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The impact of the ECB's conventional and unconventional monetary policies on stock markets☆

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ABSTRACT

Using an event study method, we examine how stock markets respond to the policies of the European Central Bank during 1999–2015. We use market prices of futures (government bonds) to identify surprises in (un)conventional monetary policy. Our results suggest that especially unconventional monetary policy surprises affect the EURO STOXX 50 index. We also find evidence for the credit channel, notably for unconventional monetary policy surprises. Our results also suggest that value and past loser stocks show a larger reaction to monetary policy surprises. These results are confirmed if identification of monetary policy surprises is based on the Rigobon–Sack heteroscedasticity approach.

1. Introduction

Analysts pay close attention to changes in monetary policy as such changes, particularly if they are unexpected, can influence stock market returns. The dividend discount model for equity valuation suggests two ways through which monetary policy affects stock prices. First, monetary policy can affect the discount rate for future cash flows. Second, as monetary policy can potentially affect output in the short to medium term it may affect expected cash flows themselves (Patelis, 1997; Kontonikas and Kostakis, 2013).

Most research on the stock market reactions to monetary policy (surprises) focuses on the United States (e.g. Pearce and Roley, 1984; Patelis, 1997; Thorbecke, 1997; Bernanke and Kuttner, 2005; Ehrmann and Fratzscher, 2004; Chuliá et al., 2010; Kontonikas et al., 2013; Kontonikas and Kostakis, 2013; Unalmis and Unalmis, 2015). Following the event study method of Bernanke and Kuttner (2005), which has been widely used also in recent research, we examine how stock markets respond to the policies of the European Central Bank (ECB). However, to check whether our findings are affected by the use of the event study approach, we also apply the identification through heteroscedasticity approach suggested by Rigobon and Sack (2004), which relies on much weaker assumptions than the event study approach.

☆ The views expressed do not necessarily reflect the official views of the Central Bank of the Republic of Turkey or De Nederlandsche Bank.

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Our sample period (4 January 1999 to 27 February 2015) includes the crisis period. This has two implications. First, while under normal circumstances monetary easing will increase stocks prices, in times of crisis a decrease in the policy rate may signal to investors that future economic conditions are worse than expected. If so, stock returns may decrease (Kontonikas et al., 2013; Hosono and Isobe, 2014). We therefore examine whether the impact of ECB monetary policy surprises is different in crisis and non-crisis years. Second, unlike other central banks, the ECB had introduced unconventional monetary policies early in the crisis (i.e. well before it hit the so-called zero lower bound or ZLB) and for some time used conventional and unconventional policies simultaneously (Cour-Thimann and Winkler, 2013; de Haan et al., 2015). The use of unconventional instruments has implications for the identification of monetary policy surprises. Like many previous studies, we follow the approach suggested by Kuttner (2001) to identify surprises in conventional monetary policy. This approach is based on the notion that futures prices reflect market expectations of future policy rates. A monetary policy surprise can be represented by the difference between the futures rate before the policy announcement and the announced policy rate. However, with unconventional policy there is no clear measure of the central bank's policy stance and it is not straightforward to determine policy expectations (Rogers et al., 2014). To identify unconventional monetary policy surprises we follow the approach suggested by Rogers et al. (2014), which is based on changes in the yield spread between German and Italian 10-year government bonds at the day of a policy announcement. The motivation is that the ECB's unconventional monetary policies were to quite some extent aimed at reducing intra-euro area sovereign spreads.

A crucial issue in empirical research on the impact of monetary policy surprises on stock prices is endogeneity, since monetary policy can react to stock market developments. However, as pointed out by Kontonikas et al. (2013), the problem of endogeneity should be less of a concern when daily data are used within an event study framework, like in the present study. Monetary policy is unlikely to be affected by changes in asset returns on the same day, so that the likelihood that our results are contaminated by reverse causality running from stock prices to changes in monetary policy is minimal (see also Fratzscher et al., 2014). Furthermore, one-day windows are unlikely to be contaminated by other pieces of news.

We not only examine the reaction of the EURO STOXX 50 index to (conventional and unconventional) monetary policy surprises but also analyse the reaction of several portfolios of stocks. Some previous studies have shown that the response to monetary policy surprises differs across sectors. For instance, Bernanke and Kuttner (2005) report that high-tech, telecom and durable goods stocks respond quite strongly to unanticipated Fed policies, whereas energy, utilities and nondurables stocks only show a mild reaction. However, this pattern may be different during a crisis period as reported by Kontonikas et al. (2013). We therefore also examine differences between the response of different portfolios to monetary policy surprises before and during the crisis.

Peersman and Smets (2005) argue that the interest rate channel of monetary policy implies that the response to monetary policy surprises should differ across sectors depending on the interest-elasticity of the demand for their products. We therefore examine the impact of monetary policy surprises on stocks for 19 sectors. Likewise, the credit channel implies that sectors will be more affected by monetary policy surprises, the stronger their dependence on bank funding (Peersman and Smets, 2005). We therefore use portfolios based on firm characteristics such as size, the free cash flow to income ratio, the financial leverage ratio, and the debt-to-equity ratio. In addition, following Kontonikas and Kostakis (2013) we explore two other stock characteristics, namely value versus growth stocks, and momentum. A value (growth) stock is defined as a stock with a relatively low (high) price when taking its fundamentals into account. It can therefore be characterised by a low (high) market-to-book and price-to-earnings ratio. Value stocks are more sensitive to rising interest rates than growth stocks, since value stocks rely on high cash flows relative to their stock price. Momentum is included as past performance might reflect the stock's sensitivity to overreactions. Based on VAR estimates, Kontonikas and Kostakis (2013) report that in the US past losers are more sensitive to monetary policy shocks than past winners. Although some older studies have examined whether different portfolios of stocks respond differently to ECB policy surprises (see Section 2 for further details), most recent studies only consider the reaction of some stock market index to ECB policy surprises. We also analyse whether different portfolios react differently to conventional and unconventional policy surprises.

The papers that come closest to our research are the studies by Kontonikas and Kostakis (2013) and Rogers et al. (2014). The first study also focuses on the impact of monetary policy surprises on portfolios of stocks but refers to the Federal Reserve (while we focus on the ECB) and relies on a VAR model instead of an event study approach and the Rigobon–Sack heteroscedasticity approach like the present study. We follow a similar approach as Rogers et al. (2014), but there are two important differences. First, Rogers et al. (2014) do not consider how different portfolios of stocks react to ECB monetary policy surprises. Second, they also do not consider conventional monetary policy surprises while this is important, as the ECB for some time has used conventional and unconventional monetary policies at the same time.

Previewing our results, we find that especially unconventional monetary policy surprises affect the EURO STOXX 50 index. Our results provide (weak) evidence for a credit channel before the financial crisis. During the crisis, we find strong support for the presence of a credit channel for unconventional monetary policy surprises. In particular, stocks of firms that are either highly leveraged respond stronger to policy surprises. Finally, our results suggest that value and past loser stocks show a larger reaction to monetary policy surprises.

In summary, our study contributes to the literature in five ways. First, we examine the impact of ECB monetary policy surprises on stock prices since the start of the common monetary policy. Second, we distinguish between the impact of unexpected conventional and unconventional monetary policy decisions and show that both conventional and unconventional monetary policy surprises affect the EURO STOXX 50 index. Third, we examine the impact of changes in the ECB policies on returns of several portfolios sorted on firm characteristics and past performance. This provides evidence for the credit