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The time-varying cost channel of monetary transmission☆

Peter Tillmann

Swiss National Bank, Economic Analysis, Börsenstrasse 15, CH-8022 Zurich, Switzerland

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A B S T R A C T

This paper studies the time-varying role of the cost channel of monetary transmission, i.e. the supply-side effect of monetary policy based on firms' costs of holding working capital. For that purpose, we provide rolling-window estimates of an augmented New Keynesian Phillips curve and show that the cost channel exhibits important time-varying dynamics. We find, as a general pattern, that the cost channel was most important in the pre-Volcker period and less important in the Volcker–Greenspan era. Recently, however, the cost channel regained importance. Since the cost channel is based on the transmission of policy impulses through bank lending, it is likely that the time-varying cost channel reflects the cyclical nature of financial frictions.

1. Introduction

Recent research finds that the monetary transmission mechanism in the U.S. economy changed significantly over the last three decades.[1] This research typically documents the change in the overall effect of policy on the economy but does not disentangle the changing importance of various channels through which monetary policy affects the economy. This paper instead focuses on one particular aspect of the transmission mechanism and studies the time-varying role of the cost channel of monetary transmission, i.e. the cost-side effect of monetary policy.

The cost channel of monetary transmission has experienced particular attention in recent years. Barth and Ramey (2001) pioneered this field and identify supply-side effects of monetary policy that

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E-mail address: peter.tillmann@snb.ch

[1] Boivin and Giannoni (2006), for example, find a reduced effect of monetary policy in the post-1980 period. Likewise, Höppner et al. (2008) find that the impact of monetary policy shocks has declined.

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accompany the conventional demand-side channel. If firms hold working capital, the authors argue, they rely on borrowing from financial intermediaries. Monetary policy therefore impacts on the cost-side of the economy. Consider the case of a monetary thightening that leads to a rise in the short-term interest rate. Higher interest rates translate into higher costs of working capital and induce a rise in inflation. Ravenna and Walsh (2006), Chowdhury et al. (2006), and Tillmann (2008) document the role of the cost channel for inflation dynamics of major industrial countries. These papers, however, estimate the cost channel over a sample period of many decades covering different stages of the business cycle, different policy regimes and, most importantly, changes in the structure of financial intermediation. Their results, therefore, cannot uncover the time-varying nature of the cost channel of monetary transmission.

Only Barth and Ramey (2001) provide a-theoretical vector autoregressive evidence on the behavior of the cost channel over different subperiods. They split the sample and find a reduced importance of the cost channel in the post-1979 period in their VAR study. They offer three reasons for a reduced importance: (i) financial innovations and deregulation increased the availability of working capital. (ii) In the earlier period contractionary policy was accompanied by "credit actions", in which the Fed sought to directly limit the amount of bank lending. (iii) Due to the shift to flexible exchange rates, a monetary contraction appreciates the exchange rate and dampens cost pressure by making imported materials cheaper. A fourth reason could be added: given that financial intermediaries play a crucial role in propagating interest rate shocks to the cost-side of the economy and, finally, to inflation, financial frictions affect inflation dynamics in the presence of a cost channel and multiply monetary policy impulses.

Financial market imperfections and, in particular, the ability to borrow working capital are important elements of this supply-side mechanism of monetary transmission. Since the cost channel is based on the transmission of policy impulses through bank lending, it is likely that the cost channel evolves as financial markets develop and, hence, the availability of working capital changes.[2]

For that purpose, this paper provides rolling-window estimates of an augmented New Keynesian Phillips curve and shows that the cost channel exhibits important time-varying dynamics. As a general pattern, we find that the cost channel was most important in the pre-Volcker period and less important in the Volcker–Greenspan era. Recently, however, the cost channel has regained importance. Prima facie evidence suggests that the dynamics of the cost channel reflects the cyclical nature of financial frictions.

The remainder of this paper is organized as follows. Section 2 incorporates the cost channel into an otherwise standard empirical model of the New Keynesian Phillips curve. Section 3 provides full-sample, sub-sample as well as rolling-window empirical estimates of the augmented Phillips curve. The results are interpreted in Section 4. Section 5 finally concludes with some perspectives for future research.

2. The cost channel in a New Keynesian Phillips curve

Monetary policy shocks are usually thought of as affecting the economy through their impact on aggregate demand. In a widely cited study, Barth and Ramey (2001) provide aggregate and industry-level evidence for the hypothesis that monetary policy impulses also have important supply-side effects that accompany the impact on the demand-side of the economy. They refer to the cost channel of monetary transmission and find that for some industries the cost channel is the primary channel of monetary transmission.

The mechanism behind the cost channel is the following. Monetary policy shocks have an impact on firms' costs of production if firms hold working capital. Firms that must pay their factors of production before they receive revenues from selling their products need to borrow from financial intermediaries. Thus, a rise in the short-term interest rate directly translates into higher costs of working capital. Even if firms do not hold working capital borrowed from banks, their opportunity costs of internal funds rise

[2] The changing nature of U.S. financial markets and its implication for monetary policy transmission is analyzed by Sellon (2002).