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Unconventional monetary policies and the corporate bond market ☆

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ABSTRACT

The paper uses a reduced-form vector autoregressive framework to study the effects of quantitative easing and operation "twist", as well as a conventional monetary expansion, on corporate bond yields and spreads. We construct rating- and maturity-based weekly bond portfolios using TRACE and simulate monetary policies as shocks to the Treasury yield curve. We find that none of the policies can persistently lower corporate spreads, and that operation twist is the only policy capable of lowering corporate yields. This latter finding can be accounted for by the operation twist's ability to keep the monetary base constant and, therefore, to flatten the riskless yield curve without generating inflationary expectations.

1. Introduction

As the US economy continued to falter during the financial crisis despite the near-zero federal funds rates, the Federal Reserve resorted to unconventional monetary policies. The Large-Scale Asset

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Purchases program, commonly known as quantitative easing (QE), was introduced in November 2008 and the Maturity Extension Program, known as operation "twist" (OT), was launched in March 2009. The objective of these policies was to reduce the yields on Treasuries as well as on corporate bonds, thereby lowering costs of borrowing. In light of this objective and the significance of debt financing for US firms, it is important to understand the expected effects of QE and OT on the yields and spreads of corporate bonds with different ratings and maturities. This is the goal of our paper.

Unlike much of the existing literature (e.g.,Gagnon et al., 2011; Krishnamurthy and Vissing-Jorgensen, 2011; Hamilton and Wu, 2012; Wright, 2012; D'Amico and King, 2013), we do not conduct an ex-post analysis and instead opt for an a priori investigation of the effects that monetary policies could be expected to generate at the time of their implementation. Researchers have lamented that confounding effects, such as the simultaneity of macroeconomic shocks, complicate the evaluation of monetary policies (e.g., Gilchrist and Zakrajšek, 2013), and our a priori, full-sample approach allows us to circumvent these difficulties. We study the data from 2004 to 2012, which includes the financial crisis but it is not limited to it (e.g., differently from Wright, 2012). Finally, we construct corporate bond portfolios using raw transactions data, which allows us to obtain more accurate results vs. studies that have relied on indices (e.g., Longstaff, 2010).

The vast majority of monetary policy operations are implemented via purchases and sales of Treasuries, and previous research has shown that Treasury transactions affect Treasury yields (e.g., Gagnon et al., 2011; Krishnamurthy and Vissing-Jorgensen, 2011; Hamilton and Wu, 2012). Accordingly, we simulate QE and OT, as well as a conventional monetary policy, as shocks to the Treasury yield curve. We then use a reduced-form vector autoregressive (VAR) framework to compute responses of each of the series in the system. Section 2 presents the methodology and describes our portfolio construction approach, Section 3 reports the results, and Section 4 concludes.

2. Data and empirical strategy

2.1. VAR model and impulse response functions

VARs are commonly used in the literature to investigate complex relationships among time series and to assess the dynamic impact of shocks on a system of variables (e.g., Ang and Piazzesi, 2003; Longstaff, 2010). This methodology treats all variables symmetrically and obviates the need to impose structural restrictions on the data, which is particularly advantageous when economic theory does not provide guidance regarding the structure of the underlying model.

A VAR(p) can be represented as

$$Y_t = c + A_1 y_{t-1} + A_2 y_{t-2} + \cdots + A_p y_{t-p} + u_t \cdot u_t \sim N(0, \Sigma_u) \tag{1}$$

where p is the VAR order, $y_t \equiv (y_{1,t}, \ldots y_{m,t})'$ is a vector of endogenous variables, $c \equiv (c_1 \ldots c_m)'$ is a vector of intercepts, A_t are coefficient matrices, and $u_t \equiv (u_{1,t} \ldots u_{m,t})'$ is an innovation process such that $E(u_t) = 0$, $E(u_t u_t') = \Sigma_u$, and $E(u_t u_s') = 0$ for $s \neq t$. Since we are interested in understanding the dynamic effects of monetary shocks, we compute impulse response functions (IRFs) that trace the effects of shocks to (1) on the current and future values of corporate yields and spreads.[1] We also construct 95% confidence intervals for the IRFs using bootstrapping techniques (see, e.g., Kilian, 1998).

2.2. Corporate bond portfolios, yields and spreads

Two important issues plague fixed income research: bond markets are typically neither liquid nor transparent (e.g., Bessembinder et al., 2009), and the indices of corporate bond yields that are frequently used in the literature rely on both callable and non-callable bonds and thus may produce misleading results. We circumvent these issues by constructing from scratch our corporate yield and spread series using the Trade Reporting and Compliance Engine (TRACE). Our initial sample includes 68,813,471 trades occurred between October 1, 2004 and December 31, 2012. Since TRACE is known

[1] For details of the construction of IRFs see, for example, Hamilton (1994).

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