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Causal nexus between economic growth, inflation, and stock market development: The case of OECD countries

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ABSTRACT

This paper investigates cointegration relationships and Granger causality nexus in a trivariate framework among economic growth, inflation, and stock market development. Utilizing three measures of stock market development and employing a panel vector autoregressive model, we study 34 OECD countries over the time period of 1960–2012. Our novel panel-data estimation method allows us to identify important causal links between the variables both in the short run and in the long run.

1. Introduction

Almost every macroeconomics textbook contains a discussion of the empirical determinants of economic growth. The list of variables includes savings and investment, the degree of financial stability, the quality of financial institutions, trade openness, government spending on financial infrastructure, foreign aid and foreign direct investment, inflation, and the state of financial development of the economy (see, for instance, Fischer, 1993; Mankiw, Romer, & Weil, 1992; Kormendi & Meguire, 1985). The purpose of this paper is not to examine all the possible determinants of economic growth. Rather, the purpose of this paper is to focus

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on the relationship between economic growth and two variables that have received much attention in recent years: inflation and stock market development.

Most economists agree that inflation has consequences for economic growth (see Barro, 2013; Boschi & Cirardi, 2007; Boujelbene & Boujelbene, 2010; Jalil, Tariq, & Bibi, 2014; Leigh & Rossi, 2002). For example, numerous studies have shown that mild and stable inflation makes it easier for businesses to make investment decisions and for wages to rise. Furthermore, the case for supporting stock market development for the sake of fostering economic growth has been stated in a bourgeoning literature on growth and development (see, for instance, Hou & Cheng, 2010; Arestis, Demetriades, & Luintel, 2001; Rousseau & Wachtel, 2000; Enisan & Olufisayo, 2009; Domac & Yucel, 2005; Levine & Zervos, 1996; Levine, 1991; Okun, 1971). Of course, it is evident that stock market development itself may be linked to inflation. For example, studies have demonstrated that easier investing practices may have consequences for prices economy-wide. Thus, stock market development may affect economic growth both directly, through the usual expenditure channels, and indirectly through its effect on inflation.

Parallel to these investigations has been the development of the endogenous growth theory, which has been a subject of considerable academic scrutiny over the past few decades. Montes and Tiberto (2012), Rousseau and Yilmazkuday (2009), Cole, Moshirian, and Wu (2008), Li (2007), Liu and Hsu (2006), Mauro (2003), Udegbunam (2002), Wongbangpo and Sharma (2002), Chowdhury (2002), Levine (1997), and others in this body of literature stress that stock market development is key in fostering long-run economic growth since it facilitates efficient inter-temporal allocation of resources, capital accumulation, and technological innovation.

The beneficial effects on investment and economic growth, from the existence of growing financial markets, have been underscored by several authors, most notably King and Levine (1993). However, as Barro and Sala-i-Martin (1995) state, the development of these markets is endogenous since they are a normal part of the process of economic growth. Thus, while stock market development may lead to economic growth, the latter may itself lead to further stock market development. Despite the existence of several papers on this subject, which is discussed next in the literature review, the exact nature of the relationship is still open to question, since empirical studies do not find uniform results. More importantly, none of these studies distinguish between the possible short-run and long-run causal links.

This paper aims to explore the possible short-run and long-run causal relationships between the three key variables in our analysis: economic growth, inflation, and stock market development. Unlike other studies, which consider possible links between two of these variables at a time, we investigate the possible nexus between all three using a trivariate framework. Furthermore, and contrary to earlier work, this paper reports on the causal relationships among the three variables by using panel cointegration and causality tests. Our novel panel-data estimation method allows for more robust estimates by utilizing variation between countries as well as variation over time. We find interesting and relevant causal links among the variables deriving uniquely from our innovations using a sample of 34 OECD countries over 1960–2012. To our knowledge, neither this group of countries nor this time period has been the subject of investigation by other researchers in this literature.

The remainder of this paper is organized as follows. Section 2 provides a literature overview on three branches of the literature which we meld in our investigation. This section also motivates our study by summarizing the remarkable features of the present study. Section 3 introduces our three indicators of stock market development and the data source used in the analysis. Section 4 explains our empirical methodology. Section 5 describes the results and Section 6, the final section, concludes.

2. Literature survey and main contributions of this paper

The relationship between inflation and economic growth, stock market development and economic growth, or inflation and stock market development has drawn the attention of many researchers, both theoretically and empirically. As is evident from our review below, there are mixed findings throughout the literature. The present paper brings together these branches of the literature by considering the possible causal relationship between all three variables simultaneously, both in the short-run and in the long-run. In the studies we review below, there are three possible hypotheses (see, for instance, Samargandi, Fidrmuc, & Ghosh, 2015; Jedidia, Boujelbene, & Helali, 2014; Ngare, Nyamongo, & Misati, 2014; Pradhan, Arvin, Norman, & Hall, 2014): unidirectional causality between two variables, known as the supply-leading hypothesis or