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# Financial Determinants of Domestic Investment in Sub-Saharan Africa: Evidence from Panel Data

LEONCE NDIKUMANA \*

*University of Massachusetts, Amherst, USA*

**Summary.** — This study investigates the effects of financial development on domestic investment in a sample of 30 sub-Saharan African countries. It is based on a dynamic serial-correlation investment model including various indicators of financial development, controlling for country-specific fixed effects and nonfinancial factors of investment. The results indicate a positive relationship between domestic investment (total investment and private investment) and various indicators of financial development. Higher financial development leads to higher future levels of investment, implying a potent long-run effect of financial development on domestic investment. The findings imply that financial development can stimulate economic growth through capital accumulation. © 2000 Elsevier Science Ltd. All rights reserved.

**Key words** — finance, investment, development, growth, sub-Saharan Africa

## 1. INTRODUCTION

Since the beginning of the 1980s, investment rates have fallen in the majority of sub-Saharan African countries.<sup>1</sup> In more than half of the 30 countries included in this study, investment rates in the 1980s and 1990s are lower than the rates achieved in the 1970s. This decline in investment is a matter of concern given the close connection between the level of investment and the rate of economic growth as documented in recent studies (Ben-David, 1998; Chari, Kehoe & McGrattan, 1997; Barro, 1991; Khan & Reinhart, 1990; Kormendi & Meguire, 1985). It is therefore worthwhile investigating the factors that determine the level of domestic investment in these countries.

This paper investigates the role of financial factors in determining domestic investment in sub-Saharan Africa, controlling for nonfinancial factors of investment. The study covers the majority of the economies in the largest area of the developing world where issues of stagnation of domestic investment and underdeveloped financial systems are at the forefront of the current debate in economic development. The premise of this study is that financial development facilitates the channeling of resources from savers to the highest-return investment activities, increases the quantity of funds available for investment, and thus miti-

gates the liquidity constraints faced by entrepreneurs. Thus a large and liquid financial system reduces the overall costs and risks of investment, which stimulates capital accumulation.

The analysis is based on a reduced-form investment model that relates a country's domestic investment to the level of financial development while controlling for other nonfinancial factors. Following a standard practice in panel data analysis, the investment equation is specified as a dynamic serial correlation model (see Hsiao, 1986; Anderson & Hsiao, 1982, 1981). To test the effects of financial development on investment four indicators are

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used alternatively: credit to the private sector, total liquid liabilities of financial intermediaries, credit provided by banks, and a composite index combining these three indicators. In addition, an indirect test is performed by investigating whether the response of investment to GDP growth (accelerator effect) is larger among countries with relatively more developed financial systems.

The study is based on a panel data set including 30 sub-Saharan countries over 1970–95. An important advantage of using panel data is that they capture both time-series and cross-section variations in investment and its determinants. In a study covering 71 less-developed countries, Odedokun (1996) found that panel data estimation yields more robust (positive) effects of financial development on economic growth than time-series estimation by individual country. This study capitalizes on this important advantage of panel data analysis. The results indicate a positive relationship between domestic investment and all four indicators of financial development. The results are qualitatively similar for total domestic investment and private investment, with stronger effects of financial factors on private investment than on total domestic investment. The findings also suggest that high financial development is a predictor of future levels of domestic investment. Higher financial development in the 1970s is associated with higher investment levels in the 1980s and 1990s. The results also confirm stylized facts on other determinants of investment. Domestic investment is positively affected by real per capita GDP growth (accelerator effect) and trade flows (whether measured by exports, imports, or the sum of the two). External debt, public sector borrowing from the domestic financial system, the black market premium, and inflation negatively affect domestic investment. There is insufficient evidence of a negative effect of government consumption on investment as conventional theory would suggest. The hypothesized negative effect of the interest rate on investment is not robust.

The rest of the paper is organized as follows. Section 2 reviews the relevant literature on the links between investment and financial development. Section 3 presents the data and stylized findings. The investment model, the estimation method, and the regression results are discussed in section 4. Section 5 concludes the paper.

## 2. DETERMINANTS OF INVESTMENT IN DEVELOPING COUNTRIES

### (a) *The role of financial factors*

Despite the remarkable attention devoted to investment behavior, the literature has not yet produced a full-fledged model of investment applicable to the context of developing countries. Conventional models such as the flexible accelerator proved quite successful in explaining aggregate investment in industrial countries.<sup>2</sup> The main underlying assumptions of these models however (such as the assumption of perfect capital markets, absence of liquidity constraints, and abstraction from the role of government) are highly questionable in the context of developing economies. Research in the past decades has shifted the attention toward the role of financial factors in explaining investment over time and across countries.

Studies that emphasize the role of financial determinants for investment in developing countries have revived the original ideas of Schumpeter (1932) about the importance of the financial system in promoting technological progress. These studies also embed the Keynesian view that the “state of credit” is an important determinant of investment (Keynes, 1937, 1973). The work of Gurley and Shaw (1955) provided vital impetus to the Schumpeterian and Keynesian insights by tying economic growth directly to financial development. Gurley and Shaw suggested that “economic development is retarded if only self-finance and direct finance are accessible, if financial intermediaries do not evolve” (Gurley & Shaw, 1955, pp. 518–519). One key difference between developed and underdeveloped countries, as Gurley and Shaw argued, is the level of organization and sophistication of financial intermediaries, especially because of their role in facilitating the flow of loanable funds between savers and investors.

The work of McKinnon (1973) and Shaw (1973) offered a theoretical and empirical foundation for the relationship between monetary factors and investment. These authors advanced the hypothesis that investment in developing countries is positively associated with the accumulation of real money balances. The McKinnon–Shaw hypothesis is based on the assumption that limited access to credit in developing countries forces investors to accumulate enough real balances before they can initiate investment projects. This view estab-

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