Taking account of short positions in international portfolio investment statistics

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Compilers of portfolio investment data often assume that securities held domestically plus securities held by foreigners must equal total securities issued. However, investors can, and often do, borrow securities and sell them "short." In that case, the security's lender, as well as the eventual purchaser of the security sold "short" have economic claims based upon the security.

The purchaser of the security from the short seller (and, if it is resold, any subsequent purchaser) clearly has full ownership rights and possession of the security. The lender of the security has a claim roughly equivalent to the owner of the security. However, it is not against the issuer. Because the lender does not have possession of the security, the lender's claim must be against the borrower. However, perhaps surprisingly, the lender may not even know about the loan. The custodian of the lender might or might not know about the loan, but is typically instructed to report the security "as if continuously held."

The obligation of the borrower/short seller is quite complex, as it involves not only an obligation to return an item, but an obligation to incur all of the benefits and costs that the issuer of the security faces. In effect, the borrower/lender becomes a "pseudo-issuer" of the security. The consequences of this situation for compilers can be fairly complex, particularly when the borrower/short seller is a resident of a country other than that of the security's issuer.

Section 1: Short sales and negative positions – Liabilities

1.1 Securities borrowing is a common activity. The Bond Market Association (BMA) estimates that US residents had almost $8 trillion in securities loans outstanding as of June 2004. Of this amount, over $2 trillion were lent through repurchase agreements with non-US counterparties. An additional $700 billion were lent through securities lending agreements with non-US counterparties. Securities borrowing activities in Europe are in excess of US$ 2 trillion and growing very rapidly.

1.2 In many cases, a borrowed security is subsequently sold. Indeed, the primary motivation for the borrowing of a security may be to sell it (engage in a "short sale"), with the objective of having a negative economic position in the security. As of 15 February 2008, short interest in 2,698 NASDAQ securities totaled 8.9 billion shares (3.5 days average trading volumes),[2] and often exceeds 25% of shares outstanding,[3] and short in exchange traded fund indices can range as high as 40% of shares outstanding.[4] Short interest in the shares of Lehman 20+Year Treasury

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[2] NASDAQ press release, 27 February 2008.

[3] Seekingalpha.com, 14 February 2008.

[4] Marketwatch.com, 13 October 2004.

Bond Fund can be than 200% of shares outstanding.[5] Last Friday, short interest in Microsoft had a value in excess of $3 billion.[6]

1.3 It should be noted that the common use of the term “short sale” begins on the trade date. However, international economic account reporting standards call for positions to be reported on a settlement basis.[7] Therefore, for the purposes of this paper, all negative positions must be obtained through the delivery of a borrowed security. Economically, of course, one is “short” during the period between trade and settlement. However, unless international standards change to trade date reporting, it would be inconsistent to include these short positions in economic accounts.

1.4 In addition, there are cases in which negative positions are incurred without the seller obtaining a borrowed security, or even the commitment to obtaining a borrowed security, in order to make a delivery. Short roles of this type are called “naked short sales” and are illegal in the United States. These are not considered further in this paper.

1.5 A typical short sale of a US Security is shown in ***Figure 1***. The custodian for Investor A lends a security to the custodian for Investor B. (The loan can be arranged by the two investors, the two custodians, one of each, or even through a third party arrangement.) In ***Figure 1*** Investor B is a short seller, who sells the security to Investor C (who typically would have no knowledge that the purchased security had been borrowed by Investor B).

1.6 For simplicity, all custodians are assumed to be US residents and all of the investors are assumed to be foreign residents. The holding of Investor A will be reported by the US custodian because custodians are instructed to report securities borrowing arrangements (including repurchase agreements that are treated as collateralized borrowing) as if the borrowing had not occurred. For example, the instructions for the 2006 US liabilities survey state:

Securities “sold” by foreign residents under repurchase agreements or buy/sell back agreements, lent under securities lending arrangements, or delivered out as collateral as part of a reverse repurchase agreement or security borrowing agreement *should* be reported as if the securities were continuously held by the foreign resident. That is, the security lender’s US custodian should report the US security as if no repurchase agreement or buy/sell back agreement occurred.

1.7 The negative holding of foreign Investor B will not be reported. (The United States currently does not require the reporting of the negative economic positions that occur when a borrowed security is sold. The recording of short sales is not currently an international reporting standard, but is very likely to be included as a standard in BPM6.)[8] The holding of Investor C is reported, correctly, by Custodian C.

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5 Ibid.

6 Barrons, 1 March 2008.

7 “When all entries relating to a transaction pertain only to the financial amount, they should be recorded when the ownership of the asset is transferred.” SNA 1993, Paragraph 11.48. The reasoning for this is presented in SNA 1993, Paragraph 3.109: “One may wonder why nominal holding gains and losses are not calculated over a period beginning at the moment on which two units agree to a mutual exchange of assets instead of the period which starts with the moment on which the assets are acquired ... The System, however, regards commitments resulting from a contract as contingent until one of the parties has performed its obligation ...”

8 In 2001, the IMF Committee on Balance of Payments Statistics accepted the recommendation of a working group to record securities onsold that were acquired through repurchase agreements as short positions (Recommendation A.(iv)) and through securities lending agreements (Recommendation B.(v)) (BOPCOM-01/16).

1.8 Note that in this example, Investors A and C are each reported to own a security, but both positions result from a single security. There is a temptation to posit that Investor C does not own a "real" security. However, Investor C will receive all interest or dividends or other attributes of ownership from the issuer (through the issuer's agents and Investor C's custodian, of course). Investor C may sell the security without restriction to any US or foreign resident, who will also have full ownership rights.

1.9 It is Investor A who does not have full ownership rights to the security. The only thing that Investor A owns is a promise to be repaid a security from Investor B. Investor A will not receive interest or dividends from the issuer of the security (although Investor A's agreement with Investor B undoubtedly includes some sort of compensatory payment for the lost relationship with the security's issuer). Thus, for the accounts to balance, if Investor A is shown as owning the security, Investor B must be shown as having a negative position in that security.

1.10 The residency of Investors A and C do not matter. If Investor A were a domestic resident, current data collection would show only the position of the foreign Investor C. The negative position of any foreign Investor B would still be ignored. As a result, a net liability to foreigners would be shown, even though foreigners on balance have a net neutral position in the security. The residency of Investor C also does not affect reporting quality – which is fortunate, because Investor C can onsell the security to any other (domestic or foreign) investor. (If Investor C is a US resident no foreign position is shown. However, the negative position of any foreign Investor B would still be required in order to avoid overstating the aggregate net liabilities of US residents to foreign residents for the security.)

1.11 Note that the type of loan does not matter. In particular, the situation does not change if Investor B acquires the security through a term resale agreement, not currently due. Because repurchase/resale agreements are treated as a loan, if an acquirer uses a delivered security to settle a subsequent sale, consistency requires that we treat the investor as having a negative position in the security, even though, legally, the short seller has no obligation to deliver a security until the term of the resale agreement ends.[9]

1.12 Other presentations are possible. Instead of reporting a negative US liability to Investor B, the United States could show a claim on Investor B for the US security. However, the showing of a negative liability may be preferable. First, no US resident has a claim on Investor B. Second, since Investor B has an obligation to acquire and deliver a security issued by a US resident. This obligation is quite different in nature from US claims on foreign issuers. Also, the mechanics of data collection and presentation might be more difficult if the position were considered a US claim, as the claims and liabilities survey would have to be integrated and claims would include negative foreign holdings of US securities.

1.13 Some might suggest that Investor A be shown as having a short claim on Investor B in Country B. Just as Investor B has a claim on Investor A (for cash), Investor A has

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In 2003, an IMF working group recommended that this treatment be expanded to all short positions (BOPCOM-03/15). The *Draft annotated outline for revision of the balance of payments manual*, fifth edition (BPM5), states (section 6.11(c)): "short positions occur when a unit sells assets (usually securities) that it does not own ... the short position will be shown as a negative holding." Since many nations already collect data on at least some negative positions, this statement of intent is very likely to be incorporated into BPM6.

[9] Because market participants may use different terminology (not always considering a sale completed using a security obtained through a resale agreement, particularly a term resale agreement, as a "short sale"), data collection for these types of positions may have to be specified carefully.

a (short-term) claim on Investor B for the security. By convention, this liability is not shown in the accounts, as it is assumed that the security is merely collateral for the cash loan. However, the cash could, just as easily, be collateral for the loan of the security. (If one security is lent as collateral for the borrowed security, the short-term debts are, by convention, not shown.)

1.14 Presentation as a short-term debt to Investor A has some logic, but it is, in any case, not the full story. Investor B has created an obligation akin to that of the security's issuer. Investor B must pay the obligations of the issuer of the security and acquire the security before delivery needs to be made. This liability to act in the place of the issuer is not shown in the accounts unless a negative liability to the issuing country (not necessarily the country of the lender of the security) is shown.

Section 2: Short sales and negative positions – Claims

2.1 The situation with respect to claims surveys is analogous to that of liabilities surveys. The collection of data on the negative positions of own-country residents would eliminate the current overstatement of domestic residents' net claims on that security (at least for the United States). However, analyzing the impact of short sales on claims surveys can be instructive.

2.2 In ***Figure 2***, the relationships that exist when a security is borrowed and sold short are explored further. A US resident (Investor C) owns a foreign-issued security that happens to have been sold short by an investor in Country B. (Investor B obtained the security by borrowing it from Investor A in Country A.) With full knowledge of the transactions: (1) the United States will show a claim on Country X (as Investor C owns a security issued by a resident of Country X); (2) Country X will show a liability to the United States (because Investor C will have a US custodian, with a subcustodian in Country X); and (3) Country A will show a claim on Country X (as Investor A in Country A "economically owns," but lent the security). On a worldwide basis, the accounts will balance only if Country B shows Investor B's negative position against Country X. The "negative liability" of Country B to Country X is required even though the debt is to an investor in Country A. (A short-term loan from Investor A to Investor B is, of course, required to be shown in the short-term debt accounts of both Country A and Country B but does not affect this analysis.)

Section 3: The relationship of borrowed securities and negative positions

3.1 Lending securities, even if there is no short sale, can result in significant data compilation difficulties. These are explored in the paper "Borrowed securities: Implications for measuring cross-border portfolio investment," which was presented at the 22–29 August 2007 meeting of the Irving Fisher Committee in Lisbon.

3.2 Every negative position is simply a borrowed position that is neither held nor relent. As a result, when calculating an investor's ownership, either of the following equations could be used:

Securities owned = securities held + securities lent – securities borrowed

or

Securities owned = securities purchased and held + securities purchased and lent – securities borrowed and sold (sold short)

However, it would be double-counting to subtract both borrowed securities and securities "sold short" from positions held.

Section 4: Short sales by domestic residents

4.1 If the investor borrowing a domestic security to sell it short is a domestic resident (including a US broker/dealer), the situation is different, as a domestic resident would have the liability. ***Figure 3*** shows a securities flow in which a foreign investor (Investor A) owns 150 units of a security, a US investor (Investor B) sells 100 units (borrowed from Investor A) short, and a foreign investor (Investor C) eventually acquires the security. Under current reporting, the United States would show foreign residents (Investors A and C) owning 250 units of the security. Collecting data on foreign residents' negative positions would not have any impact in this situation, because no foreign residents have negative positions in the security. Fortunately, 250 units is, in fact, both the correct number of units held by foreign residents and the correct number of units for which US residents have liabilities.

4.2 ***Figure 3*** is instructive, because it shows why it is incorrect to calculate foreigners' ownership of a security as a percentage of the amount issued and assume that domestic residents own the "remaining percentage." Investors (domestic and foreign) can, and often do, hold aggregate claims for more than 100 percent of the quantity of a security issued. Not all of these positions are effective claims against the issuer, because some of the positions are, in reality, claims against short sellers. The only way to obtain a full picture of the situation would be to collect data on the negative positions of domestic investors as well as those of foreign investors, a very large data gathering effort for a country as large as the United States.

Section 5: Borrowing from a foreign resident

5.1 A possibly significant situation is shown in ***Figure 4***, in which a foreign Investor B borrows a domestic (US-issued) security from a *foreign* custodian (or investor) and sells it short.[10] In this case, the domestic data collection agency will not be able to collect information on either the borrowing by Investor B or the subsequent sale to Investor C. However, this may not be a serious problem for the calculation of domestic residents' liabilities. Although Investor A owns 150 units, the domestic custodian (Custodian A) sees only the 50 units held by foreign custodian of Investor A. The other 100 units have been delivered by the foreign custodian to Investor C (or its custodian). Thus, liabilities will be shown correctly, even though the negative position of Investor B cannot be collected and the holding of Investor A is understated.[11]

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[10] For convenience, the security and cash are shown as going directly to Investor C, but the result would be the same if the flows went to a foreign custodian of Investor C.

[11] In this example, a problem may arise if Custodian A is affiliated with Investor A's foreign custodian. In this case, Custodian A may have knowledge of Investor A's actual holdings. Utilization of this knowledge would, paradoxically, lead to an incorrect total for domestic residents' liabilities, unless it were also possible to capture the onsale of Investor B (which might be possible, if the Custodian is an affiliate of Custodian A and reports by "looking through" its foreign affiliate). Before designing reporting instructions, this issue would need to be investigated.

5.2 The existence of securities lending activities through foreign custodians, however, does provide another source of error in determining the residence of the holder of a domestic security. If Investor B (in ***Figure 4***) were to relend (rather than onsell) the security, the domestic Custodian C might not know that the security was borrowed. In this case, Custodian C would overstate the (non-existent) ownership of Investor C. However, this overstatement would offset the understatement of Investor A's position. (The lack of reporting of any position of Investor B is, in this case, correct.) If Investor A and C reside in different countries, however, the country of ownership would be misstated.

5.3 If a domestic resident borrows a domestic security from a foreign investor or custodian and the US custodian for the foreign investor/custodian is unaware that the security is on loan, the understatement of the foreign position will not be offset and domestic liabilities will be understated. However, this error may be offset by domestic residents' loans to foreign residents that are held at foreign custodians.

5.4 A claims survey may be less affected by a reporter's lack of information of this type than a liabilities survey. When a resident end investor uses a foreign custodian directly, the end investor typically will have reporting responsibilities and a lack of information will generally not be a problem. Even if a security held by a resident end investor is lent by a foreign custodian without the end-investor's knowledge, the end investor will report (correctly) the ownership of the security. Similarly, a security borrowed without the end investor's knowledge will be reported correctly (ie not at all). If the resident end investor uses a domestic custodian, lending/borrowing by the foreign subcustodian will certainly not be a problem, as the domestic custodian will continue to show the investor's ownership of the security. However, end investor arranged loans will continue to be a problem.

Appendix A:
Selected types of borrowing agreements

A security can be borrowed in many different ways. Several of these are described below. The agreements differ mainly in the nature of the participants and the way protection, in the case of default, is provided to the security's lender. However, these differences can result in very large differences in legal form and in the knowledge of the transaction by some of the participants. Therefore, the reporting implications of the type of lending agreement used can be significant.

A. Collateralized lending agreements

Brokers and other financial intermediaries may allow customers to borrow securities by posting cash or other specific collateral. Brokers and other financial intermediaries also may allow customers to borrow a security based on the customer's margin account balances. These agreements often allow the customer to relend or sell the borrowed security to a third party. In each case, the financial intermediary shows a (collateralized) claim on the customer and the customer shows a liability to the financial intermediary.

B. Use of a security held in a "street name"

Securities, particularly equity securities in retail customers' accounts, are often held by the broker, acting as a custodian (or by the broker's custodian), in a "street name." When this occurs, the books and records of the issuer, usually as compiled by a central clearing organization (primarily the Depository Trust Clearing Corporation (DTCC) in the United States), show the broker/custodian as the legal owner. The only record of the customer's ownership is on the books and records of the broker/custodian (which are provided to the customer). Often, the customer and the broker agree that the broker or its custodian may borrow the security *without the customer's knowledge or specific consent*.[12] A summary of this type of agreement is shown in Appendix B.[13] (Security for the customer is provided by the broker's assets, a government guarantee (SPIC in the United States), or perhaps broker-acquired private insurance.) Once the broker/custodian borrows the security, the broker/custodian can relend or onsell it.

The same situation may occur in a non-retail setting. "Re-hypothecation" is the use of posted collateral (by the intermediary holding that collateral), either to lend the security or to post it as collateral for the intermediary's own obligations. The UK Financial Securities Authority

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[12] In fact, the broker/custodian may hold these securities in an undifferentiated account (a "pool"), with brokers' books showing a liability either to the customer or to the pool (and the customer on a pro rata basis). The customer has no knowledge that security was borrowed (and lent or onsold). The broker/custodian is responsible for providing compensation to the customer for corporate actions (eg interest or dividend payments), but as shown in Appendix A, this compensation may not include compensation for less favorable tax treatment (as the broker may have to declare some of the payments to be interest rather than dividends).

[13] See also http://www.nyse.com/pdfs/MarginCustomersKnowYoursShareholderRights.pdf.

reports, "Re-hypothecation is a key generator of prime brokerage revenue and is often linked to the terms on which other prime brokerage services are offered to the hedge funds."[14]

C. Reverse transactions

Reverse transactions (RTs) are transactions, such as repurchase agreements, in which a security is legally sold, but the seller and buyer both have legal obligations to engage in a subsequent transaction to return that security (or an equivalent security) to the original owner. The second transaction is specified to be made at a defined price, usually based upon the time elapsed between the two transactions. Although the agreement is written as two separate transactions, the economic substance of the agreement is akin to a loan. RTs are treated as a loan for current US reporting[15] and for most financial analysis and reporting purposes.[16]

RTs can be conducted in several different ways.

a. ***Delivery vs payment repurchase agreements***: A bilateral "delivery vs payment" or ("DVP") repurchase agreement is shown in ***Figure 5***. Note that as long as repurchase agreements are treated as borrowings, the situation is, in theory, exactly analogous to any other borrowing used to facilitate short sale (as shown, for example, in ***Figure 1***). However, this type of borrowing can be a particular problem for data compilers because: (1) the custodian for the original owner may or may not know that the security was delivered out as part of a repurchase agreement; and (2) the custodian for the short seller may or may not know that the security was acquired through a repurchase agreement. Hence the custodians for Investors A and B may or may not have a record of the loan or the short seller's obligation to return the security upon expiration of the repurchase agreement, respectively. The BMA estimates that US residents' DVP repurchase agreements with non-US counterparties exceeded $1 trillion in 2004 (about half the total).

   Sometimes, end investors authorize custodians to initiate and carry out DVP repurchase agreements on their behalf (or on the custodian's behalf in return for reduced custodial fees). In some of these cases, it may be that the end investor may not "know" of the repurchase agreements, depending upon the nature of the agreement between the end investor and the custodian, and the characteristics of the custodian's and the end investor's record keeping systems. This issue needs to be explored further.

b. ***Securities lending agreements***: A securities lending agreement is similar in concept to a DVP repurchase agreement, albeit different in legal form. In addition, either cash or a security can be given to a counterparty to provide collateral for the

[14] Financial Services Authority, "Hedge funds: A division of risk and regulatory engagement," Discussion Paper 05/4, June 2005, Paragraph 3.48.

[15] Current US treatment (cf Carol Bertaut, William Griever, Ralph Tryon, "Understanding US cross-border securities data," *Federal Reserve Bulletin*, May 2006, p A59) and international standards (SNA 1993, Paragraph 11.32) call for RTs that involve cash collateral to be treated as collateralized loans, created through a financial instrument that is distinct from the underlying securities. Securities transferred as a result of RTs without cash collateral are treated, to the extent the source data permit, as if the securities had not been transferred, which is analogous to their treatment as a loan.

[16] "Repurchase agreement: A form of secured, short term borrowing in which a security is sold with a simultaneous agreement to buy it back from the purchaser at a future date. The purchase and sales agreements are simultaneous, but the transactions are not." (American Banker Online, Glossary).

borrowed security.[17] In the latter case, the title and voting rights for the "collateral" security are usually not transferred, although they could be. Custodians have told us that, in contrast to the situation with DVP repurchase agreements, they are almost always aware of the nature of positions arising from securities lending agreements. We do not know if the end investors are always aware of the specific securities lent or used as collateral.

c. ***Triparty repurchase agreements***: Repurchase agreements are often carried out on a "triparty" basis. In this case, a single custodian is responsible for managing the custodial arrangements for both parties to the repurchase agreement. In a triparty repurchase agreement, the (single) custodian for both parties will know that the positions result from a repurchase agreement and that the parties have an obligation to engage in the reverse side of the transaction upon expiration of the repurchase agreement. The custodian will also know if the security acquirer has the security in its account, which is the usual case.[18] We do not know if end investors' reporting systems can identify exactly which securities have been lent under triparty repurchase agreements. The BMA estimates that US residents engaged in triparty repurchase agreements with US and foreign residents totaled about $1.4 trillion in June 2004.

d. ***Central counterparty (multilateral clearing) repurchase agreements***: Repurchase agreements can also be carried out using a central counterparty. (The use of a central counterparty is often called "multilateral clearing.") By far the largest central counterparty in the United States is the Fixed Income Clearing Corporation, Government Securities Division (FICC). Trades between counterparties are brought to the FICC by the counterparties (or an interdealer broker). The FICC substitutes *two new contracts* from itself, one to each party, for the contract between the two parties (or at least the next day of the contract between the parties). FICC, as the central counterparty, can then engage in a massive netting operation (estimated to be in excess of 80%), reducing costs and counterparty risk. With custodial reporting, the reporting implications for repurchase agreements carried out using a central counterparty are virtually identical to triparty repurchase agreements, as the central counterparty has full knowledge of the transactions and the securities typically remain overnight with the central counterparty.[19]

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[17] See http://www.isla.co.uk/sl_fundamentals.asp.

[18] The original owner may have an additional "primary custodian," which delivers the security to the tri-party custodian. Less commonly, the acquirer may have an additional custodian which takes delivery of the security. These extra flows may affect the information available to custodial (or end investor) reporters.

[19] In addition, for the United States, the central counterparty typically deals almost exclusively with domestic residents.

Appendix B

Figure 1

A foreign resident borrows and sells "short" a US security

All custodians are US residents and all
end investors are foreign residents

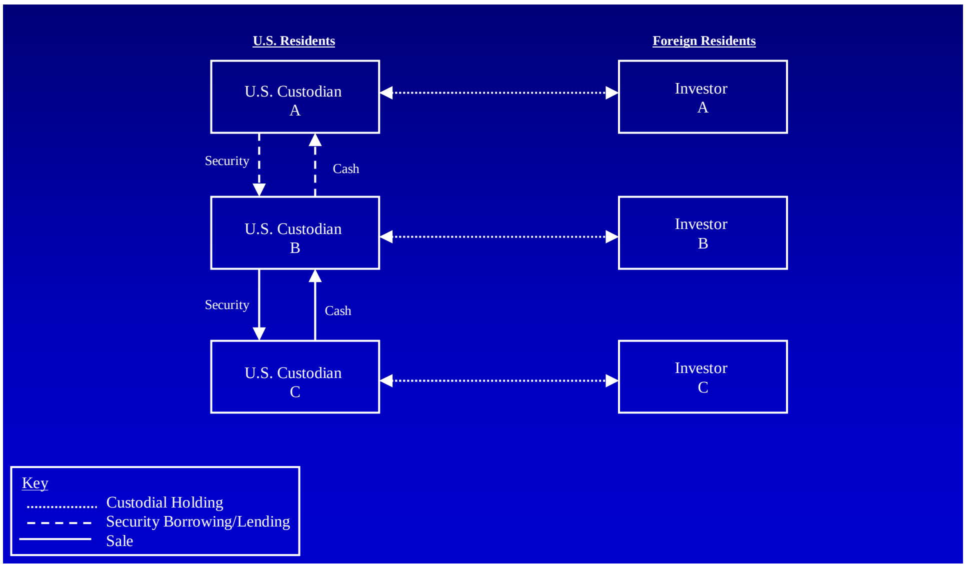

Figure 2

A multinational borrowing and short sale chain

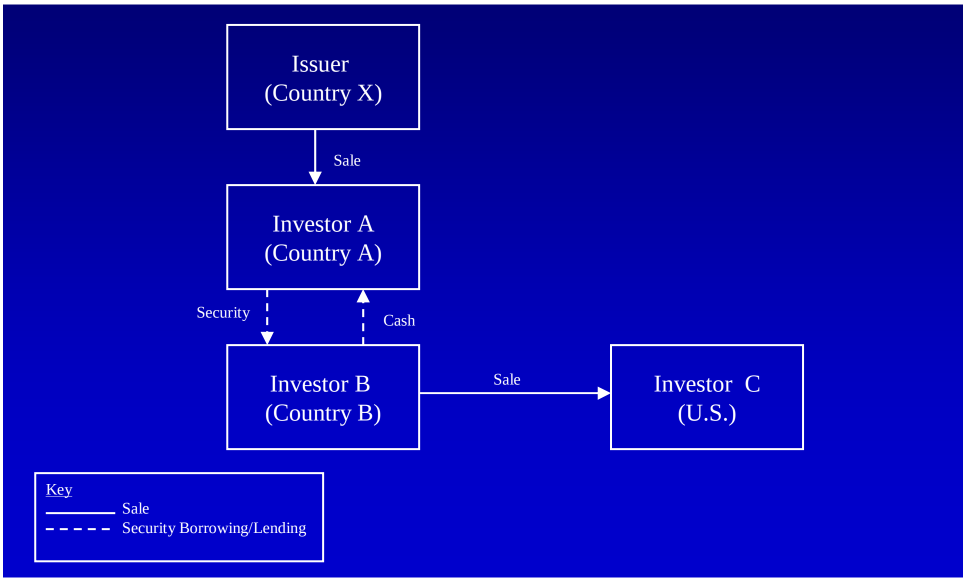

Figure 3

A short sale of a US security by a US resident

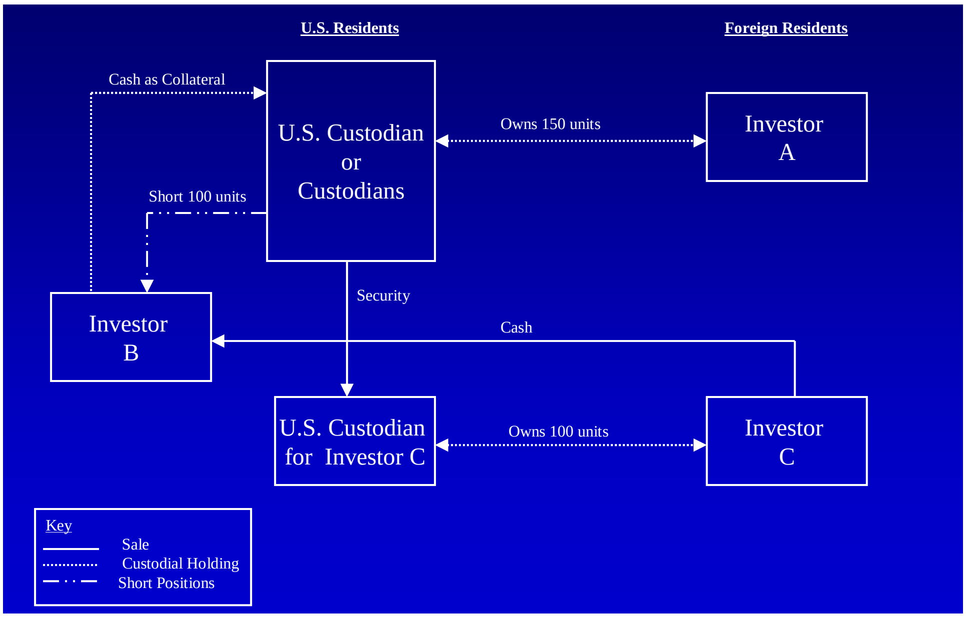

Figure 4

A short sale conducted through a foreign custodian

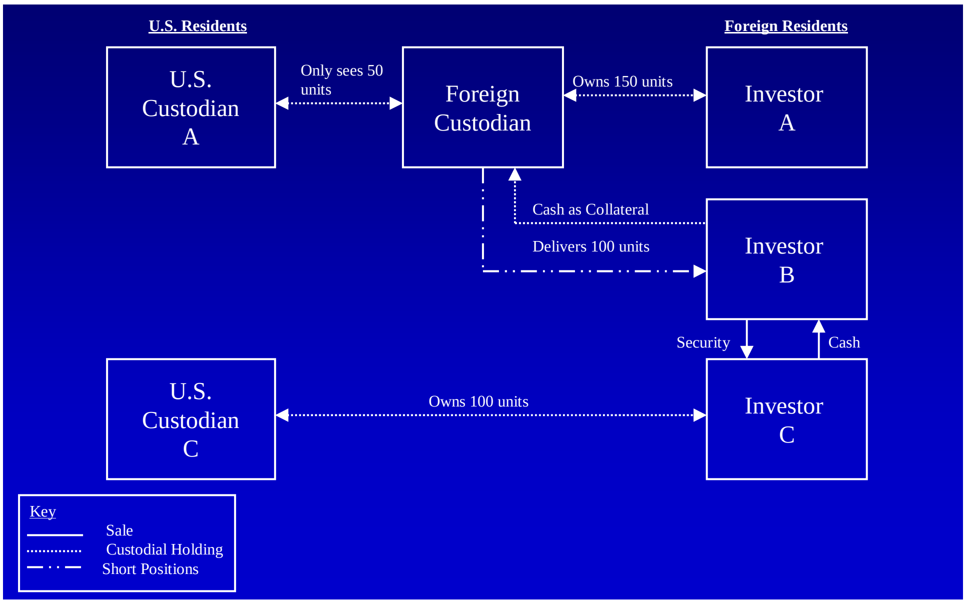

Figure 5

A typical short sale using a
“delivery vs payment” reverse transaction