

**Long-term interest rate and bank loan supply:
Evidence from firm-bank loan-level data[†]**

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Abstract

This paper examines the effects of long-term interest rate on bank loan supply. Using a simple mean-variance model of bank portfolio choice subject to the value-at-risk (VaR) constraint, we identify two transmission channels through which lower long-term interest rates increase loan supply: (i) the substitution effect being larger than the income effect (portfolio balance channel) and (ii) the net worth effect (bank balance sheet channel). We construct a unique and massive firm-bank loan-level panel dataset in Japan during 2002–2014, and test our theoretical predictions to find the followings. First, an unexpected reduction in long-term interest rate increased bank loan supply, which suggests that the substitution effect is larger than the income effect. Second, banks that obtained larger capital gains through their exposures to interest rate risks significantly increased bank loan supply, which lends support to the existence of the bank balance sheet channel. Bank balance sheet channel was stronger for smaller, more leveraged, and less creditworthy firms, which suggests that a bank with strengthened balance sheet increases loan supply to credit-constrained and riskier firms.

JEL classifications: E44, E52, G11, G21

Keywords: portfolio balance channel, bank balance sheet channel, value-at-risk constraint

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