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Breaking up isn't hard to do: Interest on reserves and monetary policy

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ABSTRACT

In October 2008, the Federal Reserve shifted from a federal-funds-rate target and zero interest on bank reserves to a regime with an identical interest rate on required and excess reserves, set above its targeted federal funds rate. The move established at least two possible regimes of bank behavior. This paper examines the effect of Fed payment of different interest rates on required and excess reserves. It also sketches how the corresponding model of bank behavior can be extended to allow for interbank borrowing and lending along with market-clearing in the interbank loan market. The Fed's regime shift to banks holding positive excess reserves and minimal interbank lending strengthens the effect on bank credit of its current primary policy instrument, the interest rate on excess reserves, relative to the effect of its previous primary instrument, the federal funds rate. This regime also mitigates impacts of deposit supply shocks on bank credit volatility while boosting the impacts of loan demand shocks. Although the Fed's payment of interest on required and excess reserves might be rationalized by a shift in the relative source of financial shocks, little basis exists for paying the same interest rate on both types of reserves. Indeed, if the Fed were to retain the post-October 2008 regime, different rates on excess reserves and required reserves could be set to reduce Fed interest payments to banks without compromising the effectiveness of monetary policy.

1. Introduction

Before October 2008, the Federal Reserve transmitted virtually no interest payments to banks. During 2016, in contrast, the Fed paid more than \$12 billion in interest on the required and excess reserve balances of banks, an amount that exceeded interest payments transmitted during 2015 by more than 40 percent (see [Board of Governors of the Federal Reserve System, 2017](#)). Given that banks' balances of excess reserves held with the Fed have exceeded \$2 trillion in recent years, each 25 basis point increase in the interest rate that the Fed pays on excess reserves alone has translated into an additional annual expense of more than \$5 billion for the Fed. Indeed, the Fed has projected that overall payments of interest to banks could rise to as high as \$50 billion per year (see, for instance, [Economist, 2017](#)). Do tens of billions of dollars of interest payments on excess reserves constitute an unnecessary, “substantial taxpayer subsidy” ([Tatom, 2014, p. 55](#)) to U.S. and foreign banks that hold excess reserves with the Fed? Is pushing up the Fed's total interest payments by setting the interest rates on excess reserves equal to the interest rate on required reserves necessary to ensure the monetary-policy effectiveness under interest-on-reserves, that the Fed established in October 2008?

A key conclusion of this paper is that whatever the answer to the first question may be, the answer to the second one surely is no.

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Although a monetary-policy-based justification can be offered for payment of interest on excess as well as required reserves, no compelling rationale exists for equalizing the interest rate on excess reserves (IOER) with the interest rate on required reserves (IORR). Indeed, the analysis conducted in this paper indicates that the IOER and IORR could be set at different—and, in fact, optimal—values with absolutely no consequences for the effectiveness of monetary policy. Such action could yield substantial interest savings for the Federal Reserve. For instance, we show that among the numerous optimal IOER-IORR combinations are combinations in which the Fed returns to a regime in which its key instrument is the federal funds rate instead of an identical interest rate paid on both required and excess reserve balances. Under such combinations, the Fed could continue to pay interest on required reserves, thereby mitigating the reserve-requirement tax yet substantially reducing or even eliminating its current billions of dollars in expenses on interest payments on excess reserves.

We establish these and other results reached in this paper within the framework of Dutkowsky & VanHoose (2017, 2018), which we discuss in the following section. This model allows us to conduct formal evaluation of monetary policy implications with regard to the shift from the Fed's pre-October 2008 regime with a federal-funds-rate target and no interest on reserves to the post-October 2008 regime with the IOER equal to the IORR and set at a level above the prevailing federal funds rate (see, for instance, Ihrig et al., 2015). Our investigation here extends the Dutkowsky and VanHoose (2017) model to examine the Fed using different rates of interest on required and excess reserves. This analysis reveals that with its policy stance the Fed can choose the regime in which banks will operate, based upon the relative magnitudes of the federal funds rate and the IOER. Then within either regime, the Fed can conduct monetary policy by using policy instruments appropriate to the given environment.

We show in Section 3 how the Fed's policy shift in October 2008 has led to a stronger effect on aggregate bank credit of changes in its new primary policy instrument, the interest rate on excess reserves, relative to the effects of its previous primary instrument, the federal funds rate during the pre-October 2008 regime. In addition, we explain how the interest-on-reserves regime tends to mitigate the impacts of shocks to the public's supply of deposits on the volatility of aggregate bank credit while exacerbating the impacts of shocks to the public's demand for loans on the volatility of aggregate bank credit.

We also provide in Section 3 an illustrative example in which the Fed regards bank credit as an intermediate policy target, to provide a possible motivation for choosing the interest-on-reserves regime over the regime with the federal funds rate as the primary monetary policy instrument. We show why, when confronted with a significant increase in the volatility of deposit supply shocks relative to the variability of loan demand shocks, an incentive exists for the Fed to switch to the former regime from the latter. Thus, to the extent that such a change in relative preponderance of shocks might have occurred during the recent financial crisis, our analysis provides a theoretical rationale for the Fed's shift to a regime in which it offers interest on excess reserves at a rate sufficiently higher than the federal funds rate.

Section 4 provides a preliminary examination of setting the IORR at a different level than IOER in the course of conducting monetary policy under either policy regime. Implications of payment of interest on reserves had been contemplated well in advance of the Fed's October 2008 regime shift; see, for instance, VanHoose (1991, pp. 358–361) and Goodfriend (2002). These authors and others writing in the immediate aftermath of the recent crisis, such as Keister and McAndrews (2009), had assumed that the Fed would set the interest rate on reserves at the lower end of its target range for the federal funds rate. However, as discussed by Goodfriend (2015) and Dutkowsky & VanHoose (2017, 2018), with the exception of very brief intervals following October 2008, the Fed persistently has set the IOER equal to the IORR and at the top of its target range for the federal funds rate. Given behavior in the interbank loan market, the IOER has consistently exceeded the federal funds rate as a result.¹

In Section 4, we investigate whether setting the IOER equal to the IORR would be necessary for the Fed to conduct a bank-credit intermediate-targeting monetary policy procedure effectively under an interest-on-reserves-based regime. Our unambiguous conclusion is that equivalence of the two interest rates on reserves is by no means required to achieve such a policy objective. Indeed, our analysis indicates that the Fed could attain such an objective by paying an IOER that differs from the IORR and have a considerably greater set of choices in conducting monetary policy in the process. Section 5 provides a straightforward extension of the above model to consider interbank borrowing and lending along with clearing in the interbank loan market. It shows that with the presence of government-sponsored enterprises (GSEs) which do not receive interest from the Fed on their reserves, under a federal funds rate target market-clearing with interbank loans can readily take place in either regime.

Consequently, we conclude in Section 6 that the Fed could break up the equivalency between the IOER and the IORR without adversely affecting its ability to conduct monetary policy effectively within either policy regime. In so doing, the Fed could significantly reduce its total interest payments on reserves and thereby substantially reduce the associated substantial additional interest-expense burden associated with the current policy procedure. Moreover, the Fed would gain wider latitude for responding to the next recession and for returning ultimately to a policy regime more attuned with the pre-October 2008 state of “normalcy.”

2. The model and its implications for determinants of bank loans and deposits

To conduct our monetary-policy analysis, we begin by extending the model of a competitive banking system developed by Dutkowsky & VanHoose (2017, 2018) to consider an IOER that in principle can either equal or differ from the IORR. In contrast to models employed in analyses of the interest-on-reserves policy procedure by Ireland (2012); Dressler and Keating (2015), and

¹ Bech and Klee (2009) and Goodfriend (2015) discuss this behavior further, and we also address it in section 5. In this regard, the Fed may in fact set the target range for the federal funds rate, IOER, and IORR realizing that bank borrowing behavior from GSEs will result in the federal funds rate being below the IOER.

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