixed				Yes	Yes	Yes	Yes	Yes	Yes
Time fixed				Yes	Yes	Yes	Yes	Yes	Yes
Constant	5.489***	8.932***	10.17***	9.725***	9.677***	9.640***	9.773***	9.622***	9.870***
	(0.258)	(0.606)	(0.605)	(0.611)	(0.612)	(0.610)	(0.610)	(0.611)	(0.609)
N	1091	1091	1071	1033	1033	1033	1033	1033	1033
Adj. R^2	0.222	0.250	0.309	0.350	0.351	0.354	0.354	0.354	0.357
CID				2.534					
(Friedman's test)				(1.000)					
CID (Free's test)				$\alpha = 0.10$					
Critical value of *Q* distribution				(0.02136)					
Modified Wald test				6973.94					
For groupwise heteroscedasticity				(0.3739)					
Wooldridge test				96.253					
For autocorrelation				(0.6345)					

Note: The dependent variable is LnREER. *SE*s in parentheses. According to the *Hausman test*, the Prob > $chi^2 = 0.0013$. Therefore, the null hypothesis is rejected, and it suggests that the difference in the coefficients is not systematic & efficient, and the alternative hypothesis is accepted and hence, we proceed with the fixed effects model. Thus, the preferred method of estimation for the benchmark model is the fixed effect model. *Wooldridge test for autocorrelation* in panel data is used; the Prob > $F = 0.6345$ shows no autocorrelation. The test H_0 indicates no first-order autocorrelation while H_a indicates the presence of autocorrelation in cross sections. Heteroscedasticity test Prob > $chi^2 = 0.3739$ shows we accept the null of homoscedasticity. IMF regional classification is used for region wise analysis. Each column used only included regional dummies.

Abbreviations: CEEC, Central & Eastern European Countries; MENA, Middle East North Africa; SEA, South East Asia.

***Significance at 1% level.

**Significance at 5% level.

*Significance at 10% level.

external competitiveness. The benchmark model highlights that financial openness alone does not contribute to better competitiveness, and that trade liberalisation plays a key role in determining export competitiveness. To explore this more deeply, our benchmark equation includes the interaction of financial openness and trade openness (FO × TO) at the aggregate and regional levels.

(*TO* × *FO*)—*Aggregate Level*

$$\begin{aligned}\mathrm{Ln(REER)}_{it} = {} & \beta_o + \beta_1 \mathrm{LnGDPPC}_{it} + \beta_2 (\mathrm{LnGDPPC})^2_{it} \\ & + \beta_3 \mathrm{TO}_{it} + \beta_4 \mathrm{LnGCE}_{it} + \beta_5 \mathrm{FO}_{it} + \beta_6 \mathrm{FO}_{it} \\ & \times TO_{it} + \vartheta_i + \psi_t + \varepsilon_{it} \end{aligned} \quad (3)$$

(*TO* × *FO*)—*Regional Level*

$$\begin{aligned}\mathrm{Ln(REER)}_{ijt} = {} & \beta_o + \beta_1 \mathrm{LnGDPPC}_{ijt} + \beta_2 (\mathrm{LnGDPPC})^2_{ijt} \\ & + \beta_3 \mathrm{TO}_{ijt} + \beta_4 \mathrm{LnGCE}_{ijt} + \beta_5 \mathrm{FO}_{ijt} \\ & + \beta_6 \mathrm{FO}_{ijt} \times TO_{ijt} + \beta_7 \mathrm{FO}_{ijt} \times TO_{ijt} \\ & \times \mathrm{Regions}_j + \vartheta_i + \psi_t + \varepsilon_{ijt} \end{aligned} \quad (4)$$

Table 5 summarises the results for the interaction impact of (TO × FO). In columns 1, 2, 3, and 4, the benchmark is the same for the control variables. In column 5, the interaction variable (FO × TO) is negative and statistically significant showing that a combination of trade openness and financial openness improves competitiveness. The results suggest that financial openness alone is not sufficient and may cause loss of export competitiveness if a country is not open for trade. The results from Table 5 similarly show that financial openness and trade openness are jointly vital for improving price competitiveness of a country. These results lend understanding to questions raised before that if a country has fewer capital controls (i.e., is more financially liberalised) while also being open to trade, the capital and resources must be invested and utilised in trade-related activities that can help an economy to achieve better competitiveness. If there is not enough trade openness, one cannot be certain about the role of those capital inflows and how these are used in an economy.

Our analysis is developed further by decomposing the aggregate data into five different regions in Table 5. Columns 6–10 show the results for AF, CEEC, LA, MENA, and SEA, respectively. Explicitly, we can observe that the coefficient for the level of development is statistically significant at 10% level with a negative sign indicating a gain of competitiveness in every region; these results are also consistent with the regional-level benchmark model in Table 4. Trade liberalisation is also showing up as important for achieving better competitiveness across five different regions. At the aggregate level, the findings suggest that financial openness and trade openness together can support the achievement of greater competitiveness. In contrast, the regional analysis in Africa, CEEC, LA, and MENA indicates that the joint impact is statistically significant, especially for SEA. Notably, there is no direct influence of the term (FO × TO); but the indirect effect via the interactions (FO × TO × Regions) cannot be ignored.

4.2.1 | Marginal effects

Marginal effects have been estimated below in Table 6, to further explore the joint impact of trade and financial openness (i.e., TO × FO). In this table (section (a)), we show the outcome of FO at different percentiles to determine whether the interaction effect of TO × FO is significant or not and whether this impacts REER at any threshold value. Thus, the differential $\frac{\partial \mathrm{ReeR}}{\partial \mathrm{TO}}$ is estimated from the 10th to the 90th percentiles of FO while keeping TO at mean level and the graphical illustration is presented in Figure 3a. Note that at all percentiles of FO, the results are statistically significant, with the negative sign implying that all levels of FO improve the effectiveness of trade liberalisation in promoting export competitiveness. Hence, we conclude that regardless of how small or large the extent of financial openness is, combined with trade liberalisation, it always has a significant impact in enhancing competitiveness. In the same table in section (b), the differential $\frac{\partial \mathrm{ReeR}}{\partial \mathrm{FO}}$ is estimated at the 10th to 90th percentiles of TO while keeping FO at the mean level, to determine the opposite effect, that is, what level of openness or which percentiles of financial openness level help to achieve higher competitiveness. The result shows that financial openness itself does not enhance competitiveness at higher or lower percentiles of trade openness; there just needs to be some degree of trade openness involved to gain from financial openness as shown in Figure 3b.

4.3 | Role of institutions with joint impact of financial and trade openness

The literature established that the quality of institutions influences the channelling of cross-border capital flows into developing countries (see Nemlioglu & Mallick, 2020). However, the role of institutional quality on external competitiveness remains unaddressed. Institutional quality may impact external competitiveness either directly, or indirectly through enabling the

TABLE 5 The joint impact of TO and FO on export competitiveness

Dept. Var: LnREER	(1)	(2)	(3)	(4)	(5)	(6) Africa	(7) CEEC	(8) LA	(9) MENA	(10) SEA
LnGDPPC	−0.089***	−0.969***	−1.413***	−1.263***	−1.385***	−1.437***	−1.389***	−1.377***	−1.384***	−1.396***
	(0.0324)	(0.144)	(0.144)	(0.146)	(0.158)	(0.158)	(0.158)	(0.157)	(0.157)	(0.157)
$(LnGDPPC)^2$		0.0550***	0.0863***	0.0756***	0.0836***	0.0868***	0.0840***	0.0832***	0.0842***	0.0841***
		(0.00880)	(0.00900)	(0.00918)	(0.00996)	(0.00996)	(0.00996)	(0.00995)	(0.00995)	(0.00994)
LnGCE			0.153***	0.125***	0.126***	0.122***	0.129***	0.128***	0.126***	0.134***
			(0.0301)	(0.0297)	(0.0297)	(0.0295)	(0.0298)	(0.0296)	(0.0296)	(0.0298)
TO			−0.00244***	−0.00214***	−0.00181***	−0.00170***	−0.00183***	−0.00191***	−0.00180***	−0.00194***
			(0.000309)	(0.000316)	(0.000354)	(0.000354)	(0.000354)	(0.000358)	(0.000354)	(0.000357)
FO				0.0509***	0.0653***	0.0650***	0.0635***	0.0534***	0.0696***	0.0467***
				(0.00658)	(0.00959)	(0.00954)	(0.00970)	(0.0117)	(0.00985)	(0.0123)
TO × FO					−0.00023**	−0.00027**	−0.00026**	−0.000190*	−0.00024**	0.000162
					(0.000111)	(0.000111)	(0.000113)	(0.000113)	(0.000111)	(0.000197)
TO × FO × REGIONS						0.00230***	0.000196	0.000423*	−0.000557*	−0.00041**
						(0.000705)	(0.000155)	(0.000236)	(0.000298)	(0.000170)
Constant	5.489***	8.932***	10.17***	9.725***	10.16***	10.38***	10.16***	10.12***	10.12***	10.19***
	(0.258)	(0.606)	(0.605)	(0.611)	(0.646)	(0.646)	(0.646)	(0.646)	(0.645)	(0.644)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Period FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	1091	1091	1071	1033	1033	1033	1033	1033	1033	1033
Adj. R^2	0.222	0.250	0.309	0.350	0.352	0.359	0.353	0.354	0.354	0.355

Note: The dependent variable is LnREER. *SE*s are reported in parentheses. Country and time fixed effects have been used as reported in the table. The IMF-regional classification has been used for Regional Analysis. Abbreviations: CEEC, Central & Eastern European Countries; MENA, Middle East North Africa; SEA, South East Asia.

***Significance at 1% level.

**Significance at 5% level.

*Significance at 10% level.

TABLE 6 (a) Marginal effects of trade openness on REER at different percentiles of financial openness $\frac{\partial ReeR}{\partial TO} = \beta_1 + \beta_2 \times FO$, (b) Marginal effects of financial openness on REER at different percentiles of trade openness $\frac{\partial ReeR}{\partial FO} = \beta_1 + \beta_2 \times TO$

	(a)		(b)		
	(1)	(2)	(3)	(4)	(5)
Percentiles of financial openness	**Value of financial openness**	**Trade openness**	**Percentiles of trade openness**	**Value of trade openness**	**Financial openness**
10th	−1.8750	−0.2295	10th	25.6783	4.8119
		(0.0752)			(1.2047)***
25th	−1.1750	−0.2414	25th	38.4657	4.5939
		(0.0666)***			(1.1031)***
50th	−0.1173	−0.2595	50th	55.8464	4.2977
		(0.0559)***			(1.0263)***
75th	1.7218	−0.2908	75th	89.2116	3.7290
		(0.0492)***			(1.1138)***
90th	2.4218	−0. 3027	90th	166.6197	2.4097
		(0.0518)***			(2.0521)*

Note: The dependent variable is REER. *SE*s are reported in parentheses. The marginal effect has been estimated after regression by the inclusion of interaction term (TO × FO) and country and time fixed effects. Section (a) represents marginal effects of trade openness at the different percentile of FO on LnREER while keeping TO at the mean level value of open = 82.28654 (mean). Section (b) represents marginal effects of financial openness at different percentiles of trade openness while keeping FO at mean level KAOPEN = 0.2131506 (mean).

***Significance at 1% level.

**Significance at 5% level.

*Significance at 10% level.

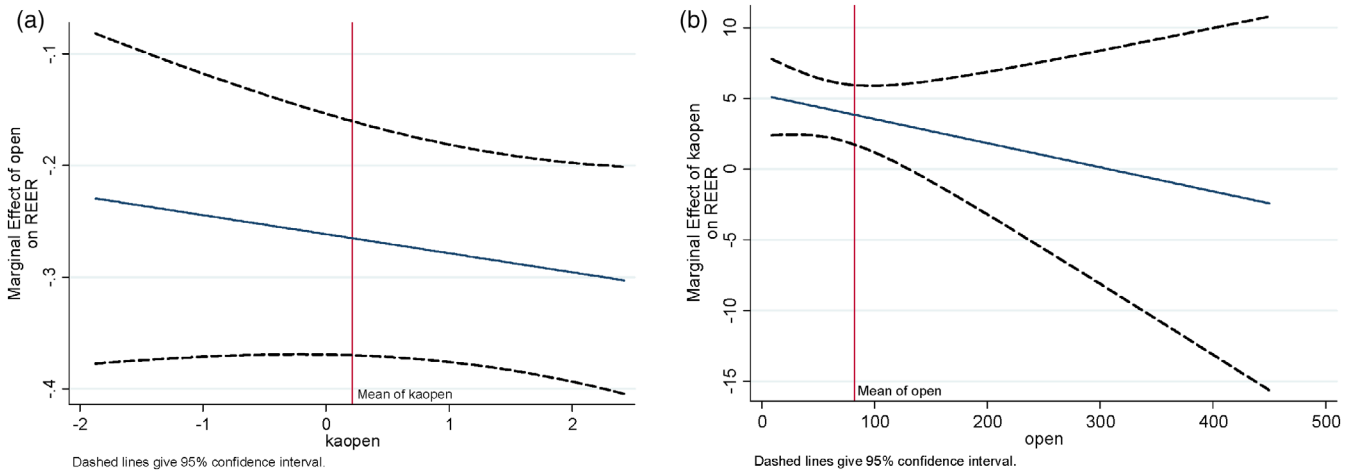


FIGURE 3 Marginal effects. (a) Marginal effect of trade openness at different levels of financial openness. (b) Marginal effect of financial openness at different levels of trade openness. (a) Marginal effects graphs presented above corresponds with results in Table 6(a). The graphs display the marginal effect of trade openness on REER at different levels of financial openness. It shows that the impact of financial openness is useful in promoting LnREER at all levels of financial openness. The continuous line gives the marginal impact as estimated by $\frac{\partial ReeR}{\partial FO} = \beta_1 + \beta_2 \times TO$. The dotted lines represent the 95% confidence interval. (b) Marginal effect graphs presented above correspond with results in Table 6(b). The graphs on the upper panel display the marginal effect of financial openness on REER at different levels of trade openness. The continuous line gives the marginal impact as estimated by $\frac{\partial ReeR}{\partial FO} = \beta_1 + \beta_2 \times TO$. The dotted lines represent the 95% confidence interval. [Colour figure can be viewed at wileyonlinelibrary.com]

potential benefits of financial openness to be realised. Therefore, we first examine the direct role of each of the six types of institutional quality (Kaufmann et al., 2010) - Table 7 from columns 1 to 6 (see the correlation matrix in Table B1) - using the institutional quality model below:

TABLE 7 The joint impact of FO and institutional quality on competitiveness

Dept V: LnREER	(1) Ccorrupt	(2) Polstab	(3) Regul	(4) Vocabul	(5) Rlaw	(6) GovEff	(7) IQ index
LnGDPPC	0.548**	0.661***	0.663***	0.791***	0.520**	0.626***	0.344
	[0.221]	[0.225]	[0.225]	[0.217]	[0.226]	[0.234]	[0.242]
$(LnGDPPC)^2$	−0.0285**	−0.0374***	−0.0360***	−0.0446***	−0.0269*	−0.0345**	−0.0149
	[0.0134]	[0.0137]	[0.0136]	[0.0131]	[0.0138]	[0.0143]	[0.0149]
LnGCON	0.152***	0.137***	0.138***	0.130***	0.142***	0.133***	0.138***
	[0.0464]	[0.0451]	[0.0461]	[0.0454]	[0.0461]	[0.0462]	[0.0470]
Kaopen	0.0371***	0.0453***	0.0345***	0.0323***	0.0381***	0.0342***	0.166***
	[0.00844]	[0.00851]	[0.00890]	[0.00838]	[0.00856]	[0.00850]	[0.0370]
LnTOT	0.209***	0.217***	0.198***	0.204***	0.212***	0.220***	0.208***
	[0.0310]	[0.0299]	[0.0318]	[0.0304]	[0.0311]	[0.0316]	[0.0310]
Cntrlcrrupton	−0.0743**						
	[0.0337]						
FO × ccorrup	0.0200						
	[0.0369]						
Poltstblty		−0.105***					
		[0.0234]					
FO × polstab		0.183***					
		[0.0378]					
Regultry			−0.0769**				
			[0.0317]				
FO × regul			0.0758*				
			[0.0398]				
Vlacblty				−0.154***			
				[0.0357]			
FO × vocab				0.210***			
				[0.0448]			
Rlaw					−0.0671**		
					[0.0325]		
FO × rlaw					0.0183		
					[0.0372]		
Govteffec						0.00517	
						[0.0404]	
FO × goveff						0.0118	
						[0.0424]	
Insqual							−0.0269*
							[0.0147]
FO × insqual							−0.0000378*
							[0.0000250]
Constant	0.718	0.389	0.384	−0.0929	0.855	0.484	1.435
	[0.897]	[0.911]	[0.912]	[0.886]	[0.914]	[0.943]	[0.983]
Country FE	YES	YES	YES	YES	YES	YES	YES
Period FE	YES	YES	YES	YES	YES	YES	YES
N	494	494	494	493	493	494	492

(Continues)

TABLE 7 (Continued)

Dept V: LnREER	(1) Ccorrupt	(2) Polstab	(3) Regul	(4) Vocabul	(5) Rlaw	(6) GovEff	(7) IQ index
Adj. R^2	0.240	0.260	0.242	0.257	0.240	0.235	0.255

Note: The dependent variable is LnREER. *SEs* are reported in parentheses. Country and time-fixed effects have been added. The first six columns indicate governance indicators separately and column 7 combines them using PCA.
***Significance at 1% level.
**Significance at 5% level.
*Significance at 10% level.

TABLE 8 Principal components analysis for institutional quality index

		PC1	PC2	PC3	PC4	PC5	PC6
Eigenvalue		4.6476	0.6183	0.4291	0.1417	0.0882	0.0750
Proportion		0.7746	0.1031	0.0715	0.0236	0.0147	0.0125
Variable	*Notation*						
Control of corruption	Cc	**0.4323**	−0.3221	−0.0436	0.4244	0.3035	0.6597
Political stability and absence of violence/terrorism	Ps	**0.3644**	0.3259	0.8545	−0.1600	0.0243	0.0686
Regulatory quality	Rq	**0.4322**	−0.1521	−0.2631	−0.6833	−0.4301	0.2626
Voice and accountability	Va	**0.3275**	0.8241	−0.4234	0.1807	0.0282	0.0305
Rule of law	Rl	**0.4379**	−0.2238	0.0424	0.4896	−0.5597	−0.4509
Government effectiveness	Ge	**0.4410**	−0.1942	−0.1330	−0.2346	0.6389	−0.5357

Note: The table presents the results of the PCA. PC1 to PC6 indicates principal components from 1 to 6. As PC1 is 4.64759 we only take this component. We take corresponding weights of the PC1 for six variables to form the IQ index. The bold values in the table are used in the equation below to construct the index of institutional quality.

$$|\epsilon_{it}| = \pi_1 + \pi_2 \,\mathrm{FO}_{it} + \pi_3 \sum_{l=1}^{l=6} \mathrm{Institutions}_{it} + \pi_4 \,\mathrm{FO}_{it} \times \sum_{l=1}^{l=6} \mathrm{Institutions}_{it} + \epsilon_{it} \quad (5)$$

Different authors used different proxies for the quality of institutions. For instance, Chen and Chen (2018) used the average of the six WGI indicators (Kaufmann et al., 2010) whereas Challe et al. (2019) only used three of them (government effectiveness, control of corruption, and the rule of law). However, the components used in the construction of the quality indicator are highly correlated with each other; therefore we first used them individually in the regressions in the first 6 columns of Table 7.

To capture the common variation among these correlated components as a single measure, we develop an index that represents the overall quality of institutions using principal components analysis (henceforth PCA). This index will sufficiently deal with the problem of multicollinearity and over-parameterisation, as a single measure of institutional quality. Since the institutional quality of a country consists of six dimensions, we combine those dimensions into one and construct the institutional quality variable.

Table 8 presents the institutional quality index (IQI). Eigenvalues of the six components are 4.6476, 0.6183, 0.4291, 0.1417, 0.0882 and 0.0750 suggesting that the first component with eigenvalue being greater than 1 is relevant which explains 77% of the variation of the sample variance. Considering the first component, we create an index of institutional quality using weights (i.e., 0.4323, 0.3644, 0.4322, 0.3275, 0.4379, and 0.4410) assigned to the first principal component. Based on the first principal component, we construct the institutional quality variable as follows:

$$\text{Institutional quality index (IQI)} = IQI_i = \sum_{l=1}^{6} w_{il} . X_i$$

where w_{ij} are the component's loadings or weights, and 'X_i' *s* are the original variables.

$$IQ = 0.4323 \times cc + 0.3644 \times ps + 0.4322 \times rq + 0.3275 \times va + 0.4379 \times rl + 0.4410 \times ge$$

So, after generating a single measure for the institutional quality aspects, we used it in column 7 (Table 7), to investigate the role of the overall institutional quality on external competitiveness. Results suggest that overall institutional quality can improve competitiveness both

directly and indirectly through greater financial openness. Therefore, it is possible to conclude that overall institutional quality may help stabilise the value of a country's currency value, thereby maintaining competitiveness, through de facto or de jure financialisation measures—namely, through capital account openness or attracting capital inflows (see also Nemlioglu & Mallick, 2020) and then facilitating their effective allocation to funding productive investment.

Furthermore, we decompose our sample further in Table 9, to see whether financial openness can behave differently across various regions and whether institutional quality can make any difference by using a two-way fixed effect model—period and country fixed effects.

TABLE 9 The impact of financial openness at regional level with institutional factors

	(1) LnREER GoverEff	(2) LnREER R Law	(3) LnREER Vocab	(4) LnREER PolStab	(5) LnREER RegQualq	(6) LnREER Rule of Law	(7) LnREER Overall IQ
LnGDPPC	−0.624***	−0.703***	−0.495**	−0.573**	−0.453	−0.897*	0.405
	(0.289)	(0.283)	(0.284)	(0.303)	(0.278)	(0.283)	[0.250]
$(LnGDPPC)^2$	0.0557*	0.0610*	0.0492*	0.0495***	0.0443***	0.0749*	−0.0193
	(0.0190)	(0.0184)	(0.0187)	(0.0199)	(0.0182)	(0.0184)	[0.0154]
LnGCE	0.215*	0.209*	0.211*	0.186*	0.193*	0.211*	0.137***
	(0.0456)	(0.0447)	(0.0449)	(0.0440)	(0.0455)	(0.0446)	[0.0473]
FO	0.0336*	0.0398*	0.0233*	0.0471*	0.0229*	0.0360*	0.143***
	(0.00778)	(0.00853)	(0.00819)	(0.00848)	(0.00842)	(0.00780)	[0.0385]
TO	−0.00334*	−0.00366*	−0.00319*	−0.00311*	−0.00386*	−0.00326*	0.203***
	(0.000514)	(0.000491)	(0.000367)	(0.000408)	(0.000539)	(0.000451)	[0.0323]
Institutions	0.0547	0.0138	0.0138	0.00855	0.0161	0.0623***	−0.0263*
	(0.0345)	(0.0363)	(0.0363)	(0.0204)	(0.0265)	(0.0284)	[0.0148]
FO × INS	0.0418	0.0606***	0.0606***	0.0497***	0.0253	0.0661***	−0.0512**
	(0.0262)	(0.0308)	(0.0308)	(0.0205)	(0.0231)	(0.0304)	[0.0259]
FO × INS × AFRICA	−0.191*	−0.184*	−0.184*	0.0306	−0.163***	−0.239*	−0.0349
	(0.0608)	(0.0552)	(0.0552)	(0.0521)	(0.0672)	(0.0689)	[0.0430]
FO × INS × CEEC	−0.0535**	−0.0614**	−0.0614**	−0.0543***	0.0170	−0.0116*	0.0209**
	(0.0275)	(0.0321)	(0.0321)	(0.0233)	(0.0226)	(0.00356)	[0.0861]
FO × INS × LA	−0.0457	−0.0707	−0.0707	−0.00873	−0.00385	−0.0900**	0.0125
	(0.0439)	(0.0538)	(0.0538)	(0.0421)	(0.0368)	(0.0522)	[0.0897]
FO × INS × MENA	−0.0122*	−0.0173*	−0.0173*	0.0484	−0.0804**	−0.0125***	0.0462*
	(0.0464)	(0.0568)	(0.0568)	(0.0396)	(0.0434)	(0.0511)	[0.0290]
FO × INS × SEA	−0.0855	−0.0557	−0.0557	−0.0190***	0.0657	−0.0165**	−0.0170***
	(0.0953)	(0.0105)	(0.0105)	(0.00937)	(0.00974)	(0.00897)	[0.00617]
Constant	5.576*	5.912*	4.976*	5.645*	5.049*	6.503*	1.269
	(1.134)	(1.125)	(1.123)	(1.179)	(1.112)	(1.122)	[1.019]
Country-FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Period-FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	538	537	537	538	538	538	492
Adj. R^2	0.376	0.382	0.384	0.394	0.374	0.387	0.273

Note: The dependent variable is LnREER. *SE*s are reported in parentheses. Country and time-fixed effects have been used as reported in the table. The IMF-regional classification has been used for regional analysis.

***Significance at 1% level.

**Significance at 5% level.

*Significance at 10% level.

In Table 9, we have six different types of institutions from columns 1–6, respectively, across various regions. These estimation results enable us to understand the difference in institutional quality, which is expected to impact financial openness for export competitiveness. We estimate the following equations:

Financial Openness × *Institutions* (Equation 5)

$$\begin{aligned}\mathrm{Ln(REER)}_{ijt} = {} & \beta_o + \beta_1 \mathrm{LnGDPPC}_{ijt} + \beta_2 (\mathrm{LnGDPPC})^2_{ijt} \\ & + \beta_3 \mathrm{TO}_{ijt} + \beta_4 \mathrm{LnGCE}_{ijt} + \beta_5 \mathrm{FO}_{ijt} \\ & + \beta_6 \mathrm{FO}_{ijt} \times \left(\sum_{l=1}^{l=6} \mathrm{Institutions}_{ijt} \right) \\ & + \beta_7 \mathrm{FO}_{ijt} \times \left(\sum_{l=1}^{l=6} \mathrm{Institutions}_{ijt} \right) \\ & \times \mathrm{Regions}_j + \vartheta_i + \psi_t + \varepsilon_{ijt}\end{aligned}$$

As every region has a different level of the quality of institutions, we can see which institutions make a difference in managing financial openness to improve competitiveness.

Table 9, performing further decomposition at the regional and institutional levels, and allowing the interaction term (FO × INS × REGION), reveals which types of institutions are important across different regions in enhancing competitiveness. Column 1 indicates that stronger government effectiveness is helping the AF, CEEC, and MENA regions to gain competitiveness in the presence of financial openness. Column 2 reports that the rule of law is helping AF, CEEC, and MENA in improving competitiveness. Column 3 shows that voice and accountability can help AF, CEEC, and MENA, while column 4 reveals that political stability is important for CEEC and SEA. In column 5, regulatory quality tends to benefit AF and MENA. Lastly, in column 6, control of corruption with greater FO is important for all regions in achieving better competitiveness. Therefore, we can conclude that institutions promoting higher FO can boost competitiveness in AF and that most of the institutions are helping CEEC, AF and MENA. In summary, countries with better quality of institutions can achieve relatively more competitiveness with financial openness.

TABLE 10 Robustness check: Replacing FO with capital inflows

	(1) FO	(2) FDI	(3) PORT	(4) ODA	(5) REMIT	(6) DEBT
LnGDPPC	−1.385***	−1.355***	−1.372***	−1.707***	−1.692***	−1.714***
	(0.158)	(0.159)	(0.155)	(0.187)	(0.206)	(0.288)
$(\mathrm{LnGDPPC})^2$	0.0836***	0.0830***	0.0825***	0.103***	0.117***	0.103***
	(0.00996)	(0.0099)	(0.0096)	(0.0117)	(0.0143)	(0.0203)
LnGCE	0.126***	0.141***	0.134***	0.137***	0.190***	0.120***
	(0.0297)	(0.0309)	(0.0318)	(0.0317)	(0.0332)	(0.0375)
TO	−0.00181***	−0.00230***	−0.00249***	−0.00182***	−0.00407***	−0.00254***
	(0.0003)	(0.0004)	(0.0003)	(0.0004)	(0.0004)	(0.0006)
Inflows	0.0653***	0.00591*	1.927**	−0.256	−0.0883	0.0106
	(0.0959)	(0.00332)	(0.940)	(1.389)	(0.0101)	(0.0017)
TO × INFLOWS	−0.0023**	−0.00347**	−0.00695**	0.0109	0.0308*	−0.00988***
	(0.00111)	(0.0013)	(0.0034)	(0.0250)	(0.0130)	(0.0368)
Constant	10.16***	9.908***	10.13***	11.44***	10.48***	11.60***
	(0.646)	(0.654)	(0.649)	(0.779)	(0.773)	(1.060)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
N	1033	1040	999	931	881	693
Adj. R^2	0.352	0.311	0.318	0.321	0.379	0.337

Note: The dependent variable is LnREER. *SE*s in parentheses. According to the *Hausman test*, the Prob > $\mathrm{chi}^2 = 0.04513$ for Column 2. Therefore, the null hypothesis is rejected, that the difference in the coefficients is not systematic and efficient, and the alternative hypothesis is accepted and hence, we carry on with fixed effects. All capital inflows are replacing FO in columns above as per label.

***Significance at 1% level.

**Significance at 5% level.

*Significance at 10% level.

TABLE 11 Robustness check 2: The impact of financial openness at regional level with institutional factors in the pre-and post-crisis periods across regions

	(1) Pre	(2) Post	(3) PreR1	(4) PreR2	(5) PreR3	(6) PreR4	(7) PreR5	(8) PostR1	(9) PostR2	(10) PostR3	(11) PostR4	(12) PostR5	(13) PreAll	(14) PostAll
$LnREER_{t-1}$	0.772***	0.655***	0.787***	0.657***	0.921***	0.769***	0.805***	0.610***	0.668***	0.540***	0.659***	0.584***	0.792***	0.568***
	[0.0586]	[0.0206]	[0.0593]	[0.0867]	[0.0693]	[0.0676]	[0.0319]	[0.0169]	[0.0269]	[0.0385]	[0.0338]	[0.0111]	[0.0467]	[0.0258]
LnGDPPC	0.414**	0.810***	0.556***	0.662***	0.476***	0.479***	0.145	0.914***	0.825***	1.202***	1.044***	1.180***	0.481***	1.191***
	[0.172]	[0.241]	[0.179]	[0.0491]	[0.138]	[0.176]	[0.140]	[0.160]	[0.179]	[0.182]	[0.260]	[0.168]	[0.165]	[0.277]
$(LnGDPPC)^2$	−0.0296***	−0.0479***	−0.0381***	−0.0406***	−0.0326***	−0.0312***	−0.0128*	−0.0525***	−0.0482***	−0.0708***	−0.0592***	−0.0688***	−0.0306***	−0.0684***
	[0.00905]	[0.0138]	[0.00939]	[0.00224]	[0.00768]	[0.00952]	[0.00738]	[0.00935]	[0.0102]	[0.00999]	[0.0145]	[0.00919]	[0.00873]	[0.0151]
LnGCON	−0.0612***	0.0530	−0.0843***	−0.0735***	0.0103	−0.0577***	−0.00732	0.00806	0.0335	0.0403	0.00891	0.0244	−0.0251**	−0.00881
	[0.0179]	[0.0384]	[0.0166]	[0.0202]	[0.0234]	[0.0203]	[0.0128]	[0.0287]	[0.0284]	[0.0262]	[0.0340]	[0.0236]	[0.0118]	[0.0339]
FO	0.0492*	−0.156***	0.0617**	0.0235	0.0495*	0.0443	0.0264	−0.104***	−0.158***	−0.0851**	−0.147***	−0.140**	−0.0230	−0.0419
	[0.0266]	[0.0360]	[0.0276]	[0.0182]	[0.0259]	[0.0310]	[0.0284]	[0.0375]	[0.0308]	[0.0381]	[0.0538]	[0.0681]	[0.0399]	[0.0688]
TO	0.192***	0.0942**	0.196***	0.0661	0.180***	0.156***	0.182***	0.0759**	0.105***	0.0372	0.0902**	0.0185	0.180***	−0.0178
	[0.0516]	[0.0422]	[0.0485]	[0.0481]	[0.0413]	[0.0513]	[0.0475]	[0.0304]	[0.0270]	[0.0297]	[0.0379]	[0.0383]	[0.0531]	[0.0483]
Insqual	0.0337***	0.0373***	0.0408***	0.00585	0.0237***	0.0220***	0.0357***	0.0113**	0.0295***	−0.00057	0.0296***	0.00765	0.0118	−0.0164**
	[0.0110]	[0.0056]	[0.0108]	[0.0071]	[0.00344]	[0.00789]	[0.00598]	[0.00531]	[0.0052]	[0.00612]	[0.0055]	[0.0073]	[0.00895]	[0.00816]
FO × insqual	0.0260***	0.076	0.0182**	0.0203**	0.0406***	0.0125	0.0784***	0.0975	0.0110*	0.058***	−0.0295	0.0119***	0.0627***	0.0438**
	[0.0073]	[0.0690]	[0.00740]	[0.0894]	[0.0719]	[0.00769]	[0.00189]	[0.0672]	[0.0057]	[0.00481]	[0.0703]	[0.00243]	[0.0107]	[0.0192]
FO × insqual × R1			0.0117***					0.0266***						
			[0.0330]					[0.0761]						
FO × insqual × R2				0.0166***					−0.0144				−0.0499***	−0.0438**
				[0.00215]					[0.0250]				[0.0120]	[0.0194]
FO × insqual × R3					−0.0187***					0.0199***			−0.0840***	−0.0412**
					[0.0273]					[0.0361]			[0.0151]	[0.0192]
FO × insqual × R4						0.0407***					0.0297		−0.0283	−0.0413**
						[0.0149]					[0.0661]		[0.0210]	[0.0200]
FO × insqual × R5							−0.0817***					−0.0670***	−0.0607***	−0.0434**
							[0.0202]					[0.0236]	[0.0110]	[0.0192]
Constant	−1.047*	−2.207**	−1.667**	−1.189**	−2.175***	−1.303*	−0.222	−2.377***	−2.376***	−3.070***	−3.277***	−3.081***	−1.625**	−2.915***
	[0.615]	[0.871]	[0.696]	[0.498]	[0.683]	[0.686]	[0.440]	[0.576]	[0.713]	[0.749]	[0.855]	[0.774]	[0.648]	[1.130]
Observations	364	128	364	364	364	364	364	128	128	128	128	128	364	128
Wald-Chi^2	3215.2	3084.2	7906.7	12231.4	18745.8	2038.7	13395.0	67971.1	76272.0	3558.3	8641.6	182932.6	5637.4	11438.7
Adj. R^2	0.496	0.514	0.481	0.545	0.587	0.577	0.559	0.618	0.542	0.515	0.464	0.511	0.625	0.587
Sargan	28.37	28.40	28.00	22.08	22.30	26.06	22.47	29.94	24.71	25.75	30.75	26.07	19.45	21.60

(Continues)

TABLE 11 (Continued)

	(1) Pre	(2) Post	(3) PreR1	(4) PreR2	(5) PreR3	(6) PreR4	(7) PreR5	(8) PostR1	(9) PostR2	(10) PostR3	(11) PostR4	(12) PostR5	(13) PreAll	(14) PostAll
AR(1)	−3.160	−2.404	−3.243	−3.484	−3.099	−3.059	−3.236	−2.347	−2.348	−2.388	−2.395	−2.394	−3.257	−2.273
AR(2)	−1.027	−1.890	−1.010	−1.137	−0.996	−1.062	−0.988	−1.873	−1.911	−1.984	−1.900	−1.933	−1.028	−1.895

Note: The dependent variable is LnREER. *SEs* in parentheses. The models have been estimated using dynamic system GMM. Sargan and AR(1), AR(2) tests prove the validity of the models.
***Significance at 1% levels.
**Significance at 5% levels.
*Significance at 10% levels.

4.4 | Robustness checks

As discussed earlier, attracting capital and foreign exchange flows is crucial for developing countries. Yet, these flows could lead to real exchange rate appreciation and may thus have detrimental effects on competitiveness, jeopardising exports and growth. By comparing the impact of six types of flows on the REER, we can evaluate three types of flows in the financial accounts of the balance of payments, namely FDI, portfolio investments (PORT), and other investments (DEBT), while the other three types of foreign currency flows show up in the current account data—remittances (REMIT), ODA, and income (INCOME). Given that the results are sensitive to the chosen country (Eichengreen, 2001), several robustness checks are conducted by replacing financial openness with actual flows, undertaking a regional analysis, and estimating over pre- and post-crisis periods.

In theory, one can argue that the impact of any of these flows on REER depends on the types of expenditure each flow is tied to. While an apriori assumption could be that capital flows, of any kind, can lead to REER appreciation, this might not be the case if the flows are tied to particular spending in certain countries that could have the opposite or no impact on the REER. The literature review reveals several cases in which the impact of different types of capital flows on REER is contradictory. Empirically, it has been reported that portfolio investments, foreign borrowing, aid, and income lead to real exchange rate appreciation, while remittances have disparate effects across regions (Naceur et al., 2012). We use five different types of inflows as follows: FDI, portfolio investments, ODA, remittances and debt. As discussed above, capital inflows present a de facto measure of capital account openness, while financial openness with Chinn-Ito index is considered as de jure measure. Incorporating capital inflows into the model ensures that the results on FO reveal the relative contribution made by different types of inflows to enhancing competitiveness for an economy with liberalised trade. Accordingly, we determine whether our results remain the same while exploring the direct channels. In Table 10, in column 1, we reiterate the benchmark results by using financial openness, and show that it reduces export competitiveness. In column 2, FDI replaces FO; in column 3, portfolio inflows replace FO; and in column 4, ODA is used. Remittances and debt subsequently replace FO in columns 5 and 6. We find that the benchmarks remain the same throughout, and for capital inflows we found the same result: FDI and portfolio investments erode export competitiveness as does financial openness, while ODA, remittances, and debt have no significant impact. Many of these inflows are robust to previous findings of FO

that, on its own, it can reduce competitiveness but has the opposite favourable (negative) effect when combined with higher levels of TO. Furthermore, we interact these capital inflows with a TO indicator to determine the interaction impact of inflows combined with trade liberalisation. Hence, we conclude that FDI, when combined with TO, is beneficial in promoting external competitiveness, and also, that portfolio investments and debt are robust to financial openness, that is, these two types of inflows can produce competitive gains when combined with trade liberalisation.

Furthermore, as an additional robustness test, we investigate the impact of the financial openness-institutional quality relationship on external competitiveness in the pre- and post-GFC using dynamic system GMM—as this approach helps address potential endogeneity issues. Results in Table 11 indicate that institutional quality is always important for improving external competitiveness both in the pooled sample as well as the model covering all regions. Financial openness is only good for improving competitiveness in the post-crisis period where institutional quality is better, as the joint impact is positive throughout.

Specifically, in the pre-crisis periods, financial openness and institutional quality both directly and indirectly through the interaction effect have a positive overall impact on competitiveness, as well as in each of the five regions covered—with the apparent exceptions of region 3 LA and region 5 SEA. In the post-crisis period, financial openness alone has a negative impact in all regions, but makes a positive impact if supported by better institutional quality, with region 2 CEEC and Region 5 SEA being exceptions. However, we see that both in the pre- and post-financial crisis periods, financial openness increases competitiveness in the presence of better institutional quality. Therefore, our main findings remain robust, when we disaggregate the data over time and across regions, as well as while changing our estimation method to dynamic system GMM.

5 | CONCLUSION

Exploring the role of financial openness in external competitiveness at the aggregate and regional levels, over 40 years across five regions and 35 countries and during pre- and post-liberalisation periods, along with considering the interactive effect of trade openness and institutional quality, and different types of capital flows, our findings are summarised as follows.

First, by using country fixed effects, we find that countries that are more financially open due to opening up of their capital account do not achieve greater competitiveness, but when an economy is more open to trade, the combined effect of financial openness and trade liberalisation is beneficial for its competitiveness. The only regional exceptions to this observation, that financial openness per se is not sufficient, are SEA and MENA.

Second, at the aggregate level, combining financial and trade openness, the marginal effects of financial openness at different levels of trade openness, indicate increasing beneficial effect in terms of greater competitiveness. At the regional level, we also find that this interaction impact is significant across the regions.

Third, examining the role of six governance indicators separately and as a combined one, we found that better institutional quality can improve external price competitiveness. When we look at the indirect influence of those indicators along with financial openness, we found that although financial openness alone does not help in greater competitiveness, it can contribute indirectly to enhanced competitiveness in countries with better institutional quality. We ascertain that maintaining a higher quality of institutions has added benefit in achieving better competitiveness with increased financial openness, especially in the African, CEEC, and MENA regions. Our results still hold when the financial openness variable is decomposed into different types of associated capital inflows.

Additionally, our results remain robust when we investigate the impact of the financial openness-institutional quality relationship for external competitiveness across the regions in the pre- and post-GFC periods, by using dynamic system GMM. This approach also ensures the robustness of our results to any potential endogeneity issues. Finally, while investigating this relation over time and across regions, we still find that financial openness contributes to better external price competitiveness only when combined with stronger institutions, enabling improvement in the cost of doing business, thereby making these countries relatively more price-competitive.

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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ENDNOTE

[1] The data has been extracted from http://web.pdx.edu/~ito/Chinn-Ito_website.htm.

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APPENDICES

TABLE A1 List of countries in the study

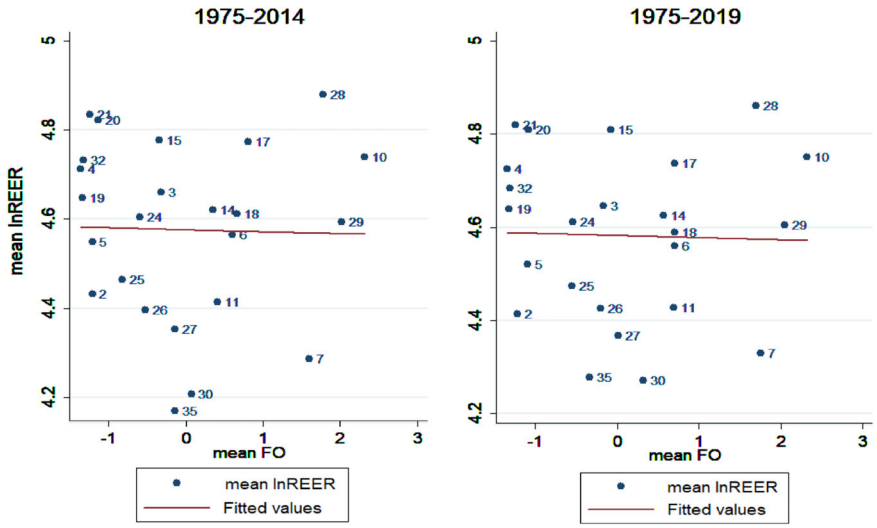
Africa	CEEC	SE Asia	Latin America	MENA
Nigeria	Croatia	China	Argentina	Egypt
South Africa	Czech Rep	India	Brazil	Morocco
	Hungary	Korea	Chile	Turkey
	Poland	Malaysia	Colombia	Israel
	Romania	Pakistan	Ecuador	Kuwait
	Slovak Rep	Philippines	Mexico	Saudi Arabia
	Slovenia	Singapore	Peru	
	Russia	Thailand	Panama	
		Hong Kong	Venezuela	
		Indonesia		

Abbreviations: CEEC, Central & Eastern European Countries; MENA, Middle East North Africa.

TABLE B1 Correlation matrix for institutional quality

Institutions								
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1)	LnREER	1.0000							
(2)	Residuals	0.92657	1.0000						
(3)	Government effectiveness	−0.0276	0.0874	1.0000					
(4)	Corruption	−0.1067	−0.0072	0.9106	1.0000				
(5)	Political stability	0.0460	0.1530	0.6861	0.6586	1.0000			
(6)	Regulatory quality	−0.0217	0.1005	0.9066	0.8765	0.6564	1.0000		
(7)	Voice and accountability	0.1192	0.2432	0.5560	0.4813	0.5554	0.5865	1.0000	
(8)	Rule of law	−0.1020	0.0049	0.8984	0.9179	0.7084	0.8754	0.5244	1.0000

Note: Institutional variables are measured in units ranging from about −2.5 to 2.5.



id	Country	id	Country	id	Country	id	Country	id	Country	id	Country	id	Country
1	Argentina	6	Croatia	11	Hungary	16	Kuwait	21	Pakistan	26	Romania	31	Slovenia
2	Brazil	7	Czech.Rep.	12	India	17	Malaysia	22	Panama	27	Russian.Fed.	32	South.Africa
3	Chile	8	Ecuador	13	Indonesia	18	Mexico	23	Peru	28	Saudi.Arabia	33	Thailand
4	China	9	Egypt, A.R.	14	Israel	19	Morocco	24	Philippines	29	Singapore	34	Turkey
5	Colombia	10	Hong.Kong.	15	Korea,.D.R.	20	Nigeria	25	Poland	30	Slovak.Rep.	35	Venezuela,.R

FIGURE A1 Scatter plots of financial openness and export competitiveness between 1975 and 2019. Figure represents the correlation between REER and FO measure of Ito-Chinn Index (2002) at aggregate level for 35 countries over the period 1974–2019. The data on LnREER and FO is averaged from 1975 to 2014, and 1975–2019 consecutively for obtaining each plot. We use below country id numbers for the sake of brevity in the visuals. Figure shows that adding an additional 4 years of data (2015–2019) does not change the relationship between the two variables [Colour figure can be viewed at wileyonlinelibrary.com]