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Financial frictions and the strength of monetary transmission[☆]

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This paper examines the effect of financial frictions on the strength of the monetary transmission mechanism. Credit channel theory implies that the transmission mechanism of monetary policy should be stronger in countries with high levels of financial frictions, all else equal. The intuition is that in these countries, external finance premiums are more sensitive to firms' financial leverage. By affecting asset prices, therefore, monetary policy has greater impact on external finance premiums and output. We test this theoretical prediction by estimating SVAR models on cross-country data to generate indicators for the strength of monetary transmission. We find a positive relationship between various measures of financial frictions and the strength of monetary transmission, supporting the predictions of credit channel theory.

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1. Introduction

According to the credit channel theory of the monetary transmission mechanism, frictions in credit markets that generate a wedge between the costs of raising funds externally and internally, the external finance premium, help explain the effect of monetary policy on real variables. For example, the cost of monitoring in credit markets suggests poorly collateralized borrowers will pay a higher

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premium for external funds than larger, more-collateralized borrowers. The credit channel of monetary policy is a mechanism through which the impact of monetary policy shocks on the real economy is amplified through its effect on external finance premiums. In particular, by affecting this wedge countercyclically, monetary policy has an additional impact on real variables beyond its standard effect through the cost of capital.

The credit channel mainly operates through two conduits: the balance sheet channel, in which monetary policy affects borrowers' net worth and debt collateral, and the bank lending channel, in which policy impacts the level of intermediated credit (c.f. [Bernanke and Gertler, 1995](#) for a review of the credit channel). These channels have been incorporated into general equilibrium models through costly-state-verification to enhance their empirical relevance (c.f. the financial accelerator model of [Bernanke et al., 1999](#)). A key result from these models is that the strength of both channels and therefore the broader credit channel increases with the level of financial frictions.¹ In particular, in financial systems where financial frictions such as the cost of monitoring (state verification cost) are more pronounced, monetary policy has a larger impact on external premiums through the credit channel.²

It is important to note at this point that the literature does not identify the credit channel as a distinct alternative to the other monetary transmission mechanisms, such as the more traditional cost of capital channel ([Bernanke and Gertler, 1995](#)). Rather, it is argued to be a mechanism in which frictions in credit markets amplify the effect of monetary policy on real economic activity. In this paper, we test whether higher levels of financial frictions are consistent with stronger monetary transmission (hereafter MTS) and the amplification mechanism defined by the credit channel theory.

In conducting this analysis we use cross-country data. Using cross-country data is preferable to comparing MTS within a specific country at different time periods. The reason is that financial frictions are relatively stable over time, especially compared to monetary policy.³ In our baseline model, we use bankruptcy recovery rates, the proportion of a firm's value creditors can recover from a defaulting firm, as an indicator of financial frictions. This variable provides a close match to the source of financial frictions in costly-state-verification models. Our paper therefore represents, to the best of our knowledge, a first attempt at testing the relationship between financial frictions and MTS implied by costly-state-verification models.

We begin our empirical investigation by generating proxies for MTS in each country. To do so, we obtain the maximum amplitude of output responses to a monetary policy shock (a 100 basis points interest rate shock). Impulse responses are obtained from a structural vector autoregressive (SVAR) model, and monetary policy shocks are identified using the strategies of [Kim \(1999a,b\)](#) and [Hoffmann \(2007\)](#) for G-8 and non-G-8 countries, respectively.⁴ For most of the countries, the impulse responses do not show any evidence of the price and liquidity puzzles (the increase in prices and money aggregates following an increase in interest rates), providing some validation for our approach.

Next, we use our measure of MTS in a pooled regression of up to 56 countries from 1984 through 2008 to test the effect of recovery rates on the MTS variable. Our results reveal a negative and

¹ More recent studies identify the bank capital and risk taking channels as alternative transmission mechanisms. Under the bank capital channel, the strength of banks' balance sheets (instead of the borrowers') is the main focus. Under the risk taking channel, banks search for higher yield in response to a reduction in risk aversion. For both of these channels, higher financial frictions are argued to prompt higher borrowing premiums for banks. [Blum and Hellwig \(1995\)](#) and [Van den Heuvel \(2002\)](#) provide a detailed discussion of the bank capital channel. [Borio and Zhu \(2008\)](#) and [Rajan \(2005\)](#) do the same for the risk taking channel.

² The amplification mechanism in the costly-state-verification models can be summarized as follows: shocks that affect borrowers' net worth also affect their borrowing premiums. This in turn decreases investment, output and asset prices further decreasing net worth and borrowing premiums, and creates an adverse feedback mechanism in credit markets. Since the response of borrowing premiums to the changes in borrowers' net worth is positively related to the costs of bankruptcy (the source of financial frictions), the adverse feedback mechanism is amplified when there are higher levels of financial frictions.

³ See for example [Djankov et al. \(2007, 2008\)](#) for empirical evidence that support the stability of financial frictions.

⁴ See the discussion by [Elbourne and de Haan \(2006\)](#) on the usefulness of estimating structural VARs in comparing the monetary transmission mechanisms across countries.

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