

# Globalization, Financial Instability and Economic Growth: An empirical View

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## Abstract

This article examines the impact of financial globalization and financial instability on economic growth. Our results show: *i)*, investment-globalization (the stocks of external assets and liabilities, FDI plus portfolio equity) does not only have a direct positive effect on growth, but also contains an indirect positive effect decreasing the negative impact of financial instability on the aforesaid. *ii)*, indebtedness-globalization (the stocks of external assets and liabilities, debts) does not only have a direct negative effect on growth, but also another indirect negative effect increasing the negative impact of financial stability on the latter. *iii)*, financial globalization (investment-globalization plus indebtedness-globalization) positively influences growth directly and collaterally through its interaction with financial instability and *iv)*, financial instability has a negative effect on long-term economic growth.

## 1. Introduction

The main purpose of this article is the determination of the impact of financial globalization on long-term economic growth on the least developed countries examining its interaction with financial instability. There are two conflicting positions on the empirical effects of financial globalization. On the one hand, the proponents of financial liberalization attribute the economic take-off of the emerging countries to the expansion of their financial exchanges and to the mobilization of considerable foreign savings that finance the investment and expansion of the technology transfer linked to financial globalization (Quinn (1997), Quinn and Toyoda (2008), Cline (2013), De Nicolo and Juvenal (2014), Gui-Diby (2014), Albulescu (2015) and Agrawal (2015)).

On the other hand, the opponents of this point of view attribute the economic difficulties of certain developing countries with regard to indebtedness, negative growth, and crises to a large extent to their adherence at to the free worldwide circulation of capital (Rodrik (1998), Rodrik and Subramanian (2009), Stiglitz (2010), Mougani (2012)). More specifically, the UNCTAD goes as far as to speak of “The Paradox of Finance-Driven Globalization” in which the external financial globalization has not kept its theoretical promises, namely a better worldwide mobilization and allocation of savings for a faster convergence of countries lagging and a bigger share and diversification of the risks of a cost reduction of capital at the international level (McKinnon (1973) and Shaw (1973)).

Thus, the absence of empirical consensus regarding the question (Obstfeld (2009)) renders it as complex to verify as to refute a more important involvement of developing countries in the process of financial globalization. In search for an answer to this problem, a third point of view on the subject has emerged and developed through the works of Gourinchas and Jeanne (2006), Prasad et al. (2003) and Kose et al. (2006 and 2009).

According to this position, to a larger extent than the direct effects, the financial globalization leads to spillover effects that impinge indirectly on economic growth, improving the global productivity of production factors. These effects can be summarized as financial development, specialization, as well as better institutional quality, governance, macroeconomic policies and trade integration. It seems that all these indirect effects are positive. Yet, literature does not exclude the possibility that the financial globalization entails the indirect negative effects and underestimated macroeconomic constraints that were attributed to it in the last centuries (Artus and Cartapanis (2008)), in particular after the financial crises (Rodrik and Subramanian (2009)). As a matter of fact, if financial opening promotes the irregular financial development of a developing country, it can act as an amplifier of financial instability and of its potential mischiefs on growth: the foreign capital flows injected into the receiving financial system would take on a pro-cyclic role amplifying the negative impact of financial instability on growth (Lopez-Mejia (1999) and Artus and Cartapanis (2008)).

Moreover, the free entry and exit of foreign banks into and out of developing countries risks to expose their financial system to more instability, especially in the least developed countries. In effect, being inadequately informed about the domestic financial system, being overly dependent on the backing of the parent bank, as well as sensitive to the conditions of

their countries of origin, the branches of foreign banks easily risk disengaging from the domestic market, they can transmit an external instability, as well as finance projects important in volumes and profitability, which, however, are too risky (Cull and Martinez Peria (2007), Jones and Krause (2007), McGuire and Tarachev (2008) and Calderón and Kubota (2009)). The materialization of such scenarios is very probable if one considers the works of Levine (2005), De la Torre et al. (2007), Baltagi et al. (2007, 2009), Kose et al. (2009), Cull and Martinez Peria (2010), Gormley (2011) and Allegret and Azzabi (2014)), which prove the existence of a positive relation between countries opening up, financial development and economic growth, as well as the empirical results of Guillaumont and Kpodar (2006), Loayza and Rancière (2006), and Eggoh (2010), which find a link between financial development and its instability, further demonstrating that the latter decreases growth. Furthermore, apart from the attempts of theoretical modeling of the phenomenon of financial instability in a context of free circulation of capital (Aghion et al. (2004) and Caballé et al. (2006)), according to our knowledge no empirical study has focused on the impact of the interaction between financial globalization and financial instability – in the sense of an irregularity of financial development, and not in that of crisis – on the long-term growth of the least developed countries from a macroeconomic viewpoint. This question seems to be of strong interest: Assuming that financial globalization destabilizes the domestic financial system while developing the harmful impacts of financial instability on economic growth instead of cushioning them, would it be still advantageous for the least developed countries to follow the way of the emerging and developed countries and to open up to free international circulation of capital and of the institutions operating in this field?

In order to find possible answers to this question, we will firstly analyze the direct linear impact of investment-globalization (the stocks of external assets and liabilities, FDI plus portfolio equity), indebtedness-globalization (the stocks of external assets and liabilities, debt), and financial globalization (investment-globalization plus indebtedness-globalization) on long-term economic growth. Secondly, we will turn to the direct impact of financial instability on long-term economic growth. Thirdly, we will scrutinize the indirect impact (spillover effects) of financial globalization, investment financial globalization, and indebtedness financial globalization on long-term growth through its interaction with financial instability.

In our sample, we focus exclusively on the least developed countries, excluding emerging and developed countries in order to enhance homogeneity. This constitutes a distinctive advantage with regard to several other studies on the financial globalization-growth tandem, which are based on heterogeneous samples, such as Quinn (1997), Kraay (1998), Klein (2005), Arteta et al. (2003), Bonfiglioli (2008), Kose et al. (2008) and Bekaert et al. (2005 et 2011).

Our approach also sets itself apart from other preceding works through the inclusion of a long research horizon – from 1972 to 2011 – that includes the sub-period 2002-2011, during which the exchanges of capital flows never attained a higher level than that registered before the international financial crisis of fall 2008 and a level, which never again declined as

much after it (IMF<sup>1</sup> (2012)). This sub-period is rarely considered in its entirety in preceding inquiries, which neglects an important phase of the phenomenon of financial globalization.

We equally use three *de facto* measures of financial globalization. Other than, *de jure* measures, these measures prove to be better at querying the reality of financial globalization and not only external financial liberalization policy. Therefore, they are richer in information and in most cases lead to significant and robust results (Kraay (1998) and O'Donnell (2001)). The use of the GMM system method on dynamic panel data constitutes an additional strong point of our testing due to its superiority to traditionally employed methods (OLS, GLS, QLS, within estimator, between estimator ...) because it provides the advantage to control the endogeneity of explanatory variables, such as the lagged dependent variable, generating internal instruments (Arellano and Bond (1991), Arellano and Bover (1995), Blundell and Bond (1998) and Roodman (2009a, 2009b)).

Drawing from our estimations, we highlight four main results. Firstly, not only does investment-globalization have a direct positive effect on growth, but also an additional collateral and positive effect reducing the negative impact of financial instability on the aforesaid. Secondly, on the contrary, not only does indebtedness-globalization have a direct negative effect on growth, but it also has a collateral and negative effect increasing the negative impact of financial instability on the aforementioned. Thirdly, in sum, financial globalization (investment-globalization plus indebtedness-globalization) positively influences growth directly and collaterally through its interaction with financial instability. Lastly, financial instability has a negative effect on long-term economic growth.

The following sections of the paper will be organized as follows: Section 2 constitutes a literature review. Section 3 describes the data used, while section 4 discusses the methodology and the results. Section 5 presents the drawn conclusions.

## **2. Literature review**

The main distinctiveness of the question treated in this article is that it is at the intersection of three areas of literature: studies on financial globalization and economic growth, research on the impact of financial instability on economic growth, and the works on the relation between financial globalization and financial instability.

### *2.1. Financial globalization and growth*

The works treating the tandem of financial globalization and economic growth can be classified in three big groups. The first group represents the studies that prove that financial globalization has a net positive impact on economic growth. The second group includes investigations that have shown that financial globalization has a mitigated effect on economic growth<sup>2</sup>. The last group comprises research inquiries that have underscored the net negative or insignificant effect on economic growth.

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<sup>1</sup> International Monetary Fund.

<sup>2</sup> This means that the impact of financial globalization on economic growth is indirect and/or depends on threshold effects and/or depends on the nature of the financial opening (FDI, portfolio investments, debts, foreign aids...).

For the first group, Quinn (1997) is one of the first economists to demonstrate without ambiguity a direct and net positive relation between financial opening and economic growth. The sample studied by the author, comprising a period from 1958 to 1989, consists of 64 developed and developing countries. In order to examine the nature of the relation between financial opening through portfolio investment and economic growth, Bekeart et al.(2005) study a heterogeneous sample of 95 developed and developing countries during the period 1980-1997. Their conclusion is that an opening of the equity market increases the growth by an annual average of 1%.

Bekaert et al. (2011) analyze the effects of financial globalization (opening of capital accounts and of the equity market) in a panel of 96 developed and developing countries between 1980 and 2006. The authors demonstrate the robustness of the impact of financial opening both on growth and on the overall productivity of the factors of production. Furthermore, using a sample comprising 48 emerging and developing countries, De Nicolo and Juvenal (2014) highlight the fact that financial globalization and financial integration increase economic growth, stabilize, and develop the real sphere of the economy. According to the authors, this virtuous effect is even more important in a context of good institutional quality and governance. The article of Agrawal (2015) studies the nature of the relation between FDI and economic growth in the BRICS economies namely, Brazil, Russia, India, China and South Africa between 1989 and 2012. The empirical methodology used is the panel data cointegration and causality analysis. The results of Agrawal (2015) confirm that FDI and economic growth are cointegrated in the panel countries and the causality test highlights the long-term causality between these two variables. Lastly, the study of Iamsiraroj (2016) sheds light on the direction of the correlation between FDI and economic growth. It responds precisely to the question of “what causes what?” regarding these two phenomena. The response of the author is that the relation is significantly positive and bi-directional. It is by empirically analyzing panel data pertaining to 124 countries in the period of 1971 – 2010 that Iamsiraroj draws these conclusions.

In the second group, Edwards (2001) demonstrates that financial globalization confers the most advantages to the countries that have a certain minimum level (threshold effects) of per-capita income as a prerequisite, pertaining to a period from 1981 to 1990 for a hybrid sample comprised of 61 developed and developing countries. In a study conducted on 85 countries between 1976 and 1995, Klein (2003) proves that financial opening contributes in a significant way to the growth in middle-income countries, but neither in poor countries, nor the richest. This is in line with Klein (2003). But even before his study, O'Donnell (2001) and Chanda (2005) state that the financial opening does not benefit all countries in the same way and that the economic and institutional development and even the ethnic heterogeneity – for Chanda – are the discriminating factors of the advantages of financial globalization for the countries in general. Arteta et al.(2003) condition the positive interaction between financial development and financial opening on economic growth to the absence of large macroeconomic imbalances and to the presence of sound public policies, which do not provoke distortions on the level of exchange rates. His analysis is conducted through 61 countries from 1973 to 1992. The same results have already been introduced by Kraay (1998) for 117 countries between 1985 and 1997. Inspired by the conclusions of these works, the research of Klein (2005) focuses on the non-linear effect of the external financial

liberalization policy in interaction with the quality of national institutions on the economic growth in 71 countries between 1976 and 1995. It concludes in an inverted U-shaped interaction between financial opening, the quality of the institutions and growth. Masten et al. (2008) examine the effect of financial opening and financial development, separately and in interaction on economic growth in 31 European economies between 1996 and 2004. The authors show that financial development is a necessary condition in order for the sample countries to absorb the foreign capital flows and to harness their benefits. Kose et al. (2011) find that the collateral benefits of financial opening are more significant than their direct advantages and that in the case of developing countries they can only be achieved through the presence of institutional prerequisites and with regard to the development of the domestic financial system. The research of Kose et al. (2011) concerns 84 countries during the period of 1975 – 2004. In line with Kose et al. (2011), Kunieda et al. (2016) support the existence of threshold effects in the relation between financial globalization and economic growth for the sample of 109 countries between 1985 and 2009. In a more recent article, Ahmed (2016) focuses on the study of the direct and indirect impact of financial globalization on economic growth through the channel of financial development. For the sample of 30 countries of Sub-Saharan Africa, his calculations underscore that – in the period of 1976-2010 – financial opening has not increased in direct growth through the classic channel of capital accumulation, but through the development of domestic financial systems of the sample countries. Furthermore, according to Kose et al. (2009), in the case that effect of financial globalization on economic growth is mitigated, this means that it is not all the types of globalization that are beneficial to growth. Even though several studies prove the positive effect of FDI and of portfolio investments, several other studies affirm the negative effect of foreign debts. In this sense, Neto and Veiga (2014) conclude in the light of their results that FDI are beneficial to developing countries and that it is primordial for the governments of these countries to track the typology of the capitals that they exchange in order to profit from financial globalization – particularly given that foreign debts do not seem to increase the corresponding GDP. The study of Neto and Veiga (2014) is based on a large sample of 139 countries examined during the period of 1970 - 2009. Aizenman et al. (2013) are interested in the relation between economic growth and foreign capital flows in a hundred of countries between 1990 and 2010, a period characterized by the international financial crisis during which the emerging economies have become more and more financially integrated at the international level. The results of the research basically support the significant and positive impact of FDI (incoming and outgoing flows) on growth, in contrast to the effect of the portfolio investments, which have proven to be of lesser scale, less robust and more instable. Concerning the impact of short-term foreign debts, the latter is insignificant before the crisis and negative during and after the aforementioned. Agbloyor et al. (2014) have focused on the investigation of the relation between private capital flows (FDI, portfolio investment and debts) and economic growth between 1990 and 2007 for a panel of 14 African countries. Using the technique of instrumental variables and the GMM method, Agbloyor et al. (2014) draw two main conclusions. The first is that the three types of flows have a negative impact on economic growth in the countries in question. The second is a nuance of the first. It stipulates that the countries, which dispose of a developed financial market, accomplish to transform this negative effect into a positive impact. Chen and Quang

(2014) test the hypothesis of the threshold effects of financial globalization for a sample of 23 developed countries and 57 emerging and least developed countries in the period of 1984 – 2007 using the GMM estimator. The conclusions that Chen and Quang (2014) draw support the existence of a threshold effect in terms of quality of the institutions, domestic financial system and public governance. As for the threshold effects regarding the commercial opening and the macroeconomic stability, the findings are less robust. Moreover, according to Chen and Quang (2014), it is the inflows of the FDI, which are the most susceptible to increase the growth, in contrast to the flows of foreign debts, which are much less capable to do so in a context of threshold effects.

In the last group, the groundbreaking study of Alesina et al. (1994) is one of the first to be cited. The authors conclude that the financial opening can neither increase nor decrease growth, looking at 20 countries of the OECD between 1950 and 1989. This is confirmed one year later by Grilli and Milesi-Ferretti (1995) in a sample of 61 countries and in a period spanning from 1966 to 1989, and then by Rodrik (1998) for 100 developed and developing countries in the course of the period 1975-1989. Klein and Olivei (1999) divide their sample comprising 82 countries in industrialized and developing countries and study a period spanning from 1986 to 1995. They conclude that neither the financial depth, nor the financial opening seem to enrich the developing countries. In a more recent study, Klein and Olivei (2008) come to the same conclusions using a sample of developed and developing countries between 1976 and 1995. Mougani (2012) examines the sample of 34 African countries between 1976 and 2009, and the specifications that explain the growth through a combination of economic and institutional control variables, as well as two variables of interest, which reflect the financial opening: private financial flows and FDI. In line with the other results, the latter discovers a positive impact of financial opening on growth when the calculations are conducted in time series. For GMM estimations, this effect is neither robust in open economies, nor is it closed ones, which leads the author to refute the hypothesis of positive correlation between financial globalization and growth, notably regarding the superiority of the GMM method when it comes to relevance (as a result of the potential biases of endogeneity, which are linked to the OLS method). Lastly, in a study conducted with a dynamic panel consisting of 26 countries of the European Union between 1990 and 2007 using the difference GMM and GMM system Gehringer (2013) finds that the financial globalization has a positive impact on economic growth, global productivity and investment. The result is obtained by the author using a *de jure* measure of financial opening, which is not the case with the *de facto* measure. To this effect, Gehringer (2013) puts forward that it is the political aspect of financial opening, namely the external financial liberalization, and not its quantitative reality, which is favorable.

In sum, this literature supports the inexistence of empirical consensus on the effect of financial globalization on growth. The absence of consensus can explain the diversity of indicators of financial globalization, of the heterogeneity of the samples and periods studied, the multiplicity of the specification techniques and of the types of financial globalization studied. This being said, recent studies underscore the general tendency to consider the spillover effects of financial globalization and the threshold effects. Additionally, the global effects – direct and/or indirect – of financial opening are more robust in the long term regarding the homogenous samples with *de facto* measure and panel specifications, as well

as with interaction variables and the GMM method. Moreover, it is more convenient to demonstrate a direct and/or indirect positive effect of financial globalization through FDI and portfolio investment on growth than that of financial globalization through foreign debts. Lastly, it has to be noted that the new tendency of empirical literature is to focus on the indirect positive effects of financial globalization (development of the financial system, improvements in governance...) and relatively neglects the indirect negative effects that the latter could have on economic growth, hence indicating the uniqueness of our study of financial globalization, financial instability and growth.

## *2.2. Financial instability and growth*

As supported by Hnatkovska and Loayza (2005) and Rancière et al. (2008), the economic fluctuations are either of the “normal” or the “crisis” type. The first are more repetitive in frequency and more long lasting. The second are more ample and short in duration. The financial instability increases “normal” fluctuations and is distinct from financial crises. More precisely, it can be regarded as an irregularity of financial development (Guillaumont and Kpodar (2006), Loayza and Rancière (2006) and Eggoh (2010)), namely repetitive fluctuations and long-lasting financial development, from both upward and downward movements, which are propagating in the long term. Thus, the financial instability distinguishes itself from the volatility through its long-term character. Particularly in developing countries, this distinction is of great interest in order to obtain an idea on the degree of vulnerability of these economies with recurring fluctuations (volatility), on recurring and persistent fluctuations (instability), on wide and non-recurring fluctuations (crises).

Concerning the effects of financial instability – in the sense of repetitive and long-standing fluctuations of financial development – the literature remains quite scarce. To our knowledge, only three papers have empirically examined the relation between financial instability and economic growth, namely Loayza and Rancière (2006), Guillaumont and Kpodar (2006), and Eggoh (2010). As a starting point, Loayza and Rancière (2006) pronounce the interlinking between financial development and economic growth in a heterogeneous sample of 75 developed and developing countries in the period of 1960 – 2004. The results of their calculations drive them to conclude that financial development has a positive effect on economic growth in the long term. However, in the short term this effect is negative. These two authors explain this result by means of financial stability, which they measure by the recurrence of financial crises and by the instability of the indicator of financial development. As a matter of fact, through the introduction of their indicators of financial fragility in their regressions, Loayza and Rancière (2006) remark that the positive effect of financial development on growth decreases by about 6.6%. Consequently, they support the position that the destabilizing effect of financial development decreases growth in the short term, whereas in the long term it is cancelled out by the beneficial effect. Just like Loayza and Rancière (2006), Guillaumont and Kpodar (2006) study financial instability as a collateral phenomenon to financial development, which influences the process of economic growth. They estimate two separate equations. One of them explains financial instability through financial development and the other one regresses economic growth both on financial development and the financial instability, which it could produce. The main results that they find for a large sample of developing countries (between 120 and 62 countries) indicate that



financial development is one of the factors that explain financial instability in case of an inflationary context. It acts negatively on growth, amongst others by reducing the positive impact of financial development on the latter, but without offsetting it completely. In a more recent study, Eggoh (2010) estimates a growth model in cross-section, and in a second step in panel, which simultaneously integrates indicators of financial development and of financial instability as variables of interest for a hybrid sample of 75 developed and developing countries in the period of 1960-2004. In the short term, the deductions of Eggoh (2010) are compliant with those of Guillaumont and Kpodar (2006). They show the negative effect of financial instability on economic growth, as well as the positive effect of financial development on the latter. In the long term, only the positive impact on financial development on economic growth is significant. Besides the heterogeneity of the sample examined by Loayza and Rancière (2006) and Guillaumont and Kpodar (2006), one of the reproaches that one can postulate with regard to the adopted methodology by these three studies, is that the presence of an indicator of financial development and of its instability in the same regression equation risks to introduce a multicollinearity, which is highly likely to skew the results. In other words, financial in such a modeling, instability is being considered twice: at the level of the indicator of financial development itself and at the level of the measure of its volatility. Moreover, the effect of financial development risks obstructing that of financial instability when they are simultaneously used in the same growth model.

### *2.3. Financial globalization and financial instability*

As put forward by Prasad et al. (2003) and Kose et al. (2006 and 2009) one of the positive spillover effects of financial globalization is the development of a domestic financial system. Furthermore, as proven by Guillaumont and Kpodar (2006), Loayza and Rancière (2006), and Eggoh (2010), financial development is beneficial to economic growth, but not its irregularity (financial instability). Therefore, it may be that once financial globalization develops the domestic financial system with irregularity, it increases financial instability and its negative effects on growth. More specifically, the foreign capital flows injected into the recipient financial system could play a pro-cyclic role in the way as to amplify the negative impact of financial instability on growth (Lopez-Mejia (1999) and Artus and Cartapanis (2008)). Furthermore, the free entry and exit of foreign banks to developing countries risks to expose their financial system to more instability, particularly in the least developed economies. As a matter of fact, being badly informed about the domestic financial system, being too dependent on the support of their parent bank, and too sensible to the conditions of their countries of origin, the branches of foreign banks risk to easily disengage from the domestic market as they can transmit external instability, and end up financing projects important in volume and profitability, yet too risky (Cull and Martinez Peria (2007), Jones and Krause (2007), McGuire and Tarachev (2008) and Calderón and Kubota (2009)). The hypothesis of the existence of a link between financial globalization and financial instability can be deducted from these scenarios. To our knowledge, this hypothesis has not been verified empirically for developing countries in the long term yet. However, certain theoretical studies have modeled financial instability in a context of free capital circulation. Aghion et al. (2004) model a small open economy with a single factor of production specific to the countries and companies that are subject to a credit constraint in order to finance their projects, without the possibility of a leverage effect. The dynamic of the model is the

following. In a first movement, the rise in investment produces a rise in production and in the most important profits. The increase of profits permits the companies to have more credit (they are considered to be more solvent). The foreign capital flows are of a nature as to amplify this trend and to lead to an investment boom. The investment boom increases the demand, and then the price of the factor of production that is specific to the country. This cost-push inflation starts a second inverted movement, namely a decrease in profits, reduced solvency of the companies, credit crunch, contraction of the investment, and a fall in production. Subsequently, this movement links up to the first phase of the investment boom and, with the price decline of the specific factor of production (the factor of production is henceforth less used due to the fall in investment in the second phase). This dynamic supports the conclusion on the endogenous character of financial instability, whose effects are catalyzed by the access to foreign capital flows, according to Aghion et al. (2004). In this sense, a crisis would constitute an extreme case in terms of brutality and of magnitude of movements of instability. Aghion et al. (2004) further add that if the financial system were highly developed, this instability would be of less importance, since the companies would still be able to obtain a financing for their investments despite the fall in profits of the second movement. This is possible due to the diversity of financial institutions and the plurality of the domestic and foreign financial sources in these economies. Equally, in case the financial system was barely developed –may be it due to the first expansive movement (boom) or due to the second movement of contraction – the companies would encounter difficulties to obtain a financing for their projects. Hence, in this case the impact of financial instability is weak. It is these economies at a stage of intermediate financial development that set themselves apart by a significant endogenous financial instability. Consequently, if the financial opening of an economy or the financial system is barely developed, it can be elevated to an intermediate level of financial development with more resources of financial institutions and hence be exposed to the phenomenon of financial instability. Caballé et al. (2006) have drawn the same conclusions as Aghion et al. (2004) from a dynamic model of a small open economy. They have insisted on the endogeneity of financial instability and on the catalyzing role that foreign debts have in its development.

### 3. Data

To quantify the links between financial globalization, financial instability and economic growth in the least developed countries, we are basing our study on an unbalanced panel of 72 countries among low- and middle-income countries according to the classification<sup>3</sup> of the World Bank. As is now standard in literature (Neto and Veiga, 2014 ; Iamsiraroj, 2016 ; and Ahmed, 2016), we construct our panel data set by transforming our time series data between 1972 and 2011 into a five-year average<sup>4</sup>. This method used to filter out business

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<sup>3</sup> The World Bank considers that a country is low-income if its GNI per capita is lower or equal to 935 US dollars. A country is considered to have lower average income if its GNI per capita is no less than 936 US dollars and no more than 3705 US dollars, a country has a higher average income if its GNI per capita is between 3706 US dollars and 11 455 US dollars, and a country is at higher income if its GNI per capita exceeds 11 456 US dollars (<http://data.worldbank.org/about/country-classifications/country-and-lending-groups>). The countries with higher average income and higher income are characterized by a level of economic and financial development, as well as an institutional quality that is higher than that of other countries. These two groups mainly comprise developed and emerging economies. Thus, by excluding them from our sample, we enhance the homogeneity of our panel. Being an unbalanced panel in nature ensures at the level of the calculations that the number of country groups studied is often lower than 72 countries and varies from one model to the other.

<sup>4</sup> The transformation yields eight non-overlapping sub-periods: 1972-1976, 1977-1981, 1982-1986, 1987-1991, 1992-1996, 1997-2001, 2002-2006, and 2007-2011. The variables of financial instability are calculated in terms of standard deviation and absolute value of deviations over 5 years.

cycle fluctuations to focus on long-run growth effects. We consider a standard growth regression model, as traditionally implemented in literature (Barro and Sala-I-Martin (2003)). The dependent variable is the growth rate of the real GDP per capita (GDPPCG). It is explained by the indicators of financial globalization, the indicators of financial instability, and of control variables. The latter are selected in accordance with robust results highlighted in influential past studies (Sala-I-Martin et al. (2004)).

### 3.1. Indicators of financial globalization

Our indicators of financial globalization are extracted from the database of Lane and Milesi-Ferretti (2007), updated in 2011. OPGLG is the indicator of financial globalization. It constitutes the growth rate of total stocks of external FDI, portfolio equity and debt, assets and liabilities. INVOPGLG is the indicator of investment-globalization. It is the growth rate of total stocks of external FDI and portfolio equity, assets and liabilities. OPENDEB is the indicator of indebtedness-globalization. It is the growth rate of total stocks of external debt, assets and liabilities. The use of these indicators is recommended by Kose et al. (2009). The authors stress that it is more beneficial to use this kind of indicator (*de facto* measure), because the latter account for the reality of the impact of financial globalization rather than the degree of liberalization of the capital account (*de jure* measure).

### 3.2. Indicators of financial instability

The indicators of financial instability are INBANK and INLIQ. INBANK constitutes the five-year average absolute deviation of the growth rate of deposit money bank assets to (deposit money + central) bank assets. INLIQ is the five-year average absolute deviation of the growth rate of liquid liabilities to the GDP. These two indicators of financial instability are calculated with the use of the formula  $V_1^x = \frac{1}{5} \sum_{t=1}^5 |g_t^x - \bar{g}^x|$ .  $V_1^x$  constitutes the measure of financial instability INBANK or INLIQ. Where  $g_t^x$  is the growth rate of deposit money bank assets to (deposit money + central) bank assets (BANK) or the growth rate of liquid liabilities to GDP (LIQ), taken from the database of Beck and Demirgüç-Kunt (2009), updated in April 2013. Since the pioneer works of King and Levine (1992), LIQ reflects the size of a financial system and of its depth and BANK indicates the importance of commercial banks in the economy in relation to the central bank (Sahay et al. (2015)).-

### 3.3. Control variables

The control variables are extracted from the database of the World Bank. These are lagged real GDP per capita (L.GDPPC), trade openness (TRADE), education (EDU), terms-of-trade growth (TERM), and government size (GOV).

## 4. Empirical analysis

### 4.1. Estimated models

We examine the direct effect on growth of financial globalization and financial instability measures. Then, we look at the impact of interaction between these measures of growth. More specifically, we test two models: equation (1) tests the direct effect and equation (2) tests the indirect effect.

$$\Delta Y_{it} = \alpha_0 + \gamma Y_{it-1} + \alpha_1 int1_{it} + \alpha_2 int2_{it} + \beta' X_{it} + \mu_i + \lambda_t + \varepsilon_{it} \quad (1)$$

$$\Delta Y_{it} = \alpha_0 + \gamma Y_{it-1} + \alpha_1 int2_{it} + \alpha_2 (int1_{it} * int2_{it}) + \beta' X_{it} + \mu_i + \lambda_t + \varepsilon_{it} \quad (2)$$

Where  $\Delta Y_{it} = Y_{it} - Y_{it-1}$  is the growth rate of real GDP per capita (GDPPCG).

$Y_{it-1}$  is the lagged real GDP per capita (L.GDPPC).  $int1_{it}$  represents the indicators of financial globalization (OPGLG or INVOPGLG or OPENDEB).  $int2_{it}$  represents the indicators of financial instability (INBANK or INLIQ).  $int1_{it} * int2_{it}$  represents an interaction term between financial globalization measures and financial instability measures.  $X_{it}$  regroups the set of control variables (TRADE, EDU, TERM and GOV).  $\alpha_0$  is a constant,  $\mu_i$  is the country-specific effect,  $\lambda_t$  is the time-specific effect, and  $\varepsilon_{it}$  is the error term.

According to the equation (2), the marginal effect of financial instability of growth is obtained through the calculation of the partial derivative on the growth rate of the real GDP per capita on the indicator of financial instability, which reads as follows:

$$\frac{d(\Delta Y)_{it}}{d(int2)_{it}} = \alpha_1 + \alpha_2 int1_{it} \quad (3)$$

If  $\alpha_1$  and  $\alpha_2$  are both positive (negative), the financial instability measures have a positive (negative) effect on economic growth, and financial globalization measures amplify this impact. If  $\alpha_1 > 0$  and  $\alpha_2 < 0$ , the financial instability measures have a positive effect on economic growth, although the financial globalization measures reduce this impact. And if  $\alpha_1 < 0$  and  $\alpha_2 > 0$ , the financial instability measures have a negative effect on economic growth, although the financial globalization measures reduce this impact.

#### 4.2. Estimation method

We use the GMM system dynamic panel data estimator developed in Arellano and Bond (1991), Arellano and Bover (1995) and Blundell and Bond (1998) and we compute robust two-step<sup>5</sup> standard errors by following the methodology proposed by Windmeijer (2005)<sup>6</sup>.

This method permits to resolve the potential problem of endogeneity of explanatory variables. Moreover, in our models, the explanatory variables including the initial level of real GDP per capita are of macroeconomic and institutional nature and hence constituting a

<sup>5</sup> A first estimation revolves around the hypothesis of the absence of a correlation of errors and of their homoscedasticity. In a second step of the calculation, the vector of residuals derived from this first estimation is used in order to assess a variance-covariance matrix of errors in a convergent manner. At this second stage, the hypothesis of the absence of the correlation of errors and of their homoscedasticity is being verified. This leads to the GMM estimator that is being assessed in two stages being more efficient than the GMM estimator assessed in one-step especially for GMM system ((Roodman (2009a, 2009b)).

<sup>6</sup> All of our regressions are estimated with Stata 11, in which the GMM system method is preprogrammed (commands: *xtabond2* and *twostep robust*). Additionally, we base the writing of our relative commands to our assessments on the recommendations of Roodman (2009a and 2009b) and Newey and Windmeijer (2009), including the application of the correction of Windmeijer (2005). Through the use of the Stata 11, the command *collapse*, guarantees a small number of instruments, which does not exceed the number of observations, enabling to assess the model in an unbiased manner, which potentially prevents the problem of instrument proliferation Roodman (2009a, 2009b)). In effect, with a number of instruments that is too large and surpasses the number of observations, the endogenous variables can be overrepresented through their instruments, evoking the risk of a persisting problem of endogeneity.

risk of evoking inverse causality with growth. These variables may not be fully exogenous, and causality may run in both directions. This method also allows resolving the potential bias related to the possible correlation between country-fixed effects and the explanatory variables. In addition, to the individual dimension of our panel – which is relatively larger than its temporal dimension (small T, large N) – justifies the choice of the GMM system estimator in two stages ((Roodman (2009a, 2009b)). The GMM system estimator is used in the most recent dynamic panel studies on the impact of financial globalization on economic growth (e.g. Kose et al. (2008), Mougani (2012), Neto and Veiga (2014), Agbloyor et al. (2014), Chen and Quang (2014), and Ahmed (2016)). The validity of the GMM system estimator is conditioned upon the exogeneity of the instruments (Hansen test of overidentifying restrictions: *Hansen-test*), as well as no autocorrelation of errors of order 2 (Arellano-Bond test: *AR2*). All of these tests confirm the validity of our estimates.

#### 4.3 Basic results

In the table 1, the coefficients of the indicators of financial instability (INBANK and INLIQ) are statistically significant and negative in all of the regressions (1), (2), (3), (4), (5), (6). This leads us to conclude the negativity of the direct impact of financial instability on growth. This result is supported by studies on financial development, financial instability, and growth (Guillaumont and Kpodar (2006), Loayza and Rancière (2006), and Eggoh (2010)). The coefficients linked to the indicator of financial globalization (OPGLG) being positive in the regressions (1) and (4) bear witness of the positive impact of financial globalization on growth. The same observation, in regressions (2) and (5), applies to the indicator of investment-globalization. Also, as can be observed in the regressions (3) and (6), the negativity of the coefficients related to the measure of indebtedness-globalization (OPENDEB) indicates that this type of globalization decrease the real GDP per capita growth. In conclusion, financial globalization and investment-globalization are beneficial to growth, whereas indebtedness financial globalization have a decreasing effect on it. Kose et al. (2011) and Chen and Quang (2014) come to the same conclusion. Furthermore, the negativity of the sign of the coefficient of lagged GDP per capital (L.GDPPC) is in line with the teachings about the conditional-convergence framework. The positive sign of the coefficient of trade openness (TRADE) corresponds with fundamental theses of classical international trade theory. The negative sign of the coefficient of the indicator of government size (GOV) is also in line with public choice theory. The indicators of education (EDU) and the terms-of-trade growth (TERM), appear sparsely explanatory with regard to growth of the real GDP per capita in the countries of our sample between 1972 and 2011.

According to table 2, the coefficients of the terms of interaction between financial globalization and financial instability (INLIQ X OPGLG and INBANK X OPGLG) are positives in the regressions (1) and (4). In consequence, the marginal negative effect of financial instability on growth decreases with a stronger financial globalization. The positive impact of the latter on the real GDP per capita counterbalances the negative effect of instability. Hence, it seems that financial globalization also allows an indirect positive effect on growth. This one may be the decrease of the harmful effect of financial instability on growth in developing countries. On the other hand, and still according to table 2, the terms of

interaction between investment-globalization and financial instability (INBANK X INVOPGLG and INLIQ X INVOPGLG) also have coefficients with a positive sign. The latter suggests that investment-globalization decreases the harmful effect of financial instability on economic growth. It hence indirectly and positively influences economic growth. Conversely, the interaction terms between indebtedness-globalization and financial instability (INBANK X OPENDEB and INLIQ X OPENDEB) show a coefficient with a negative sign. This means that the negative impact of financial instability on real GDP per capita growth is amplified by a stronger indebtedness-globalization. This type of globalization allows this an indirect negative effect on growth, increasing the harmful effect of financial instability. Furthermore, as is the case for the regressions of table 1, the sign of the coefficients of those control variables that are being are significant, are consistent with basic economics theories. In these terms, it seems that investment-globalization is more interesting for developing countries than indebtedness-globalization, which risks being counterproductive to the financing of the development of their economy, hence evoking the potential utility of a regulation in the sense of a control on foreign capitals besides portfolio investments and FDI.

**Table1.** The direct approach

<b>Model 1</b>	<b>Regression (1)</b>	<b>Regression (2)</b>	<b>Regression (3)</b>	<b>Regression (4)</b>	<b>Regression (5)</b>	<b>Regression (6)</b>
L.GDPPC	-0.031* (0.016)	-0.006 (0.014)	-0.019 (0.012)	-0.021** (0.009)	-0.008 (0.010)	-0.021** (0.010)
<b>OPGLG</b>	<b>0.088***</b> (0.028)			<b>0.078***</b> (0.027)		
<b>INVOPGLG</b>		<b>0.078***</b> (0.022)			<b>0.069***</b> (0.023)	
<b>OPENDEB</b>			<b>-0.054***</b> (0.017)			<b>-0.063***</b> (0.018)
<b>INLIQ</b>				<b>-0.091*</b> (0.046)	<b>-0.139***</b> (0.038)	<b>-0.149**</b> (0.063)
<b>INBANK</b>	<b>-0.093**</b> (0.043)	<b>-0.115***</b> (0.033)	<b>-0.120***</b> (0.044)			
TRADE	0.054*** (0.014)	0.029* (0.015)	0.047*** (0.017)	0.048*** (0.015)	0.028*** (0.009)	0.040** (0.016)
EDU	0.018 (0.012)	0.006 (0.007)	0.004 (0.008)	0.009 (0.008)	0.008 (0.007)	0.007 (0.007)
TERM	0.020 (0.026)	0.006 (0.013)	0.012 (0.015)	-0.003 (0.015)	0.008 (0.011)	0.022* (0.012)
GOV	-0.045** (0.018)	-0.029 (0.018)	-0.022 (0.020)	-0.039** (0.016)	-0.040** (0.015)	-0.029** (0.014)
Constant	-0.042 (0.102)	-0.039 (0.074)	-0.053 (0.089)	0.035 (0.093)	-0.009 (0.068)	-0.053 (0.071)
Observations	284	284	284	286	286	286
Countries	67	67	67	67	67	67
AR2 P-value	0.905	0.449	0.568	0.636	0.539	0.762
Hansen P-value	0.654	0.312	0.434	0.287	0.370	0.460

Dependent Variable: Growth rate of real GDP per capita. Period : 1972- 2011 (Non-overlapping five-year data). Estimation: Two-step system GMM with Windmeijer (2005) small sample robust correction. Time and fixed effects are included in all the regressions. Standard errors are presented below the corresponding coefficient. Symbols \* ,\*\* and \*\*\* means significant at 1%, 5% and at 10%.

**Table 2**

Financial globalization, financial instability and growth: Indirect approach.

Model 2	Regression (1)	Regression (2)	Regression (3)	Regression (4)	Regression (5)	Regression (6)
L.GDPPC	-0.033*** (0.012)	-0.027** (0.011)	-0.026** (0.012)	-0.023** (0.009)	-0.024** (0.011)	-0.026** (0.010)
INBANK	<b>-0.187***</b> (0.045)	<b>-0.191***</b> (0.069)	<b>-0.097**</b> (0.041)			
OPGLG X INBANK	<b>1.007***</b> (0.284)					
INVOPGLG X INBANK		<b>0.488**</b> (0.208)				
INBANK X OPENDEB			<b>-0.620**</b> (0.285)			
INLIQ				<b>-0.198***</b> (0.041)	<b>-0.206***</b> (0.062)	<b>-0.118*</b> (0.060)
OPGLG X INLIQ				<b>1.184***</b> (0.248)		
INVOPGLG X INLIQ					<b>0.437**</b> (0.216)	
INLIQ X OPENDEB						<b>-0.694**</b> (0.305)
TRADE	0.050*** (0.013)	0.051*** (0.016)	0.054*** (0.015)	0.043*** (0.013)	0.031** (0.014)	0.048*** (0.016)
EDU	0.018* (0.010)	0.010* (0.006)	0.006 (0.010)	0.014* (0.007)	0.015** (0.007)	0.006 (0.008)
TERM	0.013 (0.022)	0.020 (0.012)	0.013 (0.017)	0.002 (0.013)	0.026** (0.011)	0.022 (0.014)
GOV	-0.035* (0.018)	-0.025 (0.018)	-0.019 (0.020)	-0.045*** (0.015)	-0.038** (0.017)	-0.028* (0.015)
Constant	-0.002 (0.094)	-0.070 (0.077)	-0.068 (0.089)	0.051 (0.083)	-0.024 (0.067)	-0.058 (0.085)
Observations	277	277	277	279	279	279
Countries	66	66	66	66	66	66
AR2 P-value	0.959	0.650	0.537	0.890	0.638	0.535
Hansen P-value	0.437	0.444	0.466	0.332	0.305	0.584

Notes: Dependent Variable: Growth rate of real GDP per capita. Period: 1972- 2011 (Non-overlapping five-year data).

Estimation: Two-step system GMM with Windmeijer (2005) small sample robust correction. Time and fixed effects are included in all the regressions. Standard errors are presented below the corresponding coefficient. Symbols \*, \*\* and \*\*\* means significant at 1%, 5% and at 10%.



#### 4.4 Robustness test

We subject our main empirical findings to a set of tests to validate their robustness. These tests consist of the insertion of alternative variables of financial instability, the inclusion of new control variables, inter alia an indicator of banking crises, and using different time periods.

##### 4.4.1 Alternative variables of financial instability

We have calculated two other alternative indicators of financial instability taking the indicators of financial development (LIQ and BANK). INBANKR and INLIQR constitute the five-year average absolute value of residual  $\varepsilon_t$ . They are calculated in the following formula:

$$V_2^x = \frac{1}{5} \sum_{t=1}^5 |\varepsilon_t| \quad (4)$$

Where  $V_2^x$  constitutes the measure of financial instability INBANK or INLIQ and  $\varepsilon_t$  is the pooled OLS estimated residual of the following regression:

$$x_t = a + bx_{t-1} + ct + \varepsilon_t \quad (5)$$

Where  $x$  is BANK or LIQ,  $a$  is a constant and  $t$  the time. This regression is estimated separately for every country in the sample.

Table E of the appendix presents the results of the estimations run on model 1 through the introduction of new alternative variables of financial instability (INBANKR and INLIQR). Table E shows the negative impact of financial instability on real GDP growth per capita. The indicator of financial globalization and that of investment-globalization (OPGLG and INVOPGLG) have positive coefficients. This confirms their positive impact on economic growth. However, the coefficients linked to the indicator of indebtedness-globalization (OPENDEB) being negative in the table C. This type of globalization has a harmful effect on the growth of the real GDP. These results and the ensuing interpretations confirm those of the table 1. Also, the control variables keep the same signs and almost the same significance from those of the estimations of the table 1.

The results of table F of the appendix equally confirm those of the table 2. The coefficients of the terms of interaction between the variables of financial instability and of financial globalization, as well as investment-globalization (INLIQR X OPGLG, INBANKR X OPGLG, INBANKR X INVOPGLG, and INLIQR X INVOPGLG) bear positive signs. In contrast, the coefficients of the terms of interaction between the variables of financial instability and of indebtedness-globalization (INLIQR X OPENDEB and INBANKR X OPENDEB) are negative. Consequently, the two main conclusions drawn from our estimations on the basis of model 2 regarding table 2 are being consolidated at this point. The first constitutes the indirect positive impact of financial globalization and of investment-globalization on growth *via* the decrease in the harmful effect of financial instability. The second conclusion is that indebtedness-globalization increases this effect and lowers the GDP growth per capita. Furthermore, the coefficients of control variables keep the signs and the significances from those of the estimations of table 2.

According to the tables E and F of the appendix, it has to be noted that the replacement of the indicators of financial instability with other variables has not significantly undermined the stability of our baseline estimates. Thus, what happens if we insert the variables of financial instability, both from a different calculation method and from a new indicator of financial development?

We consider the two following indicators of financial developments. The financial system deposits to the GDP (DEV) and deposit money bank assets to the GDP (DEBA). Thereafter, we calculate<sup>7</sup> the indicators of financial instability INDEV and INDEBA.

Firstly, INDEV is the five-year standard deviation of the log-difference of DEV. It is calculated in the following formula:

$$INDEV = \sqrt{\sum_{t=1}^5 \left( \frac{g_t^x - \bar{g}^x}{\bar{g}^x} \right)^2} \quad (7)$$

Where  $g_t^x$  is the log-difference of DEV, extract from the database of Beck and Demirgüç-Kunt (2009), updated in April 2013.

Secondly, INDEBA is the five-year standard deviation of value of residual  $\varepsilon_t$ . They are calculated in the following formula:

$$INDEBA = \sqrt{\sum_{t=1}^5 \frac{1}{5} \varepsilon_t^2} \quad (8)$$

Where  $\varepsilon_t$  is the pooled OLS estimated residual of the following regression:

$$x_t = a + bx_{t-1} + ct + \varepsilon_t \quad (9^2)$$

Where  $x$  is *DEBA*, extract from the database of Beck and Demirgüç-Kunt (2009), updated in April 2013.  $a$  is a constant and  $t$  the time. This regression is estimated separately for every country in the sample.

The tables G and H of the appendix also confirm our main empirical findings. The signs of the coefficients associated with the variables of financial globalization and the alternative indicators of financial instability, as well as of those terms of interactions support the fact that financial globalization and investment-globalization positively and significantly affect growth directly and indirectly. In contrast, indebtedness-globalization seems to be harmful to the latter, directly as well as indirectly.

#### 4.4.2 The Adding of control variables

In the tables I and J of the appendix we have kept our two models 1 and 2, adding three new control variables. They are the banking crisis dummy (CRISIS), the population growth (POPG), and the political rights indicator of Freedom House (POL). Eichengreen et al. (2011) support that financial opening develops the financial system, but generates financial crises. In consequence, the resumption of our main empirical results after the controlling of the variable of the banking crises and of other variables risks to cause a decrease in significance

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<sup>7</sup> These calculation methods are equally used in order to measure macroeconomic instability in general, just like the other exposed methods. For more details, see Cariolle and Goujon (2015).

of coefficients of the variables of financial instability and the terms of interaction. Yet, the tables I and J of the appendix highlight the opposite. They confirm our main empirical findings after the adding of new variables. Moreover, this supports our distinction between financial crisis and financial instability. In effect, the impact of financial instability on growth has not been nullified by the presence of the indicator of crises, which is significant. Thus, financial instability can trigger a crisis, but it is important to not amalgamate it with the latter.

#### *4.4.3 Changing of the estimation period*

In order to see if the results stay valid in other temporal horizons, we recalculate our two models 1 and 2 on the three following sub-periods: 1972-2001 and 2007-2011, 1972-2001, then 1972-2007. In a first step, we have eliminated the data related to the sub-period of 2002-2006. In this sub-period, the process of financial globalization has known its worldwide boom since 1972 (IMF (2012)). In a second step, we have solely considered the sub-period 1972-2007. In effect, in contrast to the sub-period of 2002-2006, the sub-period of 2007-2011 corresponds to a sharp decline of the exchanges of financial flows (IMF (2012)) after the international financial crisis in 2008. In a third step, we have eliminated the two sub-periods 2002-2006 and 2007-2011. These two sub-periods present two strong movements of acceleration and deceleration of the phenomenon of financial globalization. From the three tables K, L, M and N of the appendix, the stability of our conclusions for the investigated different time periods becomes obvious. The signs and the significance of the coefficients associated with the variables of financial globalization, of financial instability, and of the terms of interaction are consistent with those of the tables 1 and 2 in the periods 1972-2001 and 2007-2011, 1972-2001 and 1972-2007.

### **5. Conclusion**

This paper examines the impact of globalization, and the financial instability on long-run growth. The effects of the indicators of financial globalization and of financial instability on growth are being studied independently and in interaction with each other for a homogenous panel of 72 developing countries in the period of 1972-2011. Two dynamic panel models are being estimated through the GMM system. Its calculations have showed to be robust for a series of tests. The tests consist of the insertion of alternative variables of financial instability, the inclusion of new control variables, inter alia an indicator of banking crises, and of using different time periods. We obtain four main results. Firstly, investment-globalization (the stocks of external assets and liabilities, FDI plus portfolio equity) does not only have a direct positive effect on growth, but also contains an indirect positive effect decreasing the negative impact of financial instability on the aforesaid. Secondly, indebtedness-globalization (the stocks of external assets and liabilities, debts) does not only have a direct negative effect on growth, but also another indirect negative effect increasing the negative impact of financial stability on the latter. Thirdly, financial globalization (investment-globalization plus indebtedness-globalization) positively influences growth directly and collaterally through its interaction with financial instability. Lastly, financial instability has a negative effect on long-term economic growth.

In the light of these findings, it seems that investment-globalization is more interesting for developing countries than indebtedness-globalization. The latter risks to be counterproductive to the financing of a country's economy, hence the importance of evoking the potential utility of a regulation in the sense of a control on foreign capitals apart from portfolio investments and foreign direct investments. Given the state of affairs, this is not an easy thing to do for at least two reasons: First of all, the least developed countries generally need foreign debts in order to finance at least their short-term development due to the insufficiency of domestic savings being mobilized for this purpose. Consequently, even if this type of opening harms their growth in the long-term, it is often the necessary evil in the short- and medium-term. Secondly, indebtedness-globalization is easier to implement in developing countries than investment globalization. In effect, due to the weakness of their system in financial risk management and to the relative uncertainty of their institutional and politico-economic framework, these countries often have it much harder attracting foreign investments than foreign debts. Moreover, financial development constitutes a condition that is necessary but insufficient for the financing of the growth of these countries. The regularity of the financing is crucial to long-term economic growth, because its absence can be counterproductive.

## Appendix.

**Table A** Variables descriptions and sources.

Variable	Definition	Source
<b>GDPPCG</b>	Real GDP per capita growth (log first difference).	World Development Indicators (2014).
<b>L.GDPPC</b>	Logarithm of real GDP per capita lagged one period	World Development Indicators (2014).
<b>OPGLG</b>	Logarithmic first difference of total stocks of external assets and liabilities, FDI, portfolio equity, and debts.	External Wealth of Nations Dataset (Updated and extended, 1970-2011).
<b>INVOPGLG</b>	Logarithmic first difference of total stocks of external assets and liabilities, FDI, and portfolio equity.	External Wealth of Nations Dataset (Updated and extended, 1970-2011).
<b>OPENDEB</b>	Logarithmic first difference of total stocks of external assets and liabilities, debts.	External Wealth of Nations Dataset (Updated and extended, 1970-2011).
<b>INBANK</b>	The five-year average absolute deviation of the growth rate of deposit money bank assets (deposit money + central) to bank assets (BANK).	Beck et Demirgüç-Kunt (2009), updated in April 2013 (calculations by the authors).
<b>INLIQ</b>	The five-year average absolute deviation of the growth rate of liquid liabilities to the GDP (LIQ).	Beck et Demirgüç-Kunt (2009), updated in April 2013 (calculations by the authors).
<b>INBANKR</b>	The five-year average absolute value of residual $\varepsilon_t$ . $\varepsilon_t$ is the pooled OLS estimated residual of the following regression: $x_t = a + bx_{t-1} + ct + \varepsilon_t$ Where x is BANK, a is a constant and t the time. This regression is estimated separately for every country in the sample.	Beck et Demirgüç-Kunt (2009), updated in April 2013 (calculations by the authors).
<b>INLIQR</b>	The five-year average absolute value of residual $\varepsilon_t$ . $\varepsilon_t$ is the pooled OLS estimated residual of the following regression: $x_t = a + bx_{t-1} + ct + \varepsilon_t$ Where x is LIQ, a is a constant and t the time. This regression is estimated separately for every country in the sample.	Beck et Demirgüç-Kunt (2009), updated in April 2013 (calculations by the authors).
<b>INDEV</b>	The five-year standard deviation of the log-difference of DEV. Where DEV is the financial system deposits to GDP.	Beck et Demirgüç-Kunt (2009), updated in April 2013 (calculations by the authors).
<b>INDEPB</b>	The five-year standard deviation of value of residual $\varepsilon_t$ . $\varepsilon_t$ is the pooled OLS estimated residual of the following regression $x_t = a + bx_{t-1} + ct + \varepsilon_t$ Where x is DEPB (deposit money bank assets to GDP), a is a constant and t the time. This regression is estimated separately for every country in the sample.	Beck et Demirgüç-Kunt (2009), updated in April 2013 (calculations by the authors).
<b>GOV</b>	Logarithm of the government spending as a share of GDP.	World Development Indicators (2014).
<b>TRADE</b>	Logarithm of sum of exports and imports to GDP.	World Development Indicators (2014).
<b>EDU</b>	Logarithme of the ratio of total secondary enrollment, regardless of age, to the population of the age group that officially corresponds to that level of education.	World Development Indicators (2014).
<b>POLI</b>	Freedom House's index of Political Rights, with 1 representing the most free and 7 the least free..	Freedom House (2014).
<b>TERM</b>	Growth Rate of Terms of Trade Index. The terms of Trade Index shows the national account exports price index divided by the imports price index with a 1995 base year.	World Development Indicators (2014).
<b>CRISIS</b>	Number of years in which a country underwent a systemic banking or a currency crisis, as a fraction of the number of years in the corresponding period.	Systemic Banking Crises Database: An Update (IMF, 2012)(calculations by the authors).
<b>POPG</b>	Growth rate of population.	World Development Indicators (2014).

**Table B**

Summary statistics: main variables (five-year data).

<b>Variable</b>	<b>Obs.</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min.</b>	<b>Max.</b>
<b>GDPPCG</b>	525	0,0103	0,0421	-0,2310	0,2616
<b>L.GDPPC</b>	452	6,4868	0,7499	4,1849	8,3021
<b>OPGLG</b>	513	0,1020	0,0966	-0,2721	0,9913
<b>INVOPGLG</b>	505	0,1468	0,1690	-0,4610	1,3763
<b>OPENDEB</b>	516	0,0197	0,1254	-0,5380	0,6742
<b>INBANK</b>	412	0,0868	0,1058	0,0000	1,3445
<b>INLIQ</b>	412	0,0737	0,1110	0,0000	1,6388
<b>TRADE</b>	512	4,1155	0,5132	2,3362	5,4660
<b>EDU</b>	489	3,2904	0,9151	0,4361	4,7079
<b>TERM</b>	406	4,6910	0,2864	3,9147	5,5789
<b>GOV</b>	496	2,5990	0,4441	1,0310	3,9659

**Table C**

List of Country sample.

Albania, Chad, Georgia, Kiribati, Niger, Sudan, Armenia, Comoros, Ghana, Lesotho, Nigeria, Swaziland, Bangladesh, Rep. Demo of Congo, Guatemala, Liberia, Pakistan Rep., Syria, Belize, Republic of Congo, Guinea, Madagascar, Papua New Guinea, Tajikistan, Benin, Côte d'Ivoire, Guinea-Bissau, Malawi, Paraguay, Tanzania, Bhutan, Djibouti, Guyana, Mali, Philippines, Tonga, Bolivia, Egypt, Haiti, Mauritania, Rwanda, Uganda, Burkina Faso, Salvador, Honduras, Moldova, Samoa, Uzbekistan, Burundi, Eritrea, India, Mongolia, Senegal, Vanuatu, Cambodia, Ethiopia, Indonesia, Mozambique, Sierra Leone, Vietnam, Cameroon, Fiji, Iraq, Nepal, Solomon Islands, Zambia Rep., Central African Republic, Gambia, Kenya, Nicaragua, Sri Lanka, and Zimbabwe.

**Table D**

Correlation coefficients: main variables (five-year data).

	GDPPCG	L.GDPPC	INVOPGLG	OPENDEB	OPGLG	INBANK	INLIQ	TRADE	EDU	TERM	GOV
<b>GDPPCG</b>	1,0000										
<b>L.GDPPC</b>	-0,1216	1,0000									
<i>(p-values)</i>	(0,0097)										
<b>INVOPGLG</b>	0,1967	0,0229	1,0000								
<i>(p-values)</i>	(0,0000)	(0,6368)									
<b>OPENDEB</b>	-0,2766	-0,0151	-0,0500	1,0000							
<i>(p-values)</i>	(0,0000)	(0,7542)	(0,2626)								
<b>OPGLG</b>	0,0488	0,0233	0,2717	0,5938	1,0000						
<i>(p-values)</i>	(0,2808)	(0,6291)	(0,0000)	(0,0000)							
<b>INBANK</b>	-0,1180	-0,0439	0,1005	0,0826	0,0032	1,0000					
<i>(p-values)</i>	(0,0181)	(0,4077)	(0,0435)	(0,0951)	(0,9489)						
<b>INLIQ</b>	-0,1404	-0,0280	0,1142	0,0415	-0,0397	0,9156	1,0000				
<i>(p-values)</i>	(0,0048)	(0,5964)	(0,0216)	(0,4023)	(0,4246)	(0,0000)					
<b>TRADE</b>	0,0614	0,4847	0,1371	-0,1080	0,0014	0,0198	0,0038	1,0000			
<i>(p-values)</i>	(0,1698)	(0,0000)	(0,0026)	(0,0168)	(0,9761)	(0,6934)	(0,9399)				
<b>EDU</b>	0,1114	0,5793	0,1385	-0,1943	-0,0909	0,0018	-0,0193	0,3877	1,0000		
<i>(p-values)</i>	(0,0173)	(0,0000)	(0,0037)	(0,0000)	(0,0554)	(0,9725)	(0,7155)	(0,0000)			
<b>TERM</b>	-0,0247	-0,0970	0,0197	0,1436	0,1883	0,0699	0,0897	-0,0861	-0,3011	1,0000	
<i>(p-values)</i>	(0,6239)	(0,0570)	(0,6939)	(0,0038)	(0,0001)	(0,1977)	(0,0974)	(0,0866)	(0,0000)		
<b>GOV</b>	-0,2028	0,2075	0,0404	0,0796	0,0796	0,0272	-0,0011	0,4062	-0,0263	0,0543	1,0000
<i>(p-values)</i>	(0,0000)	(0,0000)	(0,3868)	(0,0840)	(0,0850)	(0,5947)	(0,9833)	(0,0000)	(0,5836)	(0,2882)	

This table reports the correlation coefficients of Pearson between the main variables used in this paper.

**Table E**

Financial globalization, financial instability and growth : direct approach.

Robustness : alternative variables of financial instability (INLIQR and INBANKR).

	Regression (1)	Regression (2)	Regression (3)	Regression (4)	Regression (5)	Regression (6)
L,GDPPC	-0,025** (0,012)	-0,014 (0,011)	-0,027* (0,014)	-0,023** (0,009)	-0,017* (0,009)	-0,026** (0,012)
<b>OPGLG</b>	<b>0,088***</b> (0,028)			<b>0,086***</b> (0,026)		
<b>INVOPGLG</b>		<b>0,074***</b> (0,024)			<b>0,060***</b> (0,021)	
<b>OPENDEB</b>			<b>-0,055***</b> (0,019)			<b>-0,057***</b> (0,020)
<b>INLIQR</b>				<b>-0,097**</b> (0,041)	<b>-0,140**</b> (0,069)	<b>-0,155*</b> (0,084)
<b>INBANKR</b>	<b>-0,072**</b> (0,032) (0,012)	<b>-0,079**</b> (0,036) (0,011)	<b>-0,070*</b> (0,041) (0,014)			
TRADE	0,045*** (0,012)	0,037*** (0,011)	0,044*** (0,014)	0,048*** (0,016)	0,035*** (0,011)	0,047*** (0,017)
EDU	0,013 (0,009)	0,007 (0,007)	0,008 (0,009)	0,011 (0,009)	0,011 (0,007)	0,008 (0,009)
TERM	-0,003 (0,013)	0,007 (0,014)	0,010 (0,013)	-0,007 (0,013)	0,002 (0,012)	0,008 (0,015)
GOV	-0,027 (0,017)	-0,028** (0,013)	-0,018 (0,019)	-0,033** (0,013)	-0,032** (0,013)	-0,022 (0,014)
Constant	0,025 (0,084)	-0,037 (0,073)	-0,011 (0,081)	0,049 (0,096)	0,014 (0,059)	-0,009 (0,084)
Observations	278	278	278	280	280	280
Countries	66	66	66	66	66	66
AR2 P-value	0,670	0,750	0,731	0,625	0,583	0,664
Hansen P-value	0,359	0,547	0,313	0,407	0,528	0,507

Notes: Dependent Variable: Growth rate of real GDP per capita. Period : 1972- 2011 (Non-overlapping five-year data). Estimation: Two-step system GMM with Windmeijer (2005) small sample robust correction. Time and fixed effects are included in all the regressions. Standard errors are presented below the corresponding coefficient. Symbols \*, \*\* and \*\*\* means significant at 1%, 5% and at 10%.



**Table F** Financial globalization, financial instability and growth : spillover approach.

	Regression (1)	Regression (2)	Regression (3)	Regression (4)	Regression (5)	Regression (6)	Robust ness : alterna tive variabl es of financi al instabil ity (INLIQ R and INBAN KR).
L,GDPPC	-0,036** (0,014)	-0,033*** (0,011)	-0,028*** (0,008)	-0,023* (0,012)	-0,026** (0,013)	-0,021 (0,014)	
<b>INBANKR</b>	<b>-0,153***</b> (0,047)	<b>-0,149**</b> (0,067)	<b>-0,047**</b> (0,023)				
<b>INLIQR</b>				<b>-0,287***</b> (0,065)	<b>-0,231**</b> (0,114)	<b>-0,112</b> (0,082)	
<b>OPGLG X INBANKR</b>	<b>0,879***</b> (0,275)						
<b>INVOPGL X INBANKR</b>		<b>0,354**</b> (0,160)					
<b>INBANKR X OPENDEB</b>			<b>-0,361*</b> (0,182)				
<b>OPGLG X INLIQR</b>				<b>1,740***</b> (0,428)			
<b>INVOPGLG X INLIQR</b>					<b>0,546*</b> (0,309)		
<b>INLIQR X OPENDEB</b>						<b>-0,753**</b> (0,355)	
TRADE	0,052*** (0,012)	0,042** (0,016)	0,040*** (0,011)	0,044*** (0,012)	0,049*** (0,018)	0,044*** (0,015)	
EDU	0,016 (0,011)	0,018*** (0,007)	0,017** (0,007)	0,012 (0,007)	0,010 (0,009)	0,010 (0,012)	
TERM	0,012 (0,022)	0,022 (0,014)	0,023 (0,015)	-0,003 (0,014)	0,018 (0,012)	0,012 (0,020)	
GOV	-0,034** (0,017)	-0,026 (0,016)	-0,019 (0,015)	-0,044*** (0,015)	-0,039** (0,015)	-0,036** (0,018)	
Constante	0,014 (0,088)	-0,035 (0,055)	-0,087 (0,069)	0,075 (0,079)	-0,029 (0,078)	-0,025 (0,100)	
Observations	278	278	278	280	280	280	

Countries	66	66	66	66	66	66	
<i>AR2 P-value</i>	0,761	0,959	0,789	0,825	0,643	0,720	
<i>Hansen P-value</i>	0,418	0,273	0,548	0,435	0,308	0,457	Notes:
							Depende
nt Variable: Growth rate of real GDP per capita. Period : 1972- 2011 (Non-overlapping five-year data). Estimation: Two-step system GMM with Windmeijer (2005) small sample robust correction. Time and fixed effects are included in all the regressions. Standard errors are presented below the corresponding coefficient. Symbols * , ** and *** means significant at 1%, 5% and at 10%.							

## Tables G et H

Financial globalization, financial instability and growth : direct and spillover approaches. Robustness : alternative variables of financial instability (INSDEV et INDEPB).

Table G	Regression (1)	Regression (2)	Regression (3)	Regression (4)	Regression (5)	Regression (6)
L,GDPPC	-0,021** (0,010)	-0,009 (0,011)	-0,022** (0,010)	-0,025** (0,011)	-0,012 (0,013)	-0,023** (0,011)
OPGLG	<b>0,071**</b> (0,028)			<b>0,084***</b> (0,027)		
INVOPGLG		<b>0,070***</b> (0,023)			<b>0,069**</b> (0,028)	
OPENDEB			<b>-0,055***</b> (0,017)			<b>-0,054***</b> (0,019)
INSDEV	<b>-0,069**</b> (0,031)	<b>-0,099***</b> (0,035)	<b>-0,090**</b> (0,041)			
INDEPB				<b>-0,049**</b> (0,021)	<b>-0,067**</b> (0,032)	<b>-0,056*</b> (0,032)
GOV	-0,028* (0,016)	-0,035*** (0,013)	-0,020 (0,015)	-0,024 (0,017)	-0,033** (0,015)	-0,015 (0,019)
TRADE	0,051*** (0,014)	0,037*** (0,013)	0,050*** (0,017)	0,047*** (0,012)	0,040*** (0,013)	0,048*** (0,015)
EDU	0,009 (0,008)	0,003 (0,006)	0,003 (0,007)	0,015* (0,009)	0,006 (0,008)	0,006 (0,009)
TERM	-0,007 (0,014)	0,004 (0,014)	0,009 (0,013)	-0,005 (0,013)	0,006 (0,016)	0,003 (0,013)
Constant	0,013 (0,083)	-0,014 (0,077)	-0,040 (0,082)	0,017 (0,081)	-0,038 (0,089)	-0,022 (0,076)
Observations	271	271	271	271	271	271
Countries	66	66	66	66	66	66
AR2 P-value	0,609	0,594	0,630	0,605	0,720	0,591
Hansen P-value	0,355	0,459	0,553	0,443	0,288	0,441

Table H	Regression (1)	Regression (2)	Regression (3)	Regression (4)	Regression (5)	Regression (6)
L,GDPPC	-0,029*** (0,011)	-0,017 (0,011)	-0,024** (0,012)	-0,030*** (0,010)	-0,033*** (0,010)	-0,027*** (0,009)
INSDEV	<b>-0,122***</b> (0,029)	<b>-0,188***</b> (0,057)	<b>-0,080*</b> (0,042)			
INDEPB				<b>-0,112***</b> (0,033)	<b>-0,107**</b> (0,051)	<b>-0,039**</b> (0,015)
INSDEV X OPGLG	<b>0,664***</b> (0,171)					
INSDEVINV X OPGLG		<b>0,463**</b> (0,176)				
INSDEV X OPENDEB			<b>-0,473*</b> (0,254)			
INDEPB X OPGLG				<b>0,670***</b> (0,189)		
INDEPBINV X OPGLG					<b>0,281**</b> (0,132)	
INDEPB X OPENDEB						<b>-0,320**</b> (0,141)
GOV	-0,029* (0,016)	-0,036** (0,015)	-0,023 (0,017)	-0,015 (0,016)	-0,028* (0,016)	-0,021 (0,014)
TRADE	0,042*** (0,013)	0,036** (0,014)	0,060*** (0,015)	0,043*** (0,010)	0,045*** (0,016)	0,041*** (0,012)
EDU	0,019** (0,008)	0,007 (0,008)	0,004 (0,008)	0,020** (0,008)	0,019*** (0,007)	0,019*** (0,007)
TERM	-0,002 (0,013)	0,014 (0,015)	0,013 (0,017)	-0,006 (0,013)	0,021* (0,012)	0,022 (0,015)
Constant	0,055 (0,073)	-0,006 (0,075)	-0,081 (0,091)	0,041 (0,073)	-0,041 (0,062)	-0,089 (0,062)
Observations	271	271	271	271	271	271
Countries	66	66	66	66	66	66
AR2 P-value	0,714	0,501	0,558	0,693	0,837	0,727
Hansen P-value	0,351	0,343	0,490	0,513	0,272	0,488

Notes : Dependent Variable: Growth rate of real GDP per capita. Period : 1972- 2011 (Non-overlapping five-year data). Estimation: Two-step system GMM with Windmeijer (2005) small sample robust correction. Time and fixed effects are included in all the regressions. Standard errors are presented below the corresponding coefficient. Symbols \*, \*\* and \*\*\* means significant at 1%, 5% and at 10%.

**Table I**

Financial globalization, financial instability and growth : direct approach.

Robustness : adding of control variables (CRISIS, POPG and POLI).

Notes	Regression (1)	Regression (2)	Regression (3)	Regression (4)	Regression (5)	Regression (6)
LGDPPC	-0,026** (0,011)	-0,021** (0,010)	-0,021* (0,011)	-0,022* (0,012)	-0,022** (0,010)	-0,020* (0,012)
<b>OPGLG</b>	<b>0,064**</b> (0,026)			<b>0,063**</b> (0,025)		
<b>INVOPGLG</b>		<b>0,060***</b> (0,020)			<b>0,046**</b> (0,019)	
<b>OPENDEB</b>			<b>-0,053*</b> (0,029)			<b>-0,045**</b> (0,021)
<b>INBANK</b>	<b>-0,089**</b> (0,038)	<b>-0,081**</b> (0,038)	<b>-0,090*</b> (0,053)			
<b>INLIQ</b>				<b>-0,100**</b> (0,042)	<b>-0,104**</b> (0,049)	<b>-0,137**</b> (0,060)
TRADE	0,052*** (0,013)	0,044*** (0,013)	0,047** (0,020)	0,043*** (0,015)	0,039*** (0,011)	0,040*** (0,014)
EDU	0,017 (0,011)	0,011 (0,008)	0,005 (0,010)	0,016 (0,011)	0,015* (0,009)	0,009 (0,012)
TERM	0,015 (0,019)	0,019 (0,016)	0,025 (0,020)	0,008 (0,019)	0,024 (0,016)	0,019 (0,019)
GOV	-0,034* (0,017)	-0,022* (0,012)	-0,014 (0,018)	-0,037** (0,017)	-0,035** (0,015)	-0,031* (0,017)
POLI	-0,000 (0,002)	0,002 (0,003)	0,000 (0,003)	-0,001 (0,002)	-0,000 (0,003)	-0,000 (0,002)
POPG	0,003 (0,003)	0,004 (0,003)	0,002 (0,003)	0,003 (0,002)	0,004 (0,004)	0,002 (0,002)
CRISIS	-0,025** (0,011)	-0,028** (0,012)	-0,028*** (0,010)	-0,025** (0,012)	-0,033*** (0,012)	-0,023* (0,012)
Constant	-0,073 (0,101)	-0,118 (0,090)	-0,137 (0,099)	-0,020 (0,098)	-0,085 (0,085)	-0,051 (0,086)
Observations	277	277	277	279	279	279
Countries	66	66	66	66	66	66
AR2 P-value	0,514	0,597	0,574	0,530	0,392	0,569
Hansen P-value	0,827	0,304	0,230	0,709	0,586	0,523

Dependent Variable: Growth rate of real GDP per capita. Period: 1972- 2011 (Non-overlapping five-year data). Estimation: Two-step system GMM with Windmeijer (2005) small sample robust correction. Time and fixed effects are included in all the regressions. Standard errors are presented below the corresponding coefficient. Symbols \*, \*\* and \*\*\* means significant at 1%, 5% and at 10%.

**Table J**

Financial globalization, financial instability and growth : spillover approach.

Robustness : adding of control variables (CRISIS, POPG and POLI).

	Regression (1)	Regression (2)	Regression (3)	Regression (4)	Regression (5)	Regression (6)	
L,GDPPC							Notes : Dependent Variable: Growth rate of real GDP per capita. Period: 1972-2011 (Non-overlapping five-year data). Estimation: Two-step system GMM with Windmeijer (2005) small sample robust correction. Time and fixed effects are included in all the regressions. Standard errors are
INBANK	(0,011) <b>-0,163***</b> (0,039)	(0,012) <b>-0,169***</b> (0,062)	(0,012) <b>-0,071*</b> (0,041)	(0,011)	(0,011)	(0,011)	
INLIQ				<b>-0,131***</b> (0,034)	<b>-0,204***</b> (0,063)	<b>-0,066*</b> (0,035)	
OPGLG X INBANK	<b>0,820***</b> (0,256)						
INVOPGLG X INBANK		<b>0,363**</b> (0,172)					
INBANK X OPENDEB			<b>-0,481**</b> (0,229)				
OPGLG X INLIQ				<b>0,563**</b> (0,245)			
INVOPGLG X INLIQ					<b>0,441**</b> (0,189)		
INLIQ X OPENDEB						<b>-0,609***</b> (0,204)	
TRADE	0,052*** (0,013)	0,055*** (0,012)	0,054*** (0,014)	0,038** (0,016)	0,032* (0,017)	0,048*** (0,015)	
EDU	0,016 (0,011)	0,015 (0,011)	0,012 (0,012)	0,022** (0,010)	0,017* (0,009)	0,014* (0,007)	
TERM	0,010 (0,018)	0,029 (0,019)	0,030 (0,020)	0,029 (0,019)	0,032* (0,017)	0,026* (0,013)	
GOV	-0,030 (0,018)	-0,030* (0,018)	-0,034** (0,017)	-0,025 (0,019)	-0,033* (0,017)	-0,026* (0,014)	
POLI	-0,002 (0,003)	0,000 (0,003)	0,001 (0,003)	-0,002 (0,004)	-0,000 (0,003)	0,002 (0,003)	
POPG	0,003 (0,002)	0,004 (0,003)	0,002 (0,003)	0,002 (0,003)	0,003 (0,003)	0,003 (0,003)	
CRISIS	-0,024** (0,011)	-0,021* (0,011)	-0,025** (0,012)	-0,032** (0,013)	-0,032** (0,013)	-0,028*** (0,010)	
Constant	-0,045 (0,092)	-0,141 (0,093)	-0,115 (0,092)	-0,075 (0,103)	-0,084 (0,097)	-0,067 (0,071)	
Observations	277	277	277	279	279	279	
Countries	66	66	66	66	66	66	
AR2 P-value	0,420	0,802	0,667	0,324	0,505	0,665	
Hansen P-value	0,709	0,586	0,727	0,525	0,550	0,667	

presented below the corresponding coefficient. Symbols \*, \*\* and \*\*\* means significant at 1%, 5% and at 10%.

**Table K** Financial globalization, financial instability and growth : direct approach.  
Robustness : different time periods.

Period 1972-2001 and 2007-2011	Regression (1)	Regression (2)	Regression (3)	Regression (4)	Regression (5)	Regression (6)	Period 1972-2001	Regression (7)	Regression (8)	Regression (9)	Regression (10)	Regression (11)	Regression (12)
L,GDPPC	-0,034* (0,019)	-0,012 (0,011)	-0,031** (0,014)	-0,017 (0,019)	-0,012 (0,013)	-0,022 (0,013)	L,GDPPC	-0,034* (0,019)	-0,009 (0,012)	-0,018 (0,017)	-0,027 (0,017)	-0,012 (0,013)	-0,022 (0,013)
<b>OPGLG</b>	<b>0,091**</b> (0,041)			<b>0,083***</b> (0,029)			<b>OPGLG</b>	<b>0,091**</b> (0,041)			<b>0,089***</b> (0,025)		
<b>INBANK</b>	<b>-0,133**</b> (0,053)	<b>-0,081**</b> (0,033)	<b>-0,071*</b> (0,039)				<b>INVOPGLG</b>		<b>0,088***</b> (0,021)			<b>0,081***</b> (0,011)	
<b>INVOPGLG</b>		<b>0,083***</b> (0,016)			<b>0,081***</b> (0,011)		<b>OPENDEB</b>			<b>-0,059***</b> (0,020)			<b>-0,069***</b> (0,019)
<b>OPENDEB</b>			<b>-0,055***</b> (0,015)			<b>-0,069***</b> (0,019)	<b>INBANK</b>	<b>-0,133**</b> (0,053)	<b>-0,096***</b> (0,034)	<b>-0,112**</b> (0,046)			
<b>INLIQ</b>				<b>-0,114*</b> (0,066)	<b>-0,112***</b> (0,040)	<b>-0,117**</b> (0,052)	<b>INLIQ</b>				<b>-0,145***</b> (0,051)	<b>-0,112***</b> (0,040)	<b>-0,117**</b> (0,052)
	(0,020)	(0,009)	(0,011)	(0,018)	(0,009)	(0,007)	TRADE	0,045** (0,020)	0,025** (0,011)	0,030*** (0,011)	0,029 (0,019)	0,025** (0,009)	0,032*** (0,007)
EDU	0,024 (0,018)	0,005 (0,009)	0,002 (0,010)	0,015 (0,012)	0,006 (0,007)	0,001 (0,008)	EDU	0,024 (0,018)	0,008 (0,009)	0,002 (0,010)	0,020** (0,008)	0,006 (0,007)	0,001 (0,008)
TERM	-0,009 (0,017)	0,009 (0,011)	0,010 (0,014)	-0,003 (0,016)	0,013 (0,013)	0,009 (0,011)	TERM	-0,009 (0,017)	0,009 (0,013)	-0,003 (0,014)	-0,003 (0,017)	0,013 (0,013)	0,009 (0,011)
GOV	0,002 (0,024)	-0,033* (0,018)	-0,015 (0,016)	-0,019 (0,023)	-0,030 (0,018)	-0,017 (0,014)	GOV	0,002 (0,024)	-0,032* (0,017)	-0,017 (0,026)	-0,007 (0,022)	-0,030 (0,018)	-0,017 (0,014)
Constant	0,009 (0,155)	0,001 (0,097)	0,038 (0,107)	-0,013 (0,150)	-0,020 (0,103)	0,029 (0,096)	Constante	0,009 (0,155)	-0,021 (0,104)	0,064 (0,094)	0,035 (0,141)	-0,020 (0,103)	0,029 (0,096)
Observations	171	171	171	173	173	173	Observations	171	171	171	173	173	173
Countries	62	62	62	62	62	62	Countries	62	62	62	62	62	62
AR2 P-value	0,523	0,977	0,851	0,653	0,955	0,787	AR2 P-value	0,523	0,983	0,993	0,546	0,955	0,787
Hansen P-value	0,344	0,771	0,664	0,460	0,851	0,780	Hansen P-value	0,344	0,672	0,426	0,541	0,851	0,780

Notes: Dependent

Variable: Growth rate of real GDP per capita. Estimation: Two-step system GMM with Windmeijer (2005) small sample robust correction. Time and fixed effects are included in all the regressions. Standard errors are presented below the corresponding coefficient. Symbols \*, \*\* and \*\*\* means significant at 1%, 5% and at 10%.

**Tables L and M** Financial globalization, financial instability and growth :

Period 1972-2007 (M)	Regression (1)	Regression (2)	Regression (3)	Regression (4)	Regression (5)	Regression (6)
GDPPC	-0,037** (0,015)	-0,022* (0,013)	-0,030** (0,012)	-0,037*** (0,011)	-0,018 (0,011)	-0,030*** (0,010)
OPGLG	<b>0,085***</b> (0,029)			<b>0,074**</b> (0,030)		
INVOPGLG		<b>0,063**</b> (0,026)			<b>0,058**</b> (0,024)	
OPENDEB			<b>-0,062***</b> (0,020)			<b>-0,077***</b> (0,016)
INBANK	<b>-0,123**</b> (0,054)	<b>-0,167***</b> (0,055)	<b>-0,107*</b> (0,058)			
INLIQ				<b>-0,123**</b> (0,056)	<b>-0,167***</b> (0,054)	<b>-0,148***</b> (0,044)
TRADE	0,052*** (0,016)	0,027* (0,014)	0,054*** (0,015)	0,044*** (0,015)	0,016 (0,012)	0,038*** (0,012)
DU	0,019 (0,013)	0,006 (0,009)	0,004 (0,009)	0,021** (0,010)	0,009 (0,009)	0,006 (0,007)
ERM	-0,010 (0,017)	0,000 (0,017)	0,025 (0,017)	-0,007 (0,013)	0,004 (0,015)	0,025* (0,014)
GOV	-0,012 (0,023)	-0,026 (0,019)	-0,013 (0,016)	-0,021 (0,022)	-0,036** (0,017)	-0,011 (0,016)
Constant	0,058 (0,123)	0,099 (0,105)	-0,101 (0,105)	0,085 (0,112)	0,106 (0,100)	-0,046 (0,101)
Observations	226	226	226	228	228	228
Countries	64	64	64	64	64	64

direct and  
spillover  
approachs.  
Robustness:  
different time  
periods.

Period 1972-2001 and 2007-2011 (N)	Regression (1)	Regression (2)	Regression (3)	Regression (4)	Regression (5)	Regression (6)
LGDPPC	-0,020 (0,022)	-0,009 (0,014)	-0,037** (0,016)	-0,026 (0,018)	-0,009 (0,018)	-0,027 (0,019)
INBANK	<b>-0,194**</b> (0,077)	<b>-0,293***</b> (0,065)	<b>-0,093*</b> (0,050)			
INLIQ				<b>-0,170***</b> (0,057)	<b>-0,213***</b> (0,072)	<b>-0,123*</b> (0,066)
OPGLG X INBANK	<b>0,921**</b> (0,392)					
INVOPGLG X INBANK		<b>0,881**</b> (0,341)				
INBANK X OPENDEB			<b>-0,260*</b> (0,142)			
OPGLG X INLIQ				<b>0,860***</b> (0,238)		
INVOPGLG X INLIQ					<b>0,618**</b> (0,307)	
INLIQ X OPENDEB						<b>-0,511*</b> (0,280)
TRADE	0,039* (0,021)	0,018 (0,018)	0,051** (0,019)	0,024* (0,014)	0,018 (0,022)	0,049** (0,023)
EDU	0,014 (0,015)	0,004 (0,013)	0,002 (0,011)	0,020* (0,012)	-0,002 (0,011)	-0,003 (0,013)
TERM	-0,005 (0,013)	0,003 (0,018)	-0,002 (0,019)	0,010 (0,015)	0,010 (0,021)	0,012 (0,018)
GOV	-0,019 (0,035)	-0,040 (0,029)	-0,016 (0,019)	-0,024 (0,029)	-0,029 (0,025)	-0,008 (0,031)
Constant	0,020 (0,126)	0,081 (0,162)	0,093 (0,138)	0,033 (0,112)	0,033 (0,185)	-0,033 (0,169)
Observations	171	171	171	173	173	173
Countries	62	62	62	62	62	62
AR2 P-value	0,514	0,737	0,927	0,762	0,583	0,887
Hansen P-value	0,200	0,405	0,590	0,247	0,204	0,379

<i>AR2 P-value</i>	0,732	0,527	0,982	0,936	0,814	0,884
<i>ansen P-value</i>	0,671	0,478	0,851	0,617	0,234	0,675

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Notes: Dependent Variable: Growth rate of real GDP per capita. Estimation: Two-step system GMM with Windmeijer (2005) small sample robust correction. Time and fixed effects are included in all the regressions. Standard errors are presented below the corresponding coefficient. Symbols \*,\*\* and \*\*\* means significant at 1%, 5% and at 10%.



**Table N** Financial globalization, financial instability and growth: spillover approach. Robustness: different time periods.

Period 1972-2001	Regression (1)	Regression (2)	Regression (3)	Regression (4)	Regression (5)	Regression (6)	Period 1972-2007	Regression (7)	Regression (8)	Regression (9)	Regression (10)	Regression (11)	Regression (12)
L,GDPPC	-0,020 (0,022)	-0,018 (0,014)	-0,033** (0,015)	-0,026 (0,018)	-0,013 (0,012)	-0,027* (0,015)	L,GDPPC	-0,028** (0,011)	-0,025 (0,016)	-0,032* (0,016)	-0,033** (0,014)	-0,024 (0,015)	-0,027** (0,013)
INBANK	<b>-0,194**</b> (0,077)	<b>-0,215***</b> (0,076)	<b>-0,082***</b> (0,024)				INBANK	<b>-0,195***</b> (0,048)	<b>-0,223**</b> (0,094)	<b>-0,109**</b> (0,054)			
INLIQ				<b>-0,170***</b> (0,057)	<b>-0,199***</b> (0,063)	<b>-0,109**</b> (0,054)	INLIQ				<b>-0,148***</b> (0,040)	<b>-0,230**</b> (0,096)	<b>-0,134***</b> (0,047)
OPGLG X INBANK	<b>0,921**</b> (0,392)						OPGLG X INBANK	<b>1,378***</b> (0,317)					
INVOPGLG X INBANK		<b>0,647*</b> (0,343)					INVOPGLG X INBANK		<b>0,613*</b> (0,333)				
INBANK X OPENDEB			<b>-0,392**</b> (0,191)				INBANK X OPENDEB			<b>-0,437*</b> (0,243)			
OPGLG X INLIQ				<b>0,860***</b> (0,238)			OPGLG X INLIQ				<b>1,124***</b> (0,233)		
INVOPGLG X INLIQ					<b>0,747***</b> (0,165)		INVOPGLG X INLIQ					<b>0,714**</b> (0,283)	
INLIQ X OPENDEB						<b>-0,561**</b> (0,230)	INLIQ X OPENDEB						<b>-0,756***</b> (0,218)
TRADE	0,039* (0,021)	0,030** (0,015)	0,037*** (0,014)	0,024* (0,014)	0,024* (0,014)	0,037** (0,016)	TRADE	0,051*** (0,014)	0,048** (0,021)	0,057*** (0,014)	0,044*** (0,015)	0,042* (0,022)	0,044*** (0,014)
EDU	0,014 (0,015)	0,011 (0,010)	0,007 (0,011)	0,020* (0,012)	-0,000 (0,010)	0,006 (0,010)	EDU	0,021** (0,009)	0,011 (0,015)	0,006 (0,015)	0,029*** (0,008)	0,014 (0,013)	0,004 (0,013)
TERM	-0,005 (0,013)	0,012 (0,013)	-0,006 (0,012)	0,010 (0,015)	0,017 (0,018)	0,003 (0,013)	TERM	-0,017 (0,016)	0,015 (0,029)	0,027 (0,027)	0,008 (0,015)	0,014 (0,020)	0,030 (0,020)
GOV	-0,019 (0,035)	-0,030 (0,020)	-0,018 (0,027)	-0,024 (0,029)	-0,028** (0,013)	-0,019 (0,023)	GOV	-0,016 (0,018)	-0,030 (0,022)	-0,025 (0,024)	-0,015 (0,022)	-0,028 (0,022)	-0,026 (0,020)
Constant	0,020 (0,126)	-0,002 (0,124)	0,133 (0,097)	0,033 (0,112)	-0,007 (0,153)	0,057 (0,104)	Constant	0,045 (0,120)	-0,040 (0,165)	-0,086 (0,166)	-0,044 (0,114)	-0,037 (0,151)	-0,066 (0,136)
Observations	171	171	171	173	173	173	Observations	226	226	226	228	228	228
Countries	62	62	62	62	62	62	Countries	64	64	64	64	64	64
AR2 P-value	0,514	0,810	0,930	0,762	0,724	0,972	AR2 P-value	0,784	0,677	0,954	0,827	0,961	0,937
Hansen P-value	0,200	0,401	0,439	0,247	0,459	0,327	Hansen P-value	0,699	0,377	0,807	0,233	0,235	0,865

Notes: Dependent Variable: Growth rate of real GDP per capita. Estimation: Two-step system GMM with Windmeijer (2005) small sample robust correction. Time and fixed effects are included in all the regressions. Standard errors are presented below the corresponding coefficient. Symbols \*, \*\* and \*\*\* means significant at 1%, 5% and at 10%.

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