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Repo and Securities Lending: Improving Transparency with Better Data

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The author describes data gaps in U.S. repurchase agreements (repo) and securities lending markets. A paucity of data and a limited understanding of the institutional structure of these markets prevented regulators from fully identifying and responding to vulnerabilities during the 2007-09 financial crisis. Since then, regulators have made some progress addressing vulnerabilities and data gaps in these markets. In 2015, a pilot project by the OFR and the Federal Reserve to collect data about repo and securities lending is expected to further those efforts.

As the financial crisis underscored, financial firms that rely excessively on short-term borrowing may transmit financial stability risks. For example, Bear Stearns lost billions of dollars in repo funding in two days in March 2008[2] and was later forced into a merger with JPMorgan Chase. Lehman Brothers' demise in September 2008 was partly due to the lack of unencumbered collateral in its liquidity pool during stressful market conditions. After the company failed, repo lenders pulled funding from the remaining investment banks, underscoring how weakened confidence may affect other institutions. Risks related to managing cash collateral received in securities lending transactions also raised stability concerns. During the crisis, American International Group (AIG) suffered devastating losses on $75 billion of cash collateral — received in securities lending transactions with its own insurance subsidiaries — that it had reinvested in securities backed by mortgages.

Before the crisis, regulators had only limited information on the nature of funding obtained in the repo market, the quality of collateral, and the adequacy of risk management practices in securities lending. During the crisis, three types of vulnerabilities emerged to threaten financial stability: (1) risk related to the leverage and liquidity incurred by market intermediaries, (2) weaknesses in the market infrastructure, and (3) the risk of asset fire sales.

Regulators have taken important steps to address some of these vulnerabilities. New standards for leverage and liquidity have led banks and affiliated dealers to reduce their repo dealings. Clearing banks addressed the intraday credit to repo dealers and market participants took steps to improve their liquidity and credit risk management, following the recommendations of a private sector task force sponsored by the Federal Reserve Bank of New York.[3]

But more work is needed. The risk of asset fire sales before or after a counterparty default remains largely unaddressed. At the international level, the Financial Stability Board has proposed standards for minimum haircuts on non-centrally cleared securities financing transactions to encourage borrowers to extend the maturity of their liabilities and reduce leverage.

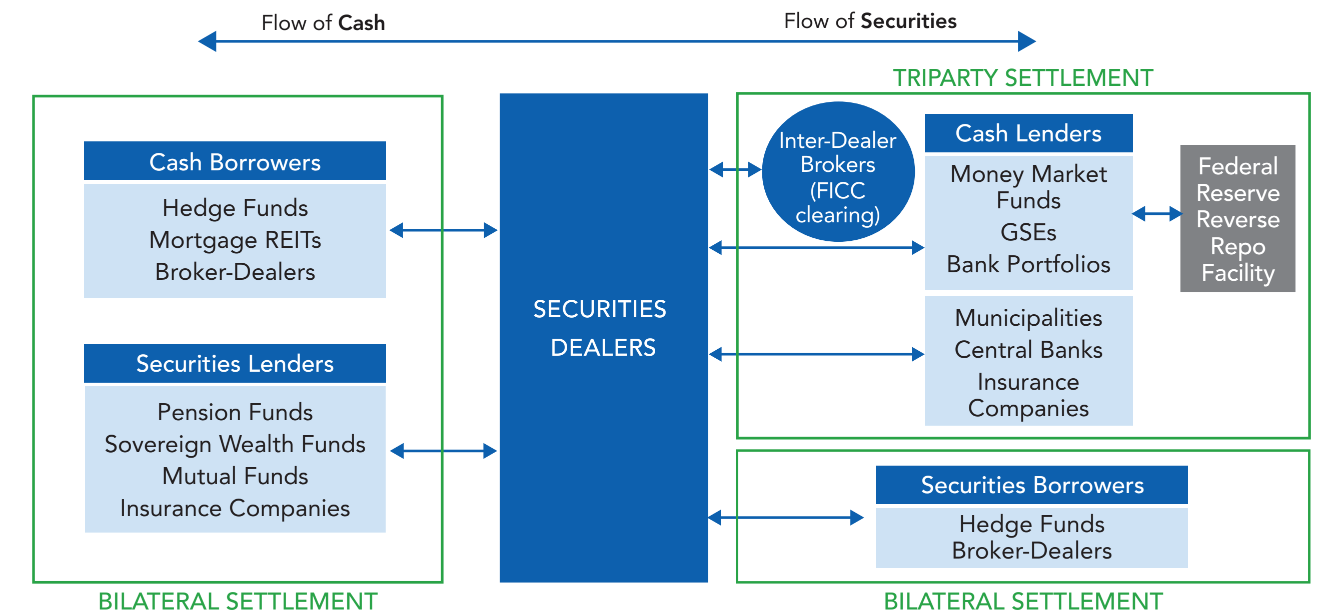
This brief reviews available data sources about repo and securities lending. It also assesses the data gaps and discusses the role of regulators in the United States and internationally in bridging those gaps. In the near future, the OFR will release a reference guide on U.S. repo and securities lending markets. The guide will examine more closely how dealers and their clients use these markets, building on the ongoing research on the sources and uses of short-term funding.

Market Overview

This section provides a brief overview of the market, key participants in repo and securities lending transactions, and their activities.

Figure 1. Repo and Securities Lending Participants

Securities dealers are critical intermediaries for other market participants

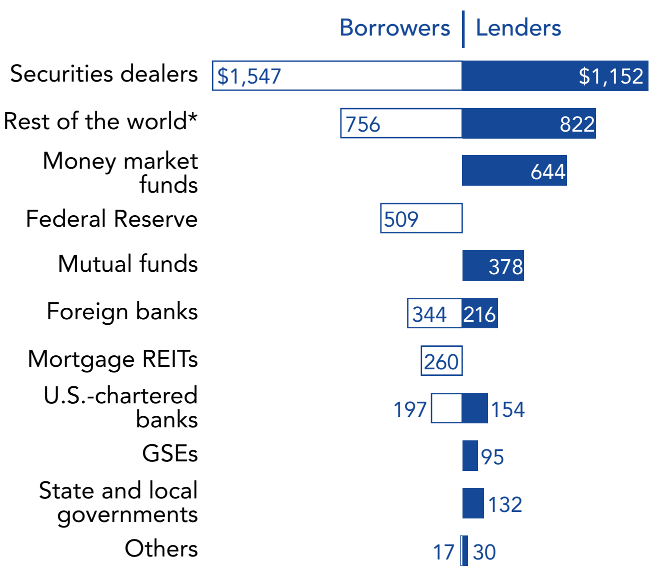


FICC = Fixed Income Clearing Corporation

Source: OFR analysis

Figure 2. Cash Lenders and Borrowers in the Repo Market ($ billions as of Q4 2014)

Securities dealers connect cash lenders and cash borrowers using their own balance sheets



* Rest of the world includes activities of offshore hedge funds.

Sources: Federal Reserve's Financial Accounts of the United States, OFR analysis

Size

Although daily volumes in the repo market have declined since the crisis, repos remain a critical source of short-term funding. It is difficult to precisely estimate total repo and securities lending activity, but even the most conservative estimates place their outstanding value at well over $4 trillion on a typical day.

Mechanics and key participants

Repos allow one firm to sell a security to another firm with a simultaneous promise to buy the security back at a later date at a predetermined price. Securities lending involves a short-term loan of stocks or bonds in exchange for cash or other collateral. The economic effect of both types of transactions is similar to that of a collateralized loan.

Securities dealers play an important role intermediating transactions in cash and collateral for repo and securities lending (see **Figure 1**). The availability of cash for funding and securities for market making depends on the ability and willingness of securities dealers to facilitate these transactions.

Major lenders of cash in the repo market include money market funds, mutual funds, banks, government-sponsored enterprises (GSEs), and state and local governments (see **Figure 2**). These entities lend, or invest, their excess cash on a collateralized basis, typically for short durations, while earning a return for their investments.

Cash-short entities that hold securities borrow cash using securities as collateral. Securities dealers are the largest cash borrowers in absolute terms and also the largest cash lenders. Dealers borrow cash to finance their own operations and provide funding to their clients. Borrowed cash is used for different purposes. For example, mortgage real estate investment trusts (mREITs), hedge funds, and others may use repos to increase their leverage.

In the securities lending market, large portfolio managers, such as pension funds, mutual funds, and insurance companies, lend out securities in their portfolios to earn incremental returns. Lending agents facilitate the loans. Securities dealers are significant borrowers of securities, mostly to hedge, establish their short positions, and facilitate market making activities. For example, a dealer may require a specific security to settle a transaction, and may turn to the securities lending market to borrow the security from a lending agent, which acts on behalf of a pension fund.

Clearing and settlement

Repos settle either bilaterally or through a triparty platform. Cash investment in the repo market is mostly conducted through the triparty platform, primarily because of its operational efficiency. Triparty repos involve a clearing bank responsible for collateral management as well as settlement of the trades. Currently, two banks — JPMorgan Chase and Bank of New York Mellon — offer triparty repo services.

The General Collateral Finance Repo® Service (GCF Repo) provides a cost-effective way for dealers to lend and borrow securities and cash among themselves on an anonymous basis. To preserve anonymity of counterparties, GCF Repos are negotiated through interdealer brokers. These trades are centrally cleared by the Fixed Income Clearing Corporation and settled on the triparty platform.[4] In a bilateral repo transaction, counterparties themselves are responsible for margining and valuation of the collateral.

Data Collections and Gaps

Data on repo activity are collected using two general approaches: collections from the regulatory filings of market participants and collections by market segment. Typically, settlement agents provide data covering individual market segments.

Collections from market participants

The first approach is to capture data related to repo and securities lending from the regulatory filings of financial firms and investment companies. For example, the Consolidated Reports of Condition and Income for depository institutions — typically referred to as "call reports" — and Form FR Y-9C for bank holding companies require individual firms to supply quarterly data on the value of their repos and reverse repos, as well as data on the valuation of collateral in these transactions. Mutual funds, insurance companies, and mREITs report their financing activities, including those conducted in the repo market, as part of their regulatory filings. In addition, detailed (or granular) data are available to supervisors of financial firms though their regular examinations. However, examination reports are confidential and not available for market monitoring or research purposes.

Collections from market participants provide deep insight into financing activities of an individual firm, but the lack of comprehensive market coverage is a disadvantage. The data are usually highly aggregated and focused on quantity traded. The data do not answer questions about rates, haircuts, or counterparty exposures (see **Figure 3**).

Another shortcoming is the absence of a centralized data repository or common reporting standards, which makes data consolidation across firms laborious. Reports are collected by regulatory agencies at the federal and state levels, depending on the type of entity. Some of the reports, including those filed by registered investment companies and publicly traded firms, are publicly available to investors through the EDGAR database of the Securities and Exchange Commission (SEC). Lastly, a lack of publicly available data for certain market segments prevents investor scrutiny and hampers independent academic research. For example, data filed by hedge funds and private funds on the SEC's Form PF, which was launched in 2012, are not publicly available, but bank-related data are available to the public in aggregate and at the firm level.

Finally, the scope, frequency, and granularity of regulatory reporting vary substantially, making comprehensive, market-wide use of the data difficult or impossible. For example, money market mutual funds, which are among the most active investors in the repo markets, report details of their repo holdings, including names of counterparties and collateral, on Form N-MFP submitted monthly to the SEC. Form N-MFP was introduced in response to the 2007-09 crisis and has helped substantially to improve the transparency of money market fund investment activities, including those in the repo market. No other financial firms report the same level of detail about repo activities as money market funds do on Form N-MFP.

Collections on market segments

The second approach is to collect data covering specific segments of the repo market and include transactions by all active firms. For example, regulators collect granular data on triparty repos and GCF Repo transactions. The data are provided by the two triparty clearing banks, and include information on rates, haircuts, and counterparties (see **Figure 4**). However, these data omit bilateral trades that settle outside the triparty repo platform. Also, many of the data elements available to regulators may not be publicly available. The Federal Reserve Bank of New York now provides aggregated repo market data on its public website, updated monthly, following a recommendation by a private sector task force it formed in 2009.[5]

Private vendors sell granular data on securities lending that they collect from industry participants, including custodians, prime brokers, asset managers, and hedge funds. However, these data collections are voluntary (and are thus incomplete) and do not include data elements about counterparties or collateral management that are essential for market monitoring purposes. No systematic, targeted data collection is conducted for the benefit of regulators or the investing public.

Figure 3. Sources of Data on Repo and Securities Lending Activities by Firm Types

Most regulatory reports miss critical data elements related to firms' repo and securities lending activities

Firm Type		Regulatory Agency	Reporting Form	Data Elements							
				Frequency	Term	Principal amount	Collateral Type	Collateral Value	Counter-party	Haircut	Rate
Broker-Dealers	Primary dealers	Federal Reserve	FR 2004	weekly	✔	✔	✔				
		SEC	X-17A-5 (FOCUS Report)	monthly		✔					
	Nonprimary dealers	SEC	X-17A-5 (FOCUS Report)	monthly		✔					
Depository Institutions Bank Holding Companies		Federal Reserve FDIC OCC	FR Y-9C	quarterly		✔		✔			
			Call Report			✔		✔			
Registered Investment Companies (Funds)[a]	Money market mutual	SEC	N-MFP	monthly	✔	✔	✔	✔	✔	compute	✔
			N-CSR N-SAR	semi-annually	✔	✔			✔		✔
			NQ	quarterly	✔	✔			✔		✔
	Exchange-traded, other mutual, and closed-end	SEC	N-CSR N-SAR	semi-annually	✔	✔			✔		✔
			NQ	quarterly	✔	✔			✔		✔
Private Fund Advisors	Hedge	SEC	PF	quarterly	✔	✔	✔	✔	✔[b]		
	Liquidity		PF		✔[c]	✔	✔	✔			
	Private equity		PF								
Pension Funds	Private	Department of Labor	5500[d]	annually							
	Public										
Insurance Companies		State insurance departments	Statutory financial statements	quarterly		✔					
Publicly Traded Nonfinancial Firms		SEC	10-K[d]	annually							
			10-Q[d]	quarterly							

[a] Funds may voluntarily disclose more granular information about their repo and securities lending activities.
[b] Counterparty information is limited, indicating only whether the counterparty is a U.S. or foreign entity and whether it is a financial or a nonfinancial firm.
[c] Information regarding the term of the contract is only available by maturity date ranges (for example, 2-7 days or 8-30 days). An amended Form PF will go into effect in April 2016 that will replicate the disclosure requirements of Form N-MFP.
[d] Repo data are not required but may be included in individual entities' supplemental information.
Source: OFR analysis

Figure 4. Sources of Data on Repo and Securities Lending by Market Segments

Triparty repo has the most comprehensive data among the market segments

			Data Elements								
Market Segment		Data Collection	Frequency	Trade Date	Maturity Date	Principal Amount	Collateral Type	Collateral Value	Counter-party	Haircut	Rate
Triparty Repo	Non-GCF Repo	Triparty clearing banks' reports to FRBNY[a]	daily	✔	✔	✔	✔	✔	✔	✔[b]	✔
	GCF Repo Service	Fixed Income Clearing Corp's reports to FRBNY	daily[c]	✔	✔[d]	✔	✔	✔		*	
	Federal Reserve's Reverse Repo Facility	FRBNY trading data	daily	✔	✔	✔	✔	✔	✔	*	✔
Bilateral Repo	Primary dealers	FR2004	weekly			✔	✔				
	Non-primary dealers	N/A		This market segment is not directly observed from FR2004 or the triparty repo collection							
Securities Lending		FR2004	weekly								
		Risk Management Association Securities Lending Survey	quarterly			✔	✔	✔			✔
		Private vendors	daily	✔	✔	✔					✔

[a] The Federal Reserve Bank of New York (FRBNY) receives transaction-level data and aggregate collateral-pledge data.
[b] Haircut data are not provided by the reporting entities, but calculated using the aggregate collateral-pledge data.
[c] Monthly reports of daily trading activities.
[d] Overnight or a term trade.
* Haircuts are uncommon in these market segments.
Source: OFR analysis

To address this data gap, Section 984(b) of the Dodd-Frank Act directed the SEC to adopt rules to increase the transparency of information available to brokers, dealers, and investors about securities lending. However, to date, the SEC has not yet issued a proposed rule.

At the international level, the Financial Stability Board has published proposed standards and processes for global data collection and aggregation on securities financing transactions.[6]

Existing Data Collections Present Challenges

Although the SEC's Form N-MFP and the Federal Reserve's triparty repo collections represent substantial improvements in the data available to regulators about the repo market since the crisis, data deficiencies continue to hamper our understanding and monitoring of this market.

Data gaps

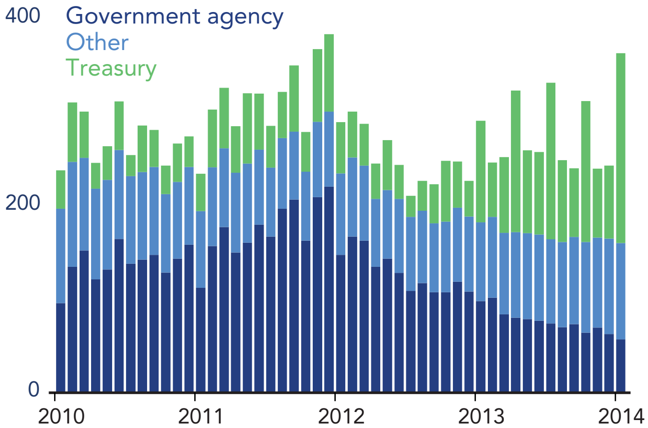
Estimating the size of the U.S. repo market requires interpretation of available data sources because data on the bilateral segment are unavailable. Copeland et al. (2014) estimate the total size of the U.S. repo market at nearly $4 trillion, based on triparty repo data and reports submitted by primary dealers to the Federal Reserve Bank of New York on Form FR2004.[7]

As mentioned, sample data are available for some repo market participants. For example, Form N-MFP filed monthly by money market funds requires disclosure of each repo investment at the end of the month, accompanied by a granular description of the collateral backing it (see **Figure 5**).

On the other hand, data on repo and securities lending by smaller, stand-alone dealers — dealers not affiliated with bank holding companies (BHCs) — are not systematically collected. Although non-BHC-affiliated dealers are presumed to make up only a small share of repo activities, this presumption lacks any certainty. The market share of this type of firm has to be extrapolated from the triparty repo data, where primary dealers account for 90 percent of the total volume.[8] Note that this estimate was done in 2012, and any migration of activities from the largest BHC-affiliated dealers to stand-alone nonbank dealers is not being tracked due to a lack of consolidated reporting by the repo market as a whole.

Figure 5: Types of Collateral Accepted by Prime Money Market Funds ($ billions)

Prime money market funds have reduced their holdings of government agency repos, while nongovernment collateral has increased



Sources: SEC Form N-MFP, OFR analysis

Data overlaps

Data on repos and securities lending are currently collected by different regulatory agencies with different degrees of overlap (see **Figure 6**). For example, the FR2004 survey reports total weekly financing activities of broker-dealers on a gross basis, including client financing and financing of dealers' own inventories, overstating the activities by dealers on their own behalf.

Taken together, regulatory reports greatly overstate the size of the market because each transaction is reported at least twice by different parties on their regulatory reports. For example, a money market mutual fund reports the same transaction on Form N-MFP that a dealer reports in its repo positions report and a triparty clearing bank reports in its daily submissions to the Federal Reserve.

Data quality

Much of the data available today is not collected in a manner that allows for direct comparison of different types of market participants. Regulatory filings require different data elements and, depending on accounting standards, repo exposures can be reported on a net or gross basis. In addition, these data are not available to the public unless highly aggregated.

The lack of a common data standard for identifying counterparties presents a substantial challenge in monitoring cross-market exposures. The OFR has been a leader in advocating a global legal entity identifier (LEI) system for uniquely identifying parties to financial transactions. A global LEI "would substantially improve efficiencies and reduce costs for data collection, cleaning, and aggregation; transaction processing; data management; business operations; compliance monitoring; regulatory reporting; research and analysis; information sharing; and intra- and inter-organization communication."[9] Wide adoption of the LEI would substantially improve the efficiency of data collections and data accuracy by enabling automated counterparty mapping and the removal of duplicative repo trades. Repo market participants are not currently required to use LEIs in regulatory reporting, although many filing forms recommend LEIs or list them as an option.

OFR's Efforts to Close Data Gaps

High-quality data covering repo and securities lending are needed for regulators to conduct in-depth analysis of the pros and cons of policy options and to monitor current market developments. Comprehensive data coverage is still lacking. For example, the potential migration of repo activities from primary dealers to other firms is difficult to track. In 2014, the OFR and the Federal Reserve launched a joint pilot project to collect data to improve our understanding of bilateral repo and securities lending.[10]

The pilot task force identified data elements essential for analyzing risks related to repo and securities lending. Data are needed to capture the dependence on short-term funding of individual

Figure 6. Data Collection Gaps and Overlaps in Repo Markets

Data are not systematically collected on the bilateral repo segment and on repo activity involving nonprimary dealers

	Total	Bilateral Market	Triparty Market		
			Non-GCF	GCF	Federal Reserve reverse repo facility
Primary Dealers	Collectively reported in Form FR2004	Not collected GAP	Included in triparty repo data collection OVERLAPS		Aggregated data publicly available
Nonprimary Dealers	Not systematically collected GAP				(not eligible)

GCF = General Collateral Finance

Source: OFR 2014 Annual Report

repo market participants, counterparty exposures, and interconnections among participants. In addition, data are needed about the collateral used to help in understanding collateral quality, diversification, and haircuts. With respect to securities lending, the pilot task force is reaching out to agent lenders to collect data on loans, terms, and collateral uses. A number of large firms has agreed to participate in these two pilot data collections, which are expected to be completed before the end of 2015.

These data collections will go a long way toward improving transparency in securities financing markets, but there is more to do. Success in the ongoing reform efforts will require adoption of international data standards, extensive collaboration, and improvements in data sharing.

Endnotes

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[2] See Bear Stearns, "Minutes of Special Meeting of Bear Stearns Board of Directors," March 13, 2008 (available at fcic-static.law.stanford.edu/cdn_media/fcic-docs/2008-03-13_Bear_Stearns_Minutes_of_a_Special_Meeting_of_the_Board_of_Directors.pdf, accessed February 17, 2015).

[3] See Federal Reserve Bank of New York, "Tri-Party Repo Infrastructure Reform," online content (available at www.newyorkfed.org/banking/tpr_infr_reform.html, accessed Match 17, 2015).

[4] See Paul Agueci, et al., "A Primer on the GCF Repo® Service," Federal Reserve Bank of New York Staff Reports no. 671, April 2014 (available at www.newyorkfed.org/research/staff_reports/sr671.pdf, accessed March 18, 2015).

[5] See Federal Reserve Bank of New York, "Tri-party Repo Statistical Data," online content (available at www.newyorkfed.org/banking/tpr_infr_reform_data.html, accessed March 17, 2015).

[6] See Financial Stability Board, *Standards and Processes for Global Securities Financing Data Collection and Aggregation,* Consultative Document, Basel, November 13, 2014.

[7] See Adam Copeland, Isaac Davis, Eric LeSueur, and Antoine Martin, "Lifting the Veil on the U.S. Bilateral Repo Market," online paper, June 9, 2014 (available at libertystreeteconomics.newyorkfed.org/2014/07/lifting-the-veil-on-the-us-bilateral-repo-market.html#.VN5P6iu7bLU, accessed March 17, 2015).

[8] See Adam Copeland, Isaac Davis, Eric LeSueur, and Antoine Martin, "Mapping and Sizing the U.S. Repo Market," online paper, June 25, 2012 (available at libertystreeteconomics.newyorkfed.org/2012/06/mapping-and-sizing-the-us-repo-market.html#.VN5SlSu7bLU, accessed March 17, 2015).

[9] See Office of Financial Research, *2014 Annual Report,* Washington.

[10] The data will also be shared with the Securities and Exchange Commission, a key contributor on this initiative. See Office of Financial Research, "Bilateral Repo Data Project," online content (available at financialresearch.gov/data/repo-data-project/, accessed March 17, 2015).