Securities Lending as Wholesale Funding: Evidence from the U.S. Life Insurance Industry

Nathan Foley-Fisher, Federal Reserve Board
Borghan Narajabad, Federal Reserve Board
Stephane Verani, Federal Reserve Board

Executive Summary

Securities lending is a relatively little-known financial market operation that plays an important role in the functioning of both securities and funding markets. Receiving temporary ownership in exchange for cash or non-cash collateral, market participants borrow securities for a variety of purposes, including inventory management and taking short positions. Without this market, a large volume of securities would be tied up in institutions that naturally hold big portfolios of assets—such as pension funds, mutual funds, and life insurance companies—for asset-liability management or regulatory reasons. In the absence of detailed data on the decisions of securities lenders, researchers have tended to view the securities lending market as driven by security borrowers' demand, with securities lenders simply reinvesting the cash collateral they receive in short-term markets, such as tri-party sale and repurchase (repo).

Nathan Foley-Fisher, Borghan Narajabad, and Stephane Verani study new regulatory microdata on the loan and reinvestment decisions of all U.S. life insurers, and find that life insurers lend securities in order to create and maintain a substantial maturity and liquidity transformation by reinvesting a sizeable portion of their short-term cash collateral in long-term assets. By doing so, they can earn a higher return than if they reinvested the same cash in short-term assets. The new regulatory reports include data on which individual securities were on loan at the end of each year and how the cash collateral was reinvested. The degree of maturity transformation is measured as the fraction of the reinvestment portfolio that has a residual maturity of more than one year. The regulatory data reveal that, on average from 2011 to 2013, 17 percent of insurers' cash collateral was reinvested in assets with a residual maturity of more than one year.

The researchers find that the degree of maturity transformation on life insurers' reinvestment portfolio is a driver of their securities lending decisions, strongly suggesting that there is a supply-side component in the market for securities lending.

By combining the regulatory data on life insurers' securities lending programs with transaction-level information about the entire securities lending market, the researchers show that there is a severe identification challenge to establishing that life insurers' maturity transformation is a driver for their securities lending decisions. While the counterparties are anonymous, the terms of the transactions reveal a great deal about market conditions for individual securities. In particular, the researchers find evidence that securities lenders have market power and can affect the equilibrium "price" at which the securities are lent. This means that equilibrium market variables cannot be used to control for the demand of a security.

The strategy for identifying the effect of maturity transformation on lending decisions exploits the ability to observe both the securities that each insurer is lending and those securities that insurers are not lending. Previous studies of securities lending programs had access only to information about the securities actually on loan. The "ideal" empirical experiment consists of observing two life insurers with identical endowments of asset portfolios and finding an exogenous shock to the maturity transformation in one of those insurers' securities lending programs to estimate how the shock affected the insurer's propensity to lend securities. The new data allow the researchers to control for the demand for individual securities and approximate the ideal experiment.

They also develop a strategy to address the concern that the reported association between maturity transformation and securities lending may be a consequence of unobservable time-varying characteristics of the life insurers, for example their ability to lend securities. Variations in the unrealized losses on a life insurer's portfolio offer a way to identify the effect of an increase in maturity transformation on securities lending decisions. A life insurer can compensate for unrealized losses on its underlying portfolio by increasing the return on its cash reinvestment portfolio. The researchers find that a one standard deviation increase in the degree of maturity transformation in an insurer's securities lending program raises the likelihood that the insurer lends a given bond by 11 percentage points.

Long-term reinvestment of cash collateral from securities lending is a bank-like activity in which long-term assets are funded by short-term wholesale funding markets. And, analogous to short-term bank funding, the use of securities lending to fund long-term assets renders life insurers vulnerable to runs by securities borrowers. The potential consequences of these runs were evident during the 2007-2009 financial crisis, when cash collateral provided to securities lenders collapsed by about $1 trillion, forcing them to liquidate their short term positions to be able to return borrowers' cash. In the fourth quarter of 2008, securities lenders withdrew about $300 billion in tri-party repo funding. This study could not examine these runs in detail because the new regulatory data are available only for the post-crisis period. Nonetheless, the results reported suggest that securities lending remains a potential source of vulnerability for both the securities and funding markets.