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Monetary expansion and bank credit: A lack of spark

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Abstract

This study shows that the recent expansionary monetary policy pursued by the U.S. Federal Reserve has deactivated the credit channel of policy transmission. We develop a model of changes in the monetary base as a function of changes in excess reserves, vault cash, bank credit, as well as domestic and foreign security investments. We employ ordinary least squares regression optimized for impact lags, as well as generalized linear model with a logarithmic link function in the empirical tests for a sample period 1999–2014. We verify robustness of the obtained results with vector auto-regression estimations and impulse response functions. The tests provide consistent evidence that an increase in the monetary base has been associated with higher excess reserves, an increase in security investments, and a contraction of bank credit.

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1. Introduction

This paper aims to evaluate the effects of the Federal Reserve monetary expansion over the past 15 years on the credit channel of monetary policy transmission. To do so, we analyze the allocation of the Fed vast liquidity injections by the U.S. banks. The underlying hypothesis is that the considerable monetary expansion neutralized the bank credit expansion as banks channeled borrowed liquidity into other assets.

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The monetary expansion was propelled by the financial crisis of 2007–2008. The crisis led to the rapid deterioration of asset performance and liquidity of the banking system. Among the key factors contributing to the crisis was the excessive accumulation of US household debt that reached 136% of households' disposable income by mid-2007 (Orlowski, 2008). Nevertheless, the crisis necessitated further monetary easing, even though the household debt reached an apparent ceiling. In order to provide liquidity to the banking system the Fed employed unconventional monetary policy tools¹.

As the policy interest rate was at its lower bound already prior to the financial crisis the Fed resorted to conducting monetary policy through its balance sheet management (Bernanke, 2012; Woodford, 2012; Thornton, 2014). This unconventional monetary policy follows the precepts of quantitative easing (QE), i.e. a further monetary expansion aimed at stimulating the economy when short-term interest rates are at or near zero level. The QE was carried through the portfolio balance channel². By purchasing large amounts of treasury and agency securities in 2008–2012 the Fed intended to put downward pressure on long-term yields. The Fed believed that declining yields and rising prices would in turn induce investors to rebalance their portfolios and boost economic activities (Bernanke, 2012). The six year-long QE strategy was concluded in October 2014. Subsequently, the Fed has maintained the expansionary monetary policy by keeping the federal funds rate target at zero lower bound.

The monetary expansion has provided banks with massive liquidity injections³. We analyze the allocations of this borrowed liquidity by the U.S. banks by focusing on the empirical investigation of the credit channel of monetary policy transmission. Our underlying hypothesis is that the credit channel is ineffective in the presence of large monetary base increases particularly those propelled by QE. We develop a model of changes in the Federal Reserve monetary base as a function of changes in excess reserves, vault cash, bank credit, as well as domestic and foreign security investments. In essence, our model shows allocation of borrowed liquidity into major banks' assets. This functional relationship is empirically tested for the sample period beginning in the first quarter of 1999 and ending in the second quarter of 2014 (62 observations). We employ ordinary least squares (OLS) regression optimized for impact lags, and generalized linear model (GLM) with a logarithmic link function. Both tests indicate the association between the tested variables and do not imply their causal interaction. Robustness of the OLS and GLM test results is verified with a vector autoregressive (VAR) model, along with impulse response functions. Impulse responses allow for assessing causal reactions between changes in bank assets and changes in the monetary base.

Section 2 presents the underlying hypothesis and analytical assumptions. A model of allocation of borrowed liquidity into assets is developed and explained in Section 3. The empirical analysis is conducted in Section 4. The concluding Section 5 summarizes the main findings and provides policy recommendations.

¹ In 2008 the Fed established several liquidity programs such as Term Auction Facility or Term Asset-Backed Securities Loan Facility. Those programs allowed banks to sell toxic assets to the Fed.

² The portfolio balance channel stems from the monetary theory and assumes that different classes of financial assets are not perfect substitutes in investors' portfolios for reasons such as regulatory restrictions, transaction costs or risk tolerance. As prices and yields of assets change, investors tend to rebalance their portfolios (Cúrdia & Woodford, 2011; Thornton, 2014).

³ The monetary base increased from \$552 to \$827 billion during 1999–2007 and expanded to \$3927 billion by the end of 2014. This translates into the increase in the monetary base as a share of nominal GDP from a stable level of 5.7% in 1999 through 2007 to 22.5% in 2014.

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