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A new survey of the U.S. bilateral repo market: A snapshot of broker-dealer activity

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Abstract

We provide aggregate statistics on U.S. dealers' bilateral repurchase agreements and economically equivalent securities lending activities. The data were collected from the U.S.-affiliated securities dealers of nine bank holding companies under a voluntary pilot program run by the Office of Financial Research and the Federal Reserve System with input from the Securities and Exchange Commission. We find that the majority of this activity involves the delivery or receipt of U.S. Treasuries, with equities a distant second. The most common maturity is one day. Finally, rates are widely dispersed across asset classes.

Key words: bilateral repo, short-term funding, financial market

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1. Introduction

Repurchase agreements (repos) are financial contracts in which one party sells a security to the other with the promise to repurchase it at a later date for a pre-specified price. Securities dealers use repos to borrow funds on a collateralized basis, to provide funding to others, and to borrow or lend specific securities using cash as collateral. Repo markets are an important component of the U.S. financial system. They are a key source of funding for securities dealers and their clients, and a provider of secondary market liquidity for a variety of U.S. securities, such as U.S. Treasuries and agency mortgage-backed securities. They also play an important role in the pricing and price discovery of cash and derivatives instruments. However, repo contracts may also give rise to systemic risk in financial markets in the form of fire sales (e.g., see Begalle et al (2013)).¹

In the United States, the repo market can be separated into two segments based on differences in settlement. In triparty repos, clearing and settlement occurs through a settlement system operated by a clearing bank, a process that provides collateral valuation, margining and management services and ensures that the terms of the repo contract are met.² In contrast, for bilateral repo, the lender is responsible for the valuation and margining of the collateral pledged by the borrower.

Before the 2007-09 financial crisis, regulators and policymakers in the United States had only limited access to data on repo activity, which impeded their ability to identify emerging risks in these markets and make well-informed policy decisions. Since then, in line with the Financial Stability Board recommendation for a timely and comprehensive collection of repo data, steady progress has been made on data collection for repo activity that settles on the clearing banks' triparty repo platforms.³ Until now, however, U.S. regulators and policymakers have not collected detailed data on bilateral repo activity. As emphasized in Baklanova, Copeland, and McCaughrin (2015), addressing this data gap is important because bilateral trades constitute a major segment of the U.S. repo market.

In 2014, the Office of Financial Research and the Federal Reserve System, with input from the Securities and Exchange Commission, launched a voluntary pilot data collection focused on the bilateral repo market. Nine bank holding companies (BHCs) participated in the pilot on a voluntary basis, reporting trades executed by all of their U.S. BHC-affiliated securities dealers. Although the pilot initially focused on collecting data on bilateral repo trades, we broadened the pilot on advice from participating dealers to include economically equivalent trades documented

¹ Related to the issue of systemic risk, Gorton and Metrick (2012); Copeland, Martin, and Walker (2014), and Kristnamurphy, Nigel, and Orlov (2014) describe various mechanisms through which runs can occur in the repo markets.

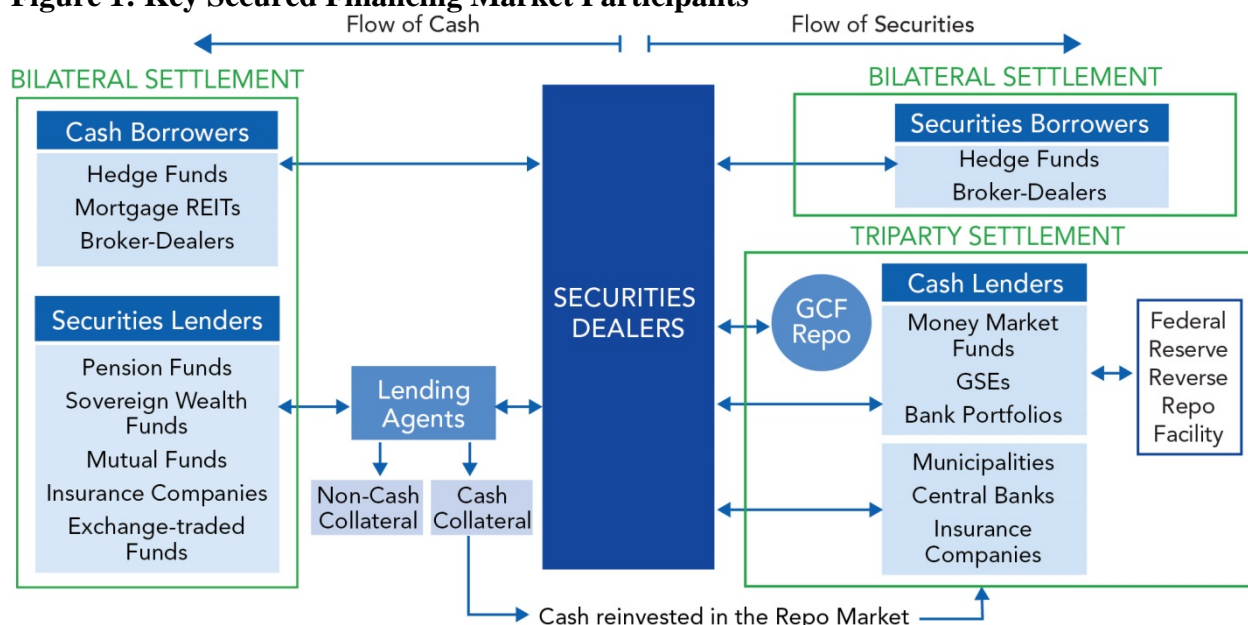
² The General Collateral Finance Repo (GCF Repo[®]), a financial service offered by the Fixed Income Clearing Corporation and the two large-dealer clearing banks (JP Morgan Chase and Bank of New York Mellon), also settles on the clearing banks' triparty repo platforms. GCF Repo allows securities dealers to exchange government securities for cash among themselves on an anonymous basis.

³ See FSB (2013) for details on the Financial Stability Board's recommendations with regard to repo and securities lending.

under securities lending agreements. Indeed, the economic effect of a repo contract can also be accomplished using a securities lending contract in which a security is lent (for a fee) using cash as collateral.⁴ The participating dealers reported that counterparties sometimes prefer to use a securities lending contract when negotiating an exchange of cash for collateral, perhaps reflecting differences in prevailing market practice or regulatory requirements. By collecting data on repos and securities lending trades against cash, we aim to get a more complete picture of the bilateral repo market.

We collected three snapshots of the repo books at the closing of three reporting days in 2015: January 12, February 10, and March 10. The three days were chosen to coincide with the Federal Reserve Bank of New York’s publication of triparty repo statistics.⁵ We collected transaction-level detail about all outstanding U.S.-dollar-denominated bilateral repo and securities lending contracts against cash at the end of these dates, including the cash principal amount, the interest rate on the cash, the maturity of the repo, the value and type of securities delivered, the haircut applied to those securities, and the counterparty to the transaction (see Table A in the Appendix).⁶

Figure 1: Key Secured Financing Market Participants



Note: REIT is real estate investment trust, GCF is General Collateral Finance, and GSE is government-sponsored enterprises.

Source: Office of Financial Research analysis

⁴ Not all securities lending contracts replicate the payoff of a repo agreement. In particular, under a securities lending contract, a security can also be lent using an asset other than cash as collateral. This type of securities lending transaction is beyond the scope of the pilot.

⁵ See [Tri-Party Repo Infrastructure Reform website](#) for aggregate statistics on triparty repo and GCF Repo activity.

⁶ Specifically, we included transactions executed under MRA (master repurchase agreement) or GMRA (global master repurchase agreement), as well as those trades executed under SLMA (securities lending master agreement) or GSLMA (global securities lending master agreement) when securities were exchanged for cash.

Figure 1 shows participants in the repo and securities lending market in the U.S., of which our pilot covers a subset. Securities dealers generally use triparty repo to borrow from cash lenders (for instance, money market mutual funds). In contrast, securities dealers enter into bilateral repo contracts for a variety reasons, including to secure additional funding (see the top right corner of Figure 1) as well as to provide funding to others (see the top left corner of Figure 1).⁷ By expanding the pilot to include securities lending contracts against cash, we also captured some of the activity by securities lending agents (see the lower left corner of Figure 1).⁸

2. Data Analysis

In this section, we describe the data collected. We refer to all transactions in which the dealer receives securities in exchange for lending cash as “securities in” transactions, regardless of whether the transaction is documented as a repurchase agreement or securities lending. Similarly, we refer to all transactions in which the dealer delivers securities in exchange for borrowing cash as “securities out” transactions.

Table 1: Summary Statistics

Date	Value Transacted (\$ billions)		Number of Trades		Pilot as a Percent of Total Bilateral Repo Market	
	Sec In	Sec Out	Sec In	Sec Out	Sec In	Sec Out
12-Jan-15	1,574	921	486,433	209,095	52	51
10-Feb-15	1,648	969	511,254	202,432	54	53
10-Mar-15	1,693	986	518,483	187,505	53	53
Average	1,638	959	505,390	199,677	53	52

Notes: “Sec In” is securities in and “Sec Out” is securities out. Share calculations are the ratio of value transacted in the bilateral repo pilot over the bilateral repo segment estimates presented in Table B in the Appendix. Note that for some of the trades the principal amount was not reported; these trades account for 0.0, 0.2, and 0.2 percent of the principal value for each of the reporting dates, respectively.

Sources: Bilateral Repo Data Collection Pilot, authors’ calculations.

Table 1 reports the aggregate principal amount for securities in and securities out for each of the three reporting days. Over the three days, securities dealers lent on average \$1.6 trillion and borrowed on average \$1 trillion. To gain a sense of the pilot’s coverage of the entire market, we compare these totals to estimates of the total market using the method outlined in Copeland et al (2014). For both securities in and securities out, we find that the total value of bilateral repo and securities lending against cash captured in the pilot amounts to about half of the estimated size of the bilateral repo and securities lending against cash market.⁹

⁷ For a more detailed overview of the repo and securities lending markets, see Baklanova, Copeland, and McCaughrin (2015) and references therein.

⁸ As illustrated in Figure 1, securities lending agents often reinvest their cash collateral in the triparty repo market. Keane (2013) describes this reinvestment strategy and its risks.

⁹ The estimates of the size of the bilateral repo market are provided in Table B in the Appendix.

In the data, dealers flagged transactions in which the counterparty is part of the same bank holding company with which the dealer is affiliated. We find these inter-affiliate trades make up 31 percent of our data on a dollar-value basis. Breaking it down further, we find that 25 percent of securities in and 41 percent of securities out transactions are inter-affiliate. Because it is unclear whether these types of trades are done at arms-length, they are removed from all the remaining statistics presented in the paper. The average total value of securities in drops from \$1.638 trillion to \$1.233 trillion without inter-affiliate trades and the average total value of securities out drops from \$959 billion to \$567 billion.

Table 2: Securities Lending Transactions as a Percent of Total, by Asset Class (percent)

Asset Class	Value-Weighted Share	
	Sec In	Sec Out
U.S. Treasuries	27.2	3.7
Equities	99.9	100.0
Private Label CMO, MBS, ABS	7.4	d
Corporate	72.7	49.7
Other Agency	3.5	-
Municipality Debt	4.8	d
Agency MBS	4.6	-
Other	d	d
All asset classes	43.0	19.8

Notes: Each trade is classified as a repurchase agreement or a securities lending contract. Each element in the table reports the share of securities lending contracts as a percent. Asset classes are ordered from largest to smallest in terms of principal value. “Sec In” is securities in and “Sec Out” is securities out; “d” means the number is suppressed so as to not reveal an individual dealer’s information. CMO is collateralized mortgage obligation, MBS is mortgage-backed securities, and ABS is asset-backed securities.

Sources: Bilateral Repo Data Collection Pilot, authors’ calculations.

Next, we examine the use of repurchase agreements versus securities lending contracts. Overall, we find that repurchase agreements account for the majority of trades encompassed by the pilot on a dollar-value basis, whereas securities lending contracts account for the majority of trades based on their number. Table 2 reports the use of securities lending contracts by asset class. We find that securities lending contracts are used almost exclusively when dealers exchange equities for cash and are heavily relied upon when dealing with corporate securities. For U.S. Treasuries and agency securities, in contrast, repurchase agreements are mostly used.

Table 3 reports bilateral repo and securities lending against cash activity by asset class. Transactions involving U.S. Treasuries represent 61 percent of the value for securities in and 81 percent for securities out. The second largest asset class is equities, which represent 21 percent of securities in and 15 percent of securities out by value. Other important asset classes are private-label structured products (collateralized mortgage obligations, mortgage-backed securities, and asset-backed securities) and corporate debt.

Table 3: Securities In and Out by Asset Class

Asset Class	Principal Value (\$ billions)		Value-weighted Share (percent)	
	Sec In	Sec Out	Sec In	Sec Out
U.S. Treasuries	711.5	416.4	61.4	81.0
Equities	244.4	78.9	21.1	15.3
Private Label CMO, MBS, ABS	110.2	3.4	9.5	0.7
Corporate	76.7	15.2	6.6	3.00
Other Agency	13.7	d	1.2	d
Municipality Debt	1.1	0.0	0.1	0.0
Agency MBS	d	d	d	d
Other	d	d	d	d
Total	1,158.6	514.3	100	100

Notes: “Sec In” is securities in and “Sec Out” is securities out. Asset classes are ordered from largest to smallest in terms of principal value. Note that for some of the trades we do not have collateral information; their total principal value was \$75 billion for securities in and \$53 billion for securities out; “d” means the number is suppressed so as to not reveal an individual dealer’s information. CMO is collateralized mortgage obligation, MBS is mortgage-backed securities, and ABS is asset-backed securities.

Sources: Bilateral Repo Data Collection Pilot, authors’ calculations.

Table 4: Maturities by Asset Class

Maturity	Value-weighted Share (percent)		
	U.S. Treasuries	Equities	Other
Open	20.2	93.9	37.4
Overnight	32.0	0.0	10.3
1 day < tenor <= 7 days	13.1	0.0	2.3
7 days < tenor <= 30 days	15.4	0.1	7.6
30 days < tenor <= 1 year	18.8	3.8	37.8
tenor > 1 year	0.4	2.2	4.7

Notes: Each column sums to 100. For trades with maturity optionality such a put or call, tenor is equal to the notice period. Not all trades have maturity information; trades with no maturities account for 15.6 percent of the principal value.

Sources: Bilateral Repo Data Collection Pilot, authors’ calculations.

Table 4 reports information on the maturities of the bilateral repo and securities lending against cash trades by asset class. Most contracts have very short maturities; more than 50 percent of trades collateralized by U.S. treasuries are overnight or open trades (trades that can be recalled at any time). About 28 percent of the trades have a maturity of up to a month, and only 19 percent of transactions have a maturity longer than one month. Bilateral trades involving equity

securities have even shorter maturities with 94 percent being open, reflecting the dominant use of securities lending contracts to document these trades.

Table 5: Value-Weighted Overnight Interest Rates (percent)

Asset Class	Securities In		Securities Out	
	Mean	Median	Mean	Median
U.S. Treasuries	0.05	0.11	-0.01	0.05
Equities	-0.85	0.03	-0.55	0.03
Corporate	-0.17	0.11	-0.39	0.03
Private Label CMO, MBS, ABS	0.18	0.20	0.10	0.06
Municipality Debt	0.53	0.55	d	d
Other Agency	0.20	0.21	-	-
Agency MBS	0.17	0.17	-	-
Other	-	-	d	d
Average	-0.32	0.10	-0.16	0.05

Notes: Asset classes are ordered from largest to smallest in terms of principal value. For some of the trades we do not have interest rate information; we omit interest rate data submitted by one respondent because of data quality issues. Trades with missing rate information account for 0.01 percent of the principal value; “d” means the number is suppressed so as to not reveal an individual dealer’s information. CMO is collateralized mortgage obligation, MBS is mortgage-backed securities, and ABS is asset-backed securities.

Sources: Bilateral Repo Data Collection Pilot, authors’ calculations.

Table 5 shows overnight interest rates by asset classes. Negative rates indicate that the security borrower is paying interest on the cash delivered to the security lender to obtain a security in scarce supply; positive rates indicate that the cash borrower paid an interest rate to borrow cash. For most asset classes, interest rates are positive, that is, on average, the cash borrower paid interest to the lender. The exceptions are equities and corporate debt, in which the average interest rates are negative, indicating that the borrowed securities in these asset classes are in scarce supply. Note that although average rates were negative, the median rates for equities and corporates were still positive; that is, the distribution was skewed to the left: very negative interest rates on some hard-to-borrow securities drove the mean rate below zero.

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Appendix

Table A: Bilateral Repo Pilot Reporting Fields

Col #	Field Name
1	Transaction ID
2	Allocation ID
3	Timestamp of Execution
4	Legal Agreement Type
5	Securities In or Securities Out
6	Security Dealer Legal Entity
7	Counterparty Legal Entity
8	Counterparty Legal Entity Name
9	Counterparty Top-Tier Parent Company Name
10	With Related Party or Affiliate? (Yes/No)
11	Counterparty Legal Entity Type (Sector)
12	Cleared through FICC? (Yes/No)
13	Start Date
14	Rate, or Rate Spread over Benchmark
15	Benchmark
16	End Date
17	Open Maturity Date? (Yes/No)
18	Optionality Indicator
19	Notice Period
20	Allocated ID Type
21	Allocated Security ID
22	Allocated Securities Asset Class
23	Allocated Securities Current Market Value
24	Haircut
25	Principal

Sources: Bilateral Repo Data Collection Pilot

Table B: U.S. Bilateral Repo Market Estimates (\$ billions)

	Securities In	Securities Out
12-Jan-15	3,012	1,797
10-Feb-15	3,071	1,822
10-Mar-15	3,169	1,866

Notes: The method used to produce these estimates is detailed in Copeland et al (2014). Bilateral repo estimates are a residual amount, equal to total repo minus triparty repo. Total repo estimates are based on Federal Reserve FR2004 data collected from primary dealers. These figures include both repo and securities lending activity against cash. Triparty repo data include GCF Repo.

Sources: For total repo, Federal Reserve Form FR2004; for triparty repo, Federal Reserve Bank of New York.