

External Vulnerability in Developing and Emerging Economies: Exploring the Nexus between International Financial Integration and Economic Growth¹

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Abstract: This paper explores the relationship between international financial integration (IFI), external vulnerability and economic growth. It proposes a taxonomy of typical IFI profiles and applies it to a sample of 90 developing and emerging economies (DEEs) for the 1992-2016 period using a dynamic panel data model. Drawing from a Keynesian and Structuralist analytical framework, it considers that what matters for economic growth is much less the quantitative degree of IFI *per se* but rather the profile, or “quality”, of this integration. The results suggest that DEEs which succeed in integrating into global financial markets under a more balanced and autonomous profile can experience economic growth benefits, while a more financially dependent and vulnerable profile exacerbates the risks of financial globalisation, undermining growth in the long run. Moreover, the growth path in the latter tends to be more affected by external financial shocks, even though systemic shocks also impact the former.

Keywords: International financial integration; external vulnerability; economic growth; developing and emerging economies.

Resumo: Este artigo explora a relação entre integração financeira internacional (IFI), vulnerabilidade externa e crescimento econômico. Ele propõe uma taxonomia de perfis típicos de IFI e a aplica a uma amostra de 90 economias emergentes e em desenvolvimento (DEEs) para o período 1992-2016, usando um modelo de dados em painel dinâmico. Partindo de uma estrutura analítica keynesiana e estruturalista, considera-se que o que importa para o crescimento econômico é muito menos o grau quantitativo de IFI *per se* e muito mais o perfil, ou "qualidade", dessa integração. Os resultados sugerem que as DEEs que conseguem se integrar aos mercados financeiros globais sob um perfil mais equilibrado e autônomo podem obter benefícios de crescimento econômico, enquanto um perfil financeiramente mais dependente e vulnerável exacerba os riscos da globalização financeira, prejudicando o crescimento a longo prazo. Além disso, a trajetória de crescimento sob esse último perfil tende a ser mais afetada por choques financeiros externos, embora choques sistêmicos também impactem aquelas de perfil mais equilibrado.

Palavras-chave: Integração financeira internacional; vulnerabilidade externa; crescimento econômico; economias emergentes e em desenvolvimento.

JEL classification: F3, F4, O4

1. Introduction

The nexus between international financial integration (IFI) and economic growth is up until today one of the most debated issues among economists.⁵ Do financially integrated economies grow faster than

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⁵ The literature generally uses the terms “financial integration”, “financial liberalisation” and even “financial globalisation” as synonyms, since most models assume that under conditions of perfect capital mobility, an economy automatically reaches the level of perfect financial integration. However, it is reasonable to argue that “financial liberalisation”, in practice, is the situation in which legal restrictions on capital movements are removed for greater “financial integration”, i.e. financial liberalisation is a necessary but not sufficient condition for financial integration. Similarly, the concepts of “financial globalisation” and “financial integration” are different. “Financial globalisation” involves increasing global linkages through international financial markets, while “financial integration” refers to an individual country’s linkages (Prasad *et al.*, 2007b; Akyüz, 2017; Ocampo, 2018).

their more closed peers? Are IFI policies also growth-enhancing policies? Despite extensive empirical investigation, these remain unresolved questions (Kose *et al.*, 2006, 2011; Akyüz, 2017; Gosh *et al.*, 2018; Bresser-Pereira *et al.*, 2020; Cimoli *et al.*, 2020). Yet, it entails paramount consequences for developing and emerging economies (DEEs), which are in the hunt for economic growth whilst being structurally dependent of capital inflows.

The 2007-2009 Global Financial Crisis (GFC) has led to more cautious positions from mainstream economists in relation to IFI and financial globalisation. Having originated in the mature financial systems of advanced economies, the financial turmoil clearly exposed the fragilities of the International Monetary and Financial System (IMFS), fragilities which DEEs had been voicing since the late 1990s (Helleiner 2010). The aftermath of the financial collapse created the context for discussions on the need of global policies to deal with financial instability, such as macroprudential tools and capital flow management measures (CFMs), which have since then engendered some positive (although limited) reforms in the IMFS.⁶

While the macroprudential and CFMs debate goes on, mainstream economists continue to advocate for greater IFI. According to them, even if there is no clear link between greater IFI and higher economic growth, there is also no evidence that IFI is harmful, nor is there robust evidence that IFI is associated with a higher incidence of crises (e.g. De Gregorio, 2014). By this approach, reaping the benefits of IFI whilst preserving financial stability and avoiding crises is the responsibility of countries individually, which should promote sound domestic policies and have a minimum standard of institutional development. If anything, countries below the political-institutional threshold would be benefited from greater IFI since it would, indirectly, facilitate the achievement of the threshold level, including financial depth and institutional quality (e.g. Dell’Ariccia *et al.*, 2008; IMF, 2016).⁷

The indiscriminate prescription towards IFI raises important implications from both theoretical and policy perspectives, especially for DEEs. As the recent literature on financialisation of DEEs has showed, DEEs have become even more integrated to international capital markets since the 2007-2009 GFC. The growing financialisation and participation of foreign investors in these economies has brought new elements of external vulnerability that go beyond the traditional ones associated to debt denominated in foreign currency (Kaltenbrunner and Paineira, 2015, 2018; Akyüz, 2017).⁸ In the current scenario of persistent weak global economic growth, low commodity prices and the normalization of monetary policy in advanced economies, there is uncertainty over the resilience of DEEs to future shocks, particularly those with high financial exposure and/or dependence on commodity exports.⁹

In this article, we propose a taxonomy of typical IFI profiles and apply it to a sample of 90 DEEs for the 1992-2016 period to help to explain the links between IFI and economic growth performance. Drawing from a Keynesian and Structuralist analytical framework (Davidson, 2002; Arestis and Glickman, 2002; Palma, 2013; Ocampo, 2001, 2018; Bresser-Pereira *et al.*, 2020; Cimoli *et al.*, 2020), our hypothesis is that what matters for economic growth is less the degree of IFI or liberalisation *per se*, including its interplay with the political and institutional domestic features, as argued by mainstream economists, and much more the profile, or “quality”, of this integration. By linking the IFI-growth research agenda with the

⁶ In a report published in 2012, the IMF recognized the legitimacy of capital controls as a useful instrument to cope with the macroeconomic instability generated by capital flows (IMF, 2012). Whilst conceding that financial globalisation bears potential adverse effects, its advice was to avoid capital controls whenever possible and to maintain a financially open economy, restricting destabilizing capital flows only as a last resort and on a temporary basis. Hence, the new IMF posture is seen by many experts as insufficient to deal with the problems of financial globalisation. For diverse views on macroprudential tools and/or reforms in the global financial system see, for example, Akyüz (2017), Ghosh *et al.* (2018), IMF (2012, 2016), Korinek (2018), Ocampo (2018), Jeanne *et al.* (2012) and Kregel (2016).

⁷ See Jeanne *et al.* (2012) and Rodrik and Subramanian (2009) for a critique on the indirect effects’ argument.

⁸ Broadly, the term “financialisation” is used to describe the increasing dominance of the financial sector over the real sector, i.e. a process in which financial markets, financial institutions and financial elites acquire growing importance on the economic dynamic (economic policy and economic performance) both nationally and internationally (see Epstein, 2005; Bonizzi, 2013; Stockhammer, 2013).

⁹ As analysed by UNCTAD (2015), the “taper tantrum” of 2013 produced contractionary policies reactions and substantial shocks in the performance of various DEEs, being an omen of possible capital flows reversals in the near future.

literature on external vulnerability and financialisation, we show how a more vulnerable IFI profile may exacerbate the risks of financial globalisation, undermining economic growth in the long run.

Following this introduction, section 2 reviews the literature debate on the IFI-growth nexus linking it to the different approaches on external vulnerability. Section 3 explores the reasons why profiles of IFI and, hence, degrees of external vulnerability, can help to explain the IFI nexus with economic growth, especially for DEEs. Section 4 presents a taxonomy that allows us to classify countries according to four typical profiles of external vulnerability. Building on this taxonomy, Section 5 sets the empirical strategy to evaluate the external vulnerability dimension in a growth model. Section 6 empirically tests this article's hypothesis and discusses the main results. Section 7 draws some final conclusions.

2. International Financial Integration and Economic Growth: An Unsettled Debate

In neoclassical theory, financial liberalisation and integration of capital markets bring a number of direct and indirect growth-enhancing benefits, especially for DEEs. By allowing a better global allocation of capital and international risk sharing, capital-poor DEEs would be able to finance their development with foreign savings from advanced economies. Moreover, the commitment with financial liberalisation would supposedly contribute to the development of their domestic institutions and financial systems, since a deviation from good economic policies can be easily punished by capital outflows in a financially open economy. All in all, better economic policy management and macroeconomic discipline would lead to greater total factor productivity and, hence, higher economic growth (Obstfeld and Taylor, 2004; Kose *et al.*, 2006).

Empirical evidence, however, strongly defies the neoclassical view. Even when advocating that in order to benefit from IFI countries should satisfy certain threshold conditions – such as certain levels of inflation, government deficit, financial development, institutional quality, openness, etc. – empirical evidence has yielded conflicting conclusions hitherto. Some key empirical studies providing detailed reviews and reporting mixed findings are Kose *et al.* (2006, 2011); Kraay (1998); Chen and Quang (2014); Edwards (2001); Edison *et al.* (2002, 2004); Jeanne *et al.* (2012); Prasad *et al.* (2007a, 2007b); Rodrik (1998); Rodrik and Subramanian (2009) and Schularick and Steger (2010).

In response, a large and growing literature from diverse perspectives has warned about the potential side effects of IFI. If distortions like information asymmetries, incomplete markets and irrational behaviour affect the international financial market, IFI could result in inefficient resource allocation, macroeconomic instability and crises, damaging DEEs' economic growth (Bhagwati, 1998; Rodrik, 1998; Stiglitz, 2000; Palma, 2013). In particular, the procyclicality and volatility of capital flows on macroeconomic prices of DEEs can have a negative impact on the “real” side of their economies (e.g. Davidson, 2002; Stiglitz, 2004; Cardarelli *et al.*, 2010; Borio, 2014; Korinek, 2018; Ocampo, 2001, 2018). For instance, exchange rate misalignments and/or volatility, which often come along with the financialisation process in DEEs, undermines the long-run economic growth for it harms long-term planning (Rodrik and Subramanian, 2009; Akyüz, 2017; Kaltenbrunner 2018; Kaltenbrunner and Paineira, 2018; Setterfield and Ozelik 2018; Cimoli *et al.*, 2020). In this line, Bresser-Pereira *et al.*, (2020) present theoretical and empirical arguments to show that rapid financial liberalisation and integration of Latin America since the 1980s has contributed to the region's deindustrialisation and to their fall into the middle-income trap, a trap which can be rather understood as a liberalisation trap.

The debate on the IFI-growth nexus can be partially explained by taking into account the concurrent approaches to explain currency and financial crises. The mainstream research agenda has traditionally perceived external vulnerability as a result of a country's deficient domestic policies. This idiosyncratic approach, represented by the generational models of currency and banking crises and the Early Warning Systems, focuses on the role of misaligned macroeconomic fundamentals, inadequate economic policies, fragile institutions and financial systems to interpret currency and financial crises. As noted by Calvo *et al.* (2008), DEEs can be tested by foreign investors, but vulnerability to sudden stops is determined by domestic factors such as tariff and competitiveness policies affecting exports performance, and badly managed fiscal

and monetary policies that result in fragile and dollarized balance sheets.¹⁰ In this perspective, enjoying the growth-enhancing benefits which accompany financial liberalisation would be conditional to the adoption of “good”, “responsible” economic policies. Thus, the high incidence of currency and financial crises in DEEs which opted for a liberalisation of their financial markets is largely explained by these countries’ inadequate domestic policies. Gradually, however, the idiosyncratic approach has been evolving to abandon the efficient market hypothesis and to include flaws in international financial markets, a movement which gain traction since advanced economies were strongly hit by the 2007-2009 GFC.

In the wake of the legitimacy crisis of the neoliberal globalised financial regime engendered by the 2007-2009 GFC (Helleiner, 2010), systemic views on external vulnerability gained momentum. The systemic approach emphasizes the role of underlying dynamics of the international economic system, including centre-periphery structural asymmetries, to explain countries’ vulnerability to currency and financial crises. Accordingly, the financial fragility and macroeconomic instability generated by exuberant credit expansion, boom in consumption, asset prices, corporate and household indebtedness were due large imbalances in the current account of systemically important economies, reflecting distortions and entailing risks for the whole global economy (Bernanke, 2005, 2009). In addition, an “excess of financial elasticity” resulting from the expansionary bias on the interaction between domestic policy regimes and the IMFS would also add to the systemic instability (Borio, 2014; Borio *et al.*, 2014). The incapacity of countries to prevent these financial imbalances or to tame the procyclicality of the financial system, enhanced by IFI and free capital mobility, would lead to systemic crises and macroeconomic dislocations.

This systemic interpretation of financial crises makes parallel with a number of critical perspectives on the financial globalisation phenomenon, which for a long time have emphasized the structural weaknesses of modern market economies (Bonizzi, 2013). In these traditions, the integration of DEEs in the global economy has been characterized by a forced response towards international liquidity cycles determined by advanced economies, being intensely exposed to the typical boom-bust pattern. This scenario is worsened by DEEs higher vulnerability to commodity price cycles, whose market has become increasingly financialised, speculative and linked to international financial cycles, leading to frequent price bubbles whose corrections impose large socioeconomic costs (Wray, 2008; UNCTAD, 2012; Bonizzi 2013).

Based on the works of Keynes and Minsky, several studies have demonstrated the systemically endogenous characteristic of crises, not specifically due to government or market failures, but because financial integration/liberalisation contributes to strengthening the inherently speculative and unstable behaviour of monetary production economies (Arestis and Glickman, 2002; Frenkel and Rapetti, 2009; Kregel, 1998, 2004; Palma, 2013; Tonveronachi, 2006). Thus, although financial fragility may be reinforced by distortions in incentives and regulations, it is essentially the result of the normal functioning of a free-market economy.

Perspectives aligned to the Latin American structuralism have also underlined the perils bearing finance-led globalisation. Focusing on the structural instability of the IMFS and the subordinate position of DEEs in its hierarchy, which is reflected in self-reinforcing asymmetries at the macroeconomic level, in this view IFI is an integration between unequal partners, presenting more risks to the periphery (Ocampo, 2001, 2018; Fritz *et al.*, 2018; Kaltenbrunner and Paineira, 2018). These asymmetries translate into a “balance of payments dominance”, as coined by Ocampo (2016), meaning that short-term macroeconomic dynamics of DEEs are dominated by cyclical shocks through trade and, most importantly, the availability and cost of external financing (Kaltenbrunner and Paineira, 2015, 2018; Ocampo, 2001, 2018). The outcomes of this process can surpass the short-run period, as path dependence and hysteresis may arise depending on the impact of external shocks on crucial macro variables and, subsequently, on investment, technical change and specialization (Cimoli *et al.* 2020).

Underpinning the systemic approach to external vulnerability as well as the critical perspectives on the financial globalisation phenomenon, empirical research has consistently verified the greater macroeconomic volatility of DEEs, which is largely explained by DEEs’ greater vulnerability to exogenous

¹⁰ A comprehensive synthesis of this literature can be found in Claessens and Kose (2013), Frankel and Saravelos (2012), Tularam and Subramaniam (2013) and Goldstein and Razin (2015).

trade and financial shocks (e.g. Didier *et al.*, 2012; Perry, 2009; Mirdala *et al.*, 2015). Evidence shows that more volatile economies tend to grow less in the long run, especially due to the reduction of investment (Ramey and Ramey, 1995; Hnatkowska and Loayza, 2005; Titelman and Pérez-Caldentey, 2014). Evidence also suggests that a higher incidence of financial crises is associated with a lower medium-term growth, which could establish an obstacle to the DEEs' catching-up process in the long-run (Abiad *et al.*, 2009; Reinhart and Reinhart, 2015).

Whilst the IFI-growth nexus has been weak, at best, higher external vulnerability has been associated with lower economic growth. Albeit DEEs are structurally more vulnerable to the underlying dynamics of the IMFS, the next section argues that there are different ways in which a DEE can integrate into the global economy to become more or less vulnerable to external trade and financial shocks.

3. Profiles of International Financial Integration and Levels of External Vulnerability

The fundamental concern that arises from the IFI-growth debate is that the way an economy – especially a developing one – integrates into global markets entails different outcomes in terms of its vulnerability to external shocks and, hence, plays a key role in its growth trajectory. Against this backdrop, our central hypothesis is that what matters for economic growth is less the degree of IFI or liberalisation *per se*, and more the profile, or “quality” of such integration. While we consider that this hypothesis is valid both in terms of financial and trade integration, this article focuses on the financial dimension.

In this sense, the concept of external vulnerability adopted here is dynamic, and manifests itself as an obstacle to economic growth even in the absence of severe crises. That is, external vulnerability represents the risk of economic growth being constrained in the medium-long run by external shocks which result from the unstable nature of financial markets, and which affect each economy depending on their IFI profile. That means countries can have some degree of control in defining how they will join the financialisation process and this (conscious or not) decision will have an impact in their ability to deal with an inherently unstable IMFS. Whilst broader institutional and political factors may play a role too in a country's external vulnerability, we assume that some representative features of a higher or lower quality of the IFI profile is more relevant to explain both the similarities and differences of growth outcomes among DEEs.

At the macro level, the quality of a country's IFI profile can be defined in terms of (i) its dependence on foreign capital, with a current account surplus signalling a higher quality IFI; (ii) the nature of its external positions, where long maturity financing sources are preferred to short-term ones and, usually, liabilities denominated in domestic currency are preferred to those denominated in foreign currency; and (iii) its capacity to deal with external shocks (i.e. its safety margin), which can be measured both by the total amount of foreign reserves and by the share of foreign reserves in relation to the country's net foreign liabilities (NFL). To be sure, securing a high quality IFI profile does not mean DEEs can overcome external vulnerability. For instance, vulnerability to terms-of-trade shocks can rapidly reduce the self-insurance provided by reserves in commodity-dependent countries. To that extent, even countries with strong reserve positions and current account surpluses can experience significant drain of reserves and currency depreciations as a result of sharp drops in non-resident inflows or exit from domestic securities markets, capital flight by residents, or severe terms-of-trade shock. Whilst solid external positions may not be enough to insulate DEEs from macroeconomic instability, a high quality IFI profile can help to avoid, or reduce, the negative impact of external shocks, therefore, maintaining the growth trajectory.

According to the neoclassical theory, current account deficits reflect intertemporal decisions of rational agents, based on realistic expectations about the future, and should not necessarily be seen as a problem (Obstfeld, 2012). Yet, experience shows that numerous crises were preceded by current account deficits. While current account deficits may drive short-term economic growth, Cavallo *et al.* (2018) demonstrate that they are often counterproductive in the long run, since countries that finance growth through foreign savings end up growing less than those that use domestic resources. In addition, high current account deficits (usually over 4% of GDP) have been associated with a higher occurrence of sudden stops and capital reversals, with higher macroeconomic volatility and incidence of crises and with collapses in investment and in output, as showed by Edwards (2004), Reinhart and Reinhart (2008), Cardarelli *et al.*

(2010), Catão and Milesi-Ferretti (2014). Although the impact of high current account deficits on external vulnerability is often related with specific domestic and international factors, these studies argue that the negative consequences of higher current account deficits can happen regardless of the financing profile, the degree of dollarization or the level of international reserves.

While current account deficits create a basic vulnerability to sudden stops in capital inflows, the nature of stocks, recorded in the international investment position, is a critical determinant of their impact on the economy (Obsfeld, 2012). That includes the extent to which agents have sufficiently liquid assets, whether the liabilities are mostly equity or debt securities, the degree of dollarization, the maturity profile, the level of official reserves, etc. A relative consensus has been established that foreign direct investment (FDI) is a more growth-enhancing financing source than short-term portfolio flows, not only because of its longer maturity and lower volatility but also because it usually means investment in physical assets, expansion of productive capacity and technology transfer.¹¹ More generally, the literature usually highlights that equity flows tend to offer a better risk-benefit ratio than debt (Stiglitz, 2000; Kose *et al.*, 2006; Korinek, 2018). In a similar fashion to a high level of current account deficit, Catão and Milesi-Ferretti (2014) find evidence that a high net foreign liabilities level (usually over 50% of GDP) significantly increases the risk of crises.

With the double bonanza of booming commodity prices and surging capital inflows in the early 2000s, a number of DEEs managed to transform their NFL structure. On the asset side, DEEs accumulated an unprecedented amount of international reserves, thus increasing their safety margins to deal with unexpected external events. On the liabilities side, DEEs have been somewhat successful in moving away from their “original sin”, i.e. the inability to borrow from other countries in your own currency (Eichengreen *et al.*, 2007). In principle, a lower level of domestic liability dollarization should mean a lower external vulnerability, since it decreases the occurrence of currency mismatches and liquidity crises.

However, the IFI process of some countries has ensued new forms of external vulnerability, which cannot be reduced to liquidity crises driven by short-term foreign currency debt (Kaltenbrunner and Paineira, 2015, 2018; Akyüz, 2017; Ocampo, 2018). The new forms of external vulnerability are related with a greater foreign presence in domestic equity and bond markets, which create foreign liabilities denominated in domestic currency (Kaltenbrunner and Paineira, 2015, 2018). As recent research has demonstrated, foreign investors’ increasing share in domestic currency assets can be as restrictive as DEEs traditional debt denominated in foreign currency and impose even more difficulties to authorities, since surges in entry and exit of non-residents greatly affect not only asset prices but also exchange rates, and there is no predetermined schedule of repatriation or remittances of profits and dividends (Kaltenbrunner and Paineira, 2015, 2018; Kaltenbrunner 2018). Thus, even in the absence of large foreign currency debt, DEEs can be highly vulnerable to investors’ swings in domestic financial markets, increasingly driven by shifts in global risk appetite and liquidity conditions, rather than by domestic macroeconomic fundamentals. Consequently, traditional indicators of external vulnerability, which usually focus on foreign currency debt, may overestimate the effective safety margin offered by a country’s foreign reserves. This is particularly true when international reserves are “borrowed”, i.e. resulting from financial account surpluses that exceed current account deficits, since it implies increased foreign liabilities.

Building on this discussion, the next section develops a taxonomy to classify higher and lower quality profiles of IFI. Even if a solid external position is not sufficient to insulate DEEs from an unstable IMFS, our hypothesis is that it can help to manage unexpected external shocks, preserving the economic growth trajectory. In comparison, DEEs with greater external imbalances will be prone to experience high external financial instability and disturbance at the domestic credit and asset markets, greatly undermining their growth trajectory.

4. A Taxonomy for Profiles of International Financial Integration

¹¹ It should be noticed that FDI-derived reinvestments may be redirected to liquid domestic financial assets, being equivalent to short-term portfolio investments. To that extent, only greenfield projects represent direct contribution to production capacity. In addition, the impact of FDI on the balance of payments is often negative even when investments are export oriented (UNCTAD, 2014; Akyüz, 2017).

The taxonomy developed in this section is inspired in the work of Tonveronachi (2006), which developed a classification for the external financial fragility of developing countries. Whilst Tonveronachi focused essentially on the dynamics and sustainability of external debt, our taxonomy centres on the potential instability that results from sudden stops and reversals of external resources in general, in a context of increasing IFI and participation of non-residents in DEEs' financial markets.

The dynamics implicit in our classification are as follows. The deterioration of the current account (CA) increases NFL and the dependence on foreign resources. The BP equilibrium and macro stability become increasingly dependent on the country's safety margins and on the expectations of foreign investors. As the need for funding increases, the country's external vulnerability begins to be assessed both in terms of the size of the CA deficit and the level of NFL, including its composition, such as the volume of short-term debt and highly flexible liabilities vis-à-vis readily available foreign assets. Concurrently, expectations about the sustainability of the level of NFL over the medium-long term can also change financing conditions to this country, being measured by the country's capacity to generate foreign assets from net exports over the net cost of liabilities.¹² It follows that DEEs with an unbalanced external position and high dependence on foreign resources are expected to be more affected by external shocks, suffering more macroeconomic instability and growth contractions.

Following this rationale, Table 1 outlines four typical IFI profiles and degrees of external vulnerability. We consider four classifications for the external position (strongly balanced, weakly balanced, weakly unbalanced and strongly unbalanced), which is defined by the CA and NFL positions, and two classifications for the dependence on foreign resources (financially independent and financially dependent), which is given by the combination of the CA, NFL and safety margins positions. The combination of the external position and dependence on foreign resources results in four degrees of external vulnerability: (i) strongly balanced + financially independent = low external vulnerability; (ii) weakly balanced + financially independent = medium-low external vulnerability; (iii) weakly unbalanced + financially dependent = medium-high external vulnerability and; (iv) strongly unbalanced + financially dependent = high external vulnerability.

Table 1. *Typical external profiles at country level*

Profile	NFL	CA	Safety margins	Vulnerability
<i>Strongly Balanced and Financially independent</i>	Balanced or negative.	In surplus or equilibrium, with small and temporary deviations.	FX reserves; Prudential evolution of g_{NFL}	<i>Low</i>
<i>Weakly Balanced and Financially independent</i>	Positive, but stable.	Current income enough to remunerate the liabilities: mostly in equilibrium.	FX reserves; Prudential evolution of g_{NFL}	<i>Medium-low</i>
<i>Weakly Unbalanced and Financially dependent</i>	Positive and growing, but at a small rate.	Current income insufficient to remunerate liabilities: relatively constant deficits.	FX reserves; Low initial ratio of NFL/NX	<i>Medium-high</i>
<i>Strongly Unbalanced and Financially dependent</i>	Positive and growing at increasing rates.	Current income insufficient to remunerate liabilities: increasing deficits.	None	<i>High</i>

Source: Authors' elaboration.

In a dynamic view, however, the characteristics associated with each external profile evolve simultaneously and do not always coincide over time. In addition, a key challenge in this exercise is to establish reasonable parameters for what can be considered an adequate safety margin. Besides the NFL and CA positions, we used three indicators to evaluate countries' safety margins (the liquidity conditions). The first is the ratio of short-term external debt to international reserves (STED/FX), which is based on the "Greenspan-Guidotti" rule that states countries should have enough reserves to cover all external debt

¹² Being $r^{NFL}NFL$ the net cost of foreign liabilities (net income sent abroad) in each period, from a medium-long-term perspective, the condition for NFL not to follow an explosive path can be expressed by $g_{NFL} = r^{NFL} - \frac{NX}{NFL-1}$, where g_{NFL} is the growth rate of NFL and NX are net exports.

maturing in 12 months and which has a well-established record as an indicator of crisis risk for market-access countries (IMF, 2011). The second is the international reserves ratio to the stocks of portfolio equity (FX/PE), which according to McCulley and Toloui (2007) should be of at least 30% to ensure enough security in the event of a sudden stop and to prevent capital flight. The third indicator is the international reserves on monthly imports (FX/M), which is a traditional indicator for the degree of insulation of domestic economic activity against external shocks. The consensus is that reserves should cover at least three months of imports (IMF, 2011). To this general taxonomy, we opted for a pragmatic approach that enables the empirical analysis for a comprehensive time period. The strategy consists of using dummies for each year in each feature of external position, and then taking the mode to get the dominant behaviour for the whole period. Table 2 illustrates the possible scenarios and ordering by these criteria.

If an economy holds a $NFL \leq 0$ dominant in the period (i.e. the country is a net lender), it is considered *Strongly Balanced/Financially Independent*. It is possible that an economy presents a CA deficit for some period and still presents a negative NFL, because of its historical legacy, for instance. Even with an unbalanced CA, this country is classified as *Financially independent*, as it would be spending its own wealth, disposing of foreign assets accumulated in the past. The worst-case scenario for a country like this would be to face some liquidity issues in realizing these assets.

Table 2. Classification example

	NFL	CA accumulated	CA	NFL/X	STED/FX	FX/PE	FX/M
<i>Strongly Balanced and Financially independent</i>	1	-	-	-	-	-	-
	0	1	1	1	1	1	1
<i>Weakly Balanced and Financially independent</i>	0	0	1	1	1	1	1
	0	1	1	0	1	1	1
	0	1	0	1	1	1	0
<i>Weakly Unbalanced and Financially dependent</i>	0	0	0	0	1	1	1
	0	0	0	1	1	0	0
<i>Strongly Unbalanced and Financially dependent</i>	0	0	0	0	0	0	0
	0	0	0	0	0	1	1

Note: Values equal to 1 indicate that Mode of $NFL \leq 0$; Accumulated CA balance ≥ 0 ; CA balance ≥ 0 ; $NFL/X \leq 2$; $STED/FX \leq 1$; $FX/PE \geq 30\%$; $FX/M \geq 3$ months.

If an economy has a positive NFL in the period (i.e. the country is a net debtor), but its broader external position has been improving, it is also considered *Strongly Balanced/Financially Independent*. The broader external position would mean it has a positive accumulated CA balance for the period (indicating reduction of the NFL level), the solvency condition given by NFL/X ¹³ is 1 (indicating external sustainability in the medium-long term) as well as for the three liquidity conditions, STED/FX, FX/PE and FX/M. It is possible that the positive NFL is an inheritance of a previous period and that, over the period under analysis, the economy has systematically presented good external results, therefore suggesting it will overcome the debtor position in the near future. All in all, this situation would signal a sound or credible position to international markets both in terms of solvency and liquidity, meaning the economy has a low vulnerability profile. If an economy has a positive NFL in the period, but at least one CA attribute is not fulfilled (CA accumulated < 0 ; or the solvency condition given by NFL/X is 0; or CA balance < 0 and $FX/M < 3$ months), it is considered *Weakly Balanced/Financially independent*. Even if not as robust as the

¹³ This indicator is a simplification of the previously defined NFL solvency condition (g_{NFL}). The practical advantage is that Simonsen and Cysne (2009) establish a rule of thumb that enables to relate the NFL/X ratio to the solvency condition of debtor countries. They consider that a debtor country will be in a comfortable position when the ratio of NFL to total exports is less than 2, meaning that if all export earnings were incorporated into the assets, the stock imbalance would be overcome within two years. Conversely, when the ratio is greater than 2, the lower it will be the country's solvency capacity.

Strongly balanced case, this is an economy which is still relatively balanced over time and presents adequate safety margins.

However, when no CA attributes are met, the solvency and liquidity conditions serve to distinguish between the *Weakly Unbalanced/Financially dependent* and *Strongly Unbalanced/Financially dependent* positions. If the three liquidity conditions are met or if the solvency condition is met and at least one liquidity indicator is met, the position is considered *Weakly Unbalanced*. The remaining possibilities characterize a profile whose safety margins are very limited and therefore characterize a *Strongly Unbalanced/Financially dependent* economy.

5. Profiles of International Financial Integration in a Growth Model

Based on the taxonomy developed in section 4, in this section we investigate the relationship between IFI, external vulnerability and economic growth by estimating a dynamic panel data model over the 1992-2016 period for a sample of 90 DEEs.¹⁴ After classifying each country according to the taxonomy, we grouped the “strongly balanced” and “weakly balanced” countries in the *Balanced/Financially independent* category, comprising 27 economies, and the “weakly unbalanced” and “strongly unbalanced” in the *Unbalanced/Financially dependent* category, comprising 63 economies. The panel is unbalanced. The available data was organized in non-overlapping five-year averages, which is a standard procedure in panel data analysis, as it reduces the unwanted effects caused by unit roots. Moreover, using 25 years in five-year averages allows us to abstract the fluctuations in economic activity as well as short-term political and financial shocks and thus focus on medium-long-run growth.

We follow a well-established empirical literature which assumes that the growth rate path is consistent with the following regression:

$$y_{i,t} = \alpha y_{i,t-1} + \beta' X_{i,t} + \lambda_t + \eta_i + \varepsilon_{i,t} \quad (1)$$

Where y is the real GDP per capita growth rate, X represents a set of explanatory variables, which comprise the indicators for IFI and external financial shocks, individually taken, and a set of standard controls for growth models, λ varies over time, is constant across countries, and captures shocks common to all countries, not controlled by the variables in $X_{i,t}$, η represents the country-specific fixed effects, which incorporate factors that influence GDP per capita growth and are potentially correlated with explanatory variables, and ε is the error term. The subscripts i and t represent country and period respectively. Data sources and variables are described below and detailed in Appendix 2, Box A1.

Typically, IFI has been measured by two types of indicators: i) *de jure* indicators, i.e. a qualitative assessment which measures the intensity with which legal barriers are designed to control capital mobility; ii) *de facto* indicators, i.e. quantitative measures on aggregate flows or stocks scaled by GDP. We use the KAOPEN index developed by Chinn-Ito (2006) as the *de jure* measure, as it has the broadest coverage and captures the enforcement intensity of capital controls. We use four *de facto* indicators, being two traditional GDP-weighted measures considering the aggregate capital flows (IFI-FGDP) and stocks of external assets and liabilities (IFI-SGDP), as well as two indicators considering the same aggregate capital flows and stocks, but scaled by the sum of imports and exports of goods and services, named IFI-FT and IFI-ST, respectively. Although not necessarily new, their use are probably unprecedented in the empirical literature on the IFI-growth nexus.¹⁵ Besides higher data coverage, the dominance of *de facto* indicators over *de jure* ones is because these measures seem to be more appropriate since “what matters in analysing the effects of

¹⁴ The choice of countries was based on data availability and are listed in the Appendix 1, Table A1. The overall distinction between developing and developed countries follows the United Nations’ definition. The definition of emerging economies follows the Institute of International Finance (IIF) definition, since the UN does not provide a distinction. See UNDESA (2016) and IIF (2016).

¹⁵ For instance, the IFI-ST is used by Lane and Milesi-Ferretti (2003, 2007) when analysing the evolution of IFI for several countries, but they do not estimate its relationship with economic growth. Similarly, we built the IFI-FT considering aggregate capital flows.

financial globalization is not how integrated economies seem on paper but how integrated they are in practice”, as put forward by Kose *et al.* (2006, p. 8).

Because we are trying to explain the IFI-growth nexus by considering the existence of different profiles of external vulnerability, we also included the CAD and levels of NFL in the regression. Becker *et al.* (2010) argue that high current account deficits (CAD) are indicators of a peripheral financialisation, reflecting and reinforcing the structural dependence of DEEs on capital inflows. We consider that a similar understanding follows for a positive NFL, since by pressuring the future current account a net debtor position reinforces the capital inflows dependence, having a strong structural character. Thus, including CAD and NFL as explanatory variables in the regression allow us to examine whether financing growth through foreign savings pays off, as predicted by neoclassical theory, or if high external imbalances can be detrimental to stability and economic growth, as we assume. In addition, the variables IFI-ST and IFI-FT may also capture movements of peripheral financialisation, possibly denouncing a predominance of financial activities over the real sector.

Following conventional growth models, our set of standard controls are: (i) initial human capital; (ii) investment rate; (iii) inflation; and (iv) fiscal balance (these last two being proxies for macroeconomic discipline). In addition, robustness tests were performed for initial GDP per capita (a proxy for overall economic development) and for an index of institutional development.

We use five proxies for external financial shocks: (i) *Global Liquidity*, a systemic shock build as the sum of total capital flows recorded by the G7 economies as a share of aggregate GDP; (ii) *EM Liquidity*, measured by the total capital inflows to a group of 25 emerging market economies as ratio to GDP, to capture more specific changes in global liquidity that affect mainly DEEs;¹⁶ (iii) *International interest rates*, measured by the short-term US dollar LIBOR and the US Treasury Bond (T-Bill) rates in nominal and real values; (iv) *The CBOE Volatility Index (VIX)*, a widely used proxy for risk aversion and changes in global financial cycles; and (v) *Individual availability of external resources (IAER)*, measured as the sum of net financial inflows plus net primary income as a ratio to GDP, used as a proxy for shocks of idiosyncratic or country-specific character. The effects of changes in the foreign liabilities structure are analysed by three categories of indicators: (i) indexes for external liability “quality” which capture the predominance of FDI or total equity over debt (ELQ and ELQII); (ii) the share of foreign liabilities in the form of FDI, equity or debt instruments (FDI/Liab, Equity/Liab and Debt/Liab); (iii) the ratio of reserve assets to total liabilities, which broadly captures changes in liquidity conditions (FX/Liab).

To estimate the growth equation we use a dynamic panel data methodology. The growth regression (1) presents some challenges due to the existence of unobserved time-and country-specific effects. In addition, the interpretation of reduced-form growth regressions is typically bedevilled by concerns about endogeneity and the direction of causality, so that simultaneity or reverse causality must be properly controlled for. To get around these problems, we use system generalized method of moments (GMM), developed by Arellano and Bover (1995) and by Blundell and Bond (1998). The GMM involves estimating a system comprising a first-differenced equation to eliminate country fixed effects and an additional equation in levels. Appropriate lagged values of levels and first-differences can then be respectively used as instruments in these equations to address endogeneity concerns. This approach is increasingly being used in a variety of related situations, having been regarded by Bond *et al.* (2001) as the most appropriate estimator for growth equations.

The estimator’s consistency depends on the validity of the instruments and the absence of second order serial correlation in the error term. Three specification tests are traditionally recommended, for which the null hypothesis should not be rejected: (i) the Hansen and (ii) Diff. Hansen Tests check for exogeneity of the instruments; and (iii) the Arellano-Bond test for AR (2) checks the second order serial correlation in the error term. Excessive instruments can overfit endogenous variables and invalidate some asymptotic results and specification tests. To deal with the proliferation of instruments, Roodman (2009) suggests using only a few lags instead of all the available lags and/or combining instruments by adding them into smaller

¹⁶ The IIF regularly analyses 30 economies considered emerging markets: Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, Peru, Venezuela, China, India, Indonesia, Malaysia, Philippines, South Korea, Thailand, Egypt, Lebanon, Nigeria, Saudi Arabia, South Africa, United Arab Emirates (UAE), Morocco, Czech Republic, Hungary, Poland, Bulgaria, Romania, Russia, Turkey and Ukraine. Due to lack of data in some years, UAE, Lebanon, Czech Republic, Russia and Ukraine were not considered.

sets, using the *collapse* function in Stata. A rule of thumb recommended by the author and followed in this paper consists in not allowing the number of instruments to exceed the number of groups (countries) in the panel. The results of the models are discussed in the following section.

6. The Nexus Between International Financial Integration and Economic Growth

In all the models, the Hansen, Difference Hansen and AR (2) tests confirm the validity of the dynamic panel data specification at the usual 5% level (except for AR (2) in column 17 of Table 4, valid at the 10% level). For the sake of simplicity, we present the complete output table only for the basic approach regressing the GDP per capita growth on the IFI and foreign savings (or external imbalances) variables for the total sample. Due to the sequence of numerous regressions, we opted to present only the results for the variables of interest and the respective specification tests, evidently maintaining the same control variables from the baseline model. As usual, the complete estimated results and the full dataset are available upon request.

Running the regression for the 90 countries sample, the results show that none of the IFI and foreign savings variables are statistically significant, thus not supporting the neoclassical assumption that a higher financial integration is associated with higher economic growth. The results are summarized in Table 3. Yet, the complete sample results do not allow us to confirm the alternative hypothesis that external imbalances undermine growth.

Table 3. *IFI, foreign savings and GDP per capita growth (1992-2016): Complete sample*

	1	2	3	4	5	6	7
ΔPIB t-1	0.066 (0.120)	0.013 (0.223)	-0.181 (0.156)	-0.034 (0.224)	-0.292 (-0.239)	0.016 (0.292)	-0.313 (0.262)
Fiscal Balance	-0.197** (0.088)	-0.197** (0.085)	-0.090 (0.065)	-0.199** (0.078)	-0.176** (0.084)	-0.228** (0.105)	-0.124 (0.091)
Investment	0.047 (0.077)	0.078 (0.090)	0.055 (0.054)	0.089 (0.090)	0.119 (0.093)	0.101 (0.135)	0.069 (0.078)
Inflation	0.091 (0.065)	0.062 (0.062)	0.051 (0.070)	0.061 (0.072)	0.032 (0.063)	0.099 (0.084)	0.037 (0.065)
Human Capital	3.107** (1.531)	3.648** (1.660)	3.458*** (1.312)	2.975** (1.432)	4.109*** (1.557)	4.155* (2.283)	3.786** (1.579)
IFI-FGDP	0.006 (0.010)						
IFI-SGDP		0.000 (0.000)					
IFI-FT			0.006 (0.007)				
IFI-ST				0.001 (0.001)			
KAOPEN					-0.321 (0.262)		
NFL						-0.003 (0.006)	
CAd							0.021 (0.018)
Observations	303	319	303	319	322	318	322
AR(2)	0.859	0.527	0.194	0.620	0.233	0.315	0.277
Hansen Test	0.401	0.478	0.526	0.307	0.648	0.466	0.488
Diff Hansen	0.310	0.331	0.425	0.314	0.723	0.846	0.568

Note: *, **, ***, significant at 10%, 5% and 1% respectively. All estimates include time dummies and a constant, not reported. Only the time dummies are strictly exogenous variables. Estimates were performed by GMM-System using the *xtabond2* command for Stata (Roodman, 2009). Standard errors are in parentheses and two-step standard errors are robust to the Windmeijer (2005) heteroscedasticity correction, which greatly reduces the downward bias of the one-step standard error. Excess of instruments are controlled by *laglimits* or *collapse*.

However, when dividing the sample in two IFI profiles, namely the *Balanced/Financially independent* group and the *Unbalanced/Financially dependent* group, the results endorse the primary hypothesis of this article, as Table 4 shows.

Table 4. *IFI profile, external shocks, liability structure and GDP per capita growth (1992-2016)**Unbalanced or financially dependent (higher external vulnerability) sample*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	IFI-FGDP	IFI-SGDP	IFI-FT	IFI-ST	KAOPEN	NFL	CAd
Coefficient	0.011	-0.013**	-0.039*	-0.020*	-0.264*	-0.015**	-0.119**
Std. Errors	(0.032)	(0.006)	(0.021)	(0.011)	(0.147)	(0.007)	(0.052)
Observations	212	221	212	221	221	220	221
AR(2)	0.249	0.169	0.162	0.957	0.066	0.166	0.111
Hansen Test	0.224	0.502	0.444	0.114	0.548	0.240	0.703
Diff. Hansen Test	0.246	0.417	0.895	0.242	0.284	0.313	0.700
	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	Global Liquidity	EM Liquidity	LIBOR(r)	T-Bill(r)	LIBOR(n)	T-Bill(n)	VIX
Coefficient	-0.050***	-0.038***	-0.322*	-0.921*	-0.231*	-0.483*	-0.048***
Std. Errors	(0.012)	(0.009)	(0.181)	(0.545)	(0.130)	(0.285)	(0.011)
Observations	221	221	221	221	221	221	221
AR(2)	0.125	0.123	0.136	0.557	0.136	0.557	0.263
Hansen Test	0.151	0.134	0.116	0.169	0.116	0.169	0.115
Diff. Hansen Test	0.290	0.711	0.320	0.300	0.320	0.300	0.821
	(15)	(16)	(17)	(18)	(19)	(20)	(21)
	IAER	ELQ	ELQII	Equity/Liab.	FDI/Liab.	Debt/Liab.	FX/Liab.
Coefficient	-0.004**	0.450	1.405*	0.045	0.003	-0.057*	0.019*
Std. Errors	(0.002)	(0.655)	(0.831)	(0.056)	(0.032)	(0.034)	(0.010)
Observations	205	221	208	220	220	210	219
AR(2)	0.948	0.065	0.038	0.115	0.157	0.088	0.102
Hansen Test	0.283	0.465	0.451	0.598	0.526	0.150	0.303
Diff. Hansen Test	0.704	0.214	0.726	0.900	0.447	0.093	0.179

Balanced or financially independent (lower external vulnerability) sample

	(22)	(23)	(24)	(25)	(26)	(27)	(28)
	IFI-FGDP	IFI-SGDP	IFI-FT	IFI-ST	KAOPEN	NFL	CAd
Coefficient	0.003	0.000**	0.004*	0.000**	-0.219	-0.003***	0.154
Std. Errors	(0.008)	(0.000)	(0.002)	(0.000)	(0.474)	(0.001)	(0.105)
Observations	91	98	91	98	101	98	101
AR(2)	0.492	0.919	0.635	0.661	0.260	0.735	0.321
Hansen Test	0.506	0.150	0.374	0.361	0.220	0.351	0.242
Diff. Hansen Test	0.252	0.283	0.610	0.843	0.697	0.200	0.668
	(29)	(30)	(31)	(32)	(33)	(34)	(35)
	Global Liquidity	EM Liquidity	LIBOR(r)	T-Bill(r)	LIBOR(n)	T-Bill(n)	VIX
Coefficient	-0.076*	-0.065***	-0.428	-0.398	-0.307	-0.209	-0.061*
Std. Errors	(0.045)	(0.020)	(0.578)	(0.548)	(0.414)	(0.286)	(0.035)
Observations	101	101	101	101	101	101	101
AR(2)	0.176	0.167	0.162	0.161	0.161	0.160	0.165
Hansen Test	0.159	0.156	0.159	0.205	0.159	0.205	0.159
Diff. Hansen Test	0.906	0.877	0.880	0.897	0.871	0.892	0.892
	(36)	(37)	(38)	(38)	(39)	(40)	(41)
	IAER	ELQ	ELQII	Equity/Liab.	FDI/Liab.	Debt/Liab.	FX/Liab.
Coefficient	-0.003	0.559	0.568	0.022	0.001	-0.000	0.003
Std. Errors	(0.003)	-2.177	-2.224	(0.048)	(0.007)	(0.044)	(0.037)
Observations	90	98	96	98	98	96	98
AR(2)	0.404	0.475	0.406	0.410	0.936	0.422	0.797
Hansen Test	0.254	0.570	0.531	0.431	0.145	0.525	0.104
Diff. Hansen Test	0.466	0.368	0.382	0.289	0.689	0.407	0.297

Note: *, **, ***, significant at 10%, 5% and 1% respectively. All specifications include base controls in Table 3, as well as time dummies and a constant, not reported. Only the time dummies are strictly exogenous variables. Estimates were performed by GMM-System using the `xtabond2` command for Stata (Roodman, 2009). Standard errors are in parentheses and two-step standard errors are robust to the Windmeijer (2005) heteroscedasticity correction, which greatly reduces the downward bias of the one-step standard error. Excess of instruments are controlled by `laglimits` or `collapse`.

Looking at the *Unbalanced/Financially dependent* group, the IFI indicators IFI-SGDP, IFI-FT, IFI-ST and KAOPEN are negative and significant, while in the *Balanced/Financially independent* group the variables IFI-SGDP, IFI-FT and IFI-ST are positive and significant, though with little economic effect. Similarly, the NFL and CA_d variables are significant and negative for the *Unbalanced/Financially dependent* group, while only the NFL is significant and negative for the *Balanced/Financially independent* group. We also checked for robustness by including in the baseline model the initial GDP per capita and the quality of institutions index alongside the significant IFI variables and obtained similar results (if anything, the coefficients are slightly smaller on average). The results exhibited in Table 4 also show that external financial shocks affect more the growth path of the *Unbalanced/Financially dependent* group than of the *Balanced/Financially independent* group. All the proxies to measure external financial shocks (Global Liquidity, EM Liquidity, LIBOR(r), T-Bill(r), LIBOR(n), T-Bill(n), VIX and IAER) are significant and negatively signed for the former. The results also indicate, however, that a less vulnerable IFI profile is not sufficient to protect DEEs from more systemic external shocks. Looking at the *Balanced/Financially independent* group, the Global Liquidity, EM Liquidity and VIX variables are also significant and present even higher coefficients, probably because these economies are on average more financially integrated (see Appendix 3, Table A2,).

Finally, the results suggest that improvements in the external liability structure and in safety margins are important to sustain a high level of GDP per capita growth particularly in *Unbalanced/Financially dependent* DEEs. This is showed by the results for the ELQII, FX/Liab and Debt/Liab variables. Although these variables present the expected signs for the *Balanced/Financially independent* group, in this case none of them are statistically significant. Indeed, DEEs characterized by a more unbalanced and dependent financial integration are more vulnerable to changes in financing conditions and in the liquidity degree of their liabilities.

7. Concluding remarks

This paper analysed the role of DEEs' IFI profile and their degree of external vulnerability to explain the IFI-growth nexus. It developed a taxonomy to classify typical external profiles and applied it to a sample of 90 DEEs for the 1992-2016 period using a dynamic panel data model. It made two contributions to the literature. First, it incorporated the external vulnerability and financialisation dimension in the IFI-growth debate, a dimension largely neglected by mainstream studies, whose focus have been on the political and institutional conditions that would mediate growth outcomes and which so far have not presented conclusive evidence (Edison *et al.*, 2002, 2004; Prasad *et al.*, 2007a, 2007b; Kose *et al.*, 2006, 2011). Second, on the empirical level, it demonstrated that IFI can have different outcomes on the growth path depending on the country's IFI profile.

The results suggest that DEEs which succeed in integrating into global financial markets under a more balanced and autonomous profile can experience economic growth benefits, while a more financially dependent and vulnerable profile may exacerbate the risks of financial globalisation, undermining growth in the long run. These results are consistent with the Keynesian and Structuralist literature that criticize the financialisation process (Davidson, 2002; Arestis and Glickman, 2002; Palma, 2013; Kaltenbrunner and Paineira, 2015; Akyüz, 2017; Ocampo, 2011, 2018; Bresser-Pereira *et al.*, 2020; Cimoli *et al.*, 2020). According to the growth model estimated in this article, *Unbalanced/Financially dependent* DEEs are more affected by external shocks, leading to contractionary adjustments that undermine growth in the medium-long run. The results also suggest that improvements in the external liability structure and in safety margins are important to sustain a high level of GDP per capita growth, particularly in *Unbalanced/Financially dependent* DEEs.

Whilst DEEs with a more balanced and autonomous IFI profile tend to experience some growth benefits, the results also show that a low vulnerability profile is not enough to insulate DEEs against the instability of the IMFS. This result has important policy implications. In the absence of a substantial reform in the IMFS to reduce its instability, a growth-enhancing agenda to maximize the benefits and minimize the risks of financial globalisation should rely on policies that mobilize domestic resources and increase the complexity of a country's productive structure and exports. Such a strategy should lead to a greater external

equilibrium, a lower dependence on foreign resources and, hence, a lower vulnerability to fluctuations in financial and commodity cycles. By this token, the incorporation of permanent capital controls into the general macroeconomic regime of DEEs seems to be a necessary condition for coordinating macro policies that will enable the development of DEEs productive forces and sustain growth in the long run.

Yet, an international system where all countries pursue current account surpluses is unlikely to be sustainable. This hypothetical scenario would imply in a chronic deficiency in global demand and in high exchange rate volatility due to the spread of predatory “beggar-thy-neighbour” policies in the dispute for foreign markets. Likewise, it would be impossible for all countries to enjoy a stable international investment position, as each stable balance sheet has a counterpart in a fragile balance sheet of another country. Therefore, individual solutions are insufficient to deal with the instability of the IMFS. As international financial instability is a systemic issue, it can only be addressed at this level. Whether we will need to have further and deeper international crises, and long global recessions, to effectively take steps in such a direction, remains to be seen.

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Appendices

Appendix 1

Table A1. *List of countries*

Algeria ^{SB}	Congo Dem. Rep. ^{SU}	Hong Kong ^{SB}	Mauritius ^{SB}	Saudi Arabia ^{SB}
Argentina ^{WU}	Congo Republic ^{SU}	Hungary ^{WU}	Mexico ^{WU}	Senegal ^U
Bahrain ^{SB}	Costa Rica ^{WU}	India ^{WU}	Morocco ^{WU}	Singapore ^{SB}
Bangladesh ^{WB}	Cote d'Ivoire ^{WU}	Indonesia ^{WB}	Mozambique ^{WU}	South Africa ^{WU}
Benin ^{WU}	Czech Republic ^{WU}	Iran ^{SB}	Myanmar ^{WU}	South Korea ^{SB}
Bolivia ^{WU}	Dominican Republic ^{WU}	Israel ^{WB}	Nepal ^{WB}	Sri Lanka ^{WU}
Botswana ^{SB}	Ecuador ^{WU}	Jamaica ^{SU}	Nicaragua ^{SU}	Sudan ^{SU}
Brazil ^{WU}	Egypt ^{SB}	Jordan ^{WU}	Niger ^{WU}	Thailand ^{WB}
Bulgaria ^{WU}	El Salvador ^{WU}	Kenya ^{WU}	Nigeria ^{SB}	Togo ^{SU}
Burkina Faso ^{WU}	Ethiopia ^{SU}	Kuwait ^{SB}	Pakistan ^{WU}	Trinidad and Tobago ^{SB}
Burundi ^{WU}	Fiji ^{WU}	Lebanon ^{WU}	Panama ^{WU}	Tunisia ^{WU}
Cambodia ^{WU}	Gabon ^{SB}	Lesotho ^{WU}	Paraguay ^{SB}	Turkey ^{WU}
Cameroon ^{WU}	Gambia ^U	Libya ^{SB}	Peru ^{WU}	Ukraine ^{WU}
Cape Verde ^{WU}	Ghana ^{WU}	Madagascar ^{SU}	Philippines ^{WB}	United Arab Emirates ^{SB}
Chad ^{SU}	Guatemala ^{WU}	Malawi ^{SU}	Poland ^{WU}	Uruguay ^{WU}
Chile ^{WU}	Guinea ^{SU}	Malaysia ^{SB}	Romania ^{WU}	Venezuela ^{SB}
China ^{SB}	Haiti ^{SU}	Mali ^{WU}	Russia ^{SB}	Zambia ^{SU}
Colombia ^{WU}	Honduras ^{WU}	Mauritania ^{SU}	Rwanda ^{WU}	Zimbabwe ^{SU}

Note: Superscripts ^U and ^B denotes *Unbalanced* or *Balanced* economies, and ^S and ^W refers to *Strongly* or *Weakly Unbalanced/Balanced*, respectively.

Appendix 2

Box A1. List of variables

Name	Definition	Source
ΔGDP	Real GDP per capita growth. Logarithmic difference of GDP per capita in the start and end years in each 5-year period. GDP per capita is PPP, constant 2011 international \$.	WDI
Initial	Real GDP per capita in the starting year of each 5-year period (ln).	WDI
Human Capital	Human Capital Index based on years of schooling and returns to education.	PWT 9.0
Investment	Gross fixed capital formation in % of GDP.	WDI
IFI-FT	Sum of total inflows and outflows of capital as % of trade.	IFS
IFI-ST	Sum of foreign assets and liabilities as % of trade.	LMF (2011); IFS
IFI-FGDP	Sum of total inflows and outflows of capital as % of GDP.	IFS
IFI-SGDP	Sum of foreign assets and liabilities as % of GDP.	LMF (2011); IFS
KAOPEN	Chinn-Ito capital controls index. Higher values indicate higher level of liberalization/IFI. .	Chinn e Ito (2006)
CA _d	Current account balance as % of GDP multiplied by -1. Positive values mean current account deficit.	LMF (2011); IFS
NFL	Net foreign liabilities as % of GDP.	LMF (2011); IFS
ELQ	External Liability Quality Index: FDI liabilities minus other liabilities, as % of total liabilities. Ranges from 1 ("good" quality) to -1 ("bad" quality).	LMF (2011); IFS
ELQII	External Liability Quality Index II: FDI and portfolio equity liabilities, minus debt and derivatives as % of total liabilities. The same as in ELQ applies here.	LMF (2011); IFS
Inflation	Annual change in GDP deflator.	WDI
Fiscal Balance	Nominal general government fiscal balance as % of GDP.	WEO
Institutions	Simple average of the indices: Law and Order; Corruption control; Regulatory quality; Political stability; Government responsibility; Government effectiveness. Ranges between -2.5 and 2.5. Higher values indicate higher institutional quality.	WGI
IAER	Individual availability of external resources. Net financial inflows plus net primary income as % of GDP. External financial shock of idiosyncratic nature included in the equation as the % reduction rate.	IFS-WEO
Global Liquidity	Systemic external shock proxied by G7 economies aggregate financial flows as % of GDP, in real values. Included in the equation as the % reduction rate.	IFS-WEO
EM Liquidity	External financial shock more specific to DEEs, proxied by capital inflows as % of GDP for 25 IFF emerging economies, in real values. Included in the equation as the % reduction rate.	IFS-WEO
VIX	CBOE Volatility Index (VIX). Included in the equation as the % growth rate, annualized from the monthly averages.	CBOE
T-Bill(r)	Real international interest rate. US Treasury three-month bonds rate (adjusted by the US CPI, in ln). T-Bill(n) is the nominal rate.	IFS
LIBOR(r)	Real international interest rate. Three-month LIBOR in US dollars (adjusted by the US CPI, in ln). LIBOR(n) is the nominal rate.	FRED (LIBOR), IFS (IPC)
FX/Liab	Reserve assets (excluding gold) as % of foreign liabilities.	IFS
Debt/Liab	Total external debt stock as % of total foreign liabilities.	IFS
FDI/Liab	FDI stock as % of foreign liabilities.	IFS
Equity/Liab	FDI stock and portfolio equity as % of foreign liabilities.	IFS
Note: Lane and Milesi-Ferretti database 2007 (LMF); World Development Indicators (WDI); International Financial Statistics (IFS); World Economic Outlook (WEO); Penn World Table (PWT); Chicago Board Options Exchange (CBOE); Federal Reserve Bank of St. Louis (FRED); Worldwide Governance Indicators (WGI).		

Appendix 3

Table A2. Descriptive statistics (splitted sample, 5-year averages)

Variable	<i>Unbalanced or financially dependent</i>					<i>Balanced or financially independent</i>				
	Mean	Std. Dev.	Min.	Max.	Obs.	Mean	Std. Dev.	Min.	Max.	Obs.
ΔGDP	1.585	2.326	-12.565	9.429	314	1.752	2.537	-6.113	8.139	131
Initial GDPpc	8.268	1.018	5.870	10.267	314	9.527	1.049	7.137	11.566	131
Human Capital	0.659	0.305	0.037	1.293	295	0.827	0.227	0.236	1.284	130
Fiscal Balance	-3.125	3.311	-20.426	14.907	295	0.475	7.138	-32.141	28.758	129
Investment	21.124	6.474	5.201	52.143	297	23.601	6.954	7.606	44.894	132
Inflation	42.126	391.929	-9.323	6.721.501	314	12.517	50.063	-6.228	575.072	133
IFI-FT	19.045	11.206	4.731	76.326	293	30.027	57.140	2.908	392.052	122
IFI-ST	218.292	124.450	26.257	1.134.405	314	325.302	676.178	54.723	6.163.965	130
IFI-FGDP	13.385	10.373	1.979	77.558	293	38.614	83.820	1.773	479.634	122
IFI-SGDP	142.054	81.118	28.255	538.296	314	405.286	896.817	33.207	7.080.458	131
KAOPEN	-0.156	1.395	-1.904	2.374	315	0.396	1.438	-1.904	2.374	135
CAd	5.624	5.794	-8.244	40.872	310	-5.014	8.082	-35.245	24.691	134
NFL	63.675	53.639	-20.734	275.860	313	-45.332	159.947	-1.406.419	175.567	131
Institutions	-0.374	0.622	-2.015	1.216	315	-0.146	0.750	-1.643	1.572	135
ELQ	-0.350	0.363	-0.983	0.706	314	-0.371	0.407	-0.984	0.533	131
ELQ2	-0.299	0.391	-0.983	0.709	302	-0.225	0.452	-0.984	0.634	129
Equity/Liab.	35.316	19.341	0.827	85.430	313	38.716	22.608	1.026	81.705	131
FX/Liab	15.955	11.922	0.070	94.583	312	55.452	91.794	0.891	621.654	131
Debt/Liab	65.110	19.542	14.570	99.734	302	60.938	22.914	18.295	99.179	129
FDI/Liab	32.406	18.061	0.827	85.278	313	31.435	20.359	0.821	76.667	131
IAER	-51.060	297.551	-2.891.014	1.350.642	284	-38.930	183.849	-841.835	859.391	120