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Causal nexus between economic growth, banking sector development, stock market development, and other macroeconomic variables: The case of ASEAN countries

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ABSTRACT

This paper examines the relationship between banking sector development, stock market development, economic growth, and four other macroeconomic variables in ASEAN countries for the period 1961–2012. Using principal component analysis for the construction of the development indices and a panel vector auto-regressive model for testing the Granger causalities, this study finds the presence of both unidirectional and bidirectional causality links between these variables. The study contributes to understanding the importance of the interrelationship between the variables and combines the different strands of the literature. It also contributes to the literature by focusing on a group of countries that have not been studied before. One particular policy recommendation is to make the banking sector more accessible for those country's inhabitants that do not have bank accounts. Another policy recommendation is to nurture stock market development, which will facilitate the increased raising of capital for investment purposes to enhance economic growth.

1. Introduction

The level of banking sector development and stock market development is among the most important variables identified by the empirical economic growth literature as being correlated with growth performance across countries (Fink, Haiss, & Vuksic, 2009; Beck & Levine, 2004; Garcia & Liu, 1999; Levine & Zervos, 1998; Naceur & Ghazouani, 2007; Yartey, 2008). These development challenges prevent developing countries from taking full advantage of technology transfer, causing some of these countries to diverge from the growth rate of the world production frontier (Aghion, Howit, & Mayer-Foulkes, 2005; Menyah, Nazlioglu, & Wolde-Rufael, 2014). In fact, it is debated that poor countries with a weakened financial system are trapped in a vicious circle, where low levels of financial development, in both the banking sector and the stock market, lead to low economic performance and low economic performance leads to low financial development (Fung, 2009). An inadequately supervised financial system may be crisis-prone, with potentially devastating effects (Moshirian & Wu, 2012; OECD, 1999). On the contrary, an efficient financial system, with a well-developed and integrated banking sector and stock market, provides better financial services, which enables an economy to increase its growth rate (Bencivenga, Smith, & Starr, 1995; Esso, 2010; King & Levine, 1993a). Hence, finance is not only pro-growth but it is also pro-poor, suggesting that financial development helps the poor catch up with the rest of the economy as it grows (Demirguc-kunt & Levine, 2009). Furthermore, the endogenous growth theory as articulated by Greenwood and Jovanovic (1990) and Bencivenga and Smith (1991) and others stresses that financial development, both banking sector development and stock market development, is a key factor that fosters long-run economic growth, as financial development along with advancement is able to facilitate economic growth through multiple channels. These channels include: (i) providing information about possible investments, so as to allocate capital efficiently; (ii) monitoring firms and exerting corporate

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governance; (iii) risk diversification; (iv) mobilizing and pooling savings; (v) easing the exchange of goods and services; and (vi) technology transfer (see, for example, Drake, 1980; Fritz, 1984; Garcia & Liu, 1999; Levine, 2005; Zhang, Wang, & Wang, 2012).

Not surprisingly, the relationship between financial development[1] and economic growth has been an important area of discussion among researchers and policy makers (see, for instance, Levine, 1999; Luintel & Khan, 1999; Al-Yousif, 2002; Ang, 2008a,b; Bangake & Eggoh, 2011; Beck, Levine, & Loayza, 2000; Chow & Fung, 2011; Fase & Abma, 2003; Herwartz & Walle, 2014; Jung, 1986; King & Levine, 1993a,b; Levine, 2003; Levine, Loayza, & Beck, 2000; Mukhopadhyay, Pradhan, & Feridun, 2011; Wachtel, 2003; Rousseau & Yilmazkuday, 2009; Yucel, 2009). However, what remains unclear is the issue of cointegration and causality between banking sector development and stock market development. Development economics studies two types of relationships: first, the link between banking sector development and economic growth (Christopoulos & Tsionas, 2004; Majid & Mahrizal, 2007; Menyah et al., 2014; Moshirian & Wu, 2012; Tang, 2005); and second, the link between stock market development and economic growth (Choong, Yusop, Law, & Venus, 2003; Khan, 2004; Levine, 1991; Singh, 1997). In a broad-spectrum, both banking sector development and stock market development are main forces that can bring about high economic growth in a country (Bilson, Brailsford, & Hooper, 2001; Castaneda, 2006; Fink, Haiss, & Vuksic, 2006; Garcia & Liu, 1999; Gjerde & Saettem, 1999; Kwon & Shin, 1999; Nieuwerburgh, Buelens, & Cuyvers, 2006; Pagano, 1993; Schumpeter, 1911; Shan, Morris, & Sun, 2001; Shaw, 1973; Trew, 2006). It has been argued in a subset of the finance-growth literature that both banking sector development and stock market development can cause each other (Allen, Gu, & Kowalewski, 2012; Cheng, 2012; Gimet & Lagoarde-Segot, 2011). While policymakers may vary on the degree to which these financial-sector developments contribute to economic growth, they generally concur that both do in fact matter. As a result, many countries have adopted development strategies that prioritize banking sector development and stock market development. ASEAN regional forum (ARF) countries are no exception. Since the end of the 1980s, these countries have bolstered their banking sector and stock market evolution by reducing governmental intervention in the financial sector, generally, and in the banking sectors and/or stock markets, in particular. Such policies are expected to promote economic growth, among other things, through the enhanced mobilization of savings and increases in domestic and foreign investment (King & Levine, 1993a; Levine & Zervos, 1996; Masih & Masih, 1999; Reinhart & Tokatlidis, 2003; Thornton, 1994). However, to ascertain that such policies are undeniably guaranteed to be effective, it must be formally established that there is indeed a causal relationship between banking sector development, stock market development, and economic growth (Cheng, 2012; Choe & Moosa, 1999; Cole, Moshirian, & Wu, 2008; Colombage, 2009; Gries, Kraft, & Meierrieks, 2009; Hassan, Sanchez, & Yu, 2011; Naceur & Ghazouani, 2007; Panopoulou, 2009; Rousseau, 2009; Zivengwa, Mashika, Bokosi, & Makova, 2011; Zhang et al., 2012).

In this paper, we seek to answer questions concerning the nature of the causal relationship between economic growth, banking sector development, stock market development, and four other macroeconomic variables. The novel features of this study are that: (1) we use the group of 26 ARF countries over a long span of time, from 1961 to 2012; (2) we combine the different strands of the literature; and (2) we employ principal component analysis and a panel vector auto-regressive (VAR) model for testing the Granger causalities. These formulations are rarely used in the finance-growth literature.

The remainder of this paper is structured as follows: Section 2 provides a literature review on the connection between banking sector development, stock market development, and economic growth. Section 3 highlights the research questions and the proposed hypotheses. Section 4 presents the data structure, sample selection, and the variables. This is followed by Section 5, which outlines our empirical model. Results are discussed in Section 6, while the final section concludes with a summary and the policy implications of our results.

2. Literature review

Financial development is pivot to economic growth (Graff, 2003; Levine, 1997). The connection between the two variables has been the focus of an immense body of theoretical and empirical research since the seminal work Schumpeter (1911). A number of studies (Blackburn & Hung, 1998; Beck & Levine, 2004; Beck et al., 2000; Berthelemy & Varoudakis, 1996; Craigwell, Downes, & Howard, 2001; Dritsakis & Adamopoulos, 2004; Fase & Abma, 2003; Fung 2009; Greenwood & Bruce, 1997; Greenwood & Smith, 1997; Gregorio & Guidotti, 1995; Herwartz & Walle, 2014; Hsueh, Hu, & Tu, 2013; King & Levine, 1993a, b; Pradhan, 2013; Rajan & Zingales, 1998; Thornton, 1994; Uddin, Shahbaz, Arouri, & Teulon, 2014) examined the effect of financial development and economic growth using a number of econometric techniques, such as cross-sectional, time series, panel data, and firm-level studies.[2]

By large, the empirical evidence had demonstrated that there is a positive long-run association between the indicators of financial development and economic growth. In general, all these papers suggest that a well-developed financial system is growth-enhancing, and hence, consistent with the proposition of “more finance, more growth” (Law & Singh, 2014). At the same time, focus on causality between financial development and economic growth (i.e., the finance-growth link) has spawned considerable interest among economists in recent years. Subsequently, there have been many similar studies in this regard for both developed and developing countries. While most of these studies have confirmed the existence of a causal relationship from financial development to economic growth (Enisan & Olufisayo, 2009; Hassan et al., 2011; Menyah et al., 2014; Pradhan, Dasgupta et al., 2013; Rousseau & Wachtel, 2000), there are a few cases where there is no evidence of causality from financial development to economic growth (Eng & Habibullah, 2011; Lucas, 1988; Mukhopadhyay et al., 2011; Pradhan, Mukhopadhyay et al., 2013; Stern, 1989). Hence, the empirical studies on the relationship between financial development and economic growth do not provide any definite conclusion on the nature and direction of this relationship and currently there is no consensus among economists about the nature of this relationship. In summary, there are four possible relationships that have been emphasized in the empirical literature on the causal link between financial development and economic growth, namely the unidirectional financial development-led growth hypothesis, the unidirectional growth-led financial development hypothesis, the feedback hypotheses, and the neutrality hypothesis.

In response to the above focus on finance-growth nexus, this paper examines the nexus in the ARF countries. Specifically, we define financial development as both banking sector development and stock market development and study their impact on economic growth along with

[1] Financial development is defined in terms of the aggregate size of the financial sector, its sectorial composition, and a range of attributes of individual sectors that determine their effectiveness in meeting users' requirements. The evaluation of financial structure should cover the roles of the key institutional players, including the central bank, commercial and merchant banks, saving institutions, development financial institutions, insurance companies, mortgage entities, pension funds, the stock market, and other financial market institutions (see, for instance, IMF, 2005, Chap. 2; Zaman, Izhar, Khan, & Ahmad, 2012). Thus, financial development includes both banking sector development and stock market development.

[2] Levine (2003) provides an excellent overview of a large body of empirical literature that suggests that financial development can robustly explain differences in economic growth across countries.