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Financial integration and business cycles in a small open economy

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A B S T R A C T

The purpose of this study is to examine a dynamic, stochastic, general equilibrium framework with financial and informational frictions and foreign borrowing in the case of money growth and technology shocks for a small open economy and to analyze the implications of varying degrees of financial integration for aggregate fluctuations and propagation mechanisms in the economy. The existence of informational asymmetries among the agents in the model necessitates financial intermediation in the economy. Moreover, there is uncertainty involved in the production process which leads to collateralized borrowing by firms and, therefore, has to be taken into account in the design of the loan contracts between firms and financial intermediaries. It is shown that increasing financial integration amplifies the effect of a positive, temporary monetary shock on output, consumption, investment, labor demand and loans; whereas it has barely any implication for the impact of a positive, temporary technology shock on the economy.

1. Introduction

The business cycle implications of financial frictions have long been investigated in the literature[1]. This study proposes a theoretical framework to examine aggregate fluctuations and propagation

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[1]For a comprehensive survey on the interaction between financial structure and aggregate economic activity, see, among others, Gertler (1988).

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mechanisms under increasing financial integration (captured by decreasing financial frictions) for a small open economy, contributing to the existing literature through taking into account financial and informational frictions and uncertainty.[2] Financial frictions in the model are in the form of restrictions on the composition of deposits held by the financial intermediaries in the economy. More specifically, financial intermediaries are assumed to be able to hold no more than a certain fraction of their total deposits as foreign deposits. An increase in this fraction is interpreted as increasing financial integration. Informational asymmetries among the agents in the economy and uncertainty in the production process necessitate financial intermediation and require special attention to the design of the loan contracts between borrowers (firms) and lenders (financial intermediaries).

In this study, a dynamic, stochastic, general equilibrium (DSGE) framework that incorporates financial integration is developed in order to analyze the sensitivity of the response of a small open economy to money growth and technology shocks under varying degrees of financial integration.[3] The model developed here is one of cash in advance (CIA), similar in spirit to that by Cogley and Nason (1994), modified in such a way that it incorporates financial integration. The economy consists of households, firms, foreign lenders, financial intermediaries, the central bank and the financial regulator. It is shown that increasing financial integration amplifies the effect of a monetary shock on output, consumption, investment, labor demand and loans, while it has barely any implication for the impact of a technological shock on the economy.

The economy analyzed in this paper features imperfections of the Holmstrom and Tirole (1997) type of uncertainty in the production process, financial frictions restricting the amount of foreign borrowing in the economy, and informational asymmetries among the agents in the economy. Entrepreneurs that run the firms can choose between two different projects for production, both of which are subject to idiosyncratic risk. The projects yield positive output in the case of success and no output in the case of failure. The projects differ according to their probabilities of success and the private benefits they provide to the entrepreneurs. It is those private benefits that create incentives for the managers of the firms, inducing them to act against the interest of their creditors. The project choices of the entrepreneurs are private information, whereas the project outcomes are verifiable by the financial intermediaries. Households and foreign investors are assumed to lack the ability to verify the project outcomes. Therefore, domestic and foreign investors prefer lending to firms indirectly, through financial intermediaries, rather than directly.

Financial integration has become an increasingly attractive topic in both theoretical and empirical literature over the last couple of decades. This is partly because of its interaction with macroeconomic fundamentals and partly due to its contradictory consequences, especially for emerging economies. On the one hand, it provides emerging economies with the funds that might be used to realize investment opportunities. On the other hand, it exposes them to increasing financial vulnerability against external shocks since the financial infrastructure in such economies is not adequately developed. Financial integration is interpreted here as the process resulting from the reduction in financial frictions that prevent capital from freely flowing across international borders. The impact of financial integration on economic growth, macroeconomic volatility, the effectiveness of government policy rules depends on many factors including the structure of the financial system, the quality of financial supervision and regulation, the soundness of financial institutions, and the rapidity of the integration process.[4]

Financial integration is incorporated into the model through the introduction of a regulation in the economy that the financial intermediaries can hold no more than a certain fraction of their total deposits as foreign deposits. The parameter representing this fraction is assumed to be controlled by

[2] For more details on output dynamics and propagation mechanisms in real business cycle models, see Cogley and Nason (1995). Aggregate fluctuations in the case of financial frictions are analyzed by Fuerst (1995), Gertler (1995), and von Hagen and Zhang (2008b).

[3] For analyses of transmission mechanisms in the case of monetary shocks in general equilibrium models, see, among others, Christiano and Eichenbaum (1992) and Fuerst (1992).

[4] See, among others, Arteta et al. (2003), Chinn and Ito (2006) and Kaminsky and Schmukler (2003). Lane and Milesi-Ferretti (2008) argue that also the degree of financial integration depends on factors such as financial infrastructure, financial innovation, sectoral trends like securitization that exhibit differences across advanced economies and emerging markets.