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Securities market theory: Possession, repo and rehypothecation ☆

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Abstract

By introducing repo markets we understand how agents need to borrow issued securities before shorting them: (re)-hypothecation is at the heart of shorting. Non-negative amounts of securities in the box of an agent (amounts borrowed or owned but not lent on) can be sold, and recursive use of securities as collateral allows agents to leverage their positions. A binding box constraint induces a liquidity premium: the repo rate becomes special and the security price higher than expected discounted cash-flows. Existence of equilibrium is guaranteed under limited re-hypothecation, a situation secured by (current or proposed) institutional arrangements.

JEL classification: D52; D53; G12

Keywords: Re-hypothecation; Repo; Leverage; Repo collateral multiplier; Short sale; Issuing; Collateral; Specialness; Security pricing

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1. Introduction

1.1. Motivation

Never as acutely before, has *repo*'s role in the provision of liquidity attracted as much attention from policy-markers, as in the context of the recent credit crisis.[1] Yet repo and term repos have always been widely used by the central bankers. The credit protection of the collateral made repo a tool of choice in the execution of open market operations to adjust money supply, mostly through government bonds repos. In particular, repo is routinely used to drain funds.[2]

It is now more evident, after the recent crisis, how intricate funding, leverage and pricing are. Policy makers tried to manage the leverage cycle by intervening in repo markets, providing selective funding to prevent disorderly de-leveraging. The repo market is where the short term scarcity of securities is priced. In the recent crisis it became quite clear that the ability of large holders of securities to fund their positions can have as much impact on security prices as the fundamental value of the securities. Without taking into account repo markets, one fails to model several important aspects of the security market, namely the difference between shorting and issuing a security, how leverage can be build up and securities can have a liquidity premium due to their use as collateral in repo.

1.2. Hypothecation theory

So far, security market models have not distinguished properly *shorting* from *issuing*. Whereas some models allowed for an initial supply of securities, it was not clear how one could sell what one was not endowed with. The distinction is important because the right to issue is granted to a few people only: for shares it is linked to control of a firm, for issuance of debt this can only be done by the executive of a firm or a government in accordance with owners (or voters), as it potentially exposes the entire debt issuing entity to bankruptcy. On the other hand, shorting is the activity of selling a security one just borrowed (but did not originally own). Agents' inability to issue should have a price impact, like most constraints or frictions. In the present paper we set up an institutional framework that clearly distinguishes shorting (by those that borrowed the security) and issuance (through initial endowments of the security). We focus here on shorting and for all purposes, we look at the situation after all issuance is finished.

The above distinction is the foundation for *(re)-hypothecation.* Once a market for lending securities is introduced, it would be impractical to require to find out if the agent in possession of the security is its original owner. In fact, rather than trying to find that out (like in the real-estate pre-transaction validation to know if a sale is legitimate), the securities market rules deal with the situation quite elegantly: it does not matter. The immediate rights of the agent in possession of the security title are the same as the ones of a full owner.[3] Any possessing agent can legitimately sell such a security or lend it further. This is what is called *re-hypothecation* of the security and is

[1] Funding and repos have been one of the main tools to normalize market conditions as funding becomes difficult. An example is the Term Auction Facility (TAF) program introduced by the Federal Reserve (official release: http://www.federalreserve.gov/newsevents/press/monetary/20071212a.htm).

[2] Usually, in these repo operations, no specific bond categories are targeted, with the exception of the innovative repo operations on specials by the Bank of England (see www.jdawiseman.com/papers/finmkts/opnot1609.pdf).

[3] There are collateralized funding markets in the securities world that do not obey this: the asset is pledged but the title not transferred. The asset back commercial paper (ABCP) market is an example.