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Repos, fire sales, and bankruptcy policy ☆,☆☆

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ABSTRACT

This paper studies the optimal bankruptcy policy for repurchase agreements (repos) with respect to their exemption from the automatic stay of bankruptcy. The exemption from automatic stay has been one of the key contributors to the development of the repo market as a major source of funding for many financial market participants. At the same time the exemption has raised concerns that the default of a large institution could cause externalities on other markets, in the form of *fire sales*. We find that exempting repos from the automatic stay may increase the size of the repo market by enhancing the liquidity of collateral, but it can cause fire sales that are associated with reductions in real investment. Hence, policy makers face a trade-off between the benefits of investment activity and the benefits of liquid repo markets.

1. Introduction

A repurchase agreement (repo) is a borrowing arrangement where one party, the borrower, sells a security to another party, the lender, for cash, and then repurchases the security back from the lender at some future date at a predetermined price. The security that the lender holds in between the purchase and repurchase dates is typically referred to as collateral. Under the US Bankruptcy Code, most contracts are subject to an automatic stay when a debtor files for bankruptcy. An automatic stay prevents creditors from initiating collection actions against a bankrupt debtor or his property.[1] Because collateral is considered to be a lien on the debtor's property, a stay prevents the creditor from, e.g., liquidating the collateral.[2]

☆ The analysis and conclusions set forth are those of the authors and do not indicate concurrence by other members of the research staff, the Board of Governors or the Federal Reserve System.

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[1] For an account of the changes in the application of bankruptcy law to repos, see Garbade (2006). Also notice that in the case of banks taken over by the FDIC or systemically important financial institutions under Dodd–Frank, there may be a stay for a limited time even for qualified financial contracts (QFCs).

[2] Generally speaking, the purpose of an automatic stay is to prevent the destruction of value that can occur when creditors make a *mad dash* to seize the assets of the bankrupt firm. To the extent that the assets used as collateral are financial assets rather than real assets, the destructiveness of this *grab race* is less of a consideration, and so in this paper we focus on the effects of a rush to sell these assets in a less-than-perfectly liquid market.

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Under current bankruptcy rules, a repo contract is exempt from the automatic stay, which implies that the repo lender can liquidate the collateral in the event of a borrower default. This exemption was a result of a coordinated effort by market participants who wanted the benefit of secured lending while, at the same time, retaining full ownership over the collateral.[3] It has been claimed that the exemption from the automatic stay was instrumental to the development of a deep and liquid repo market.[4]

Recently, the exemption from automatic stay has raised the following concern. Because large financial institutions rely extensively on repo finance, a default in one or more of these institutions could trigger a large price decline—a fire sale—for the collateral that repo lenders sell into the market.[5] It has been suggested that these fire sales can have negative macroeconomic consequences since the net worth of "unrelated" financial and non-financial institutions (holding the same assets as the collateral that lenders liquidate) falls. Lower net worth implies that these institutions' ability to undertake investments—real and financial—will be impaired.

We develop a model of securitized loans and repo finance to examine the effects that an exemption from an automatic stay has on the size of the repo market and asset prices following the default of a repo borrower. In the model, the optimal loan contract is one that is backed by collateral. If there is an exemption from the automatic stay, then the loan contract is a repo; if not, then the loan contract is a securitized loan. In the event of a borrower default, the lender has an incentive to liquidate his repo collateral. This sale *may* have adverse consequences on (unrelated) real investors. It will *not* have negative consequences if repo lenders are selling their collateral into a liquid market. It *will* have adverse affects if the repo lenders are selling into a market that is not "liquid." In this case, our financial trading friction—which generates a congestion externality—implies that the sale of collateral by repo lenders crowds out real investment.

If markets for the collateral are liquid, then an exemption from the automatic stay is a welfare improving policy. An exemption from the automatic stay expands the size of the repo market—which increases welfare in our model—and does not have any adverse consequences for real investment. If markets are not liquid, however, then the policy maker faces a trade-off. An exemption increases the volume of trades in the repo market, but at the expense of real investment. An imposition of the automatic stay has the opposite effects. We find that if the benefit associated with allowing repo lenders to liquidate their collateral exceeds the cost associated with lower levels of real investment, then the policy maker should exempt repo contracts from the automatic stay. If these benefits and costs are reversed, then the policy maker should impose the automatic stay.

Our basic results are consistent with the empirical evidence that favors high quality and liquid assets like Treasuries and Agency securities as collateral for repo funding.[6] In 2008 only 25% of repo collateral was non-government and non-agency securities (mostly equities, corporate bonds and private-label asset backed securities (ABS) as shown in NewYorkFed, 2014b). This share dropped to 15–18% in 2009 and has remained stable. Moreover, at the onset of the crisis and going forward, only about 3% of outstanding private-label ABS were used as repo collateral in the tri-party repo market[7] and, even before then, they accounted for a much smaller share of the market.[8] Therefore, even for less liquid assets, the fraction that would be exempt from automatic stay due to repo agreements is small enough not to cause a market disruption.[9]

Our paper focuses on the trade-off between the liquidity of the repo market and the potential effects that fire sales related to the exemption from the stay have on the rest of the economy. This trade-off, known to the legal literature (Roe, 2011), is in part described by Duffie and Skeel (2012) who outline costs and benefits associated with safe harbors. Our results formalize their intuition and extend it in some dimensions: in our model, for repos backed by liquid securities there is no trade-off and they should be exempt from automatic stays (as suggested in Duffie and Skeel, 2012). For repos backed by illiquid assets, on the other hand, while Duffie and Skeel (2012) advise that no exemption should be granted, we find that there is an additional trade-off. Depending on the relative size of lenders' insurance against the default of repo borrowers and the disruption of productive investment, exemption from automatic stay may still be optimal.

The paper that is most closely related to ours is Acharya et al. (2012) who also examine the costs of bankruptcy-induced fire sales and argue that the automatic stay provisions for repos may be ex-post optimal when repo borrowers are highly levered. This is also one of our results. Infante (2013) studies how the exemption from automatic stay distorts firms' financing and investment decisions ex-ante due to the possibility of fire sales arising in equilibrium. Bolton and Oehmke (2011) focus on a different mechanism through which exemption from the stay may be undesirable: they argue against privileged

[3] Such as the borrower's right to coupon payments and to substitute securities (Garbade, 2006).

[4] See Garbade (2006) pp. 36, 37, Gorton and Metrick (2010), Krishnamurthy et al. (in press).

[5] See Adrian et al. (2012), Gorton and Metrick (2012), Singh and Aitken (2009). Also, some work Gorton and Metrick (2012), Martin et al. (2012), Begalle et al. (2013) has identified the freezing of the repo market as a key contributor to the recent financial crisis. Furthermore, evidence NewYorkFed (2014b) shows that even after the crisis, between 2010 and 2013, the share of repos of agency asset backed securities (ABS) was 30% of total repo collateral, and between 30% and 50% of it was held by the three dealers with the largest repo books. The concentration of assets in the books of a few big dealers is not directly analyzed in our model, but can be interpreted as a large value of the parameter Δ in Section 3.

[6] Especially since the summer of 2009. See Krishnamurthy et al. (in press), NewYorkFed (2014a, 2014b).

[7] See NewYorkFed (2014b). Furthermore, data on bilateral repos (available through the primary dealer statistics NewYorkFed, 2014a) show that agency securities, corporate bonds and equities are at best an order of magnitude smaller than US Treasuries.

[8] See Krishnamurthy et al. (in press), pp. 4, 21.

[9] Krishnamurthy et al. (in press) find that some market participants may hold portfolios that are very concentrated in such lower quality assets, which may amplify shocks to the repo market due to their systemic importance in this market. This disruption, however, works through a different channel than the one analyzed in this paper.

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