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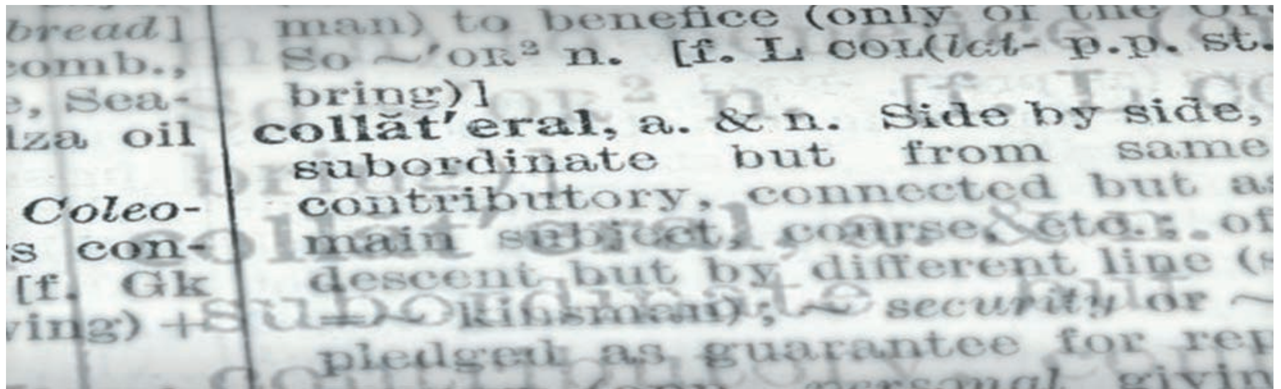

Collateral Management – Best Practices for Broker-Dealers

Jeff Penney

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col•lat•er•al *(noun)* something pledged as security for repayment of a loan, to be forfeited in the event of a default.

col•lat•er•al dam•age *(noun)* used euphemistically to refer to inadvertent casualties among civilians and destruction in civilian areas in the course of military operations.

Oxford American Dictionary

Stand-alone broker-dealers, as well as those operating within banks and bank holding companies, face increasing pressure to minimize costs and balance sheet footprint. Collateral management is a set of processes that optimize the use and funding of securities on the balance sheet. For a broker-dealer, sources of collateral include securities purchased outright, as risk positions or derivatives hedges, and securities borrowed. Additional securities are obtained through rehypothecation of customer assets pledged in principal transactions such as repurchase agreements (repo), margin loans, and over-the-counter (OTC) derivatives. This pool of securities is deployed throughout the trading day. At the close of trading, the remaining securities become collateral in a new set of transactions used to raise the cash needed to carry the positions. Poor collateral management leads to excessive operating costs, and, in the extreme, insolvency.

A disciplined trading operation aims to be "self-funding" by borrowing the cash needed to run the business in the secured funding markets rather than relying on corporate treasury and expensive, unsecured sources such as commercial paper and long-term debt. The funding transaction may be with other customers, dealers, or money market funds via tripartite repo. Careful management of the settlement cycle for various transactions allows a broker-dealer to finance the purchase of a security by simultaneously entering into a repo, loan, or swap on the same security or other collateral.

Many aspects of secured funding and collateral management are common to all trading desks. A centralized and coordinated collateral management function supports the implementation of several best practices and provides transparency for control groups and regulators. Regulation and increased dealings with central counterparty clearing arrangements will soon increase capital and cash requirements imposed on broker-dealers. Even in advance of such changes, customers are placing restrictions on the disposition of their assets and limitations on the access granted to broker-dealers. This trend makes it more critical for dealers to optimize their remaining sources of funding.

Collateral Management Organization

The financial crisis exposed the difficulty that many firms had in tracking sources of cash and secured funding lines across all of their product trading desks. Centralization can aid in the enforcement of risk management and lending policies, as well as provide visibility to corporate treasury for cash needs. One of the core competencies of a prime brokerage business is the secured funding of liquid securities, making for a logical focal point of secured funding activity.[1]

1 See *The Future of Prime Brokerage: Lessons Learned from the Financial Crisis*, High Line Advisors LLC, April 2010.

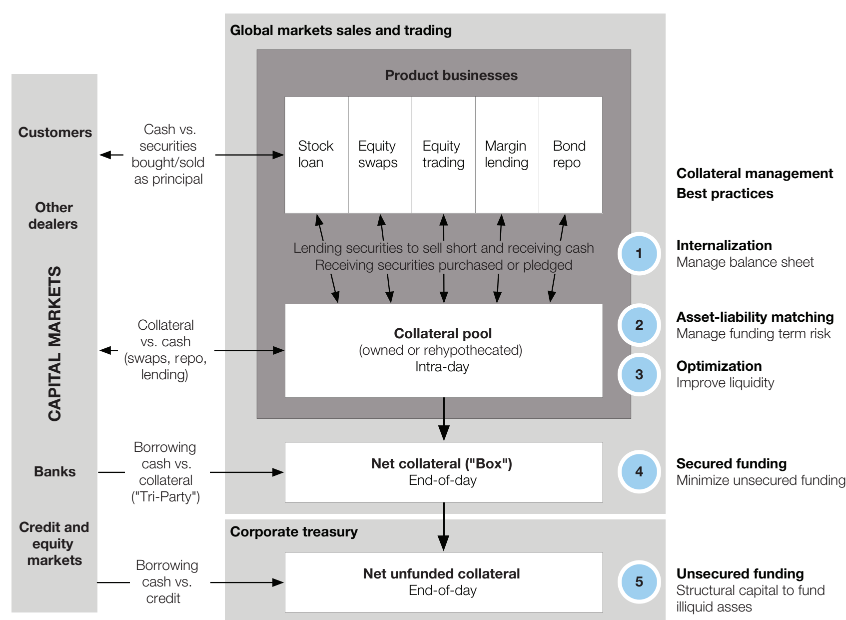

Figure 1: Funding the balance sheet of a broker-dealer

Figure 1 illustrates how various trading desks of a bank/broker-dealer's global markets sales and trading business can be organized to share a common collateral pool.

Implementation Considerations

Prior to 2007, the cost of financing positions was deemed incidental to trading profits because of easy access to overnight liquidity and tight credit spreads. The global financial crisis challenged these assumptions, and many firms have subsequently implemented a centralized view of funding. Challenges remain, including lack of technology supporting visibility into the accounts of multiple trading desks, and a reluctance on the part of product managers to relinquish control over pricing inputs. Despite similarity in the economics of repo, total return swaps, securities lending, and option combinations, expertise in the financing of securities is generally limited to single asset classes.

As a starting point, stock loan professionals are best positioned to see all available sources of equity collateral in both firm and customer accounts. However, in order to maximize its ability to source and distribute the collateral, the stock loan group also needs to trade swap and options. At the same time, a firm's repo desk is best positioned to optimize the financing of fixed income securities, but Treasury collateral is also commonly used to borrow stocks. Instead of a fragmented approach, consolidated management of all secured funding transactions, including repo, stock loan, rehypothecation, and "delta-one" derivatives provides better control over balance sheet utilization, funding sources, costs, and related risks.

Collateral Management Processes

Once the broker-dealer is organized to create visibility across trading desks, it can implement procedures for maximizing collateral utilization and minimizing risks and funding costs:

1. Internalization

Internalization of collateral is defined as the ability to borrow securities from elsewhere on the dealer's balance sheet rather than from external sources. Internal sources of collateral are most frequently long positions such as reverse repos, hedges associated with OTC derivatives, and customer securities subject to rehypothecation. Each time securities are borrowed from external sources such as custodian banks or agent lenders, the balance sheet of the bank or broker-dealer is increased by the securities borrowed and the collateral pledged in support of the borrow. Internalization avoids this increase in balance sheet.

An example: internalization could occur when the stock loan desk uses government bonds financed by the repo desk to collateralize a stock borrow transaction with a mutual fund. Without internalization, the repo desk would likely push the government bonds out via the repo market to raise cash, while the stock loan desk would borrow cash to "reverse in" the same bonds to pledge to the stock lender. Through internalization, two market transactions can be consolidated into a single, internal transaction at no cost.

Internalization provides a means to control the balance sheet according to prevailing management objectives. For example, a large broker-dealer with access to retail margin accounts as a source of stock loan supply could avoid increasing its balance sheet by rehypothecating shares from its own clients. At other times, the broker-dealer may decide to borrow shares from third-party custodians for price discovery or to obtain an additional allocation of hard-to-borrow, "hot" stocks. The balance sheet would be increased by the external borrow, but provide a greater profit opportunity associated with the hot stock allocation. In an operation of sufficient scale, internalization can be used to trade off between revenues and balance sheet impact.

2. Asset-Liability Matching

Historically, many derivatives trading businesses carried longer-duration assets or contracts funded in the overnight repo market. This mismatch was exposed by the liquidity/credit crisis. Today, regulators are requiring more long-term debt and internal risk managers are requiring traders to hedge sources of funding for the term of the asset or the contract, just as they require hedging of directional market exposure.

Liquid collateral should be funded in the secured markets to the corresponding maturity of the derivative. The trading business is best able to hedge funding risk and to incorporate the cost into prices extended to customers. Less liquid collateral may

require funding from permanent or "structural" capital. Centralization of funding activities gives control groups, such as risk management and corporate treasury, visibility into the customer trades and associated risks.

3. Optimization

Optimization of collateral may be defined as a) raising the greatest amount of cash from the available securities, and b) minimizing the cost of borrowing. A state-of-the-art collateral management system will take into account all financing counterparties and eligible securities, as well as all internal (trading desks) and external (exchanges and clearing houses) users of cash or collateral. The system will have a matching algorithm to optimize the utilization as well as cost.

At the same time, collateral may be "upgraded" by exchanging less-liquid assets for more liquid assets that can be disposed of more readily in crisis. Such transactions may be found opportunistically, but are more likely entered into deliberately at a cost.

4. Secured Funding

As part of the collateral optimization process, liquid securities that are not used internally or funded along with customer or intra-dealer activity are swept into a tripartite repo facility with a money-center bank. The tripartite facility is generally associated with the bank that performs federal government securities clearing on behalf of the broker-dealer. Tripartite facilities are highly dependent upon pre-defined lists of acceptable collateral. Changes to the list of acceptable collateral can be catastrophic if they occur unexpectedly, resulting in unanticipated spikes in the need for unsecured funding.

The tri-party custodian can be the defacto "lender of last resort" to a broker-dealer. In orderly markets, banks perform this function for dealers and market-makers; however, during the financial crisis, as tripartite lenders withdrew from the market, the Federal Reserve Bank served this function for nearly all dealers. Note that the Federal Reserve Bank of New York has released a white paper on Tri-Party Repurchase Agreement (Repo) Reform, expressing concerns over the infrastructure of the system on which banks and broker-dealers alike have a critical dependency.[2,3]

5. Unsecured Funding

The broker-dealer's corporate treasury is responsible for the firm's capital structure, which includes equity and unsecured debt. Unsecured funding is the most expensive source of cash, and short-term (overnight) sources are the first to evaporate in a crisis. A self-funding business minimizes the need for unsecured cash but is unlikely to eliminate the need under all conditions. Illiquid collateral will attract structural capital. More benign causes for some amount of unsecured funding include regulatory capital requirements; however, operational inefficiency (failure to sweep accounts or inability to move cash and securities among legal entities) can add to unsecured funding requirements during times of stress. One of the benefits of consolidated collateral

2 *Tri-Party Repo Infrastructure Reform*, The Federal Reserve Bank of New York, May 17, 2010.
3 See *Out of the Shadows: Central Clearing of Repo – A Transparent Market Structure for Cash Borrowers and Lenders*, High Line Advisors LLC, April 2011.

management is that corporate treasury will have better visibility into the funding needs of the entire trading business, and a clear understanding of the term funding risks associated with specific customer transactions.

Implications of Limited Access to Customer Collateral

Customer collateral increases the likelihood of internalization and provides a source of excess funding. Several post-crisis forces are conspiring to limit a broker-dealer's access to customer assets pledged as collateral, bringing additional pressure for the firm to keep on top of its balance sheet. Customers have required segregation of their collateral with limitation or elimination of rehypothecation rights. Formalizing this trend, Dodd-Frank legislation now requires certain customer collateral to be held by a third party agent or a central counterparty (CCP).[4] Broker-dealers will need to be more creative and efficient as this source of excess cash is eliminated.

The following example illustrates how restrictions on rehypothecation can create a funding shortfall for a broker-dealer:

Consider a total return equity swap between a dealer and its hedge fund client in which the client wants exposure to $100 of stock XYZ. Traditionally, such a transaction would include a collateral requirement of 20% ($20). In order to hedge its obligations under the swap, the dealer might purchase $100 of stock XYZ.

The dealer must raise at least $100 in order to complete its purchase of the hedge. In practice, the dealer may enter into a funding transaction by lending XYZ, entering into a repo on XYZ, or selling the XYZ versus an offsetting total return swap with another counterparty. The funding transaction would have the same settlement date as the original swap, so money raised from the funding transaction would be used to settle the purchase of the XYZ shares.

The details of the funding transaction are critical. In practice, the funding transaction may raise less than $100 for the dealer: a repo may suffer a haircut; a swap may carry an initial collateral requirement from the dealer to the new counterparty; and, a stock loan transaction with no natural borrower, may be haircut as well.[5]

	Sources of Cash	Uses of Cash
Purchase of XYZ		$100
Repo Proceeds	$98	
Rehypothecated Customer Collateral	$20	
Excess		$18

Figure 1: Sources and uses of cash with rehypothecation

If the dealer is charged a funding haircut of 2% on the XYZ, with rehypothecation a shortfall of $2 will remain unfunded. Traditionally, dealers have been able to draw on the $20 of client collateral through rights of rehypothecation. As shown in Figure 1, if the entire $20 is rehypothecated from the client margin account, the dealer may acquire the $2 needed to complete the purchase of the hedge. More importantly, the dealer will have $18 of excess cash that it may use to fund other operations.

4 Title VII of the Dodd-Frank Wall Street Reform and Consumer Protection Act, Wall Street Transparency and Accountability, 2010.

5 In conventional securities lending transactions driven by demand for the securities, cash collateral generally exceeds the market value of the security to protect the lender. In transactions motivated by demand for cash, the lender of cash may require the added protection. One way in which a prime brokerage franchise can be valuable to a broker-dealer is by increasing the probability of finding a natural borrower of securities for short-sale purposes.

The effect of losing access to customer collateral is shown in Figure 2. If the customer requires its collateral to be segregated with a third-party bank, the dealer must negotiate for access to collateral equal to the $2 funding shortfall at a minimum. Clients may continue to refuse access to “so-called” excess collateral. As a result, a dealer’s sources of funding may be reduced in an amount equal to 18% of its total return swap operations.

	Sources of Cash	Uses of Cash
Purchase of XYZ		$100
Repo Proceeds	$98	
Shortfall	$2	

Figure 2: Sources and uses of cash without rehypothecation

This situation increasingly applies to other OTC transactions in which clients are required to pledge collateral, denying dealers a source of funding and creating additional pressure to optimize remaining sources. By organizing around a central collateral pool, it becomes easier to internalize the sources and uses of collateral, to maximize its value and liquidity, to connect efficiently to sources of secured funding such as tripartite repo, and to minimize reliance on unsecured funding sources as a last resort. Disciplined collateral management provides the best chance for capital efficiency under increasingly difficult funding conditions.

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