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Stock markets, banks, and economic growth: Evidence from more homogeneous panels☆

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The present paper investigates whether the link between stock markets, banks, and economic growth becomes more evident as more homogeneous groups of countries are considered. The dynamic panel generalized method of moment (GMM) estimator with Windmeijer (2005) correction is employed using data of European and non-European high-income countries as well as upper and lower middle-income countries averaged over five and three years. Our results indicate that the link between financial development and economic growth depends on the stages of economic growth of the countries. As more homogeneous economies are involved in a panel, a more economically stylized link is uncovered.

1. Introduction

The present paper investigates whether there exists a link between financial development and economic growth by considering the financial sectors across stock markets and banks as more homogeneous groups of countries are involved. Since the pioneering works of Schumpeter (1934) and, more recently, Goldsmith (1969), McKinnon (1973), and Shaw (1973), there has been an intense debate regarding the link between financial sector development and economic growth. Some early studies, including Robinson (1952) and Lucas (1988), contend that the financial sector develops merely in response to economic growth or has no significant contribution to growth. However, a body of recent literature, including King and Levine (1993), Levine (1997), Bekaert et al. (2005) and Bertocco (2008), emphasizes that a well-functioning financial system improves the allocation of resources and hence promotes economic growth by mitigating the effects of information asymmetry and transaction costs.[1]

The theory presents somewhat conflicting explanations about whether stock markets and banks have independent roles in economic growth and whether the two have any comparative importance in economic activity. On the one hand, Holmstrom and Tirole (1993), Boyd and Smith (1998), and Allen and Gale (1999), among others, argue that well-functioning stock markets are better at reducing information and transition costs and thus fostering economic growth. On the other hand, a number of studies, including Boot and Thakor (1997) and Coval and Thakor (2005), argue that banks are relatively better at reducing market frictions associated

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[1] See also Diamond (1984), Stiglitz (1985), Greenwood and Jovanovic (1990), Bencivenga and Smith (1991), Bhide (1993), Bencivenga et al. (1995), Allen and Gale (1997), and Khan (2001). For a thorough review of the literature refer to Levine (1997, 2005) and Beck (2013).

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with the mobilization and allocation of resources towards more productive activities. Still others, including Levine (1997), Allen and Gale (2000), and Song and Thakor (2010), emphasize that the focus should be on creating well-functioning banks and markets rather than on making a choice between the two as they are not only competing but also complementary sources of financing. The literature also stresses that the relative merits of banks and stock markets evolve over time and vary at different stages of economic growth of countries.[2] These studies show that as economies grow, the services provided by financial markets become relatively more important and countries become more market-based and imply that the services provided by banks make a significant contribution to the process of economic growth in the early stages of development. For instance, Singh and Weisse (1998) show that stock markets are unlikely to spur long-term economic growth in developing countries as they encourage short-term profits and also require sophisticated monitoring systems to function effectively. Banks, on the other hand, nurture long-term relationships with investors and hence provide a stable source of finance for achieving long-term economic growth and industrialization.

The issue of fundamental and empirical importance in this study is the extent to which the role of financial intermediaries and markets in economic growth across countries can be measured in terms of a degree of homogeneity dealing with the endogeneity problem. The answer to the question especially depends on how persistent financial systems are and how big economic heterogeneity is among the countries. Because of the strong spillovers and externalities in financial systems, serious income inequality, and different levels of economic growth of countries in a group, existing panel studies fail to settle two important issues: heterogeneity of the countries in a panel, and high correlation and strong integration of financial intermediaries and markets between cross-sectional units. As can be seen in many recent empirical studies, including Beck and Levine (2004), Deidda and Fattouh (2008), and Demirguc-Kunt et al. (2013), developing and developed countries are usually pooled together under a strong assumption of homogeneity, and the impact of banks and markets on economic growth is assessed in one pass. However, this may not be very informative as it is likely that financial intermediaries and markets have quite different impacts on growth depending on the phases of countries' economic development. In particular, the results from panel regressions based on pooled heterogeneous cross-country observations may have limited policy relevance. Though few studies, including Deidda and Fattouh (2002), Rioja and Valev (2004), and Arcand et al. (2012), find evidence of differential effects of financial depth on growth, these studies consistently indicate the difficulty of setting threshold levels of financial development indicators while analyzing the non-monotone effects of financial development on growth.[3] The challenge is even more vivid if we have to use different indicators of financial development as there is no single best indicator of financial development for a country.

The main question in this study is whether the link between financial development and economic growth becomes more evident as more homogeneous groups of countries are included after considering the endogeneity issue. First, to control for the heterogeneous characteristics of countries in a panel, a group of 64 countries is divided into four different subgroups: European high-income countries (HICs), non-European HICs, upper middle-income countries (MICs), and lower MICs, following the World Bank's income classification. By doing this, we can at least assess whether the role of financial development, including both stock markets and banks,[4] differs based on the various stages of economic growth of the countries after controlling for simultaneity bias, omitted variable bias, and the endogeneity problem with the inclusion of a lagged dependent variable as a regressor.[5]

Second, to estimate the link and test the impact of the development of stock markets and the banking system on economic growth in terms of a degree of homogeneity, we employ a dynamic panel generalized method of moments (GMM) estimator by Blundell and Bond (1998) with Windmeijer (2005) correction to the data from 64 countries. More specifically, in order to consider the highly integrated financial systems that have close relationships with one another, we present a GMM with more homogeneous groups to utilize reasonable information from a variance–covariance matrix to account for cross-equation correlations among the cross-sectional units in each group. For the sensitivity analysis, three different variables are employed to measure both stock markets and banks. Finally, comparisons are made between the dynamic panel system and difference GMM estimators, with data averaged over three and five years to abstract from business cycle relationships in European and non-European HICs as well as the upper and lower MICs. This study is distinct from the existing literature in that the dynamic panel system GMM with Windmeijer (2005) correction not only utilizes information more efficiently from financial systems and economies but also provides more economically reasonable estimates as more homogeneous countries become involved.

In general, our empirical results are consistent with the views that the financial system provides important services for economic growth, and that stock markets and banks play different roles. In sharp contrast to the existing empirical findings, however, this paper finds that the effects of stock markets and banking system development on economic growth differ for the various income groups of the economies, implying that the link between financial development and economic growth depends on the stages of economic growth of the countries considered in the study. The regression results show that while bank credits and stock market liquidity have a positive and robust impact on the economic growth of the MICs, the same cannot be said of their effect on the growth of the HICs. Bank credit is a strong determinant of economic growth for both the upper- and the lower-MICs; however, stock market liquidity exerts a robust influence on the economic growth of the upper-MICs only. We find that bank credit is not robust and stock market liquidity is only significant in the case of non-European HICs. For European HICs, stock market liquidity is not a strong determinant of growth, unlike bank credit. Thus, to understand the relationship between the financial system and economic growth more comprehensively, it is significant to note that the more homogeneous the economies involved in a panel, the greater the opportunity to

[2] For details, see Boot and Thakor (1997), Boyd and Smith (1998), and Song and Thakor (2010).

[3] For details, see Deidda and Fattouh (2002), Rioja and Valev (2004), and Arcand et al. (2012).

[4] According to Zingales (2015), there is little evidence that the existence or the size of an equity market matters for growth. For details, see Zingales (2015).

[5] Rioja and Valev (2004) did not include stock markets in their study. They divided a group of countries in three regions according to the level of financial development (low, intermediate, and high regions). Further, they did not employ any corrections of downward bias for small sample.