

Federal Reserve Bank of New York
Staff Reports

Hybrid Intermediaries

Nicola Cetorelli

Staff Report No. 705
December 2014



This paper presents preliminary findings and is being distributed to economists and other interested readers solely to stimulate discussion and elicit comments. The views expressed in this paper are those of the author and do not necessarily reflect the views of the Federal Reserve Bank of New York or the Federal Reserve System. Any errors or omissions are the responsibility of the author.

Hybrid Intermediaries

Nicola Cetorelli

Federal Reserve Bank of New York Staff Reports, no. 705

December 2014

JEL classification: G20, L20

Abstract

I introduce the concept of hybrid intermediaries: financial conglomerates that control a multiplicity of entity types active in the “assembly line” process of modern financial intermediation, a system that has become known as shadow banking. The complex bank holding companies of today are the best example of hybrid intermediaries, but I argue that financial firms from the “nonbank” space can just as easily evolve into conglomerates with similar organizational structure, thus acquiring the capability to engage in financial intermediation. I document instances of the emergence and growth of such nonbank hybrid intermediaries. Notable nonbank firms (for example, from the investment banking or specialty lending sectors) that had become significant intermediaries and that turned into bank holding companies post-Lehman are, from an organizational standpoint, indistinguishable from firms with a traditional banking origin. Similar inference can be drawn by analyzing specific activities. I focus on securities lending, a well-understood example of shadow financial intermediation, and document the emergence of a firm from the asset management sector as one of the largest providers of related intermediation services globally.

Key words: intermediation, conglomeration

Cetorelli: Federal Reserve Bank of New York (e-mail: nicola.cetorelli@ny.frb.org). The author thanks Jamie McAndrews and João Santos for valuable comments. The views expressed in this paper are those of the author and do not necessarily reflect the position of the Federal Reserve Bank of New York or the Federal Reserve System.

1. Introduction

The financial intermediation industry has experienced two major developments in recent decades. First, a system that had commercial banks as central brokers providing all the services needed for the intermediation of funds has been progressively replaced by a much more complex, assembly-line system, with a multiplicity of entity types jointly involved in the completion of the intermediation process. This is what has become known as the system of shadow banking (e.g., Pozsar, Adrian, Ashcraft and Boesky, 2010, Financial Stability Board, 2011).

Parallel to this development, we have also observed a significant organizational transformation in banking firms; they have moved from being focused commercial bank entities and have become instead progressively very complex bank holding companies, with control over dozens and dozens (sometimes hundreds and even thousands) of subsidiaries, with depository institutions, in many instances, constituting only a small fraction of their entire organizational count (Avraham, Selvaggi and Vickery, 2012).

In previous work I have suggested that this second development, the organizational transformation of banks, has, in fact, been the result of an adaptive response to the first development, the change in the mode of intermediation (Cetorelli, Mandel and Mollineaux, 2012). As banks witnessed the diminished role of commercial banking narrowly defined, they essentially adapted by “moving into the shadow,” thus expanding the boundaries of the banking firm to reflect the contribution of nonbank entities, such as specialty lenders, brokers-dealers, insurance firms, and asset managers, to the modern intermediation process.

In this paper I take this line of analysis beyond banks, to argue that, in fact, the evolution in the intermediation “technology” did not just affect banks but it actually prepared the ground for the emergence of a broader class of complex financial conglomerates, which I define as *hybrid intermediaries*: A successful hybrid is a species that, in a new environment, is better suited to survival than the species it derives from. Hence, in the new financial “ecosystem,” a hybrid intermediary is a conglomerate that controls some or all of the entity types that contribute to the

intermediation process. In other words, the conglomerate as a whole is better positioned to conduct itself as a financial intermediary than its subsidiaries taken individually. The argument is that just as banks move from commercial banking into the area of specialty lending, insurance, asset management, broker dealers, etc., to integrate the modern assembly-line process of shadow intermediation, there is no particular reason, that such a process of organizational transformation could not also be undertaken by firms originating from nonbank segments of the financial industry.

In many ways this evolution has created important benefits, such as improved asset and liability management for intermediaries, lower financing costs, gains in liquidity and credit risk allocation, and contributions to the development of capital markets. However, it has also raised new challenges for the monitoring of intermediation risks and, likewise, for effective regulation, both to prevent the systemic externalities associated with intermediation activities or, failing prevention, to contain the consequences of systemic events. Indeed, with the new system, the intrinsic risks of intermediation activity, in particular the innate exposures to “runs” by liability holders, and the potential for fire sales of assets, do not disappear. If anything, moving financial intermediation activities away from the radar screen of the prudential regulator, accustomed to focusing on banks’ own balance sheets, may result in these risks and the associated systemic externalities becoming more significant.

The financial crisis of 2007-2008 is the direct manifestation of these mounting fragilities. For instance, the crisis originated as a run on the liabilities of issuers of asset-backed commercial paper (Gorton, 2008, Covitz, Liang, and Suarez, 2013, Acharya, Schnabl, and Suarez, 2013, Kacperczyk and Schnabl, 2010). Likewise, there was also a “run” on repurchase agreement liabilities (Gorton 2008; Gorton and Metrick 2010). Securities lending also experienced a similar run-like event, as AIG was confronted with a massive recall of cash collateral by its counterparties, cash that in the meantime had been allocated to illiquid, term repo investments, and that required the Federal Reserve Bank of New York to institute an *ad hoc* facility (Maiden Lane 2) to relieve the liquidity pressure on the firm.¹ Additionally, in the aftermath of Lehman

¹ For more detail, see http://www.federalreserve.gov/newsevents/reform_aig.htm.

Brothers' default, money market mutual funds, despite the important regulatory restrictions on their asset allocation, experienced a run on their liabilities, an event that triggered, in turn, an even larger run on asset-backed commercial paper issuers (Acharya, Schnabl, and Suarez, 2013). Concurrently, a number of nonbank financial conglomerates that had been engaged in shadow financial intermediation activity applied for bank holding company status in the aftermath of the Lehman event. By doing so, they became subject to prudential monitoring while obtaining access to the government safety net.²

I argue that the organizational angle I explore in this paper offers a useful window into interpreting the observed evolution in the financial intermediation industry. Recognizing the role of financial conglomerates in intermediation activities and analyzing the extent to which such activities are undertaken within the limits of their organizational boundaries provide important qualifications to the concept of shadow banking, assisting in the identification of what is *truly* in the shadow. A focus on organizational structure and specific legal entities should also provide a valuable mapping of specific intermediation activities that, by their nature, may be difficult to subject to effective oversight. Finally, and complementary to the support to oversight, a focus on organizations may also facilitate the design of regulation aimed at containing the systemic externalities associated with these activities.

In the next section I describe the emergence of hybrid intermediaries in the context of the observed evolution in the system of intermediation. I then provide some evidence on hybrid intermediaries. First, I look at the organizational structure of that particular set of financial conglomerates mentioned above: those that turned into bank holding companies post Lehman. Comparing them with “traditional”, bank-origin BHCs, I find a remarkable similarity in their organizational structure. In particular, even accounting for natural idiosyncrasies, they all have control over entities spanning the modern intermediation assembly line, from depository institutions to specialty lenders, securities brokers and dealers, and insurance carriers and investment funds, thus supporting the prior on hybrid intermediaries. I then look at similar evidence but instead home in on one specific economic activity, securities lending, and a well-

² See, e.g., United States Government Accountability Office (2013, pp. 40-41).

known example of shadow financial intermediation. In that context I describe the rapid emergence of a nonbank firm in the area of hybrid intermediation, also highlighting in this case the remarkable similarities (restricting the purview to this activity) to hybrid intermediaries that have their origins in commercial banking. The last section concludes, drawing implications for monitoring and regulation.

2. Evolution in modern intermediation and the emergence of hybrid intermediaries

In its traditional form, financial intermediation is the broad combination of liquidity services offered to the suppliers of funds and the extension of credit to those in need of funds. A traditional intermediary, typically a commercial bank, provides these services simultaneously, taking in deposits as liabilities that can be accessed on demand while allocating the same funds at term in the form of outright loans and/or credit lines. In providing these services, the intermediary performs the three basic functions that usually define intermediation activity: maturity transformation (from short-term liabilities to long-term assets), liquidity transformation (from liquid claims of fund suppliers to illiquid bank claims) and credit transformation (for instance, backing the value of the claims of the fund suppliers with its own equity).

Through these traditional lenses, the emergence of nonbank entities as financial intermediaries is not a new phenomenon. For instance, the 1970s and 1980s saw the rapid emergence of insurance firms and money market mutual funds as entities that were able to provide liquidity instruments that were alternatives to commercial bank deposits. Likewise, finance companies and other specialty lenders grew in importance, substituting on the asset side of banks' balance sheets.

This rise of nonbank intermediaries was certainly significant, but the transformation observed in the more recent period is different in that it is characterized by a concurrent, significant change in the *technology* of intermediation itself (Cetorelli, Mandel and Mollineaux, 2012). Asset securitization has been arguably one of the key events defining this change. Asset securitization turned traditional intermediation upside down, changing both the lending model – diminishing the need to hold and manage on-balance-sheet portfolios of credit claims – and the funding model as well, since the growing stock of asset-backed securities enhances collateral-based

forms of financing, driving the increasing importance of dealer intermediaries and the markets for both securities lending and repurchase agreements (Gorton and Metrick, 2012, Kirk, McAndrews, Sastry and Weed, 2014).

This transformation in the nature of intermediation has been popularized as the rise in shadow banking: Intermediation does not need to be conducted by “centralized” brokers performing all of the activity of intermediation mentioned above. Rather, the process of intermediation can take place through the participation of separate entities linked together over long “credit intermediation chains,” operating – at least partially – outside the purview of the prudential regulator and without explicit access to government backstops traditionally available to prudentially regulated intermediaries. Pozsar, Adrian, Ashcraft and Boesky (2010) define the concept of credit intermediation chains and describe the shadow intermediation system taking place “through a daisy-chain of non-bank financial intermediaries in a multi step process.”³ And so, in securitization-based intermediation, the origination of loans is not the end point of the process but rather the beginning step, at which specialty lenders (finance companies, credit card lenders, mortgage institutions) can just as well engage in credit extension. Loans could then be warehoused through special conduits, to, in turn, be transformed into securities by brokers-dealers, which would also play a crucial role in further rounds of securitization activity. Funding to support this process and the entities involved would come mainly through collateralized transactions (e.g., repos and securities lending), and with the direct involvement of, e.g., investment funds, insurance firms, and pension funds.

From an organizational perspective, financial intermediation thus goes from being an integrated process, with banks providing all the necessary services, to a supply chain system, wherein separate entities and markets engage in the efficient matching of the supply of funds with demand. In this context, bank holding companies are actually the most noticeable example of hybrid intermediaries:⁴ With intermediation no longer occurring within the boundaries of commercial banks’ balance sheets, banks have adapted and remained viable intermediaries,

³ Pozsar, Adrian, Ashcraft and Boesky (2010, pp. 10-12).

⁴ In what follows I do not make a distinction between bank and financial holding companies, identifying both as bank holding companies.

evolving into increasingly complex financial conglomerates, integrating under common ownership and control the nonbank entities operating along the modern credit intermediation chains. This adaptation is indeed reflected in the large numbers of mergers and acquisitions of entities in the nonbank sectors of the financial industry that banks completed from the early 1990s onward, as documented in Cetorelli, McAndrews and Traina (2014). There is also evidence that conglomeration has created value (Cetorelli and Traina, 2014), reflecting what one might expect theoretically as an optimal response by incumbent firms to a changing environment (see, e.g., Rajan and Zingales, 2001, Stein, 2002). For instance, this vertical integration of the modern process of financial intermediation may have allowed for better information sharing, centralized risk management, cross-product subsidization, firm-wide guarantees, and internalization of potential frictions that may exist across the separate specialized entities (Ashcraft and Schuermann, 2008).

But then, just as many banks have followed a conglomeration path that turned them into hybrid intermediaries, what should prevent nonbank entities from pursuing a similar strategy of organizational expansion? In principle, nothing. The whole point as to why modern intermediation has been called shadow banking is, after all, exactly because the participants in the process do not need to be recognized as intermediaries, nor do they need to be subject to explicit authorization to operate as such.⁵

There is evidence that such organizational dynamics among nonbank firms have, in fact, occurred (Cetorelli, McAndrews and Traina, 2014). Data from the U.S. financial industry from the early 1990s to the present indicate the presence of significant merger and acquisition dynamics among nonbank entities of different sectors: In other words, one does not just observe, say, asset managers buying other asset managers or insurance firms buying other insurance firms, following traditional consolidation strategies, but one also observes significant cross-industry expansion, with asset managers acquiring broker-dealers, specialty lenders, and insurance firms and, likewise, broker-dealers acquiring asset managers or insurance brokers, etc.

⁵ This is a well-understood point. There is nothing “shady” *per se* in shadow banking (see, e.g., Financial Stability Board, 2011). Of course, less than perfect monitoring may also generate incentives to engage in questionable practices but that is beside the point made here.

Table 1, from Cetorelli, McAndrews and Traina (2014), summarizes such merger and acquisition activity that has taken place in the U.S. between 1990 and 2013, by firms belonging to one of nine sectors: Banks, Thrifts, Asset Managers, Broker Dealers, Insurance Brokers, Insurance Underwriters, Financial Technology, Investment Companies and Specialty Lenders. The table shows significant within-sector consolidation (numbers along the main diagonal of the matrix) but also significant dynamics “off diagonal,” not exclusively initiated by banks.

Hence, organizational dynamics outside of banking seem to be consistent with nonbank entities’ evolving toward the hybrid intermediation model. Of course, this observation does not imply that *all* financial firms become hybrid intermediaries, nor that the creation of hybrid intermediaries is the only motivation behind all of those mergers and acquisitions. However, I argue that developing the organizational structure of a complex financial conglomerate, one that controls those entity types mentioned above — those catering to the process of modern financial intermediation — is a *necessary condition* to be a successful hybrid intermediary. Also, and just as important, that complex conglomerates emerge as intermediaries does not mean that simpler forms of intermediation do not continue to coexist. After all, this process of organizational expansion necessarily requires the acquisition of scale and therefore levels of consolidation that naturally can only be achieved by few firms. The argument behind the formation of a hybrid intermediary is that efficient *integration* of the whole process can be achieved through conglomeration. Stand-alone banks, finance companies, broker-dealers, and plain vanilla asset management firms and insurance companies are compatible with the model of hybrid intermediation and can continue to engage in the process of financial intermediation.

3. Some evidence on the formation of hybrid intermediaries

In this section I suggest two alternative, complementary approaches to analyzing and documenting the existence of hybrid intermediaries. First, using broad lenses, I focus on entities, and I analyze the organizational structure of a set of financial conglomerates. My thesis suggests that hybrid intermediaries share significant similarities in their organizational structure,

irrespective of their origin. Hence, I compare conglomerates with a well-defined “banking” origin and others originally from the nonbank space but that are well-known as financial intermediaries, to see to what extent they have control over a similar set of subsidiaries, in particular, subsidiaries that participates in the modern financial intermediation chains. Subsequently, I zoom in on one specific activity,⁶ securities lending, which has the well-recognized features of a modern intermediation chain: specific entity types active at every node to complete the process of intermediation. Going deep into the details of this economic activity, I document the dominant role of a small set of hybrid intermediaries, those with *both* a bank and a nonbank origin.

a. The example of “accidental” BHCs

I present some suggestive evidence comparing the organizational detail of a particular set of BHCs. Of course, given what was said above about the organizational evolution of banking firms, observing a high degree of similarity in organizational structure across BHCs is exactly what one would expect. However, I exploit the fact that a number of large financial firms filed requests to acquire BHC status in the aftermath of the Lehman Brothers default. These are all firms from nonbank core industry sectors that had nevertheless developed a significant role as financial intermediaries (and were, in fact, experiencing distress because of their engagement in financial intermediation activities). This simultaneous decision from a varying set of firms to become BHCs at that particular juncture appears to be an “accidental” event relative to their corporate history. In other words, this decision does not seem to have been the result of a concerted organizational strategy, but rather driven instead by the exceptional circumstances following Lehman, manifested in both severe market funding distress and potential opportunities for business expansion.⁷

⁶ By explicitly focusing on both entities and activities, I am implicitly following the methodological approach proposed by the Financial Stability Board (see, e.g., Financial Stability Board, 2013).

⁷ See, for instance, the announcement by Morgan Stanley of its becoming a BHC: “... Morgan Stanley sought this new status ... to provide the Firm maximum flexibility and stability to pursue new business opportunities as the financial marketplace undergoes rapid and profound changes. ... The Firm's status as a Federal Bank Holding Company also provides Morgan Stanley ongoing access to the Federal Reserve Bank Discount Window and expanded opportunities for funding. ... “

I compare the organizational structure of these conglomerates with that of some BHCs that had instead developed into complex conglomerates but clearly had their origins in core commercial banking. This gives me an opportunity to draw a reasonably clean comparison across nonbank conglomerates with *ex ante* heterogeneous organizational histories and heterogeneous core business activities, and between them and those conglomerates that come from the core banking side of the industry spectrum. Specifically, I collected regulatory data on the full organizational tree of the following accidental BHCs: American Express, Discovery Financial, Ally Financial, and CIT Group (core business specialty finance), and Morgan Stanley and Goldman Sachs (core business investment banking).⁸ As a means of comparison, I collected data for the three largest BHCs with a true banking origin — JP Morgan Chase, Bank of America, and Citigroup — all three of which are well-known examples of conglomerates that, over time, have developed rather complex organizational structures, thus fitting into the hybrid intermediaries classification.

Finding similarities in their organizational structure would be an indication of convergence toward the hybrid intermediary business model and also an indication that the path toward hybrid intermediation is not exclusive to firms with banking origins. Of course, a similarity in organizational structure *per se* is not indicative of hybrid intermediation: Perhaps all of these firms are converging toward *non*-intermediation activities. For example, apparent convergence may just be driven by common, broad technological trends, which may lead to the need to control in house, say, data processing, software, and hardware operations, automation systems, and likewise professional services (e.g., legal, accounting, management consulting, etc.). Support for the hypothesis of convergence toward the hybrid intermediation model requires observing similarities in control specifically over those entity types involved in the modern intermediation process. The alternative hypothesis is that these firms exhibit significant concentration in the entity types of their sector of origin. So, for instance, BHCs of bank origin would be mainly composed of depository institutions; firms from specialty finance should have mainly nondepository credit intermediaries; investment banks mainly securities dealers, etc.

⁸ These were the firms mentioned in the U.S. Government Accountability Office report cited earlier (U.S. Government Accountability Office, 2013).

I summarize the data on the organizational trees of these entities, reporting the share of total subsidiaries by their primary business activity, according to their three-digit NAICS code. Note that detailed information on firms' full organizational tree is usually not systematically available. A notable exception is U.S. bank holding companies, which are mandated to report their organizational charts (FR Y-6, Annual Report of Holding Companies) and any change in ownership and control over their affiliates, such as de novo creation, sales, or liquidations or termination of activity (FR Y-10, The Report of Changes in Organizational Structure). Hence, this is another good reason to look at BHCs to learn something about the organizational structure of financial conglomerates.

I selected data for 2010 Q4 — sufficiently away from the time when the first group became BHCs to allow for complete and reliable reporting of their organizational structure but also not too far away, to reduce the likelihood that the acquisition of BHC status itself might have had an impact on subsequent organizational choices. As the data indicate, the overall spectrum of industries within the organizational footprint of these firms is quite broad, ranging from Oil and Gas Extraction plants (NAICS 211) all the way to Religious, Grantmaking, Civic, Professional and Similar organizations (NAICS 813). It is also the case that there is a certain degree of uniqueness in the organizational structure of each specific firm. However, the data also show a substantial degree of similarity across firms, and specifically, most of the subsidiaries – across all firms – are exactly those entities that one would expect to find active along credit intermediation chains. And so, more precisely, the largest concentration is found among credit intermediaries, both depository institutions and specialty lenders (NAICS 522), securities dealers, brokers, investment banks, and entities specializing in other financial investment activities (NAICS 523), insurance companies (NAICS 524), and investment funds (NAICS 524). Across all conglomerates, these subsidiaries – which really capture the scope of modern financial intermediation - accounted for more than 67 percent of the total. Adding to these numbers the share of subsidiaries that are only the controlling entities within the organizational tree (intermediate holding companies, NAICS 551), we can account for more than 80 percent of subsidiaries across all firms.

Hence, and again, even accounting for natural differences across these conglomerates, the

structure of their organizational trees indicates remarkable similarities, particularly in their integration over the set of entities mentioned earlier that have become so important in the assembly-line process of modern intermediation.

b. Evidence of hybrid intermediation from a specific activity: Securities lending

The analysis of the entity types controlled by a conglomerate gives us a sense of what the organizational structure of a hybrid intermediary should be, but it does not give us the specifics of how the conglomerate engages in financial intermediation activity. A complementary approach is to zoom in on a given activity and examine which entity types contribute to the intermediation process and to what extent such a process is carried out by financial conglomerates integrating the roles of the various entities involved in it.

In what follows I focus on securities lending, a component of the shadow banking system, as a clear example of modern financial intermediation activity with a long list of entities and markets involved in a complex credit intermediation chain.⁹ As such, it has been the subject of scrutiny in recent monitoring and regulatory efforts.¹⁰

Figure 1 illustrates schematically the complexity of a securities lending intermediation chain. Securities lending is the temporary transfer of securities from lenders to borrowers. The transactions are normally backed by collateral, in the form of either cash or other securities. Lenders are typically entities that own large portfolios of securities as part of their basic business activity. These are predominantly pension funds, mutual funds, insurance firms, and endowments. The demand for securities instead comes from broker-dealers, either for their own market making and for trading activities, or on behalf of their own clients, such as hedge funds (Financial Stability Oversight Council, 2014).

⁹ Securities lending activity and its risks have been discussed and analyzed extensively in recent years (see, e.g., Adrian, Begalle, Copeland and Martin, 2012, Lipson, Sabel and Keane 2012, and Keane 2013). Therefore, in the remainder of this section, I do not engage in an extensive description of the activity, but I focus instead on highlighting its financial intermediation nature.

¹⁰ See, for instance, Financial Stability Board (2012) and European Commission (2014).

Securities lending was originally an informal activity that took place between brokers to facilitate the settlement of transactions initiated by their clients (Faulkner, 2007, Harding and Johnson, 2011). Over time, however, it grew into an income-generating activity for both lenders and borrowers, in turn contributing to the significant enhancement of a number of important market activities. For instance, securities are typically exchanged to assist in the practice of short sales, market making, and derivative trading, and in tax or other arbitrage opportunities. Moreover, as Figure 1 indicates, when the collateral takes the form of cash, it can be reinvested, thus contributing to other financing activities (e.g., repo funding). It has also become a means to an end, i.e., a strategy for securities lenders to obtain funding and, hence, a way to lever up from the original asset base (Faulkner, 2007).

Securities lending displays the typical marks of financial intermediation. As in any lending transaction, there are informational issues to be resolved before the actual exchange can take place. The lender has to identify the quality of the borrower and the characteristics of the collateral as well (screening).¹¹ Moreover, the quality of both borrowers and collateral needs to be assessed throughout the continuation of the exchange (monitoring). Confirming the existence of informational frictions, it is common market practice to write contracts that allow both lenders and borrowers to terminate the transaction on demand, and that require the re-evaluation of both securities on loan and collateral typically on a daily basis. Securities lending activity thus also necessitates appropriate liquidity management throughout the duration of the contract.

In securities lending's original form, the existing relationships among brokers contributed to mitigating these informational frictions.¹² However, as securities lending progressed into a broad market activity, the concurrent expansion of the set of lenders and borrowers rendered the matching between known parties increasingly difficult and inefficient. In such an environment, one would therefore expect the market to evolve toward *indirect* transactions, mediated by agents

¹¹ Where, of course, the quality of both borrowers and collateral is jointly determined, so that one can substitute for the other.

¹² Indeed, the value of the individual brokers' relationships was so important that, at times, these original transactions would take place without written arrangements and without explicit backing of collateral (Harding and Johnson, 2011).

that, again, as in other standard borrowing/lending transactions, would provide the necessary services of screening, monitoring, and liquidity management. Indeed, transactions are now primarily accommodated through the services of an intermediary that acts as an agent for the lender (International Securities Lending Association, 2012).¹³ The *agent lender*, as displayed in the figure, benefits from economies of scale and scope, expertise, technology, and broad access to borrowers, thus resolving the informational frictions mentioned earlier and contributing to more efficient transactions.¹⁴

Despite the common practice of termination on demand and daily marking to market, most lenders still expect the agent lender to offer a credit enhancement, known as indemnification. Indemnification is a contractual obligation against the risk of counterparty default. In the event of borrowers' default, the agent lender is obligated to return the securities to the lenders. Because of the existence of collateral, the exposure of the agent lender is limited to the shortfall between the market value of the purchase of replacement securities and the market value of the underlying collateral. Indemnification is not conceptually different from other credit guarantees normally provided by banks, and it is a natural outcome one would expect to observe in the presence of significant informational risks. It is equivalent to providing an equity stake acting as loss absorption, thus protecting the credit quality of the original claims. Hence, the agent lender, with indemnification, creates *credit transformation*, again, another way to describe a typical intermediation activity.¹⁵

¹³ To be more precise, when acting on behalf of hedge fund clients, broker-dealers are also acting as intermediaries, but in this paper, I do not discuss their roles.

¹⁴ Alternatively, one could conceive of securities lending without intermediaries by reducing or eliminating its intrinsic informational frictions. Recent proposals and actual developments to move to a system based on the services of a central clearing counterparty could be interpreted that way (see, e.g., Eurex Clearing, 2014; Securities Lending Times, 2013).

¹⁵ With discretion in terminating the loan and daily marking to market, it would seem that providing indemnification does not imply risks for the agent and that it can be done at little or no cost (or said differently, that indemnification has little value). This argument, however, does not take into account that indemnification, and its value, is determined endogenously, together with the choice of counterparty, type of collateral and initial margins, and that in fact the existence of indemnification could lead lenders toward more aggressive risk/revenue choices. A recent study, (Horner, 2013) has in fact suggested that the emerging regulatory framework under Dodd Frank and Basel III may impose significant increases in the cost of capital for prudentially regulated institutions that provide indemnification (indemnification, as other off-balance sheet guarantees, are subject to capital regulation).

The agent lender also plays a crucial role as financial intermediary in the case in which it manages cash collateral reinvestments on behalf of the lenders. The reinvestment of cash collateral is a bank-like activity in its most traditional form: As mentioned above, securities lending transactions can be terminated at the discretion of either lenders or borrowers. Hence, the cash collateral can be recalled at any time, thus making it conceptually no different from a typical “on demand” liability of a bank. At the same time, the reinvestments – the assets of this bank-like balance sheet - will normally be at term, thus implying that the agent lender, in managing cash collateral reinvestments for its clients, is creating both maturity and liquidity transformations of the original financial claims.¹⁶

The role of the agent lender as a provider of financial intermediation services has thus emerged naturally as securities lending has evolved into its modern form. A number of intermediation risks associated with this role can also be identified.¹⁷ To start, indemnifications, as other off balance sheet guarantees in general, are direct claims on the equity of the entity that provides them. Actual indemnification payouts, by reducing equity balances, would reduce the value of residual indemnification claims. This event could trigger lenders to terminate existing transactions, in turn leading to disruption of the borrowers who must return the securities, and of whatever market the securities had been used for. And if those transactions had been backed by cash collateral, the termination of the lending contracts would also imply the withdrawal of that cash from collateral reinvestment pools, thus potentially imposing liquidity pressure in those vehicles.¹⁸ Moreover, balance-sheet distress that might originate from indemnification commitments could affect any other activity undertaken by the entity, besides the provision of agent lending services.

¹⁶ Further intermediation activity takes place if noncash collateral is re-hypothecated, that is, if it is used as collateral in other transactions, thus generating additional rounds of liquidity transformation. Existing regulations restrict or prevent the re-hypothecation of collateral from securities lending transactions, and when re-hypothecation can take place, it is usually done by a party separate from the agent lender. For these reasons, I do not focus on re-hypothecation here.

¹⁷ Securities lending gives rise to a longer list of investment risks that do not have an intermediation nature. Given the focus on the intermediation angle, I will not discuss these risks (see, e.g., International Securities Lending Association 2012 for a broad illustration of risks in securities lending activity).

¹⁸ In fact, and more broadly, the loss of value of indemnification guarantees can be triggered by any event that affects the balance sheet of the agent lender. Hence, the very fact that an agent lender provides indemnification may be a source of disruption in the securities lending activities of its clients and the related markets.

The management of cash collateral reinvestments is also exposed to run risk. Lenders may withdraw the cash from the reinvestment vehicle if there is concern about the agent lender's investment management. This likelihood increases even more when the reinvestment vehicles pool the cash collateral from multiple separate lenders (commingled funds), thus exacerbating well-known coordination issues. Note that the practice of cash pooling should be expected in a standard financial intermediation equilibrium, since the agent lender – the intermediary – achieves the potential for both economies of scale and diversification, while lenders economize with respect to the choice of direct investment. Lenders, of course, could manage the cash reinvestments directly or specify extremely detailed investment directives for the agent lender,¹⁹ and they can request that their own cash be segregated in separate accounts (thus forsaking both scale and diversification gains). After the financial crisis, the industry has indeed witnessed an increase in a more hands-on approach to the handling of cash collateral reinvestments by lenders (this is the case, for instance, for the largest pension funds). This practice, however, does not negate the financial intermediation nature of the activity. It is simply indicative of a perceived weakening by market participants in the value of the agent lender, in the aftermath of the financial crisis. But there is no reason to suggest that this is a permanent equilibrium, nor that it is an equilibrium outcome at all.

Interestingly, the run may also be initiated by borrowers if they are concerned about the future repossession of their collateral. Either way, the withdrawals can impose liquidity stress on the investment vehicle and price pressure on the asset classes that were the object of the reinvestment, and therefore, the vehicle may need to be liquidated. Moreover, to the extent that the cash reinvestments constituted a funding supply for other transactions (as is the case, for example, with repos), the withdrawals in the reinvestment vehicles could be a source of shock in those markets as well.

As mentioned earlier, agent lenders typically provide indemnification against the event of default of borrowers, but the contractual indemnity usually does not extend to cash collateral reinvestments. Hence cash collateral reinvestment vehicles resemble banks' balance sheets for

¹⁹ In practice, the management of cash collateral by an agent lender is always typically based on an existing customer agreement, which specifies investment guidelines as determined by the lender. Of course, the degree of discretion left to the agent lender can vary widely, and it is itself an endogenously determined outcome.

the embedded maturity and liquidity transformation, but they do not receive the support of explicit equity that an intermediary would normally provide. One of the functions of bank equity is to reduce the incentive for bank depositors to withdraw at the first sign of liquidity or solvency problems. A cash collateral reinvestment vehicle suffers in principle from the same kind of intrinsic fragility. Hence, in order to be a viable vehicle, an argument can be made that it may operate under the presumption, by investors and market participants, that some form of support exists, even if it is not contractually contemplated.²⁰

It is difficult to provide evidence for the existence of implicit guarantees, but what I just described fits closely with observation in the aftermath of the Lehman event, when many securities lending programs sustained substantial losses in their reinvestment portfolios, prompting some of the largest agent lenders (e.g., Northern Trust, Bank of New York Mellon) to incur balance-sheet losses to repay their lender clients (Schneyer, 2008). In other circumstances, in which there were no explicit compensations, lenders brought a significant number of lawsuits, an explicit indication of a misalignment in expectations between lenders and their agents (see, e.g., U.S. Government Accountability Office, 2011).²¹ As Federal Reserve Board Governor Daniel Tarullo has also pointed out: “The custodian banks all but universally provided a contractual indemnification to the securities lenders that required them to absorb any losses to the securities lenders if the securities were not returned. But the investment returns, and risk of loss on the reinvestment of cash collateral that would have to be returned to the borrowers of securities, generally were not covered by such indemnifications. Nonetheless, a number of securities lenders seemed to believe otherwise, and in many cases their expectations were fulfilled as custodian banks agreed during the financial crisis to bear at least some of the losses from cash collateral reinvestment programs.”²² The fact that cash collateral reinvestment activity may, in fact, rely on implicit support by the agent lender – whether that support is provided ex

²⁰ Because the success of the agent intermediary is based on developing a lasting reputation for both managing liquidity and investment returns, it would be in the agent’s best interest to provide support to securities lenders in case of losses from the reinvestments, regardless of what was contractually agreed on. Knowing this, in turn, leads to the ex ante expectation that support will be provided in certain states of the world. There is an extensive literature on reputational risk and its effects on ex ante incentives and equilibrium outcomes (see, e.g., Thakor, 2005, Boot, Greenbaum and Thakor, 1993).

²¹ And, of course, in the event of shocks, this trust may diminish, leading to a breakdown of the intermediation process. Indeed, post crisis, many lenders have imposed the requirement of holding their collateral in separate accounts and have taken a more direct role in managing the reinvestment.

²² See <http://www.federalreserve.gov/newsevents/speech/tarullo20120612a.htm>.

post or not – can only amplify the financial intermediation nature of the activity and the role of the agent lender in bearing and transmitting those risks in the broader system.

What types of firms should one expect to observe as the main providers of intermediation services in securities lending intermediation chains? Based on the arguments above, it should not come as a surprise that the largest and most dominant agent lenders have historically been *banks*. For instance, in 2013, State Street, Bank of New York Mellon, JP Morgan Chase, Northern Trust, and Citi together provided indemnification for about \$900 billion of securities on loan.²³ This is a rather large number in relation to the total value of securities on loan in U.S. markets of about \$870 billion and \$1.77 trillion globally (Financial Stability Oversight Council, 2014).

The hybrid intermediary structure of these five firms seems to be a crucial element contributing to their dominant role in securities lending activity. Indeed, they have affiliates at every node of the securities lending intermediation chain shown in Figure 1. For instance, they all have multiple subsidiaries engaged in fiduciary or custodial activities. This – as said earlier – places them in a natural position to have “access” to large securities portfolios. Moreover, they all have trust institutions and other bank-like subsidiaries that for their specific core business are in a natural position to offer and bear the risk of indemnification; they have specialized firms to undertake the administrative functions associated with the role of the agent, such as borrower selection and collateral management, and they also all have broker-dealer subsidiaries and hence knowledge and expertise from the perspective of the borrower side as well. Finally, they control investment management firms that administer broad sets of investment vehicles, such as money market funds, to handle cash reinvestment needs.²⁴ Hence, from an organizational perspective they are able to *integrate* the process over the securities lending intermediation chain.

²³ \$320 billion, \$245 billion, \$170 billion, \$83 billion and \$79 billion, respectively (source: firms’ own 10-Ks for 2013).

²⁴ For example, State Street Corporation, through its affiliate State Street Global Advisors offers securities lending services to the more than 100 exchange-traded funds (SPDR) that they sponsor, whereas State Street Financing Transaction is the subsidiary that acts as agent lender, State Street Bank and Trust the entity providing indemnification, and State Street Global Advisors the investment manager handling cash reinvestments (“Securities Lending and ETFs: An Overview,” SPDR State Street Global Advisors, www.spdrs.com).

Can one expect to observe nonbank firms as significant providers of intermediation services in securities lending? Following the arguments I have developed to define the concept of hybrid intermediaries, the answer is yes. Indeed one such firm, Blackrock, Inc., the largest asset management firm globally, has recently risen to become one of the largest providers of intermediation services in securities lending.²⁵ As reported in its regulatory filings, Blackrock indemnified about \$40 billion of securities on loan at the end of 2012, \$118 billion at the end of 2013, and \$130 billion as of mid-June 2014 (source: Blackrock, Inc. 10Ks and 10Qs).²⁶ Figure 2 maps Blackrock, Inc. along the securities lending intermediation chain. A large number of its investment funds contemplate the lending of their securities as an activity, and many do lend.²⁷ The figure lists a subsample of Blackrock funds actually engaged in securities lending. The company also has multiple subsidiaries that provide agent lender services to the affiliated funds. In fact, one of these subsidiaries, Blackrock Institutional Trust Company, N.A. (BTC), is actually a nondepository bank, subject to prudential regulation in the United States by the Office of the Comptroller of the Currency, and therefore naturally positioned to offer indemnification services. In reality, however, indemnifications are provided entirely by the parent company itself, Blackrock, Inc., while BTC and the other specialized subsidiaries usually act as agent lenders only, providing the administrative services associated with this role. The firm also owns a broker-dealer, Blackrock Investments, LLC, and likewise, it manages various families of hedge funds as well, thus potentially having a full presence on the demand side of securities lending transactions.²⁸ Finally, the company is present in the reinvestment stage, where its agent lenders manage the cash collateral from the transactions of the company's many funds in pooled cash vehicles, also part of the organization (see Figure 2 for some specific examples of such funds).

²⁵ Engaging in securities lending is common practice among asset management firms and not unique to Blackrock, Inc. It is, however, the case that, by virtue of its status as a public company, extensive reporting and documentation is available for Blackrock, Inc., thus making it a good example in conducting a case study.

²⁶ Blackrock's growth in securities lending began after the acquisition of Barclays Global Investors (BGI) in 2009, an acquisition that included Barclays' own exchange-traded funds family, iShare. As part of the acquisition deal, Barclays remained contractually obligated to continue to provide indemnification support through December 1, 2012.

²⁷ The information reported in this section comes from direct reading of individual funds' annual reports and related filings, and the filings of the parent company itself. Data are from the end of 2013, unless otherwise specified.

²⁸ I am not aware of actual cases where securities portfolios from Blackrock funds are loaned to affiliates of the parent company. However, fund prospectuses do at least envision the hypothetical circumstance: "... one or more Affiliates may be among the entities to which the Fund may lend its portfolio securities under the securities lending program ..." (e.g., iShares International Select Dividend ETF, 2014 Prospectus).

Hence, the company seems to have the scale and organizational scope to stretch beyond the core business model of an asset manager, and in fact at least in the area of securities lending, the firm does not look very different from the other top five firms mentioned above. They all have the types of subsidiaries that allow them to integrate the process of lending, collateral management, and reinvestment, thus enhancing the efficiency and optimization of risk management strategies. This is what allows these firms to provide valuable services to their client lenders while, at the same time, ensuring a positive return for themselves. This is also what makes all of them hybrid intermediaries.

4. Conclusions

Financial intermediation has evolved toward a decentralized system, favoring specialization but also leading to organizational conglomeration. Understanding this evolution has relevant implications. As argued before (Cetorelli, Mandel and Mollineaux, 2012, Cetorelli and Peristiani, 2012), a good chunk of modern financial intermediation was and, in fact, still is taking place within the boundaries of organizations subject to prudential monitoring and regulation,²⁹ thus imposing qualifications on the characterization of shadow banking.

At the same time, I suggest that the evolution toward hybrid intermediation does not need to be the exclusive prerogative of banking firms, since entities originally from other areas of the financial industry broadly defined can follow similar conglomeration paths. The documentation provided in the paper has suggested a number of instances in which financial firms from nonbanking origins have evolved into hybrid intermediaries. These firms are among the largest by asset size and by overall importance in the entire financial industry.

The emphasis on the organizational angle is essential to enhancing the mapping from what are, at times, complex financial intermediation activities to the legal entities behind those activities. Hence, through the organizational lenses we can see these activities in a different light and contribute to bringing them out of the shadow. This approach is therefore complementary, for

²⁹ The Federal Reserve is, after all, the regulator of BHCs, not of their commercial bank subsidiaries.

instance, to the framework based on economic activities that the Financial Stability Board proposed in the conclusion to its analysis of shadow banking and its risks (Financial Stability Board, 2013). Focusing on activities entailing well-recognized intermediation risks (e.g., facilitation of credit creation, intermediation of market activities, loan making dependent on short-term funding) should allow authorities around the globe to effectively identify which entities engage in intermediation activities, thus raising the question of the potential application of prudential standards. In this context, recognizing the existence or the potential emergence of hybrid intermediaries suggests that some or all of those intermediation activities may, in fact, take place within the boundaries of the same organization. This could be a factor in enhancing effective oversight, but at the same time, it highlights the need for internal consistency across regulations specific to individual activities. Put differently, in the presence of hybrid intermediaries engaged in multiple activities, the application of regulatory measures according to “strict” activities guidelines may lead either to ineffective outcomes (e.g., the ability to circumvent policy tools) or to the duplication of regulatory constraints.³⁰

Is the existence of hybrid intermediaries a good or a bad thing? Responding to a question that addresses the overall economic costs and benefits associated with hybrid intermediaries is beyond the scope of this paper. I would, however, suggest that an organizational approach can help in properly framing the cost/benefit question. In the end, there may not be anything wrong *per se* with nonbank entities being involved in financial intermediation. This can, after all, be cast as an organic evolution within the industry, leading to possible efficiency gains. So perhaps the entry of new hybrid intermediaries will lead to improved competition in the industry or to new and possibly even better risk management practices. However, the fact remains that the activity in question is financial intermediation. Hence, benefits and risks should be considered in tandem when analyzing the economic implications of these broad industry developments.

References

³⁰ Hybrid intermediaries are not only likely to span multiple activities but also multiple jurisdictions; hence, they are potentially subject to oversight from multiple regulators. This in turn has consequences for potential cross-border regulatory arbitrage or inconsistent regulatory burden.

- Acharya, V., P. Schnabl, and G. Suarez. 2013. "Securitization Without Risk Transfer," *Journal of Financial Economics*, 107, 3, 515–536.
- Adrian, T, B. Begalle, A. Copeland, and A. Martin. 2012. "Repo and Securities Lending," *Federal Reserve Bank of New York Staff Reports*, 529.
- Ashcraft, A. B., and T. Schuermann. 2008. "Understanding the Securitization of Subprime Mortgage Credit," *Foundations and Trends in Finance*, 2, 3, 191-309.
- Avraham, D., P. Selvaggi and J. Vickery. 2012. "A Structural View of U.S. Bank Holding Companies," *Federal Reserve Bank of New York Economic Policy Review*, 18, 2.
- Boot, A., S. Greenbaum, and A. Thakor. 1993. "Reputation and Discretion in Financial Contracting," *American Economic Review*, 83, 1165-83.
- Cetorelli, N., B. H. Mandel, and L. Mollineaux. 2012. "The Evolution of Banks and Financial Intermediation: Framing the Analysis," *Federal Reserve Bank of New York Economic Policy Review*, 18, 2, 1-12.
- Cetorelli, N., J. McAndrews and J. Traina. 2014. "Evolution in Bank Complexity," *Economic Policy Review*, 20, 2.
- Cetorelli, N., and S. Peristiani. 2012. "The Role of Banks in Asset Securitization," *Federal Reserve Bank of New York Economic Policy Review*, 18, 2, 47-63.
- Cetorelli, N., and J. Traina. 2014. "Conglomeration and Bank Stock Returns," unpublished draft.
- Covitz, D., N. Liang, and G. Suarez. 2013. "The Evolution of a Financial Crisis: Collapse of the Asset-Backed Commercial Paper Market," *Journal of Finance*, 68, 3, 815–848.
- Eurex Clearing, 2014. "Eurex Clearing Lending CCP. Overview on the CCP service for Securities Lending," <http://www.eurexclearing.com/>.
- European Commission. 2014. "Proposal for a regulation of the European parliament and of the council on reporting and transparency of securities financing transactions", Memorandum.
- Faulkner, M. 2007. "An Introduction to Securities Lending," Spitalfields Advisors Limited, London.
- Financial Stability Board. 2011. "Shadow Banking: Scoping the Issues".
- Financial Stability Board. 2012. "Securities Lending and Repos: Market Overview and Financial Stability Issues," Interim Report of the FSB Workstream on Securities Lending and Repos.

- Financial Stability Board. 2013. "Policy Framework for Strengthening Oversight and Regulation of Shadow Banking Entities," Report of the FSB Workstream on Other Shadow Banking Entities.
- Financial Stability Oversight Council. 2014. "Annual Report"
- Gorton, G. 2008. "The Panic of 2007," *NBER Working Paper* 14358.
- Gorton, G. and A. Metrick. 2012. "Securitized Banking and the Run on Repo," *Journal of Financial Economics*, 104, 3, 425–451.
- Harding, P. and C. Johnson. 2011. "Mastering Securities Lending Documentation: A Practical Guide to the Main European and US Master Securities Lending Agreements," Pearson Education Limited.
- Horner, G. 2013. "The Value and Cost of Borrower Default Indemnification", In *View, State Street's Digest of Topics in Securities Finance*, State Street Global Markets, Issue 1, November.
- International Securities Lending Association (ISLA). 2012. "Securities Lending Guide for Policy Makers."
- Kacperczyk, M. and P. Schnabl. 2010. "When Safe Proved Risky: Commercial Paper During the Financial Crisis of 2007-2009," *Journal of Economic Perspectives*, 24, 29-50.
- Keane, F. 2013. "Securities Loans Collateralized by Cash: Reinvestment Risk, Run Risk, and Incentive Issues," *Federal Reserve Bank of New York Current Issues in Economics and Finance*, 19, 3.
- Kirk, A., J. McAndrews, P. Sastry, and P. Weed. 2014. "Matching Collateral Supply and Financing Demands in Dealer Banks," *Economic Policy Review*, 20, 2.
- Lipson, P, B. Sabel, and F. Keane. 2012. "Securities Lending," *Federal Reserve Bank of New York Staff Reports*, no. 555.
- Pozsar, Z., T. Adrian, A. Ashcraft, and H. Boesky. 2010. "Shadow Banking," *Federal Reserve Bank of New York Staff Reports*, no. 458, July.
- Rajan, Raghuram and Luigi Zingales. 2001. "The Influence of the Financial Revolution on the Nature of Firms," *The American Economic Review Papers and Proceedings* vol. 91 no. 2 (May) pp. 206-211.
- Securities Lending Times. 2013. "State of the Central Counterparty," securitieslendingtimes.com, Issue 78.

- Schneyer, F., 2008. "Banks Slap on Sec Lending Limits," PlanSponsor, <http://www.plansponsor.com/NewsStory.aspx?Id=4294981429>
- Stein, J. C. 2002. "Information Production and Capital Allocation: Decentralized Versus Hierarchical Firms," *The Journal of Finance*, 57, 1891–1921.
- Thakor, A. 2005. "Do Loan Commitments Cause Overlending?" *Journal of Money, Credit, and Banking*, 37, 1067-1099.
- U.S. Government Accountability Office. 2011. "401(K) Plans: Issues Involving Securities Lending in Plan Investments," Washington, D.C.: GAO-11-359T, <http://www.gao.gov/products/GAO-11-359T>.
- U.S. Government Accountability Office. 2013. "Government Support for Bank Holding Companies," GAO-14-18, <http://www.gao.gov/products/GAO-14-18>.

Table 1

Acquisitions by industry buyer and industry target, 1990-2012

Buyer Industry	Target Industry										Total
	Bank	Asset Manager	Broker- Deal	Financial Tech.	Insurance Broker	Insurance UW	Invest. Company	Real Estate	Savings Bank/T/M	Specialty Lender	
Bank	6,076	519	292	164	759	38	3	1	1,305	653	9,810
Asset Manager	2	459	38	110	27	24	6	17	1	51	735
Broker-Dealer	6	127	613	78	59	9	4	9	6	42	953
Financial Technology	2	13	23	1,123	60	8				13	1,242
Insurance Broker	4	31	12	35	1,762	18			1	6	1,869
Insurance Underwriter	14	138	55	126	533	1,451		4	18	54	2,393
Investment Company	2	19	4	4	4	2	11	4	1	42	93
Real Estate	1	3	3			1		111	1	10	130
Savings Bank/Thrift/Mutual	359	45	28	8	115	21		2	705	138	1,421
Specialty Lender	19	10	26	20	11	5	3	2	21	769	886
Total	6,485	1,364	1,094	1,668	3,330	1,577	27	150	2,059	1,778	19,532

Source: Cetorelli, McAndrews and Traina (2014)

Table 2

Share of total subsidiaries by 3-digit NAICS primary business activity code

	ALLY	CIT	AMEX	DISCOVER	GOLDMAN	MORGAN	JPMC	BOFA	CITI	Total
211 Oil and Gas Extraction	0	0	0	0	0.03	0.03	0	0	0	0.01
213 Support Activities for Mining	0	0	0	0	0.08	0	0	0	0	0.02
221 Utilities	0	0.56	0	0	1.77	1.24	0	0	0	0.65
236 Construction of Buildings	0	0	0	0	0	0.03	0	0.04	0	0.01
237 Heavy & Civil Engineering Construction	0.8	0	0	0	0	1.09	0	0.13	0	0.25
311 Food Manufacturing	0	0	0	0	0	0	0.02	0	0	0.01
324 Petroleum & Coal Products Manufacturing	0	0	0	0	0	0.03	0	0	0	0.01
424 Merchant Wholesalers, Nondurable Goods	0	0	0	0	0	0.53	0	0	0	0.1
483 Water Transportation	0	0	0	0	0	0.5	0	0	0	0.1
493 Warehousing & Storage	0	0	0	0	0	0.03	0	0	0	0.01
511 Publishing Industries	0	0	0.48	0	0.03	0	0.05	0	0	0.03
517 Telecommunications	0	0	0	0	0	0	0	0.04	0	0.01
518 Internet Service Providers, Web Search Portals, & Data Processing Services	0	0	0	4.55	0.08	0.06	0.23	0.26	0.53	0.19
519 Other Information Services	0	0	0	0	0	0	0.02	0	0.12	0.02
522 Credit Intermediation & Related Activities	41.37	58.33	15.9	27.27	1.41	10.43	3.36	11.52	28.12	10.23
523 Securities, Commodity Contracts, & Other Financial Investments & Related Activities	2.81	13.33	1.93	0	4.89	18.53	49.23	16.47	24.94	23.29
524 Insurance Carriers & Related Activities	12.45	1.11	2.41	4.55	1.27	0.5	0.39	1.71	3.82	1.41
525 Funds, Trusts, & Other Financial Vehicles	14.46	5.56	60.24	0	80.18	26.88	4.05	32.46	14.18	32.27
531 Real Estate	1.2	1.11	1.2	4.55	1.05	1.46	15.08	6.48	6.06	6.19
532 Rental & Leasing Services	0.4	10.56	0	0	0.03	0.03	0.9	0.09	0.12	0.52
533 Lessors of Nonfinancial Intangible Assets (except Copyrighted Works)	0	0	0	4.55	0	0	0	1.01	0	0.15
541 Professional, Scientific, & Technical Services	2.41	0.83	1.69	31.82	0.36	0.34	0.64	0.96	4.18	1.04
551 Management of Companies & Enterprises	24.1	8.61	10.12	18.18	8.6	31.84	5.3	13.36	16.29	14.1
561 Administrative & Support Services	0	0	5.78	0	0.08	0.34	0.28	0.18	1.12	0.45
611 Educational Services	0	0	0	0	0	0	0	0	0.06	0.01
623 Nursing & Residential Care Facilities	0	0	0	0	0	0.03	0	0	0	0.01
624 Social Assistance	0	0	0	4.55	0	6.08	20.38	15.16	0.41	8.85
811 Repair & Maintenance	0	0	0	0	0.03	0	0	0	0	0.01
813 Religious, Grantmaking, Civic, Professional, & Similar Organizations	0	0	0.24	0	0.03	0	0.07	0.13	0	0.05

Source: Author's elaboration of FR Y-10 and Y-6 regulatory reports.

Figure 1

SFT credit intermediation chains

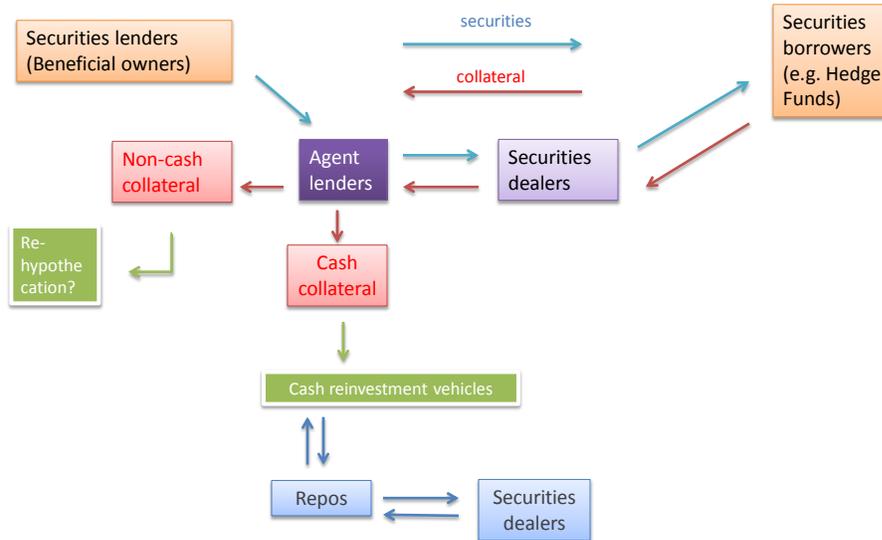


Figure 2

Mapping Blackrock Inc. in Securities Lending

