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The Volcker Rule and corporate bond market making in times of stress☆

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ABSTRACT

Focusing on downgrades as stress events that drive the selling of corporate bonds, we show that the illiquidity of stressed bonds has increased after the Volcker Rule. Dealers regulated by the rule have curtailed their market-making activities and non-Volcker-affected dealers have not offset the decreased activities of Volcker-affected dealers. Furthermore, even Volcker-affected dealers that are not constrained by Basel III and Comprehensive Capital Analysis and Review regulations change their behavior, inconsistent with the effects being driven by these other regulations. Because Volcker-affected dealers have been the main liquidity providers, bonds have become less liquid during times of stress due to the Volcker Rule.

"It may be also that, even if liquidity is adequate in normal conditions, it has become more fragile, or prone to disappearing under stress."
— Governor Jerome H. Powell,
Board of Governors of the Federal Reserve System

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1. Introduction

Among the many regulatory changes following the 2007–2009 financial crisis, few are more controversial than the Volcker Rule. Enacted as part of the 2010 Dodd–Frank Wall Street Reform and Consumer Protection Act, the Volcker Rule was intended to limit bank risk taking by restricting or prohibiting certain speculative activities. Critics (e.g., Duffie, 2012) contended that an unintended consequence of the rule could be diminished bond market liquidity, resulting from a reduction in banks' market-making activities. Advocates of the rule disagreed, arguing that non-Volcker-affected dealers could compensate for any market-making reductions, leaving liquidity essentially unchanged. Settling this debate has taken on new urgency given the current discussions surrounding repeal or revision of the Volcker Rule by the Trump administration.[1]

In this paper, we provide an empirical analysis of the impact of the Volcker Rule on liquidity for corporate bonds, particularly during stress events. We focus on determining if bond market liquidity has changed post-Volcker in such stress periods and, if so, why. Practitioners and policy makers alike have noted that illiquidity in times of stress is the more relevant metric for gauging market stability and performance, as that is when liquidity is needed most.[2] Motivated by Ambrose et al. (2008) and Ellul et al. (2011), who find evidence of forced selling of downgraded bonds induced by regulatory constraints imposed on insurance companies, we use downgrades of corporate bonds to junk status as stress events in which liquidity is demanded by clients.[3] Concentrating on regulation-induced sales has the added advantage of plausibly preventing investors from optimally timing their trades, thereby providing a more reliable estimate of the liquidity conditions that investors face in times of stress. Furthermore, the reporting metrics imposed by the Volcker Rule have direct implications about the willingness of affected dealers to take on large inventories of any individual bonds that would be hard to turn over, exactly the liquidity provision needed around regulation-induced fire sales.

Our focus is on a difference-in-differences test comparing the illiquidity of downgraded corporate bonds with a baseline control group both before and after the Volcker Rule was implemented. The first difference is the difference in price impact between a set of bonds recently downgraded to speculative grade from investment grade and a set of BB bonds used to control for the general level of illiquidity. The second difference is between the post-Volcker difference and the pre-Volcker difference. Our main result is that bond liquidity deterioration around rating downgrades has worsened following the implementation of the Volcker Rule. We find these adverse effects whether we benchmark to the precrisis period or to the period just before the Volcker Rule was enacted.

We then turn to understanding why these effects have arisen by investigating Volcker Rule – induced changes in dealer behavior, with a focus on any differential effects on Volcker-affected versus non-Volcker-affected dealers. Because the Volcker Rule applies to only banks with access to government backstops (such as deposit insurance or Federal Reserve borrowing), other dealers without such access are unlikely to reduce their market making in response to the Volcker Rule. In principle, they could even step in to provide liquidity in cases in which the lines between permissible market making and prohibited proprietary trading are blurred. Our second major result is that liquidity deterioration in post-Volcker stress periods featured less liquidity provision by Volcker-affected dealers, with only weak evidence of increased liquidity provision by non-Volcker-affected dealers.

We show that liquidity provision by Volcker-affected dealers dropped during post-Volcker stress times and by non-Volcker-affected dealers has not increased enough to compensate for this decline. In the post-Volcker period, the relative share of dealer–customer trades taken by non-Volcker dealers increased. Dealers affected by the Volcker Rule see an economically and statistically significant increase in agency trades, or trades in which the dealer prearranged an offsetting trade so as not to have inventory risk. They have also committed significantly less capital in market making. For non-Volcker dealers, no such effects are evident on both agency trades and capital commitment in the post-Volcker period. Combined with our results on the increased illiquidity during the post-Volcker period, these results demonstrate that while non-Volcker dealers hypothetically could step in and provide additional liquidity in the long run, concerns about the unintended effects of the Volcker Rule were well founded as such change has not yet happened.[4] At least during our sample period, no evidence exists of sufficient additional liquidity provision by non-Volcker-affected dealers to offset the decreased liquidity in bank bond market trading.

A natural concern is whether our results are related to the Volcker Rule or instead arise from other important regulations on dealer bond market behavior, such as Basel III and Comprehensive Capital Analysis and Review (CCAR) stress testing. To disentangle these effects, we focus on the implementation period of the Volcker Rule as compared with the period just before implementation. We also split dealers by their exposure to Basel III. Though most banks' capital ratios are significantly above Basel III minimums, increased Basel III capital requirements along with CCAR constraints could induce some banks to reduce their market-making activities. These CCAR constraints

[1] See, for example, Tracy and Carney (2016), DiPietro (2016) and New York Times (2016).

[2] See recent comments in Deutsche Bank Research (2016) and testimony in Powell (2016) that even if liquidity is high in normal conditions, it can become more troublesome in periods of stress.

[3] Though our paper focuses on firm-level stress events, it is well-known that liquidity deteriorates significantly in macroeconomic stress events. See, for example, Bao et al. (2011), Dick-Nielsen et al. (2012), and Friewald et al. (2012) for evidence of liquidity deterioration during the recent financial crisis. See also Eom et al. (2004) and Huang and Huang (2012) for a broader discussion of corporate bond illiquidity and bond pricing. Acharya and Richardson (2009) argue that insurance companies can pose systemic risks through their holding of corporate bonds. See also Huang et al. (2016) for a discussion of insurer corporate bond holdings.

[4] See Federal Register (2014) on the Volcker Rule for details of comment letters. Liquidity deterioration was particularly severe during the height of the financial crisis.

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