




THE IMPACT OF FINANCIAL DEVELOPMENT AND GLOBALISATION ON ECONOMIC GROWTH: EVIDENCE FROM A MACRO PANEL OF TEN COUNTRIES



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ABSTRACT

Article History

Received: 13 December 2018

Revised: 21 January 2019

Accepted: 25 February 2019

Published: 27 March 2019

Keywords

Financial development
Globalisation
Economic growth
Panel ARDL

JEL Classification:

F43; F62; O15.

This paper examines the impact of financial market development and globalisation on economic growth in ten countries (Argentina, China (Hong Kong SAR), Israel, Japan, Malaysia, Mexico, Singapore, Switzerland, United States and South Africa) from 1980 to 2015. To perform the investigation two aspects of financial market development, i.e. the banking sector and the stock market were focused on. The study benefited by the fact that in 2018 the KOF Globalization Index was substantially upgraded, disclosing de facto and de jure measures. An ARDL bounds test approach was used to examine the short- and long-term properties of those relationships. The results point to banking sector development impacting economic growth both in the short- and long-term. The stock market development impacts economic growth in the long-term. The 2018 upgraded KOF Globalization Index indicators de facto and de jure have been demonstrated to be statistically significant. The forms of globalisation more significant in the model are political globalisation, de jure, in the long-term and financial globalisation, de facto, in the short-term. The speed of adjustment of the panel is negative and statistically highly significant, supporting the evidence of long memory/cointegration in the relationship between financial market development, globalisation and economic growth. Policies that promote banking sector development should be implemented to promote economic growth. There should be sound regulation of the banking system promoted and confidence instilled in the banking markets so that resources can be effectively mobilised to increase the economies' productivity.

Contribution/ Originality: This study contributes to the existing literature by analysing the relationships between three indicators of financial market development (market capitalisation and credit), and six globalisation dimensions (three de jure and three de facto) on economic growth using a panel ARDL model of ten countries from 1980 to 2015.

1. INTRODUCTION

In the last decade, many countries have adopted new development strategies, through the modernisation of the financial sector and the link of that sector to economic growth. Moreover, an essential statistic for evaluating and analysing the economic performance of any economy is its annual gross domestic product (GDP) growth. The level of financial development has been identified as one of such drivers in evaluating and analysing of growth. One thing

is right; the financial development has an undeniable effect on the macroeconomic performance of countries. In most countries today, a more significant part of development in the international economy is attributed to financial markets (Sepehrdoust, 2018). Therefore, the first question is raised in this study: does financial development foster economic growth?

This question is not easy to solve since both theoretical and empirical literature on the nexus of finance-growth is inconclusive. Our first objective is to resolve this issue through examining two financial markets: the banking sector and the stock market. Various financial markets have undergone profound changes. New products, forms of financing and even financial markets are always being created or developed. At the same time, the volume of transactions and the number of participants in existing markets have increased. This growing complexity has hurt various financial markets. The economists and researchers begin to argue and advocate that globalisation is strongly linked to financial development (Muye and Muye, 2017) because barriers to international trade and foreign investment are reduced by increased globalisation. Therefore, we have created another objective in this study with the use of the updated globalisation index (Gygli *et al.*, 2018).

Globalisation is a phenomenon with many characteristics. Globalisation is usually thought of as a process of unification of goods and capital markets across the world (Gurgul and Lach, 2014). It is a phenomenon fundamental in any economy, so it is important to analyse it. The globalisation-economic growth nexus has already been investigated, and globalisation has been gaining increasing popularity in economic blocs and investigations but some empirically underdeveloped questions remain. Therefore, we come to the central question of our study: what is the effect that financial development and globalisation has on economic growth in a country?

In this context, we investigate the relationship between the development of two financial markets (banking sector and stock market) and globalisation dimensions (updated in 2018) on economic growth, for the period from 1980 to 2015. The study includes ten countries (Argentina, China (Hong Kong SAR), Israel, Japan, Malaysia, Mexico, Singapore, Switzerland, United States and South Africa), selected through stock market development. The primary objective of this selection was to have a long-time horizon to investigate the short- and long-term distinctions between the variables and due to the scarcity of data in this market we have chosen this method of selection for the countries. This situation enables us to obtain robust results and to have a perception of the variables' behaviour over time. Therefore, the model most indicated in the study is the Autoregressive Distributed Lag (ARDL), which allows for verifying the variables' behaviour in the long term.

This study is organised as follows. Section 2 presents the literature review divided into two subsections. Section 3 describes data, methodology, and preliminary analysis of the panel data. Section 4 represents the results of the model and the discussion is presented in Section 5. The conclusions are presented in section 6.

2. LITERATURE REVIEW

The financial markets are a crucial factor in producing strong economic growth as they contribute to economic efficiency (Durusu-Ciftci *et al.*, 2017). In the last few decades, the relationship between financial development and economic growth received considerable attention in economic investigations. With the technological advancement and the globalised world, various econometric techniques have been used in these studies, such as individual country analysis, cross-country analysis, time series, panel data, and more recently, threshold analysis (Ruiz, 2018). However, the existing evidence is mixed on the impacts that financial development has on economic growth.

The same is happening in studies related to globalisation and economic growth. Globalization is a multifaceted economic phenomenon incorporating several realities, being a process stimulated by foreign trade and foreign direct investment (FDI), that benefits economic growth in most countries (e.g. (Blomstrom *et al.*, 1992; Stiglitz, 2003; Chanda, 2005; Potrafke, 2013; Gurgul and Lach, 2014)). However, while most economists agree that globalisation is an essential factor in building an efficient system, there is no consensus on the link between globalisation and growth (Rao and Vadlamannati, 2011).

The content of this section will be divided into two theoretical parts, in order to simplify the existing nexus in this study. The first part is dedicated to a literature review on the nexus of financial development and economic growth. The second part is focused on a literature review on the impacts that globalisation has on economic growth.

2.1. The Relationship between Financial Development and Economic Growth

Financial development is beneficial to economic growth only up to a certain threshold because it should be accompanied by the proposition "more finance, more growth" (Law and Singh, 2014). An efficient financial system provides better financial services, which enables an economy to increase its growth rate (e.g. (Bencivenga *et al.*, 1995; Esso, 2010; Pradhan *et al.*, 2017)). The inverse is also true: Moshirian and Wu (2012) report that an inadequately supervised financial system may be crisis-prone, with potentially devastating effects. Moreover, Demirgüç-Kunt and Levine (2009) find that financial development is not only pro-growth, but it is also pro-poor, suggesting that financial development helps poor citizens to catch up with the rest of the economy as it grows.

Financial development is a pivot for economic growth (Levine, 1997; Graff, 2003; Pradhan *et al.*, 2014). The role of financial markets and financial intermediaries range significantly in the process of economic growth. These depend on the level of political freedom, the rule of law and the protection of property rights (Adu *et al.*, 2013). The hypothesis that financial development is a significant driver of economic growth is now popular among economists and researchers, from the seminal study of Schumpeter (1911) and subsequently Goldsmith (1969); McKinnon (1973) and Shaw (1973).

There are a variety of theoretical models proposed to analyse the connection between financial development and economic growth. Several authors have made a general survey on the possible channels of how financial development affects economic growth (e.g. (Levine, 2005; Zhang *et al.*, 2012; Pradhan *et al.*, 2017)). These channels include: (i) providing information about possible investments to allocate capital efficiently; (ii) monitoring firms and exerting corporate governance; (iii) ameliorating risk; (iv) mobilising and pooling savings; and (v) easing the exchange of goods and services.

Not surprisingly, there is no theoretical consensus among economists and researchers on the relationship between financial development and economic growth. The practical way to solve this controversial nexus problem is through an empirical study. In practice, there is still no definite conclusion about the nature and direction of this nexus relationship. Although most of the existing studies have confirmed the existence of the causal relationship between financial development and economic growth (e.g., (Enisan and Olufisayo, 2009; Hassan *et al.*, 2011; Menyah *et al.*, 2014)). In other cases, there is no evidence of causality from financial development to economic growth (e.g. (Lucas Jr, 1988; Eng and Habibullah, 2011; Mukhopadhyay *et al.*, 2011; Pradhan *et al.*, 2013)). Figure 1 shows a summary of the four possible relationships between financial development and economic growth.

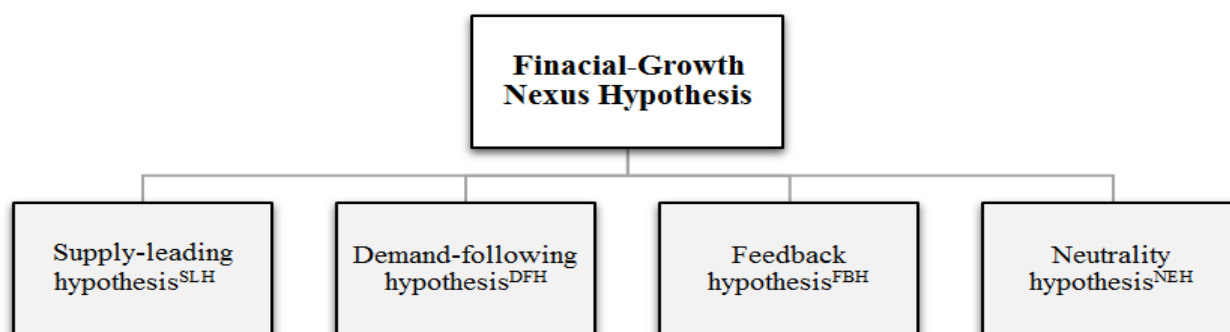


Figure-1. Summary of the relationships between financial development and economic growth.

Note(s): SLH: unidirectional causality from financial market development to economic growth; DFH: causality runs from economic growth to financial development; FBH: bidirectional causality between financial market development and economic growth are seen as independent of each other and growth; NEH: financial market development and economic growth are seen as independent of each other.

In the above figure, empirical studies regarding the finance-growth nexus show different hypotheses about the causality between financial developments to economic growth. Moreover, the studies of financial development have four types of relationships with economic growth. These links are: (i) between banking sector development and economic growth; (ii) between stock market development and economic growth; (iii) between bond market development and economic growth; and (iv) between insurance market development and economic growth (Pradhan *et al.*, 2017). Our focus is a finance-growth nexus, and we define two dimensions of financial development, specifically the banking sector development and the stock market development.

In most of the studies, it is concluded that the economic growth of countries is significantly affected by banking sector development and stock market development. Additionally, it has been demonstrated that there is a bidirectional relationship between the banking sector development and the stock market development (Allen *et al.*, 2012; Cheng, 2012; Gimet and Lagoarde-Segot, 2012). Although the policies that drive economic growth differ across countries, it was concluded that these two strands of the financial sector significantly affect economic growth. Consequently, Marques *et al.* (2013) consider that any approach to the relationship between the stock market and economic growth cannot fail to include the banking system.

Table 1 summarises the most important research about the relationships between financial development in two financial markets and economic growth.

Table-1. Describe the studies between two types of financial development and economic growth.

Article	Period	Country(ies)	Type study	Main finding(s)
Ang (2008)	1960–2001	Malaysia	a	DFH
Cheng (2012)	1973–2007	Taiwan	a	FBH
Chow and Fung (2011)	1970–2004	69 countries	b	FBH
Coşkun <i>et al.</i> (2017)	2006	Turkey	a	SLH
Enisan and Olufisayo (2009)	1980–2004	7 Sub-Saharan African countries	a	SLH
Hou and Cheng (2010)	1971–2007	Taiwan	a	FBH
Hsueh <i>et al.</i> (2013)	1980–2007	10 Asian Countries	b	SLH
Jalil <i>et al.</i> (2010)	1977–2006	China	b	SLH
Kar <i>et al.</i> (2011)	1980–2007	15 MENA countries	a, b	SLH, DFH
Kolapo and Adaramola (2012)	1990–2010	Nigeria	a	SLH
Liu and Sinclair (2008)	1973–2003	China	a	DFH
Menyah <i>et al.</i> (2014)	1965–2008	21 African countries	b	SLH
Naceur and Ghazouani (2007)	1979–2002	MENA region	b	SLH
Odhiambo (2010)	1969–2006	South African	b	DFH
Owusu and Odhiambo (2014)	1960–2008	Nigeria	a, b	SLH
Panopoulou (2009)	1995–2007	5 countries	a, b	DFH
Pradhan (2013)	1988–2012	16 Asian countries	a	SLH
Pradhan <i>et al.</i> (2013)	1988–2012	16 Asian countries	a	SLH
Pradhan <i>et al.</i> (2014a)	1960–2011	Asian countries	b	FBH
Pradhan <i>et al.</i> (2014b)	2011	15 Asian countries	a	DFH
Pradhan <i>et al.</i> (2017)	1991–2012	ARF countries	a, b	DFH, FBH
Wolde-Rufael (2009)	1966–2005	Kenya	b	FBH
Zhu <i>et al.</i> (2004)	1973–2007	Taiwan	a	FBH

Note(s): DFH, results support the demand-following hypothesis; SLH, results support the supply-leading hypothesis; FBH, results support the feedback hypothesis; NEH, results support the neutrality hypothesis; due to different variables analysed in different studies it was used two letters to specify the causal relationship in study; “a” study analyses the relationship between stock market development and economic growth; “b” study analyses the relationship between banking sector development and economic growth; MENA, Middle East and North Africa region; ARF, ASEAN Region Forum.

On a general note, several studies exist that consider financial development to influence economic growth. It was Schumpeter (1911) who started finding evidence for the hypothesis that financial development leads to economic growth (the supply-leading hypothesis). From this point on, other authors began to investigate this relationship as mentioned in Table 1, finding evidence for the different hypotheses mentioned in Figure 1. However,

the relationship between financial development, globalisation dimensions and economic growth has not been fully investigated. There have been no empirical studies to trace the relationship between the level of globalisation and financial development (Muye and Muye, 2017). Therefore, we focus on the study of economic growth and globalisation in the next subsection.

2.2. *The Relationship between Globalisation and Economic Growth*

The debate regarding the connection between globalisation on economic growth has become increasingly intense over the last decades. The lack of consensus is due to the different forms of analysis by economists and researchers (Baldwin, 2004). This situation occurs because of the different approaches made by economists and researchers, since some researchers are only interested in: (i) impacts that policies have on the outside, not only in relation to economic growth but also in other variables; (ii) the causal relationship between trade and growth; and (iii) different specifications, data and estimations methods (Rao and Vadlamannati, 2011).

When we began to examine the existing studies on this nexus, we confirmed the lack of consensus in the various investigations. Some studies show a positive correlation between globalisation and economic growth, but they differ in their approaches: trade liberalisation, the distribution of scarce resources, and the effectiveness of economic growth for developing countries (e.g., (Dollar, 1992; Sachs *et al.*, 1995; Fischer, 2003)). For example, Dreher (2006), and Rao and Vadlamannati (2011) have used a more comprehensive globalisation index to investigate the impact of economic, social, and political dimensions of globalisation on economic growth. The study of Rao and Vadlamannati (2011) used low-income African countries and confirmed the positive effect of globalisation on economic growth.

Other studies have demonstrated a few negative or mixed results in the relationship between globalisation and economic growth. For example, Rodriguez and Rodrik (2000) have observed the impact of trade liberalisation on growth, finding low evidence of the link between globalisation and economic growth. This study contradicted the investigations of Dollar (1992) and Edwards (1998). Gu and Dong (2011) and Chang *et al.* (2009) also demonstrated that the rapid growth resulting from globalization depends on the level of development of an economy.

Quantifying the impact of globalisation is difficult as it means having to find a way to account for various manifestations of globalisation (Gygli *et al.*, 2018). Globalisation is a way to improve economic growth and the well-being of societies, that is, it eliminates cross-border trade restrictions, and enables investment with other countries (Shahbaz *et al.*, 2016). The KOF Globalization Index has become the most used/appropriated measure in the literature (Potrafke, 2015). This original index was introduced by Dreher (2006) and updated in Dreher *et al.* (2008). The index measures the globalisation overall, but also the economic, social and political dimension for almost every country since 1970.

Table 2 summarises the important research and results on the relationship between globalisation dimensions and economic growth since they introduced the index by Dreher (2006).

Briefly, the literature considers a few essential points. First, a literature review was carried out on the financial-growth nexus, concluding that there is no consensus among researchers, policymakers and economists. There are four causal hypotheses present in financial development, provoking disagreement in the numerous articles on the subject due to sample types, time horizons, and the type of econometrics associated with research.

Table-2. Summary the workings with globalisation and economic growth.

Article	Period	Country(ies)	Methodology	Main finding(s)
Dreher (2006)	1970-2000	123 countries	Panel data OLS and GMM	Empirically analysed whether the overall index of globalisation, as well as sub-indexes constructed to measure the original dimensions, affect economic growth. Globalisation promotes growth.
Chang and Lee (2010)	1970-2006	23 OCDE countries	Pedroni's panel	The evidence of short-term causality is feeble; it does show long-term unidirectional causality running from the overall index of globalisation and of dimensions of the globalisation to growth.
Rao <i>et al.</i> (2011)	1974-2004	Singapore, Malaysia, Thailand, India, Philippines	Solow Model, ARDL and Two-stage nonlinear least squares instrumental variables	Concluded that countries with higher globalisation policies have higher SSGR, but the impact of globalisation on economic growth is not the same for the countries in the study.
Rao and Vadlamannati (2011)	1970-2005	21 African countries	Extreme bounds analysis and Fixed Effects	Positive and significant long-term evidence has been found on the effects of globalisation on growth.
Chang <i>et al.</i> (2011)	1970-2006	G7 countries	Panel Cointegration	The empirical findings provide strong evidence of what the overall globalisation index and the social globalisation index have a direct positive impact on economic growth. However, they exhibit negative impacts on real output via the channel of social globalisation.
Gurgul and Lach (2014)	1990-2009	10 CEE countries	Solow growth model	The globalisation was a significant growth factor of CEE economies. The economic and social dimensions the globalisation stimulated positive of the economies CEE. However, the politics of the globalisation played a minor role in the economic growth of new EU members in transition.
Samimi and Jenatabadi (2014)	1980-2008	33 OIC countries	GMM	The results demonstrate a greater positive relationship in the countries with better-educated workers and well-developed financial systems. Besides that, the economic effects of globalisation also depend on the country's level of income. Economic globalisation not only directly promotes growth but also indirectly does so via complementary reforms. Countries should receive the appropriate income level derived from globalisation.
Lee <i>et al.</i> (2015)	1970-2006	30 municipalities and the autonomous regions of China	Two Step GMM	The results demonstrate that different globalisation indices have different impacts on regional economic growth in China. The effects between globalisation and economic growth in the period of higher global integration, democracy may harm economic growth in the case of China.

Majidi (2017)	1970-2014	100 developing countries	Panel data	The empirical findings demonstrate that the dimensions economic and social globalisation have no significant effect on economic growth. The politics of globalisation have adverse effects and significant on economic growth in upper-middle-income countries. The inverse is also true when the overall and political globalisation in developing countries with lower middle income is positive and significant but economic and social globalisation is not significant in the model.
Latif <i>et al.</i> (2018)	2000-2014	5 BRICS countries	OLS with fixed effects, the FMOLS, the DOLS and the group-mean estimator techniques robust to heterogeneity and cross-sectional dependence	The main results are: (i) the long-run elasticities between information and communication technology (ICT) positively contributes to economic growth; (ii) the long-run output elasticities show that both foreign direct investment (FDI) and globalization have a long-run effect on economic growth; (iii) the bi-directional causality exists between GDP and FDI, globalization and economic growth, and trade and economic growth.

Note(s): OECD, Organisation for Economic Co-operation and Development; OIC, Organisation of Islamic Cooperation; SSGR, Steady State Growth Rate; and GMM, generalised method of moments.

Second, the literature review of the nexus of globalisation and economic growth demonstrated that there is no consensus. Figure 2 summarises the hypotheses studied in this literature review and how they helped define our study.

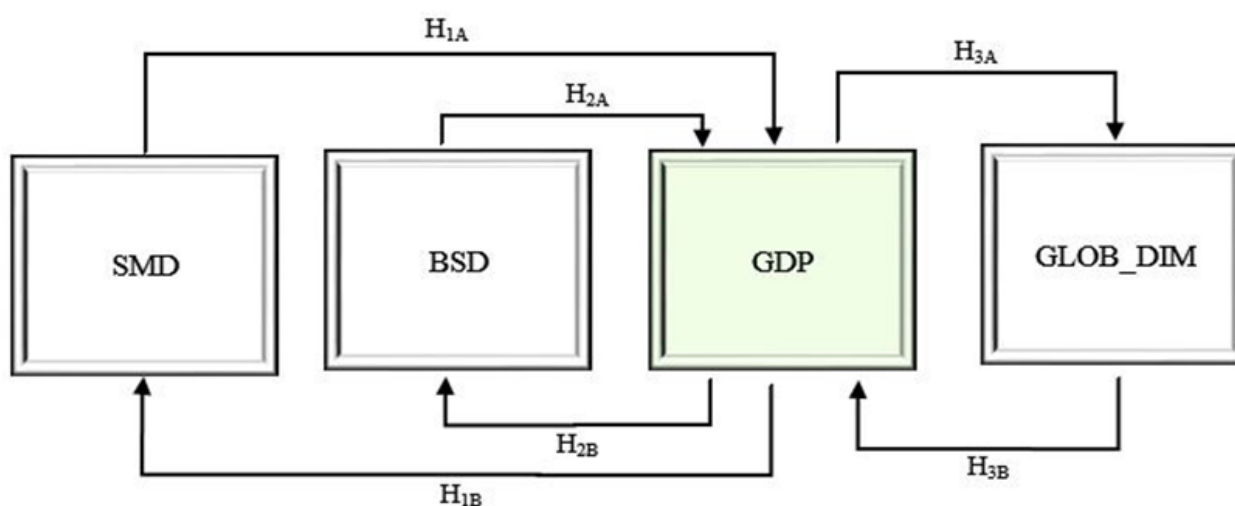


Figure-2. Summarizes the hypotheses studied in this literature review.

Note(s): Financial development is represented by SMD is stock market development, and BSD is banking sector development; GDP is economic growth; GLOB_DIM represented the various types the globalisation dimensions in the literature review.

This literature review represents the following three blocks of hypotheses.

H₁: SMD hypothesis:

- H_{1A}: Stock market development (SMD) causes economic growth (GDP). This is termed the SMD-led economic growth hypothesis.
- H_{1B}: Economic growth (GDP) causes stock market development (SMD). This is termed the economic growth-led SMD hypothesis.

H₂: BSD hypothesis:

- **H_{2a}**: Banking sector development (BSD) causes economic growth (GDP). This is termed the BSD-led economic growth hypothesis.
- **H_{2b}**: Economic growth (GDP) causes banking sector development (BSD). This is termed the economic growth-led BSD hypothesis.

H₃: Globalization hypothesis:

- **H_{3a}**: Globalization dimensions (GLOB_DIM) causes economic growth (GDP). This is termed the GLOB_DIM-led economic growth hypothesis.
- **H_{3b}**: Economic growth (GDP) causes globalisation dimensions (GLOB_DIM). This is termed the economic growth-led GLOB_DIM hypothesis.

In the next section, we will explore and explain how the literature review helped to define the research question. In short, this study explores the relationship between two types of financial development (stock market and banking sector development), the globalisation index and economic growth. To our knowledge, few studies have tried to simultaneously investigate this relationship with the new KOF index, updated in 2018.

3. DATA AND METHODOLOGY

The focus of this paper is to analyse the relationship between the market's financial development and globalisation in economic growth. In Figure 3, we present in a schematic form the variables that will be treated in this section.

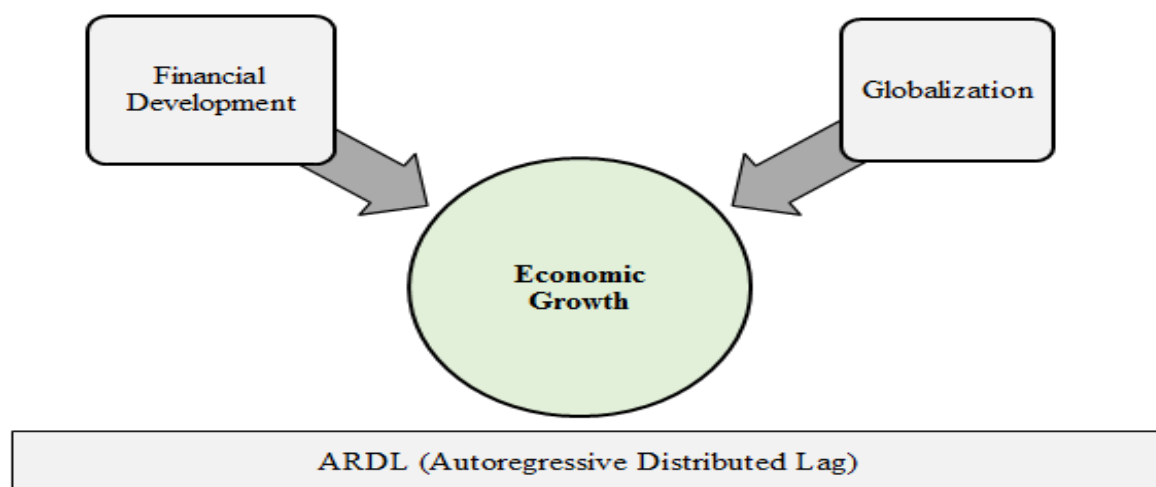


Figure-3. Variables that will explain the growth.

Note(s): GDP_pc is economic growth *per capita*; Globalization represented the various types the globalization dimensions in study. Globalization represent for six indicators: KOFE_dj, KOFE_df, KOFFi_dj, KOFFi_df, KOFSo_df; KOFPo_dj. Financial development represents the proxies the stock market development (mk_pc) and banking sector development (dc_pc, dcf_pc).

Following the figure, the standard log-linear functional specification of the long-run relationship for economic growth, equation nesting theoretical approaches introduced in the next subsection 3.2. can be expressed initially as:

$$GDP_pc_t = f(mk_pc_t; dc_pc_t; dcf_pc_t; KOFE_dj_t; KOF_df_t; KOFFi_dj_t; KOFFi_df_t; KOFSo_df_t; KOFPo_dj_t; \varepsilon_t), \quad (1)$$

Where denotes ε the error term, and t is the time index.

The following subsections deepen and describe what will be explored in this study. Therefore, the data in subsection 3.1 describes in detail the variables, countries in the study and the time horizon. The methodology and the model used in the study is described in subsection 3.2. Subsection 3.3 incorporates the preliminary tests.

3.1. Data

The study incorporates all dimensions of the globalisation index and two markets of financial development, namely the banking sector development and stock market development as presented in Table 3. The last market defined the time horizon and the countries in the study, due to limited data and to get a balanced panel. Therefore, the selection of data was annual, with the horizon incorporated in this investigation being 36 years, covering a period beginning in 1980 and extending to 2015. Ten countries were selected for the analysis: Argentina, China (Hong Kong SAR), Israel, Japan, Malaysia, Mexico, Singapore, Switzerland, the United States and South Africa. The software used in the econometric analysis is Stata 14, and EViews 9.

Table-3. Variables description and sources.

Variables	Description	Source
GDP_pc	Gross Domestic Product (constant LCU)	World Bank
mk_pc	The market capitalisation of listed domestic companies (% of GDP)	World Bank
dc_pc	Domestic credit to private sector (% of GDP)	World Bank
dcf_pc	Domestic credit provided by the financial sector (% of GDP)	World Bank
KOFE_dj	Economic Globalization, <i>de jure</i>	ETH Zürich.
KOFE_df	Economic Globalization, <i>de facto</i>	ETH Zürich.
KOFFi_dj	Financial Globalization, <i>de jure</i>	ETH Zürich.
KOFFi_df	Financial Globalization, <i>de facto</i>	ETH Zürich.
KOFSo_df	Social Globalization, <i>de facto</i>	ETH Zürich.
KOFFo_dj	Political Globalization, <i>de jure</i>	ETH Zürich

Note(s): the pc suffix denotes *Per Capita* values; the dj denotes *de jure* and df denotes *de facto*.

The dependent variable is Gross Domestic Product *per capita* (GDP_pc), representing the *sum of gross value generated by each citizen resident in the countries*. The variable is measured in constant LCU, transformed in *per capita* through the division by total population.

The variable market capitalisation of listed domestic companies (mk_pc), is proxying the stock market development, transformed in per capita through the division for population total and measured in % GDP. The definition is *the share price times the number of shares outstanding (including their several classes) for listed domestic companies*. This variable that represents the stock market is used in the study by Ngare *et al.* (2014).

The proxies for the banking sector development is domestic credit to private sector (dc_pc) and domestic credit provided by the financial sector (dcf_pc), both measured in % GDP, transformation in per capita through the division for total population. The definition of the domestic credit to private sector report is *the financial resources provided to the private sector by financial corporations, such as through loans, purchases of nonequity securities, and trade credits and other accounts receivable that establish a claim for repayment*. The domestic credit provided by the financial sector represents *all credit to various sectors on a gross basis, except for credit to the central government, which is net*.

The KOF Globalization Index used in the study was updated in 2018. The revised version of the KOF Globalization Index is based on 45 individual variables, aggregated in *de facto* and *de jure* indicators, that includes five sub-dimensions (Trade, Financial, Personal contact, Information flows, Cultural proximity), three dimensions (Economic, Social and Political), and one total index.

This revised version of the index introduces a clear distinction between *de facto* and *de jure* measures of globalisation. Moreover, *de facto* measures of globalisation include variables that represent flows and activities, and *de jure* measures include variables that represent policies that, in principle, enable flows and activities Gygli *et al.* (2018).

The dimensions the KOF Globalization Index used in this investigation are:

- (i) *de jure* economic globalization (KOFE_dj) compound by trade regulations, taxes, tariffs and, others;
- (ii) *de facto* economic globalization (KOFE_df) includes trade in goods, services, partner diversification, foreign direct investment and, others;
- (iii) *de jure* financial globalization (KOFFi_dj) compound by investment restrictions and, capital account openness;
- (iv) *de facto* financial globalization (KOFFi_df) includes foreign direct investment, portfolio investment, international debt, international reserves and, international income payments;
- (v) *de facto* social globalization (KOFSo_df) compound international voice traffic, international tourism, patent applications, international students and, others; and
- (vi) *de jure* political globalization (KOPPo_dj) includes international organisations, international treaties and, number of partners in investment treaties.

3.2. Methodology

Our panel sample includes ten countries and 36 years. There is more time (years) than cross-sample units (countries). In this framework, the use of an Autoregressive Distributed Lag (ARDL) model is more appropriate. The ARDL model has several advantages, namely: (i) it allows dealing with both stationary and non-stationary series, provided that its integration order is not higher than one; (ii) when compared to the Johansen and Juselius cointegration technique, the ARDL approach ensures more consistent estimates in the case of small samples; (iii) the asymptotic theory developed in the ARDL bounds test approach is not affected by the inclusion of “one-zero” dummy variables; and (iv) given that it is free of residual correlation, the ARDL method can handle the eventual phenomenon of endogeneity among variables (e.g. (Pesaran *et al.*, 2001; Fuinhas and Marques, 2012; Marques *et al.*, 2016)). Moreover, this estimator is constructed under the assumption of heterogeneity of the short-term coefficients and homogeneity of the long-term slope coefficients (Pesaran *et al.*, 1999).

The ARDL method has several advantages compared to other cointegration methods (Arize *et al.*, 2018). The “l” and “d” prefix indicates the natural logarithm and the first differences, respectively. The first coefficients correspond to the elasticities and the second to the semi-elasticities. The ARDL model specification follows:

$$\begin{aligned}
 & \text{lgdp_pc}_{it} = \\
 & \alpha_{1i} + \sum_{j=1}^a \beta_{11ij} \text{lgdp_pc}_{it-j} + \sum_{j=0}^b \beta_{12ij} \text{lmk_pc}_{it-j} + \sum_{j=0}^c \beta_{13ij} \text{lpcf_pc}_{it-j} + \\
 & \sum_{j=0}^d \beta_{14ij} \text{lKOFE_dj}_{it-j} + \sum_{j=0}^e \beta_{15ij} \text{lKOFFi_dj}_{it-j} + \sum_{j=0}^f \beta_{16ij} \text{lKOPPo_dj}_{it-j} + \\
 & \varepsilon_{1it}, \tag{2}
 \end{aligned}$$

Where Equation 2 was transformed into Equation 3 in order to capture the dynamic relationship between short-run and long-run:

$$\begin{aligned}
 \text{dlGDPpc}_{it} = & \alpha_{2i} + \sum_{j=1}^a \beta_{21ij} \text{dlGDP_pc}_{it-j} + \sum_{j=0}^b \beta_{22ij} \text{dlmk_pc}_{it-j} + \\
 & \sum_{j=0}^c \beta_{23ij} \text{dlpcf_pc}_{it-j} + \sum_{j=0}^d \beta_{24ij} \text{dlpcf_pc}_{it-j} + \sum_{j=0}^e \beta_{25ij} \text{dlKOFE_df}_{it-j} + \\
 & \sum_{j=0}^f \beta_{26ij} \text{dlKOFFi_df}_{it-j} + \sum_{j=0}^g \beta_{27ij} \text{dlKOFSo_df}_{it-j} + \gamma_{21i} \text{lgdp_pc}_{it-1} + \\
 & \gamma_{22i} \text{lmk_pc}_{it-1} + \gamma_{23i} \text{lpcf_pc}_{it-1} + \gamma_{24i} \text{lKOFE_dj}_{it-1} + \gamma_{25i} \text{lKOFFi_dj}_{it-1} + \\
 & \gamma_{26i} \text{lKOPPo_dj}_{it-1} + \varepsilon_{2it}, \tag{3}
 \end{aligned}$$

Where, α_{2i} denotes the intersection, δ_{2i} , β_{2kij} , $k = 1, \dots, 7$ and γ_{2im} , $m = 1, \dots, 6$, the estimated parameters; and ε_{2it} the error term.

3.3. Preliminary Tests

The preliminary data analysis is the most important and crucial to understand the characteristics of the variables in the study. Figure 4, describes the tests and statistic performed in the preliminary tests.

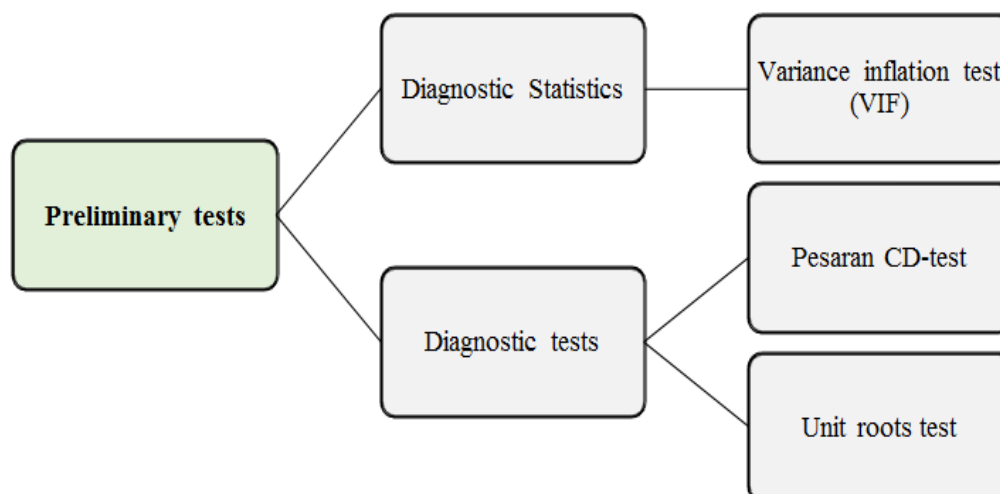


Figure-4. Summary of the preliminary tests.

An analysis of the statistics and integration order should be done, for a better analysis and so as to not produce deceptive results. As the data form a macro panel, Table 4 discloses the descriptive statistics of the variables and the presence of cross-sectional dependence (CSD). Moreover, to test cross-sectional dependence in the panel, the CD test was performed (Pesaran, 2004).

Table-4. Descriptive statistics and cross-sectional dependence.

Variables	Descriptive statistics					Cross-sectional dependence		
	Obs	Mean	Std. Dev.	Min	Max	CD-test	Corr	Abs(corr)
lgdp_pc	360	11.67643	2.156821	9.148628	17.17422	33.15***	0.830	0.830
lmk_pc	359	-13.21241	1.961901	-18.98475	-9.241097	16.93***	0.423	0.427
ldcf_pc	359	-12.64494	1.394387	-15.10255	-9.906331	-2.02**	0.044	0.593
lKOFE_dj	360	4.128304	0.2858447	3.199235	4.494295	10.85***	0.270	0.463
lKOFFi_dj	360	4.057317	0.3975304	2.428746	4.513494	3.57***	0.089	0.484
lKOFFo_dj	360	4.267618	0.2551829	3.565363	4.59065	35.71***	0.887	0.887
dlgdp_pc	350	0.0207878	0.0365423	-0.1264381	0.1241312	11.02***	0.280	0.300
dlnk_pc	349	0.028009	0.3491068	-1.267671	1.397897	13.91***	0.354	0.355
dldc_pc	348	0.0003954	0.1135923	-0.9487581	0.6547937	1.92**	0.049	0.171
dldcf_pc	348	0.0019161	0.1247292	-0.2815701	0.6145086	3.41***	0.087	0.173
dlKOFE_df	350	0.01134	0.0762669	-0.2815704	0.59267	4.78***	0.121	0.181
dlKOFFi_df	350	0.0130015	0.0806732	-0.274441	0.5517373	6.94***	0.175	0.216
dlKOFFso_df	350	0.0095253	0.024742	-0.0873199	0.1376858	3.27***	0.082	0.131

Note(s): ***, **, * denote statistical significance level of 1%, 5% and 10%, respectively. CD test has N (0,1) distribution, under the H0: cross-sectional independence. The Stata command *xtcd* was used to achieve the results for cross-sectional dependence.

The presence of cross-sectional dependence is present in all variables, as indicated in the previous table. This presence of CDS suggests common shocks among the crosses. The CDS could be present because: (i) countries have the same reaction to the shocks; (ii) events in countries being geographically linked; and (iii) countries having similar policies, or taking the same measures (Moscone and Tosetti, 2010). Moreover, the collinearity was also a concern because in analysing long periods, it is advisable to verify this occurrence. Therefore the variance inflation factor (VIF) was calculated. According to the results observed in Table 5, it was concluded that the collinearity is not a concern as the means for VIF were far from the marginal value of 10.

Table-5. VIF test.

Variable	VIF	1/VIF	Variable	VIF	1/VIF
IKOFE_dj	8.89	0.112507	dlKOFFi_df	7.14	0.139999
IKOFFi_dj	7.69	0.130068	dlKOFE_df	6.76	0.147827
lmk_pc	5.82	0.171735	dlDCF_pc	2.40	0.416590
ldcf_pc	5.00	0.200129	dlDC_pc	2.09	0.479290
IKOFPO_dj	1.22	0.817859	dlmk_pc	1.10	0.911589
			dlKOFSo_df	1.08	0.925466
Mean VIF		5.72	Mean VIF		3.43

To verify the order of integration for all the variables, the unit root test in Table 6 was performed. Following the defined path, we started with using the first generation of the unit root: LLC (Levin *et al.*, 2002) ADF-Fisher (Maddala and Wu, 1999) and ADF-Choi (Choi, 2001). Due to the presence of cross-sectional dependence it was necessary to calculate the second-generation unit root tests (Pesaran, 2007). That test is more robust to heterogeneity and unit roots when under a nonstandard distribution. It was verified that the variables are $I(0)$, and $I(1)$ when analysing in levels but it was more important for this study to verify that $I(2)$ variables were not present — concluding that the conditions for the use of the ARDL technique, because the problem of order two integration in the variables, were not verified.

Briefly, in the preliminary analysis, tests were performed (see figure 4) to determine if the methodology used was the most correct. First, the test for the presence of cross-sectional dependence (CSD) was performed. The results showed that all variables were significant in the test. This presence of CDS suggests common shocks among the crosses.

Second, multicollinearity was tested using the Variance Inflation Factor (VIF), present in Table 5. The results show that all VIF values were less than 10, demonstrating that there is no presence of multicollinearity.

Table 6 shows the results of both the first and second generation unit root tests (LLC, ADF-Fisher, and ADF-Choi; and, CIPS). The conclusions suggested that the variables were stationary in levels $I(0)$, and $I(1)$. The results for the CIPS suggested the same conclusion. These outcomes confirm the appropriateness of the ARDL model applied because the variables were not integrated of order two $I(2)$.

Table-6. Unit root test.

Variables	1st generation									2nd generation			
	LLC			ADF-Fisher			ADF-Choi			CIPS lag=0		CIPS lag=1	
	a)	b)	c)	a)	b)	c)	a)	b)	c)	d)	e)	d)	e)
lGDP_pc	-9.95167***	-9.33660***	-7.77816***	112.941***	113.319***	102.855***	-8.27390***	-8.27471***	-7.59285***	-2.153**	1.179	-1.407*	1.232
lmk_pc	-9.21533***	-10.7877***	-15.9846***	149.141***	179.465***	252.669***	-10.1309***	-11.4081***	-14.0631***	-2.209**	-0.785	-2.896***	-1.613*
ldef_pc	-8.00636***	-8.82983***	-13.1964***	120.631***	143.018***	189.473***	-8.56645***	-9.80979***	-11.8103***	0.318	-0.123	0.279	0.512
lKOFEdj	-5.32475***	-6.71875***	-11.8214***	85.2531***	111.170***	161.335***	-6.63422***	-8.25115***	-10.7029***	-0.253	-1.265	-0.177	-1.564*
lKOFFi_dj	-7.22039***	-8.94778***	-14.1142***	114.404***	146.615***	204.954***	-8.22749***	-9.95548***	-12.4008***	1.160	-1.593*	1.588	-2.010**
lKOFPo_dj	-6.84258***	-7.98709***	-9.45862***	66.0226***	92.8282***	122.306***	-5.11682***	-7.00475***	-8.72009***	-1.655**	-1.036	-3.033***	-2.359***
dlgdp_pc	-11.4122***	-14.1647***	-21.8479***	227.442***	259.426***	402.337***	-13.2385***	-14.4114***	-18.4726***	-7.443***	-8.035***	-4.684***	-5.010***
dlnk_pc	-14.6801***	-18.0744***	-24.4141***	304.261***	305.764***	534.888***	-15.7320***	-15.9080***	-21.6478***	-13.317***	-12.852***	-9.336***	-8.392***
dlde_pc	-11.3955***	-14.4357***	-22.1640***	240.917***	257.149***	421.061***	-13.5143***	-14.3052***	-18.7282***	-11.090***	-10.264***	-6.734***	-5.390***
dldef_pc	-10.6432***	-14.1013***	-23.1443***	252.797***	275.630***	439.359***	-14.1168***	-14.9568***	-19.3992***	-12.662***	-12.058***	-8.564***	-7.426***
dlKOFEdf	-10.9526***	-13.6084***	-20.4848***	202.979***	238.274***	359.271***	-12.3079***	-13.6447***	-17.3038***	-11.828***	-11.032***	-8.756***	-7.869***
dlKOFFi_df	-9.77468***	-12.5470***	-19.3814***	184.573***	222.643***	331.693***	-11.5376***	-13.0509***	-16.4974***	-11.787***	-11.008***	-7.788***	-6.935***
dlKOFSo_df	-12.1543***	-14.7580***	-21.0092	208.829***	243.101***	366.921***	-12.5661***	-13.8490***	-17.5405***	-12.948***	-12.590***	-6.947***	-5.947***

Note(s): a) Trend and intercept; b) Intercept; c) None; d) Without trend; e) With trend; ***, **, * denote statistical significance level of 1%, 5% and 10%, respectively; Levin-Lin-Chu: panels contain unit roots; Im-Pesaran-Shin: all panels contain unit roots, these unit-root tests have cross-section means removed and 1lags; ADF-Fisher and ADF-Choi: Unit root (individual unit root process); first generation tests follow the option "no constant", which was decided after a visual inspection of the series; Pesaran (2007) Panel Unit Root test (CIPS): series are I(1); the presented results include 1 lag; and the Stata command *multipart* were used.

The Effects (FE) and Random Effects (RE) estimator's tests detected the most efficient estimator in the panel data to deal with its characteristics and determined how the analysis proceeded.

4. RESULTS

This study analyses the effects that financial market development and dimensions of the globalisation index have on economic growth. It is worth highlighting that the countries in the study were selected through the stock market. The central idea was to have a balanced panel and a long-time horizon. The proxy for the stock market was the variable that made this situation more difficult since the data incorporated in the database were reduced, selecting only ten countries to comply with the central objective of this study.

In the panel approach, before proceeding to the results, it was necessary to verify which was the most adequate estimator in the study. Therefore, we used the Hausman test that allowed us to select the most suitable model. Using the Hausman test allowed confronting fixed effects (FE) and random effects (RE). This test was accompanied by two hypotheses: the null hypothesis random effects model (RE); and the alternative hypothesis: fixed effects model (FE). For example, when applying FE against RE, if the P-value is less than 5% the model should be calculated with FE since the null hypothesis is rejected with a 5% level of significance. The options in the Hausman test of *Sigmamore* and *Sigmaless* were used, as in previous studies by [Fuinhas et al. \(2015\)](#). The obtained results are presents in [Table 7](#) and indicate the presence of fixed effects (FE).

Table-7. Hausman test.

Test	Chi ²
Hausman	87.28***
Hausman, sigmamore	77.18***
Hausman, sigmaless	97.67***

Note(s): *** denotes statistical significance level of 1%.

To identify the proper estimator, more diagnostics tests were used. The heteroscedasticity, contemporary correlation and serial correlation were analysed. In [Table 8](#), the results of the following tests were presented:

- *Modified Wald test*: the presence of heteroscedasticity iwas appraised, considering two hypotheses: the null hypothesis: the absence of heteroscedasticity, and the alternative hypothesis: the existence of heteroscedasticity;
- *Pesaran's test of cross-sectional independence*: to evaluate if the individual variances are correlated;
- *Wooldridge's test*: performed to evaluate the existence of autocorrelation, considering two hypotheses: the null hypothesis: absence of autocorrelation; and the alternative hypothesis: the existence of autocorrelation.

Table-8. Specification's tests.

Test	Statistics
Modified Wald's test	218.26***
Pesaran's test	7.193***
Wooldridge's test	50.650***

Note(s): *** denotes statistical significance level of 1%; results for H₀ of Modified Wald test: $\sigma(i)^2 = \sigma^2$ for all i ; results for H₀ of Pesaran test: residuals are not correlated; results for H₀ of Wooldridge test: no first-order autocorrelation.

The results obtained in the previous table indicated that heteroscedasticity, first-order serial correlation and autocorrelation were present in the model. The [Driscoll and Kraay \(1998\)](#) estimator was used to overcome the presence of heteroscedasticity, cross-sectional dependence and first-order serial correlation. That estimator translated into a matrix estimator that produces standard errors, which were robust for various phenomena, those found in sample errors. Before passing to the final estimation, the present outliers were corrected. Therefore, to identify these outliers the residuals were observed and when there was a disparity of data (some economic and

political problems in the country), a dummy variable was added to smooth this shock. In this study, after visualisation of the series, we applied a dummy in Malaysia for the year of 1998 and Mexico for the year of 1981. These outliers occurred due to financial crises in both countries.

Table-9. Estimation results.

Variables	Models (dependent variable $\Delta \text{IGDP_pc}$)		
	FE (I)	FE Robust (II)	FE-DK (III)
dlnk_pc	0.0136***	0.0136*	0.0135951*
dldc_pc	0.0850***	0.0850	0.0850168**
dldcf_pc	-0.1057***	-0.1057***	-0.1056897**
dlKOFE_df	0.1704***	0.1704***	0.1703976**
dlKOFFi_df	-0.2409***	-0.2409***	-0.2409435***
dlKOFSo_df	0.1439**	0.1439**	0.1438855***
lGDP_pc(-1)	-0.0455***	-0.0455***	-0.0455324***
lmk_pc(-1)	0.0135***	0.0135**	0.0134521***
ldcf_pc(-1)	-0.0150***	-0.0150***	-0.0150457**
lKOFE_dj(-1)	-0.0153	-0.0153	-0.0152563
lKOFFi_dj(-1)	0.0015	0.0015	0.0014576
lKOFPo_dj(-1)	0.0318***	0.0318***	0.0318499***
IDmalaysia1998	-0.1185***	-0.1185***	-0.1184859***
IDmexico1981	0.1369***	0.1369***	0.1369281***
Constant	0.4612***	0.4612***	0.4612111*
Statistics			
N	347	347	347
R^2	0.4638	0.4638	0.4638
F	19.9533		536.72

Note(s): ***, **, * denote statistical significance level of 1%, 5% and 10%, respectively; and the Stata commands *xtreg*, and *xtsc* were used.

Table 10 shows the short and long-term elasticities for FE (I), robust FE (II) and FE-DK (III) models. The long-term elasticities were not directly provided by model estimates and therefore should be estimated. The form used was obtained by dividing the coefficient of the variables by the coefficient of $\text{lGDP_pc}(-1)$, both lagged once, and then the ratio was multiplied by -1.

Table-10. Elasticities, impacts, and speed of adjustment.

Variables	Models		
	FE (I)	FE Robust (II)	FE-DK (III)
	Short-run impacts		
dlnk_pc	0.1873518*	0.1873518	0.1873518
dldc_pc	1.92932***	1.92932**	1.92932***
dldcf_pc	-2.334573***	-2.334573***	-2.334573***
dlKOFE_df	3.79429***	3.79429***	3.79429*
dlKOFFi_df	-5.412348***	-5.412348***	-5.412348***
dlKOFSo_df	3.145252**	3.145252***	3.145252*
	Computed elasticities (long-run)		
lmk_pc	0.2139292***	0.2139292*	0.2139292***
ldcf_pc	-0.3418011**	-0.3418011***	-0.3418011**
lKOFE_dj	-0.3130037	-0.3130037	-0.3130037
lKOFFi_dj	0.0546355*	0.0546355	0.0546355
lKOFPo_dj	0.7446379***	0.7446379***	0.7446379**
	Speed of adjustment		
ECM	-0.0455324***	-0.0455324***	-0.0455324***

Note(s): ***, **, * denote statistical significance level of 1%, 5% and 10%, respectively. ECM denotes the coefficient of the variable lGDP_pc lagged once.

The error correction mechanism (ECM) was statically significant and negative and comprised between $[-1, 0]$, indicating the correct specification of the obtained model and the presence of long-term relationships. It was verified that adjustment speed after a shock is prolonged, as we can see in the previous table.

5. DISCUSSION

In the last few decades, the countries have been exposed to some various transformations, namely economic, political, and social ones. Many countries have suffered financial crises, caused by a speculative attack or dragged into these crises. With the "era of globalisation" increasingly rooted in the world, and technology and information increasingly accessible there is greater competition and efficiency between countries. This study analysed the relationships between financial market development and globalisation dimensions on economic growth, in ten diversified countries. It is worth highlighting that the countries in the study were selected through the variable proxy of the stock market. The central idea was to have a balanced panel and a long-time horizon. The proxy of the stock market was the variable that made this situation more difficult since the data incorporated in the database were reduced, selecting only ten countries to comply with the central objective of this study. The methodology used was the ARDL (Autoregressive Distributed Lag) for a balanced panel.

The research was based on the economic growth literature incorporating two types of financial market development, and the globalisation dimensions updated in 2018. The results supported the presence of cointegration (see Table 6). The coefficients of error correction mechanisms were negative and statistically significant. Nonetheless, the adjustment speed after a shock is very slow.

We investigated the short- and long-term dynamics in the error-correction model (ECM) associated with the ARDL. That allowed concluding the dynamic adjustments of short-term deviations of the variables from their long-term state (Arize *et al.*, 2018). Table 10 shows the short- and long-term elasticities.

Focusing on the short-term impacts, we verified that the de facto financial globalisation (dlKOFFi_df) have a significant influence and negatively affected economic growth. This was an essential finding for the literature review because the variable of financial globalisation was introduced in the revised edition of the KOF Globalization Index.

Second, there was a significant short-term impact on the variables that represented the banking sector development. According to the results there is one positive impact of domestic credit provided by the financial sector (dlldcf_pc) and one negative impact of domestic credit to the private sector (dlldc_pc) on economic growth.

There was strong evidence linked to the literature on banking sector development. There was a suggestion in the results of unidirectional causality from financial market development to economic growth (supply-leading hypothesis). This latter achievement was not consensual in the literature, as can be seen previously in Figure 1. It was found that the estimated coefficients in the short-term elasticities referring to the stock market development, through of capitalisation of listed domestic companies (dlmk_pc) for economic growth were positive but not unanimously significant (only at 10% significance level in the FE model). This result could mean that stock market development has only a mildly significant role in the growth of these ten economies in the short-term.

De facto economic globalisation (dlKOFE_df) was highly significant in the models FE, FE Robust, except in FE-DK (only significant at 5%). The variable de facto social globalisation (dlKOFSo_df) was highly significant in the FE-Robust model, but it lost statistical significance in the model (only at 5% significance level in the FE and 1% significance level in model FE-DK). As mentioned earlier, we were analysing variables of the KOF Globalization Index revised in 2018, which limited us in comparison with the existing literature review.

This analysis makes a valuable contribution to the literature stemming that per our level of knowledge, that there were still no studies with these revised variables. Therefore, it was observed that de facto economic globalisation (dlKOFE_df) and de facto social globalisation (dlKOFSo_df) in the short-term positively affects

economic growth. That means that with the increase of de facto economic globalisation and de facto social globalisation the short-term, economic growth will increase.

Considering long-term elasticities, we verified that de jure political globalisation (IKOFPO_dj) was the main driving force of economic growth. That means that de jure political globalisation was positively and significantly linked with economic growth in the long-term. The promotion of de jure globalisation political will most likely lead to economic growth, through the promotion of international organisations, international treaties and number of partners in investment treaties.

Conversely, the variable *de jure* globalisation financial (IKOFFi_dj) was not statistically significant in FE Robust and FE-DK models, with only a statistical significance of 10% in the FE model. This result, by the meaning of the variable and the lack of literature, could mean the lack of the regulations to international capital flows and capital account openness could affect things in the long-term.

The variable *de jure* economic globalisation (IKOFE_dj) did not have statistical significance to the model in long-term elasticities. If we analysed this result by the variable of economic globalisation before being revised in 2018, this finding agreed with a body of existing literature, for example, [Majidi \(2017\)](#). However, we do not want to draw any definitive conclusions about this result and more study will be needed.

The variable domestic credit provided by the financial sector (ldcf_pc) in the long-term that represents the banking sector development was highly significant in the FE-Robust model and only at 5% statistical significance in the FE and FE-DK model. Based on the models in [Table 10](#), all estimations coefficients have been negative in the long-term elasticities, but with different levels of significance. The literature tends to argue in different ways over the role of banking sector development on economic growth. In the long-term elasticities, the unidirectional causality was observed with the financial market development to economic growth.

The variable market capitalisation of listed domestic companies (lmk_pc) was highly significant in FE and FE-DK models and only at a 10% statistically significant level in the FE Robust. Based on the models, all estimations coefficients have been positive in the long-term elasticities, but with different levels of significance. The fact that in most of the estimation the long-term elasticities show that the stock market development indicator has positive and statistically significant coefficients suggests that stock market development performs a significant role in the economic growth of these countries.

The option for using dynamic panel techniques appeared adequate, as the phenomenon under analysis was both a short-term and long-term one. The speed of adjustment as very slow, under 5%, as shown by the ECM term in [Table 10](#), revealing that the adjustment to shocks requires a more extended period in order to achieve equilibrium.

Understanding the policy implications of the relationship between financial market development, globalisation dimensions, and economic growth variables is of great importance. Our results carry some policy implications such as:

- I. Policies that promote banking sector development must be carried out to promote economic growth. There should be sound regulation for the banking system. Banking markets should instil confidence in the market so that resources can be effectively mobilised to increase productivity in the economies;
- II. If the stock market is well-developed it will facilitate the raising equity capital for investment by companies, causing an increase in economic growth. That may attract foreign direct investment by multinational corporations;
- III. The study indicates that the more countries are globalised politically and financially, the more they experience higher growth rates due to fewer constraints; and,
- IV. [Dreher \(2006\)](#) argued that globalisation promotes economic growth, though as it reduces poverty, creates employment opportunities, openness in trade and reduces the restrictions on trade and capital. For our set of countries, it is noted that the policies of promoting economic growth through economic globalisation in the long-term are not well implemented because it is not statistically significant to the model.

The possibilities for future investigation can include: (i) the complete analysis of the channels of transmission of finances to the economies; (ii) the reduction of the time horizon to absorb more countries in this type of research; and, (iii) the investigation of only the effects of the KOF Globalization Index (updated in 2018) on economic growth.

6. CONCLUSION

The study analyses the relationships between three indicators of financial market development (market capitalisation and credit), and six globalisation dimensions (three *de jure* and three *de facto*) on economic growth. A panel ARDL model of ten countries for the lengthiest period for which data is available, i.e., from 1980 to 2015, was used. The CD-tests indicated the presence of cross-sectional dependence, supporting the assertion that the countries share common patterns. The decision to divide the total effects into their short- and long-term components proved to be wise. The research brings together diverse panel data estimators that makes the analysis of financial development and globalisation on economic growth robust.

The results showed that the relationship between banking sector development and economic growth is one-directional, both in short- and in the long-term. It was also proved that the market capitalisation of listed domestic companies was a driver of economic growth in the long-term. This evidence showed that as the economy grows in the long-term, the equity markets tended to expand the number of listed companies.

The 2018 upgraded KOF Globalization Index allowed a more sophisticated analysis of the multiple globalisation factors on economic growth. The more relevant globalisation indicators are political globalisation, *de jure*, in the long-term, and the financial globalisation, *de facto*, in the short-term, which were statistically highly significant. Finally, the speed of adjustment of the panel was negative and highly significant supporting the presence of long memory/cointegration in the estimations. Nevertheless, the speed of adjustment for long-run equilibrium is slow, revealing that the shocks imply long periods to economy fully recovered.

Funding: The financial support of the NECE - Research Unit in Business Science and Economics, sponsored by the FCT - Portuguese Foundation for the Development of Science and Technology, Ministry of Science, Technology and Higher Education, project UID/GES/04630/2019, is acknowledged.

Competing Interests: The authors declare that they have no competing interests.

Contributors/Acknowledgement: All authors contributed equally to the conception and design of the study.

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