

Identification of a loan supply function: A cross-country test for the existence of a bank lending channel

Sophocles N. Brissimis^{a,b}, Manthos D. Delis^{c,*}

^a *Economic Research Department, Bank of Greece, Athens 10250, Greece*

^b *Department of Economics, University of Piraeus, 80 Karaoli & Dimitriou Street, Piraeus 18534, Greece*

^c *Department of International and European Economic Studies, Athens University of Economics and Business, 76 Patission Street, Athens 10434, Greece*

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Abstract

Using the theoretical predictions of the Bernanke–Blinder [Bernanke, B.S., Blinder, A.S., 1988. Is it money or credit or both or neither? Credit, money, and aggregate demand. *American Economic Review* 78, 435–459] model, we seek to examine the existence of a bank lending channel through the empirical identification of a loan supply function and to assess the impact of differential bank characteristics on banks' ability to supply loans. To this end, we estimate a loan supply model and test for the restrictions implied by perfect substitutability between loans and bonds in bank portfolios. Estimations are carried out on bank panel data for six OECD countries, the results showing that a bank lending channel is at work in only two of them. Moreover, we find that the relevance of bank characteristics is hardly a decisive factor in the identification of a loan supply function.

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1. Introduction

The monetary transmission mechanism holds a central position in monetary analysis and has quite justifiably attracted a large amount of research. A still controversial issue in this respect is the relative importance of the “money” and “credit” channels of monetary transmission. Supporters of the traditional money view argue that the focus on interest rates or monetary aggregates

* Corresponding author. Tel.: +30 210 3202388; fax: +30 210 3233025.

E-mail addresses: sbrissimis@bankofgreece.gr (S.N. Brissimis), delis@aub.gr (M.D. Delis).

is sufficient for understanding the transmission of monetary policy. While agreeing with the broad outlines of standard theory, [Bernanke and Blinder \(1988\)](#) and [Bernanke and Gertler \(1995\)](#), among other proponents of the credit view, emphasize the role of financial intermediaries and agency costs in monetary transmission. In particular, they suggest that output changes cannot be solely explained by changes in interest rates, which are small and, in any case, transitory. They therefore add a “balance sheet” channel and a “bank lending” channel to the theoretical discussion. The former suggests that the rise in interest rates following a contractionary monetary policy causes a deterioration in borrowers’ balance sheets, which in turn raises the cost of credit intermediation and the requirement of additional collateral. The underlying theory of the bank lending channel suggests that firms have few substitute sources of funds beyond bank borrowing. Since during periods of monetary contraction the liabilities of banking institutions decrease, borrowers bear a large portion of the contraction. As noted by [Bernanke and Gertler \(1995\)](#), the basic assumption needed for the existence of a bank lending channel is that, due to financial market imperfections, bonds and loans are imperfect substitutes for firms, and banks do not consider loans as perfect substitutes for securities in their portfolios. If this holds, central bank actions might affect the supply of loans from banks and, in turn, real spending in the economy.

While the balance sheet channel appears reasonably well established, the existence of a bank lending channel is still debated. [Bernanke and Blinder \(1988\)](#) developed a simple model (BB model hereafter) for the bank lending channel, which became the benchmark for future studies—and is practically the only structural framework available. They expanded the conventional IS-LM model to include the loan market, dropping the assumption of perfect substitutability between bank loans and securities (bonds). In this framework, loan supply shifts play a key role in the propagation of monetary impulses, amplifying the effect that works through the interest rate channel. Yet, observed changes in the quantity of loans after a monetary policy movement need not be related only to loan supply shifts but can also be interpreted differently. Thus, a monetary contraction may depress aggregate demand through the interest rate channel, thereby decreasing the demand for bank loans. The difficulties in distinguishing shifts in loan demand from shifts in loan supply (identification or simultaneity problem) have prompted researchers to focus on cross-section (bank-level) data and try to capture asymmetries in loan supply behavior by examining reduced-form equations linking bank loans to monetary policy measures (see for example [Kashyap and Stein, 2000](#)). Implicit in this approach is the assumption that when asymmetries are present, loan supply shifts – a necessary condition for the operation of the lending channel – may be identified.

In this paper we focus on the loan market in the BB model and propose the direct estimation of the loan supply function from bank-level data, which offers a convenient solution to the identification problem present in most studies using time-series data. In a second step we assess the impact of differential balance sheet characteristics on banks’ ability to supply loans. In the estimated loan supply model we test appropriate restrictions that are valid when perfect substitutability exists between loans and bonds in bank portfolios. This strategy is applied to a number of panel datasets corresponding to six OECD countries (France, Germany, Greece, Japan, UK and USA) for the years 1996–2003. In the empirical analysis we deal with a number of econometric problems posed by the use of bank-level data, and this helps us to increase the robustness of the results pertaining to the existence of the bank lending channel.

Our paper proceeds as follows. Section 2 summarizes some previous empirical studies on the bank lending channel. The model specification is described in Section 3 and in Section 4 we discuss some stylized facts of the banking systems examined. In Section 5 we present the empirical methodology and results. The paper concludes in Section 6.

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