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Scarce collateral, the term premium, and quantitative easing

Stephen D. Williamson¹

Federal Reserve Bank of St. Louis, St. Louis, MO 63102, USA

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Abstract

A model of money, credit, and banking is constructed in which the differential pledgeability of collateral and the scarcity of collateralizable wealth lead to a term premium – an upward-sloping nominal yield curve. Purchases of long-maturity government debt by the central bank are always a good idea, but for unconventional reasons. A floor system is preferred to a channel system, as a floor system permits welfare-improving asset purchases by the central bank.

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1. Introduction

In many monetary systems, including the one currently in place in the United States, conventional monetary policy consists of the choice of a target for a short-term nominal interest rate, and an operating policy for hitting that target through purchases and sales of short-term gov-

E-mail address: swilliamcon@gmail.com.

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ernment debt by the central bank. Unconventional monetary policy in such a monetary system, for example post-financial crisis in the United States, can include promises about future policy actions (forward guidance), the purchase of large quantities of long-maturity government debt, and the purchase of securities backed by the payoffs on private assets. In this paper, our focus will be on the effects of unconventional monetary policy in the form of central bank purchases of long-maturity government debt, typically referred to as “quantitative easing,” or QE.

QE is typically attempted in circumstances in which the central bank would like to “ease” by reducing its target for the short-term nominal interest rate, but this nominal interest rate is constrained by the zero lower bound. Central bankers have reasoned that, in such circumstances, there are other ways to ease than purchasing short-term government debt. So, these central bankers argue, if easing typically works by lowering short-term yields, why not ease by lowering long-term yields? And, if a central bank eases conventionally by purchasing short-maturity debt so as to reduce short yields, it seems it should ease unconventionally by purchasing long-maturity debt so as to reduce long yields.

But why should QE work? A central bank is a financial intermediary, and any power that it has to affect asset prices or real economic activity must stem from special advantages it has as a financial intermediary, relative to its counterparts in the private sector. For example, the reasons that conventional open market operations matter must stem from the central bank’s monopoly over the issue of particular types of liquid liabilities. In particular, central banks issue currency, and they operate large-value payments systems that use outside money (reserve accounts) for clearing and settlement. If the central bank purchases short-maturity government debt by issuing outside money, then that should matter, as private financial intermediaries cannot do the same thing.

But QE, conducted at the zero lower bound, is different. In a situation where private financial intermediaries are holding excess reserves at the zero lower bound, QE amounts to a purchase of long-maturity government debt financed by the issue of reserves. In these circumstances, the central bank is turning long-maturity government debt into short-maturity debt, as the reserves are not serving a transactions role, at the margin. But private sector financial intermediaries can do exactly the same thing. Indeed, private banks are in the business of transforming long-maturity debt into short-maturity debt. In situations like this, we would expect policy neutrality – QE should be irrelevant at the zero lower bound when private financial intermediaries are holding excess reserves. Neutrality theorems – for example [Wallace \(1981\)](#) or the Ricardian equivalence theorem – work in exactly this way.

But central bankers apparently think that QE works. To the extent that economic theory is marshalled to support QE as a policy, central bankers appeal to “preferred habitat” ([Modigliani and Sutch, 1966](#); [Vayanos and Vila, 2009](#)) or “portfolio balance” ([Tobin, 1969](#)) theories of the term structure of interest rates, which at root seem to be based on a similar financial friction – market segmentation. If asset markets are sufficiently segmented, in that there are frictions to arbitraging across markets in short and long-maturity debt, then central bank manipulation of the relative supplies of short and long-maturity debt will cause asset prices to change. But again, the central bank is not the only financial intermediary that can change the relative supplies of debt outstanding. Private financial institutions can intermediate across maturities in response to profit opportunities, arising from market demands for assets of different maturities.

Since market segmentation does not give an obvious rationale for QE, we take another approach in this paper. In the model constructed here, private financial intermediaries perform a liquidity transformation role, in line with [Diamond and Dybvig \(1983\)](#), and with some details that come from [Williamson \(2012\)](#). But these private financial intermediaries are inherently

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