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The Macroeconomic Statistical Treatment of Reverse Transactions

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THE MACROECONOMIC STATISTICAL TREATMENT OF REVERSE TRANSACTIONS¹

I. INTRODUCTION

This paper addresses the question of the appropriate treatment in macroeconomic statistics² of securities repurchase agreements, securities lending with and without cash collateral, gold swaps and gold loans which together have posed difficulties for macroeconomic statisticians. Collectively, they are referred to as *reverse transactions*.

Reverse transactions are widely used in financial markets and have been growing rapidly in the last few years³. In all cases, while there is a legal change in ownership of the underlying instrument, market risk remains with the original owner. Their use results in improved market efficiency. In most instances, these activities permit the holder of the underlying instrument to increase its income from the asset. They do not fit easily in the standard instrument breakdown because they have complicated features that defy simple classification. Indeed, all these activities create the potential of a double count of the assets involved. Their statistical treatment will affect their analytical interpretation. This paper seeks to achieve an acceptable statistical approach that makes their treatment both analytically meaningful (in economic terms) as well as observing the principles of the macroeconomic statistical system. Developing an internationally consistent and coherent approach is important, not just to avoid imbalances (though that is clearly important) but also to provide comparability of concept and interpretation.

The next section sets out what these transactions are and indicates their similarities and their differences. The third section will review the underlying principles of *Balance of Payments Manual*, fifth edition (*BPM5*) and the *1993 System of National Accounts (1993 SNA)*. The fourth section examines how accounting standards address the issues. The fifth section examines the statistical implications of the different treatments and how they might be applied to these transactions. The paper concludes by recommending that these transactions be regarded as collateralized loans, with supplementary information to assist

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² The balance of payments, the national accounts, monetary and financial statistics and government finance statistics.

³ The size of the market for transactions of this nature is not well recorded. However, recent work by the International Organization of Securities Commissions (1999) indicates that the value of securities on “loan” and repurchase agreements is excess of \$2 trillion monthly (see p. 13 of the report). Cross-border transactions are not well developed but the indications are that are also substantial. See Bank of England (1999)

analysis. Alternatives are also proposed. An appendix provides examples of these different treatments.

II. WHAT ARE THESE INSTRUMENTS?

Security repurchase agreements (repos)

A securities repurchase agreement (*repo*) is an arrangement involving the sale of securities at a specified price with a commitment to repurchase the same or similar securities at a fixed price on a specified future date (often with a very short maturity, e.g., overnight, but increasingly for longer maturities, sometimes up to several weeks) or be of an “open” maturity (where the parties agree to renew or terminate the repo daily)^{4,5,6,7}. Initial and variation margin payments may also be made (see further below). A repo viewed from the point of view of the cash provider is called a *reverse repo*. When the funds are repaid (along with an interest payment) the securities are returned to the “cash taker”⁸. The provision of the funds earns the cash provider interest which is related to the current interbank rate (determined at the outset of the transaction) and not the rate of interest earned on the security “repoed”⁹. Full, unfettered ownership passes to the “cash provider” but the market risk — the benefits (and risks) of ownership¹⁰ (such as the right to holding gains (and losses) and receipt of the property/investment income attached to

⁴ Such an arrangement avoids settlement costs if both parties wish to rollover the repo on a continuous basis.

⁵ If the seller acquires an **option** rather than an obligation to buy back the security, the arrangement is sometimes called a *spurious repurchase agreement*. Such a transaction is not considered to be a repo and should be recorded as a transaction in a security with an option (a financial derivative) attached to it.

⁶ Transactions known as sale/buy backs, carries, stock or bond lending against cash, securities lending with cash collateral, all have essentially the same characteristics as repo, though there are minor legal or technical differences. Provided they involve a cash leg, they are all included in this paper under the term “repo”.

⁷ The term “repurchase agreement” is derived from the perspective of the provider of the security as it is that party which is obligated to repurchase it.

⁸ Terms such as “borrower”, “lender”, “purchaser” or “seller” may be misleading in this context, given the nature of these transactions. Accordingly, this paper uses the more neutral terms of “cash provider” and “cash taker” in discussing repos, in line with those used by Simon Grey (1998) *Repo of Government Securities*.

⁹ This point is the more evident if equities are used rather than debt instruments. Where debt instruments are used (which is the much more common practice) and, in the event that a coupon payment is made during the life of the repo, that is factored into the funds repaid. However, market participants endeavor to avoid such a situation if possible.

¹⁰ Except the right to sell

the security — are retained by the cash taker as if no change of ownership had occurred, in the same manner as when collateral is usually provided. “Full, unfettered ownership” means that the cash provider acquires ownership of the security and may sell it. Originally, it was intended that the cash provider’s right to on-sell would be invoked only in the event of a default by the cash taker. However, as the market has developed, on-selling has become much more common and the right to on-sell at the cash provider’s option is almost universal. It is this development that has caused the most difficulty in the classification of repos because change of ownership is an underlying principle of all the macroeconomic statistics.

Repos are used by several types of players in financial markets. Most commonly, financial institutions transact with other financial institutions, both domestic and nonresident, and central banks with domestic financial institutions and other central banks but nonfinancial enterprises and governments may also use repos. When reverse repos are used by central banks with domestic financial institutions, they are used as a policy tool to ease liquidity in the financial system. On the other hand, when a central bank undertakes a repo (that is, it becomes the “cash taker”) it is draining liquidity from the financial system in the short-term — restricting monetary conditions — by removing funds from the market . This restriction will be reversed when the second leg of the repo is transacted.

Repos are frequently used as a means of financing the acquisition of the underlying instrument. For example, a nonresident purchaser of a government security may repo the security to a resident financial institution as it may either not have or not wish to use its own funds to acquire the security outright (at least, for the time being) and may be assuming that the repo rate (the rate paid by the borrower in a repo transaction) will be less than the rate on the security it is acquiring (for as long as it holds the security). Alternatively, the purchaser is anticipating a downwards shift in the interest yield curve, producing holding gains on the security, without tying up its own funds. In many countries, the repo rate is the benchmark rate for central bank lending.

If a central bank “repos” with a financial institution (either domestic or nonresident) by providing foreign currency securities issued by a nonresident in exchange for foreign exchange deposits, it may be undertaking the transaction to increase temporarily the liquidity of international reserve assets (provided the foreign assets meet the criteria for inclusion in reserves¹¹). When used between central banks, repos provide a means by which the cash taking central bank can increase reserve assets without entering the foreign exchange market.

Repos between financial institutions, whether with other domestic or non-resident financial institutions, permit the cash taker to retain the benefits (and risks) of ownership of the security, while being able to obtain funds at a competitive rate. For the cash provider, funds are lent at a market rate, secured by very high quality collateral — which can be accessed quickly and easily either as part of the financial institution’s own

¹¹For the statistical classification of repos by central banks, see below under *Statistical Implications*.

financing activities (i.e., if the reverse repoing party on-sells the security acquired under the repo) or in the event of default. Chains of repos and reverse repos, and reverse repos followed by outright sale, are common practice in financial markets as highly creditworthy market players raise funds at lower rates in order to on-lend at higher rates. In this manner, repo players are also part of a broader financial intermediation activity¹². The development of repo markets can increase liquidity of a money market while, at the same time, deepening the market for the underlying securities used (frequently, government securities but not necessarily), leading to finer borrowing rates both for money market participants and governments. These chains pose difficulties for statisticians: this issue is explored further in Section V *Statistical Implications*.

Usually, the cash taker in a repo is the initiator of the transaction which tends to place the cash provider in a slightly stronger negotiating position. These are called *cash-driven* repos. In these circumstances, the cash taker is not usually required to provide a specific security – a list of acceptable securities is generally available. Frequently, substitution of the security is permitted during the life of the repo, that is, the cash taker may wish to access the security repoed and so usually is permitted to do so by substituting it for another of equal quality (generally on the list of acceptable securities). This ability will usually affect the rate of interest charged on the repo. However, in certain circumstances, the security taker (i.e., the cash provider) may have need for a specific type of security. These transactions are known as *securities-driven* repos. They often result when a particular security goes “special” (i.e., it is in very high demand and there is insufficient supply to meet commitments). In these circumstances, if cash is provided in exchange for the securities¹³, the cash-taker may be in a stronger bargaining position. In essence, when a security-driven repo transaction takes place, the cash taker is prepared to accept cash in return for the security provided, as long as it can be compensated for the risk of parting with the security by obtaining, in return, a sufficient spread between what can be earned in the money market on the cash received and the interest paid to the cash provider. In extreme cases, when the security may be unavailable from any other source, and the security borrower (i.e., the cash provider) must make delivery to a third party, this borrowing rate may fall to zero.¹⁴

¹² Repo market players may have matched or unmatched books: in a matched book, maturities of all repos are the same as those for reverse repos, so that the market player is not exposed. In an unmatched book, the maturities differ in which case the market player is speculating on movements in the yield curve.

¹³ Securities acquired under a reverse transaction without an exchange of cash are discussed under *securities lending*, below.

¹⁴ In some instances, when a repo is due to be unwound, the cash provider may not be able to return the security. This situation is called non-delivery (not default) and results in the cash taker retaining the funds without having to pay interest. Non-delivery is different from default in that there is not usually a question of the cash provider’s being unable to return the securities at all, merely there is a delay in the process (usually as the result of another party in the chain of repoing (in and out) being unable to access the specific security at that particular date).

Margin payments are often paid under a repo¹⁵. They are made to provide one party with some additional protection against default. They may be made at the outset, in which case they are known as *initial margins*¹⁶. Margins may also be paid during the life of a repo if the value of the security under repo changes, in which case the margin payments are known as *variation margin*. Whether a transaction is cash-driven or securities-driven will affect which party pays *margin*. If the transaction is cash-driven, the cash taker will usually be required to provide the margin; if the transaction is securities-driven, the cash provider will usually be required to provide the margin. Margin may be in the form of cash or securities¹⁷.

The amount of margin provided is affected by both market and credit risk. Market risk relates to the volatility of price and riskiness of the repoed security; credit risk is the mutual exposure of risk that the cash taker and the cash provider have to each other. The amount of margin paid, and whether it is initial or variation, depends on the importance of these two types of risk, and the relative bargaining position of the parties. If the cash provider receives a security the value of which is subject to large price fluctuations, and/or if the cash provider were to feel that there is a risk of default by the cash taker, initial or variation margins are required. Margin is sought because, were the cash taker to default, and the value of the security were to fall, due say to adverse movements in interest rates, the cash provider would suffer a holding loss because the collateral may be worth less than the funds provided to the cash taker. On the other hand, the cash taker may also be exposed to risk. If the security's value rises, and the cash provider on-sells and then goes bankrupt before the repo is closed out, the cash taker will have lost any holding gain that might have occurred (abstracting from the payment of any margin). Either way, when margin is paid, whether initial or variation, the *exchange* of value is imbalanced: one party is receiving (paying) more than it is providing (receiving) in return.

In many developed financial markets, initial margin may not be required at the inception of a repo if the credit standing of both parties is approximately equal (monetary authorities usually ask for initial margin and rarely, if ever, pay it) but variation margin is usually provided when the market price of the security falls. On the other hand, when the value of the security rises, the cash provider may or may not return part of the security's value as a "reverse variation margin", depending on the market's practices in any given country. In less developed capital markets, and depending on the depth and price volatility of the market of the security underlying the repo, initial margins of substantially more (possibly up to 25 per cent) than the value of the cash provided may be required.

¹⁵ Some reverse transactions, such as sale/buy backs, do not have margin payments.

¹⁶ The term "haircut" is sometimes used in relation to repo transactions. The haircut is used as part of the initial valuation of the collateral provided and is part of the way that margins are provided.

¹⁷ The appropriate statistical treatment of margins is explored further below.

In many respects, a repo can be seen as a value transaction coupled with a “volume dimension” attached to it. The value of the transaction could be taken to be the value of the exchange of cash; the volume dimension represents the exchange of the securities, that is, the security that is given up will have exactly the same characteristics as that returned, regardless of any changes in price that may have taken place in the meantime (abstracting from the payment of margin and the accrual of interest on the instrument). So that if the value of the security has risen during the life of the repo (i.e., between the original sale and the subsequent repurchase) the “volume” that was provided is returned (usually expressed in terms of the nominal value of the security) not the value of the funds that was exchanged at the outset. Similarly, if the value of the security has fallen, the cash provider is not required to return a higher value of the security at the close of the repo’s life (again, abstracting for the payment of margin) to equal the value of the cash paid/returned. This reflects the fact that it is the original owner who bears the market risk on the security.

Securities lending

Securities lending refers to an arrangement under which a holder transfers securities to a “borrower”, with an agreement to return the securities on a fixed date or on demand. Full, unfettered ownership is transferred to the “borrower” but the economic risks and benefits of ownership remain with the original owners¹⁸. If there is no commitment to return the security to the original owner and the original owner does not retain the rights of ownership, the exchange of securities is not *securities lending*: it is a transaction in the securities. The “borrower” of the securities will usually provide collateral, either in the form of cash or of other securities of equal value to the securities “lent”, or, more frequently, of greater value, thereby providing initial margin¹⁹. Substitution of the collateral provided by the security “borrower” is usually permitted, provided that that securities substituted meet the same criteria as the original collateral. If cash collateral is provided, the transaction has the same economic impact as a repo (discussed above); if non-cash collateral is provided, a fee is paid by the “borrower” to the “lender”. This subsection discusses those exchanges of securities that do not involve cash.

The motivation for “borrowing” securities in this fashion is similar to securities-driven repos and is a commonly-used technique through which brokers cover short positions, typically when a security has gone “special”. Securities lending involves securities that may be issued by residents or nonresidents, by governments or by corporations, and can be either equities or debt instruments. Securities lending increases liquidity in the securities market as well as the timeliness of some trade settlements—especially for securities that trade infrequently or in small volume. Because the securities “borrowed” are intended to be on-sold, repayment in equivalent securities is necessary (i.e., those

¹⁸ Except for the right to sell the security.

¹⁹ In some instances, no collateral is provided.

with the same characteristics — such as issuer, coupon rate, currency — as those “loaned” but with different certificate numbers).

The fee is the incentive for the security “lender” to agree the transaction as it gives the “lender” an additional return on the security²⁰. The fee is independent of any income that may be earned on the security (as property/investment income). Consequently, the securities lender receives two types of income from ownership of the securities—the fee (for providing the security and taking the risk of default) and the underlying property income. In securities lending, which is a securities-driven activity, the “borrower” initiates the transaction which means that the bargaining advantage lies with the “lender” of the security, and, depending on the availability of the security, the level of the fee charged. The payment may be made at inception or at close out of the contract.

Securities lending may be said to represent a “volume” exchange of securities, so for securities lending, in the same way as the exchange of securities is for a repo: in other words, the market risk is borne by the “lender” of the securities. If, for example, the securities exchanged are shares, then the same number of the shares, with the same characteristics, is to be returned at the termination of the contract; if the securities are debt instruments, the returned securities are based on the same principles as for repos (usually expressed in their nominal value plus any interest that has accrued on the securities during the life of the transaction). The value of the securities lent is not the criterion used for their return.

In most cases, “lenders” of securities consider the arrangements to be temporary and do not remove the securities from their balance sheets as they retain the rights to any dividends or interest while the securities are on loan²¹. Usually, the “lender” does not have the right to on-sell the collateral received except in the event of default by the “borrower”²². In many cases, the release of securities between holders is conducted by security depositories (custodians) on the “lender’s” behalf; frequently, under these circumstances, the “lender” of the security is unaware that the security it owns has been “lent” because the custodial arrangement may permit such transactions without the express permission of the owner on each occasion. If the value of the securities placed as collateral falls vis-à-vis the value of the securities “loaned”, the securities “borrower” is usually required to place variation margin, to give the securities “lender” adequate, continuing protection. If the value of the securities placed as collateral increases, the securities “lender” may or may not be required to return part of the collateral, depending on country practice.

²⁰ The appropriate statistical treatment of the fee is explored further below.

²¹ In instances where equities are loaned, they are usually done to avoid the period coinciding with a shareholders’ meeting, or in any instance where voting rights are required to be exercised (such as for a takeover bid). However, it is not always possible to know when these circumstances will arise and the arrangements usually permit the return of the securities to the original owner for such eventualities.

²² Accordingly, in most instances, the “lender” is likely to record the collateral off-balance sheet.

As the securities “borrowed” are acquired to cover a short position, the “borrower” will be given the legal right to on-sell the securities “borrowed²³”. In that event, the “borrower” is likely to record a short position. Chains of securities lending can be established when brokers successively on-lend securities to brokers, dealers, or other parties, with the result that there could be multiple parties claiming ownership of the same security at the same time. This will happen when each owner, in turn, after buying the security outright, then on-lends it. While, in aggregate, this overcounting will be offset by the “borrower” in each securities lending transaction recording a short position for each time there is on-selling, there remains the problem of misleading statistics on which sectors and/or nonresidents have the real claim on the issuer (as opposed to the various securities lenders’ claims on the securities “borrowers”) in the same manner as for repos. These issues are explored further in Section V *Statistical Implications*.

Gold swaps

Reverse transactions involving gold may involve either cash as a counter leg or securities^{24,25}. The former is a gold swap; the latter a gold loan or deposit. This subsection examines gold swaps; the next examines gold loans or deposits.

Gold swaps are usually undertaken between monetary authorities. The gold is exchanged for foreign exchange deposits (or other reserve assets) with an agreement that the transaction be unwound at an agreed future date, at an agreed price. The monetary authority acquiring the foreign exchange will pay interest on the foreign exchange received. Gold swaps are undertaken when the cash-taking monetary authority has need of foreign exchange but does not wish to sell outright its gold holdings. In that manner, gold is a leveraging device. Gold swaps sometimes involve transactions where one of the parties is not a monetary authority (usually it is another depository corporation).

The nature of gold swaps is similar to that of repos and securities lending in that the market risk toward the underlying asset (in this case, gold) remains with the original holder: if gold prices increase, the volume of gold returned is the same as that swapped, while the same value of the foreign exchange (as defined at the time of the initiation of the swap, plus any accrued interest) is returned. Along with repos and securities lending, there are elements of gold swaps that could make them appear to have aspects of financial derivatives; these are discussed further below in Section V *Statistical Implications*.

²³ Without the right to on-sell, there is little point to the transaction.

²⁴ It is possible that a reverse transaction involving gold may involve both cash and securities. In that case, the part involving cash should be treated as a gold swap, and the part involving securities should be treated as a gold loan or deposit.

²⁵ In that respect, gold swaps are more akin to repos, while gold loans or deposits are more like securities lending.

Gold loans or deposits

Gold loans or deposits are undertaken by monetary authorities to obtain a non-holding gain return on gold which otherwise earns none. The gold is “lent to” (or “deposited with”) a resident or nonresident financial institution (such as a bullion bank) or another party in the gold market with which the monetary authority has dealings and confidence and which is probably acting as an intermediary for a gold dealer or gold miner which has a temporary shortage of gold. In return, the borrower may provide the monetary authorities with high quality collateral, usually securities (frequently, but not necessarily, substantially in excess of the value of the gold provided) but not cash, and will pay a “fee” thereby increasing the return from holding gold. The collateral does not change ownership and is treated as an off-balance sheet holding of the monetary authority²⁶. All the risks of changes in price of gold reside with the “lender” or “depositor”, i.e., the monetary authority. The “loan” or “deposit” may be placed on demand or for a fixed period (in which case it is usually available on short notice, thereby meeting the criteria for inclusion in reserve assets). In this manner, the transactions take on the same “volume” dimension as the other reverse transactions, the amount of gold to be returned is based on the volume in the first leg of the transaction, not its price. Therefore, regardless of the change in price during the life of the loan or deposit, the volume that was originally loaned or deposited is what is returned.

Similarities and differences

From the foregoing descriptions of these transactions, what can be said about the similarities and differences of repos, securities lending, gold swaps and gold loans?

From the Table 1, it can be seen that while there are some differences, there are far more similarities. The major similarities are that the economic benefits and risks of ownership (right to receive property income (if any) and exposure to changes in market price) remain with the original holder in every case and that in each case on-selling of the asset (security or gold) is possible (though, in the case of gold swaps with other monetary authorities, it is

²⁶ The collateral is retained on-balance sheet of the recipient of the gold loan or deposit.

Table 1. Similarities and Differences between Repos, Securities lending without cash collateral, Gold swaps and Gold loans

	Repos ²⁷	Securities lending	Gold swaps	Gold loans/deposits
Purpose	Liquidity; increase income; minimize cost of borrowing	Cover “short” position; increase income	Balance of payments needs	Increase income
Legal change of ownership	Yes	Yes	Yes	Yes
On-selling possible	Yes	Yes	Unlikely if with a monetary authority	Yes
Market risk remains with original holder	Yes	Yes	Yes	Yes
Property/investment income/fee receivable by original holder of underlying	Yes ²⁸	Yes	No	Yes
Return price and date fixed (or available on demand)	Yes	Yes	Yes	Yes
Initial margin provided	Sometimes	Usually	No	Probably
Variation margin provided	Yes	Yes	No	Probably
Cash exchanged	Yes	Not necessarily	Usually	No
Collateral provided	Yes	Usually	Not usually between monetary authorities	Not necessarily
Initiated by cash taker	Yes (if cash driven) No (if securities driven)	N/a	Yes	N/a
Fee	No	Yes	No	Yes
Income	Yes	No	No	Yes

unlikely). The major differences lie in economic motivation which is not a basis for determining statistical treatment (except in well defined cases, such as direct investment and reserve assets). Another difference is that cash may not be exchanged in all instances and gold loans/deposits remain problematic because of the dual nature of gold in the system and because there is no counterpart liability to holdings of monetary gold.. These

²⁷ Including sale/buy backs, carries, stock or bond lending against cash, securities lending with cash collateral.

²⁸ In some extreme cases, securities driven repos cash taker may not pay any interest.

differences may mean that the statistical treatment should be different; on the other hand, the similarities may argue for a common treatment for those transactions of a similar nature.

The continued exposure to the benefits and risks of ownership is the fundamental issue and marks these transactions out from other more “normal” transaction where change in ownership is clear and the risks and benefits of ownership are demonstrably transferred. Equally, the payment for the “use” of the cash or security or gold, which payment is independent from the security’s income (which continues to accrue to the original holder) would also argue that these transactions do not represent a change of ownership in the traditional sense. Payment of margins and the right to substitute the security provided also would tend to argue against a treatment that regarded these transactions as outright sales. On the other hand, the principle of ownership is at the heart of the balance of payments and national accounts and should only be violated in exceptional circumstances.

III. BALANCE OF PAYMENTS AND NATIONAL ACCOUNTS’ TREATMENT

Economic statistics are designed to convey, in a simplified form, an understandable picture of a complex world, classifying transactions (and positions) into a comprehensive, consistent, analytical framework. Within that framework, the economic statistician should endeavor to present data in as economic meaningful as possible the transactions and positions that take place in the economy, so that economic substance takes precedence over form. Part and parcel of the framework is economic ownership and change in that ownership.

Exchange of value is an essential part of economic theory, involving an explicit or implicit change of ownership. When two parties come together without coercion, and at arm’s length, to a transaction, involving a quid pro quo, the minimum benefit to each is the value of the transaction; both are increasing their utility by undertaking the exchange. If this were not true, it is a reasonable assumption that the transaction would not take place. In consequence, both *1993 SNA* and *BPM5*, as measures of economic behavior, regard change of ownership as a central principle of their systems. This is reflected in *BPM5*:

“... in the balance of payments (and in the SNA), transactions are recorded when economic value is created, transformed, exchanged, transferred, or extinguished. The time of recording for a transaction is governed by the principle of accrual accounting. Claims and liabilities arise when there is a change in ownership. The change may be a legal one or a physical or economic one involving control or possession.” (BPM5, para. 111)

The treatment of transactions in the national accounts and the balance of payments depends on both their nature and the underlying principles of *1993 SNA* and *BPM5*. A transaction occurs when something of value is provided by one party to another. In *1993 SNA* and *BPM5*, financial claims and liabilities arise out of contractual relationships between pairs of economic agents and maintaining that relationship is a central element of these systems. Failing to observe the principle that an *effective change of ownership* of an asset—i.e., one in which the purchaser obtains full rights of ownership including the right to receive property income, as well as the risks and benefits of changes in the price—should be treated as a transaction, therefore, encounters major problems as it disturbs the frameworks, and hence the benefits, of these systems.

While this change in ownership rule is not inviolate, departures from it occur rarely and only to improve the usefulness of the analysis and without causing difficulties elsewhere in the systems. In some instances a change in ownership is imputed even where none has occurred. These examples are given in *BPM5* paragraphs 119 and 120. These are (i) finance leasing, (ii) goods shipped between the parent of a direct investment enterprise and branches and affiliates, and (iii) goods sent for processing but do not change ownership. In certain circumstances, repos may also be counted in this category but the other way round, i.e., that a change in ownership is not recognized when it may, in fact, have occurred legally as the economic interpretation would be impaired if the ownership change were to be recognized:

“A repurchase agreement (repo) is an arrangement involving the sale of securities at a specified price with a commitment to repurchase the same or similar securities at a fixed price on a specified future date (usually very short-term e.g., overnight or one day) or on a date subject to the discretion of the purchaser. The economic nature of a repo is similar to that of collateralized loan in that the purchaser of the securities is providing funds backed by the securities to the seller for the period of the agreement and is receiving a return from the fixed price when the repurchase agreement is reversed. The securities often do not change hands, and the buyer does not have the right to sell them. So, even from a legal sense, it is questionable whether or not a change of ownership occurs. As a result, in this Manual (and in the SNA and IMF money and banking statistics), a repo is treated as a newly created financial asset that is a collateralized loan rather than an asset related to the underlying securities used as collateral. Reflecting that interpretation, repos are classified under loans—unless the repos involve bank liabilities and are classified under national measures of broad money, in which case the repos are classified under currency and deposits. In some cases, because of legal, institutional and other considerations, national compilers may find it necessary to use an alternative treatment of repos; in such instances, this information should, if it is feasible to do so, be separately identified and reported to the IMF.” (BPM5, para. 418)

What is described in this passage is a circumstance where a legal change of ownership has occurred, but an effective, economic change of ownership has not, as the cash provider has not acquired full and untrammelled exposure to the instrument, including the

right to the income from the underlying and the right to on-sell it. However, in many cases, under current market practice, effective ownership rights have been transferred to the reverse repoing party because the it does usually have the right to on-sell without constraint. However, what this situation means is that in some respects, the description of the repo markets in para. 418 of *BPM5* is somewhat outdated. Indeed, once the security has been on-sold, the cash provider does become exposed to the market risks associated with the security (in an opposite manner to the repoing party) as it will need to repurchase an equivalent security when the repo is unwound. If prices have risen, the cash provider will suffer a holding loss.

As far as the other three types of transactions are concerned, only gold swaps receive any mention in *BPM5* or *1993 SNA*:

“Assets created under reciprocal facilities (swap arrangements) for the temporary exchange of deposits between the central banks of two economies warrant mention. Deposits (in foreign exchange) acquired by the central bank initiating the arrangement are treated as reserve assets because the purpose of the exchange is to provide the central bank with assets that can be used to meet the country’s balance of payments needs. Reciprocal deposits acquired by the partner central bank also are considered reserve assets. Arrangements (gold swaps) involving the temporary exchange of gold for foreign exchange deposits should be treated in a similar fashion.” (BPM5, para. 434)

This passage would seem to indicate that gold swaps are to be considered transactions in the underlying instruments (monetary gold and foreign exchange) and not as collateralized loans.

In assessing what is the appropriate statistical treatment of repos, securities lending, gold swaps and gold loans, it is important to bear in mind that the substance of the transaction, rather than just the name used to describe it, be examined so that the principles in these systems are not overlooked.

IV. ACCOUNTING STANDARDS

This section examines the accounting standards for repos and securities lending only as there is not explicit discussion of gold swaps and gold loans. However, in view of their similar nature, it may be inferred that the standards for repos and securities lending should be extended to reverse transactions involving gold.

Repos and securities lending

In many countries, the accounting practice is for the repoed security to be retained on the balance sheet of the cash taker while a loan payable (equal to the value of the cash received) is recorded. The cash provider, on the other hand, typically records a loan receivable (as the counter entry to the cash provided to the cash taker) and the collateral

received is recorded off-balance sheet. If the cash provider on-sells the security, it usually records a “short” (or negative) asset position. In a few countries, repos are recorded as transactions in the underlying instrument, reflecting the change in ownership principle²⁹.

The difficulty in treating these hybrid transactions is recognized by the accounting profession. In its *Statement of Financial Accounting Standards No. 125*, released in June 1996, the Financial Accounting Standards Board of the United States describes the situation as follows:

“Repurchase agreements and securities lending transactions are difficult to characterize because those transactions are ambiguous: they have attributes of both sales and secured borrowings. Repurchase agreements typically are documented as sales with forward purchase contracts and generally are treated as sales in bankruptcy law and receivers’ procedures, but, as borrowings in tax law, under court decisions that cite numerous economic and other factors. Repurchase agreements are commonly characterized by market participants as secured borrowings, even though one reason that repurchase agreements arose is that selling and then buying back securities, rather than borrowing with those securities as collateral, allows many government agencies, banks, and other active participants in the repurchase agreement market to stay “within investment an borrowing parameters that delineate what they may or may not do”³⁰.”
Securities loans are commonly documented as loans of securities collateralized by cash or other securities or by letters of credit, but the “borrowed” securities are invariably sold, free of any conditions, by the “borrowers”, to fulfill obligations under short sales or customers failure to deliver securities they have sold.”
(Para. 135)

After further discussing the issues at some length, *FASB 125* concludes that

“...transfers of financial assets with repurchase commitments, such as repurchase agreements and securities lending transactions, should be accounted for as secured borrowings if the transfers were assuredly temporary, and as sales if the transfers were not assuredly temporary.” (Para. 143)

The International Accounting Standards Committee’s *Financial Instruments: Recognition and Measurement*, IAS39 (March 1999) reaches a similar conclusion:

“35. An enterprise should derecognise a financial assets or a portion of a financial asset when, and only when, the enterprise loses control of the contractual rights that comprise the financial asset (or a portion of the financial

²⁹ A variation of this latter treatment is to regard the reverse leg of repo as having financial derivative attributes. This option is not used, as far as the author of the paper knows. These issues are explored further later in this paper.

³⁰ Marcia Stigum, *The Repo and Reverse Repo Markets* (Homewood, Ill.: Dow Jones-Irwin, 1989), 313

asset). An enterprise loses such control if it realised the rights to benefits specified in the contract, the rights expire, or the enterprise surrenders those rights.

“36. If a financial asset is transferred to another enterprise but the transfer does not satisfy the conditions of derecognition in paragraph 35, the transferor accounts for the transaction as a collateralised borrowing. In this case, the transferor’s right to reacquire the asset is not a derivative.

*“38. A transferor has not lost control of a transferred financial asset and, therefore, the asset is not derecognised if, for example, ...
(b) the transferor is both entitled and obligated to repurchase or redeem the transferred assets on terms that effectively provide the transferee with a lender’s return on the assets received in exchange for the transferred asset. A lender’s return is one that is not materially different from that which could be obtained on a loan to the transferor that is fully secured by the transferred asset.” (IAS 39, paras. 35,36 and 38)*

However, despite these standards’ interpretation of the nature of repos and securities lending as collateralized loans, the accounting bodies recommend that securities acquired under reverse repos be taken on to the balance sheet where the reverse repo party has the right to on-sell.

The IAS 39 argues the following:

44. If a debtor delivers collateral to the creditor and the creditor is permitted to sell or repledge the collateral without constraint, then:

(a) the debtor should disclose the collateral separately from other assets not used as collateral; and

(b) the creditor should recognise the collateral in its balance sheet as an asset, measured initially at its fair value, and should also recognise its obligation to return the collateral as a liability.

45. If the creditor is constrained from selling or repledging the collateral because the debtor has the right and ability to redeem the collateral on short notice, for example, by substituting other collateral or by terminating the contract, then the creditor does not recognise the collateral in its balance sheet.” (IAS 39, paras. 44 and 45)

FASB 125 uses similar arguments:

“164 Because the status of the right to redeem may not always be clear, the Board chose to implement it by requiring recognition of collateral by the secured party if it sells or repledges collateral on terms that do not enable it to repurchase

or redeem the collateral from the transferor on short notice. One result is that broker-dealers and others who obtain financial assets in reverse purchase agreements, securities loans, or as collateral for loans and then sell or repledge those assets will in some cases recognize under this Statement assets and liabilities that previously went unrecognized....

“172. To maintain symmetry in the accounting of secured parties and debtors, the Board decided that debtors should redesignate in their statements of financial position collateral that has been put into the hands of a secured party that is permitted by contract or custom to sell or repledge it and which are not entitled and able to redeem on short notice, for example, by substituting other collateral or terminating the arrangement. That redesignation avoids a situation in which two or more entities report the same asset as if both held the (as could occur under previous accounting practices).” (FASB 125, paras. 164 and 172)

Given that almost all reverse transactions give the reverse repoing party the right to on-sell, what these paragraphs are recommending is, in effect, the introduction of a new way to record reverse transactions – essentially as both a collateralized loan and as a transaction in the security at the same time. What that would mean for macroeconomic statistics is discussed in the next section.

V. STATISTICAL IMPLICATIONS

V.1 Repos

As noted, a claim of ownership is a central aspect of the balance of payments and the national accounts because it is important to know who is using which asset, who owns what as part of the production process, who has a financial claim on whom and through which type of instrument. Even so it can be seen that, while change of ownership is an important aspect to both systems, it must be applied so that its economic interpretation is the most meaningful. Thus, in finance leasing, for example, although the legal ownership of the equipment remains with the lessor, for all intents and purposes, the lessee becomes the economic owner and is treated in the macroeconomic statistics accordingly. Moreover, as can be seen from paragraph 418 of *BPM5*, under the circumstances described therein—“the securities often do not change hands, and the buyer does not have the right to sell them”—under repos, the securities are not treated as though they have changed ownership even though there has been a legal change in ownership.

Since the time *BPM5* was written, it would appear that activities on markets have changed sufficiently that that statement in paragraph 418 of *BPM5* that “The securities often do not change hands, and the buyer does not have the right to sell them” is no longer valid as it stands: it appears that not only do securities under a repo change hands, they also are often on-sold. Indeed, there are indications that the repo market is perhaps

as large as one third to one half of the size of government securities on issue³¹. The principal consideration is whether this changes the nature of the transaction and whether repos should be considered transactions in securities where they can be or are on-sold (with or without financial derivative aspects attached to them), whether they should be treated as collateralized loans or whether another approach is possible.

In most cases, the economic nature of a repo is similar to that of a collateralized loan in that the purchaser of the securities is providing a loan, with the securities acting as collateral to protect against default. This is evidenced by the fact that interest is payable/receivable on the provision of cash at a rate independent from that payable on the security that has changed hands, while the income on the security continues to accrue to the original owner. However, because there is also a change in legal ownership, a security transaction also takes place³². The legal and market arrangements for repos, including the payments of margin (whether initial or variation), the ability to substitute securities, and the retention of economic risks and benefits by the original owner, all further tend to support the view that repos are collateralized loans. This is certainly the way repos are viewed by market participants. However, there are analytical and statistical difficulties that result from such a treatment. Some of these problems will be overcome by following instead a strict change of ownership approach, which accords with the basic statistical concepts. Under this alternative approach, a repo is treated as an outright sale of securities (with a subsequent repurchase). While this approach will overcome some of the problems caused by the collateralized loan approach, it causes others.

As should be evident from this paper, from an accounting and statistical points of view, on-selling causes difficulties whether repos are treated as collateralized loans or as transactions in the securities. If they are regarded as collateralized loans, when a security acquired under reverse repo is on-sold, the new owner will consider that it owns the security and record it on its balance sheet. At the same time, the original owner, the cash taker, may also record ownership of the security³³. This poses a problem for the statistical system: not only does it overstate the assets held but it also incorrectly indicates who has a claim on the issuer, from different sectors or from different countries³⁴. Consequently,

³¹ See IOSCO (1999) table on p.13

³² This paradox is stated very clearly in *Statement of Accounting Standards no. 125* by the Financial Accounting Standards Board. See the discussion on *Accounting Standards*, above.

³³ If *FASB 125* and *IASC 39* are followed, the original owner would remove the security from its balance sheet and substitute a claim on the reverse repo party for return of the security. See further discussion below.

³⁴ For monetary and financial statistics, the problem of double count and allocation of the ownership of the security (who is financing whom?) is very important. If a collateralized loan approach were to be adopted, monetary and financial statistics would require additional information of the sector of counterparty, especially for purposes of consolidation of the financial sector and to obtain accurate representations of some of the key credit aggregates used in monetary statistics, such as claims on government and central bank credit to other depository corporations.

when such a situation arises, most countries' accounting practices require that the cash provider report a "short" or negative position if it on-sells the security outright. While this does not overcome the problem of having two parties with a claim on the issuer with the same instrument, at least it avoids the overstatement in aggregate. This is the approach recommended in the *Coordinated Portfolio Investment Survey: Survey Guide*³⁵ and the IMF's newly released *Monetary and Financial Statistics Manual*³⁶. However, having two parties with a simultaneous claim over the same securities is not satisfactory and can result in an overstatement of a country's gross external debt position, as the accounting offset to the security that was repoed in, the loan receivable, is recorded gross on the asset side of the ledger and is not netted against the debt liability³⁷. An alternative approach, as previously mentioned, is to record the change of ownership of all securities underlying repos — whether or not they can be on-sold (which, as noted, probably applies to the vast majority of instances) — as transactions in the security. Such an approach may produce the easiest statistical solution as it could be applied consistently although there remains the issue of how margin payments should be treated under that approach.

Under the collateralized loan approach, margin payments do not pose problems: if the margin (whether initial or variation) is paid as cash, it should be recorded as part of the funds exchanged, as a loan payable/receivable or as a deposit. If it is paid in the form of non-cash (usually, securities) typically neither initial or variation is recorded as a transaction – it is held off-balance sheet. However, if repos were to be recorded as transactions in securities, any payment of margin in the form of securities would need to be recorded as a transaction in securities, with a counterpart non-cash loan

While the collateralized loan approach is clearly the approach preferred by most countries, treating reverse transactions as transactions in the underlying asset would help overcome some of the major drawbacks of the collateralized loan approach (such as a possible overstatement of a country's external debt or a misallocation of claims on the issuer of the debt, especially on the central government) although it does have drawbacks of its own but the provision of additional, supplementary information would help overcome some of these drawbacks.

To overcome these problems, a third approach is provided by the accounting standards, as set out in *IAS 39*, paras. 44 and 45 and *FASB 125*, para. 164 and 172, as quoted above. What these documents are proposing, in effect, is that two simultaneous transactions (four entries by both parties) be recorded on-balance sheet for a repo, a collateralized

³⁵ See *Coordinated Portfolio Investment Survey: Survey Guide*, IMF August 1996 paras. 88 – 102. This treatment is also recommended in the *Coordinated Portfolio Investment Survey: Survey Guide* (forthcoming).

³⁶ *Monetary and Financial Statistics Manual*, IMF, Washington, D. C. 2000

³⁷ This problem is compounded when a debt service schedule is calculated as it would imply a double repayment of principal (on the retirement of the security) and interest to two nonresident holders, when only one has to be paid.

loan and a transaction in the security, accompanied by a recognition of the right to receive the security back/the obligation to return the security. This claim could be recorded under *other investment: assets: other assets* in the balance of payments and the IIP. The net result would be to have the security holding recorded by the correct legal owner, while maintaining the economic substance of the transaction — a collateralized loan.

In making that assessment, the statistician needs to consider a further issue: whether cash-driven repos should be recorded separately from securities-driven repos, given that the underlying motivation is different. However, in general, macroeconomic statistics cannot be based on the motivation of the party(ies) involved³⁸. If the economic impact is the same, as it is – cash is provided in return for a temporary transfer of ownership of a security – there is no *a priori* reason to treat them differently in the statistical framework.³⁹

V.2 Securities lending

For securities lending without cash collateral, the situation is similar: in most cases, the “lender” of the securities will continue to record the securities on its balance sheet, as it will not usually see itself as having permanently parted with the securities⁴⁰. Because securities lending is undertaken to cover a “short” (negative) position, the “borrower” will on-sell the security so that the purchaser will also record the securities on its balance sheet. To overcome the double count, the “borrower” needs to record a short position. This has the same drawbacks as for a repo. As non-cash collateral is provided, and the “lender” records neither the “loan” (of the security) nor the collateral on its balance sheet, the “lender” would record no transaction at all; the “borrower” will record a negative position in the security “borrowed” once the security has been on-sold (but will continue to record on its balance sheet the collateral provided to the securities lender). This treatment may perhaps be seen to be a real reflection of the economic reality: two parties are positively exposed to the instrument, one negatively. But, in reality, the “lender” of the security is exposed to the “borrower” — to return the security. If no transaction is recorded between the original “lender” and “borrower”, the exposure is not recognized. On the other hand, if security lending were treated on a strict change of ownership basis,

³⁸ Direct investment and reserve assets are notable exceptions.

³⁹ Under such reasoning – that motivation be a determining factor in the statistical treatment of any given transaction – it would be necessary for the economic statistician to know what is the motivation of the economic players, which is not possible; for example, it would prompt suggestion for a varying treatment for financial derivatives, depending on whether they were undertaken for hedging or speculative purposes. This argumentation was also important in resolving the statistical treatment of financial derivatives – whether they were undertaken for hedging or speculative purposes, they were all to be treated the same way.

⁴⁰ Moreover, as already noted, given the arrangements under which much security lending takes place – the custodian lends on general instructions, rather than having to seek explicit approval each time -- the owner may not even be aware that the securities have been “lent”.

the same issues arise as for repos: while the problem of double counting may be avoided, it fails to reflect the continuing exposure to the underlying instrument of the original owner.

As for repos, an alternative is to adopt the treatment proposed by the accounting standards (as indicated above: *IAS 39* paras. 44 and 45 and *FASB 125*, paras. 164 and 172) and record a transaction in the underlying asset, offset by a claim by the securities “lender” on the securities “borrower” to return the asset provided. This claim could be recorded under *other investment: assets: other assets* in the balance of payments and the IIP.

V.3 Gold swaps

For *gold swaps*, the party providing the foreign exchange, and receiving the gold, will not usually record the gold on its balance sheet; while the party providing the gold will not usually remove it from its balance sheet. Instead the party receiving gold will usually record a reduction in foreign exchange and a loan receivable⁴¹. The party receiving foreign exchange will record an increase in foreign exchange and a loan payable, thereby increasing its gross reserve assets. However according to *BPM5*, paragraph 434, gold swaps should be regarded as transactions in gold, in which case, they would have no net impact on total reserves but would change each monetary authority’s reserve assets’ composition. In whichever manner the transaction is recorded, the monetary authority receiving the gold (that is, providing the foreign exchange) will receive property (investment) income on the foreign exchange provided. Gold swaps between monetary authorities do not usually involve the payment of margin.

While a gold swap usually relates to monetary gold, occasions arise when gold may be “swapped” between parties that are not monetary authorities. In that case, does it make a difference how the transaction is treated? If the gold is treated as collateral to a loan in foreign exchange and it is not on-sold, it makes no difference, as the gold is not removed from the balance sheet of the original owner and is not taken on to the balance sheet of the cash taker. However, if gold acquired under a gold swap is sold outright, a short position would be recorded. If the gold acquired under a gold swap between two monetary authorities were on-sold to another monetary authority, the on-selling monetary authority would record a short position in monetary gold⁴² while the original holder of the gold would continue to record the gold on its balance sheet. The monetary authority that had bought the gold outright would record it as monetary gold. On the other hand, if gold acquired by a bank, for example, under a gold swap from a monetary authority were on-sold to a nonfinancial corporation (such as a gold miner), the bank should record a short

⁴¹ The party receiving the gold, but recording a loan receivable, may include the loan receivable in its international reserves if it meets the reserve asset criteria (e.g., liquidity and availability for use).

⁴² This could produce a perverse result – where a monetary authority could have negative holdings of monetary gold.

position in its inventory of commodity gold. In this manner, the holdings of commodity gold should balance but the holding of monetary gold would be overstated. If gold swaps are regarded as transactions in gold, monetization and demonetization, as appropriate, would be required at the time of the transaction. From the foregoing, it is clear that reverse transactions involving gold soon become very complicated — and recording them as outright sales has certain attractions, even if it is just to keep the chain of events, and the associated accounting and statistical measurement, as simple as possible.

V.4 Gold loans and deposits

Country statistical practice for *gold loans* or *deposits* tends towards continuing to record the gold loan receivable or deposit as if it were still part of monetary gold, in situations where the authorities are confident that the terms of the gold loan or deposit meet reserve asset criteria (availability, liquidity, etc.). As the authorities do not hold the physical gold, it might be argued that the loan or deposit should be removed from *monetary gold*⁴³ and recorded in *foreign exchange: currency and deposits* or as *other claims* in *reserve assets*. However, as the gold is usually readily available to the monetary authorities, such a reclassification may be unnecessary. This is the position taken in the IMF's provisional *Operational Guidelines on the Data Template for International Reserves and Foreign Currency Liquidity* (the *Operational Guidelines*). No practical distinction is drawn between whether gold is held directly, whether it is on a gold swap, or whether the gold is on loan or deposit: they are all recorded as part of monetary gold. Neither is any supplementary information required. Insofar as the gold loan or deposit is to be recorded as *monetary gold*, therefore, there is a parallel with securities lending: no cash is exchanged and the underlying instrument is deemed to remain on the books of the monetary authority, rather than be recorded as a transaction, with the commensurate change in ownership, as the original owner remains exposed to the market risk (of a change in market price).

However, while gold loans and deposits have a close parallel with securities lending, this is not a complete parallel as, unlike securities lending — where both parties record the transaction off-balance sheet — the recipient of the gold loan or deposit is likely to record the gold on-balance sheet. Consequently, there would be an asymmetry in reporting: a liability is recorded by the recipient of the gold loan or deposit (typically as a foreign currency deposit liability — even though, from a conceptual point of view, such an approach is incorrect) without an equivalent asset. The lending or depositing monetary authority will record the gold deposit as monetary gold, for which there is no counterpart liability, and not as a foreign currency deposit asset. A possible alternative solution to this problem is for the monetary authority to record the gold loaned or deposited as if it had been demonetized and record instead a foreign currency deposit asset with the recipient. However, that treatment is conceptually inappropriate as non-monetary gold is a commodity, not a financial instrument, so it should not be recorded as a liability.

⁴³ If gold is loaned or placed on deposit with a resident bank, it should be removed from reserve assets altogether insofar as the gold claim asset represents a claim on a resident institution.

To overcome this problem, gold loans or deposits could be regarded as:

- (i) transactions in non-monetary gold and, therefore, sales and purchases of commodity gold;
- (ii) as a multiple transaction — in order for the reversible nature of gold loans and deposits to be recognized — so that, in addition to (i), an account payable/receivable should be recorded; or
- (iii) as no transaction at all so that the exchange of gold is held off-balance sheet by both parties and any subsequent on-lending or on-selling of gold by the gold “borrower” be recorded by that unit as a short position in commodity gold.

If the first option were adopted, the system would balance in the same way for the treatment for securities lending and the second option would be consistent with the wider measurement of reverse transactions found in the accounting standards. However, for most monetary authorities, there is a considerable resistance to treating the gold loans and deposits in either of these ways. If the third option were adopted, the monetary authority would continue to include gold as part of *monetary gold* in *reserve assets* (in line with the *Operational Guidelines*) and the gold “borrower” would record no liability, and, with the recording of a short position for any future transactions in the gold, the holding of commodity gold would balance in aggregate. This option is acceptable if the gold on loan is readily available to the monetary authorities.

Without adopting one of the options, national compilers may be forced to accept asymmetrical reporting in their systems.

V. 5 Financial derivatives?

Given that repos, securities lending and gold swaps provide the “lender” (of the cash, security or gold) with some form of income, it is a very different situation from a standard transaction where securities change hands. In those cases, the party selling the security no longer has claim on the income stream from the issuer and will receive no income, or any payment, from the purchaser, other than the sale price of the security. Moreover, the payment of margins, the ability to substitute the securities repoed, the “volume” nature of the transaction, the continuing exposure and the need to recognize that exposure, especially when the transaction is being used to finance the acquisition of the underlying, all tend to lend strong support that effective ownership has not been transferred and that some other type of transaction — which may or may not involve recognition as a transaction — has occurred. In that regard, has there been some sort of financial derivative created?

Although dismissed in paragraph 36 of *IAS 39*, consideration needs to be given as to whether reverse transactions could be said to have financial derivative elements to them. The argument is based on the very nature of these agreements: they have prices for the

return leg fixed at the outset of the contract such that a likelihood exists of there being a difference between the market price at the time the contracts are unwound (even if overnight) and the value of the returned asset at that time, aspects which are similar to those of a financial derivative contract.

What is a financial derivative? In *Financial Derivatives: A Supplement to the Fifth Edition (1993) of the Balance of Payments Manual*⁴⁴, financial derivatives are defined as:

“..... financial instruments that are linked to a specific financial instrument or indicator or commodity, and through which specific financial risks (such as interest rate risk, currency, equity and commodity price risk, and credit risk) can be traded in financial markets in their own right in financial markets..... The value of a financial derivative derives from the price of the underlying item...”

“Financial derivatives enable parties to trade specific financial risks — such as interest rate risk, currency, equity and commodity price risk, and credit risk, etc. — to other entities who are more willing, or better suited, to take or manage these risks, typically, but not always, without trading in a primary asset or commodity.”
(Paras. FD1 and FD2)

From this definition and description, for a transaction to be considered a financial derivative, it needs (i) to involve the trading of risk, (ii) to be linked to an underlying instrument, and (iii) to be tradable or have value in its own right. Buying (or selling) an instrument which it is intended to be resold (or repurchased) necessarily involves elements of risk of changes in market price. As noted, repos, securities lending, gold swaps and gold loans all have certain characteristics in common with those required for a transaction to be regarded as a financial derivative. There is a forward (“strike”) price which the two parties are committed to observing, the underlying instrument has a price which is observable and it would be possible to “trade out” of the position by taking an equal and opposite position. As the market price on the day of delivery (when the reverse legs of the transactions are to be exercised) is likely to be different from the value of the “volume” of the underlying asset to be returned, which might be called the “strike price”, these reverse transactions might appear to have a financial derivative attached to them. However, as the transfer of risk is an essential element of a financial derivative and as there is no attempt to trade or transfer risk (in fact, the opposite is true – the original holder of the security wishes to retain exposure to the instrument) it would appear that there is no basis for considering reverse transactions to be financial derivatives.

V. 6 Alternative statistical treatments

The different treatments have the following implications:

⁴⁴ *Financial Derivatives: A Supplement to the Fifth Edition (1993) of the Balance of Payments Manual* IMF, Washington, D.C., 2000

6.1 Collateralized loan for repos

If repos (including securities lending involving cash) are treated as collateralized loans, the leveraging nature of the transaction is recognized and it identifies the continuing exposure to the underlying asset by the original owner (which is especially useful if the transaction has been used to finance the acquisition). However, the net result is that two parties can “own” the same instrument, while a third party has a negative ownership. Legally, the exposure of the repoing party is not to the debt issuer but to the reverse repo counterparty. In the event of a default by the reverse repoing party, the repoing party will have recourse to the collateral (the cash) to compensate for the failure of the counterparty to return the security; this may result in some (marginal) holding loss⁴⁵.

However, the possibility of a double count could have implications for an economy’s sectoral/national positions. For example, if a resident in country A holds a security issued by a resident in country B, and then repos it to a resident in B, who, in turn, sells it outright to a resident in country C, although B’s net IIP remains unaffected, its security liability to nonresidents is overstated⁴⁶. Any analysis of holdings of B’s external debt (especially of government securities⁴⁷) may be seriously affected by this overcount. The situation in country A is the reverse of that in country B in that the security claim (on country B’s government, for example) is not actual — it merely has a claim on the reverse repoing party in B, not on B’s government. However, its debt position is correctly stated – funds have been borrowed and should be recorded accordingly. These problems may be overcome if an “of which” or a memorandum item is included by both parties to identify those transactions/positions, by instrument and counterparty, that are related to reverse transaction.

For *reserve assets*, as the collateralized loan approach retains on balance sheet the underlying securities that have been involved in a reverse transaction, the result is a “grossing up” of reserves as strictly, repoed out securities are not available to meet a balance of payments need^{48,49}. In effect, if a country used the assets it held as part of its

⁴⁵ The reverse applies to the reverse repoing party if the repoing party defaults – it will retain the security which was received as collateral (unless repoed out again). If margin has been provided, any loss should be minimal.

⁴⁶ Depending on how a country calculates its income flows to nonresidents, this may mean that twice the income to nonresidents is deemed payable than it should be.

⁴⁷ Transactions in government debt and the government debt outstanding, especially with nonresidents, is usually the most examined and the most used security in any country’s repo market.

⁴⁸ Conversely, for a reverse repo: as, under the collateralized loan approach, the securities acquired under a reverse repo are not taken on to balance sheet, they are, nonetheless, available to meet a balance of payments need. If the loan receivable from the reverse repo is not included in reserve assets (as it may not meet the criteria for inclusion) the reserve assets of the country undertaking a reverse repo (from reserve assets) would be understated.

⁴⁹ Even when the securities are available on demand, reserve assets will be overstated as the holding of foreign exchange that was provided by the original repo will be returned.

reserve assets for reverse transactions, providing there was no margin call, there would be no limit to which the reserves could be subject (though the loan liabilities of the monetary authorities will increase commensurately). To overcome this eventuality, even while retaining on balance sheet the assets under a reverse transaction, a better approach would be to remove them from *reserve assets* and to reclassify them elsewhere on the monetary authority's balance sheet⁵⁰ for the life of the reverse transaction. This approach is recommended for repos⁵¹ in the *Operational Guidelines*, although the option to leave the repoed security in reserves is allowed for. The *Operational Guidelines* also recommend that the repoing monetary authority record, as supplementary information, that the security is on repo. In like fashion, the *Operational Guidelines* recommend that when a monetary authority undertakes a reverse repo, it not take the security on to its balance sheet, but record its holdings under supplementary information. The *Operational Guidelines* also recommend that the reverse repoing monetary authority remove the foreign exchange from its balance sheet and record a loan receivable — which may or may not meet the criteria for inclusion in reserves as observed, depending on the nature of the loan receivable. If the funds provided under a reverse repo with nonresident units can be reclaimed at very short notice for use in meeting balance of payments needs, those funds can be treated as part of international reserves and can be classified therein as a separate component of the central bank claims abroad. As there is no “loan” category in reserve assets, the loan should be recorded under *reserve assets: other claims* in the balance of payments and the IIP. Otherwise, if the funds provided under a reverse repo do not meet the criteria for inclusion in reserve assets, the receivable should be classified as loans to nonresidents in *other investment: assets: loans: monetary authorities* (or in certain circumstances, as *other investment: assets: currency and deposits: monetary authorities*).

6.2 Transactions in the underlying security

If repos (including securities lending involving cash) are treated as transactions in the underlying instrument, the opposite situation from the treatment as collateralized loans applies: there is a loss of information on exposure and leverage but there is a gain in the information presented that only one party is recorded as owner of the underlying instrument at any one time and there is no overstatement (grossing up) of either reserves or external debt.

As noted above, a possible variation to this treatment is to record the transactions as having financial derivative elements attached to them. However, while having certain derivative aspects, the accounting profession and most market practitioners do not regard them as meeting the criteria for financial derivatives, not least because no risk is transferred.

⁵⁰ For balance of payments purposes and the IIP, the repoed securities should be reclassified to *portfolio investment: assets*.

⁵¹ But not for gold swaps or gold loans or deposits.

If countries were to prefer to record reverse transactions as transactions in the underlying instrument, it is recommended that a memorandum item⁵² be provided for “securities on under a reverse transaction”. Similarly, an “of which” or a memorandum item be recorded for “securities acquired under a reverse transaction”.

6.3 *Gold swaps*

If gold swaps are treated as collateralized loans, the gold remains on the books of the original owner. The result is that the recipient of the gold does not record receipt of the gold: instead, a drop in cash and an increase in a loan receivable are recorded. However, if the gold is then on-sold outright to a non-monetary authority, the new holder should record a holding of the commodity gold, not a financial asset. This would be true whether the purchaser were a gold miner, gold dealer or a financial institution (other than a monetary authority). In order for the system to balance, the party that acquires the gold outright (provided it is not a monetary authority) should record a purchase of commodity gold and the party selling it should record a short position in commodity gold. There would be no need to demonetize the gold provided the monetary authority that originated the gold swap continues to record the gold swapped as part of its monetary gold on its balance sheet and as part of its reserve assets. If, however, gold swaps are treated as transactions in gold, the gold should be demonetized if the counterparty is not another monetary authority.

6.4 *No transaction is recognized where cash is not involved*

For *securities lending* where cash is not involved, a possible solution would be not to recognize the transaction at all. The advantage of this approach is usually that, for the parties involved, no change is recorded on their balance sheets, in recognition of the fact that the original owner feels that it remains exposed to the instrument and its issuer. The disadvantage of this approach is that the same as for collateralized loans: in effect, the “lender” is exposed to the “borrower” of the security and has no claim on the issuer. In the event of default, the same issues would arise. Similarly, if the security is on-sold, as it is likely to be, there would be two parties recording ownership, with a negative claim by the on-seller, which distorts the sectoral/national asset position as noted above.

For *gold loans or deposits*, the situation is more complicated. If they were regarded as transactions in non-monetary gold, the system would balance but it is inconsistent with the *Operational Guidelines*. If they were recorded as a multiple transactions the same problem arises. If they were not to be regarded as transactions, the system would balance, provided the gold “borrower” records off-balance sheet the receipt of the gold and that any on-selling/on-lending is recorded as a short position in commodity gold. Unless one

⁵² An “of which” is not possible in this approach for securities that have been repoed out as they are no longer recorded on balance sheet.

or other of these alternatives is adopted, the system will have asymmetrical reporting, in which case compilers would be forced to accept an imbalance in their data⁵³.

6.5 Recognizing a transaction when no cash is involved

The advantages and disadvantages of this approach are the opposite of those above in d).

6.7 Adopting the approach suggested by the accounting bodies to record an “extra” transaction

The collateralized loan approach could be augmented by data on the liability/claim for the security to be returned, in effect, recognizing an additional transaction. For a repo, four financial account transactions would be recorded by each party: a loan (payable/receivable) with a commensurate change in currency and deposits; and a transaction in the security, coupled with the recognition of the obligation (right) to return (receive) the security at the termination of the repo's life as an entry in accounts receivable/payable. For security lending, a transaction in the security would be recorded, coupled with the recognition of the obligation (right) to return (receive) the security at the termination of the borrowing's (lending's) life as an entry in accounts receivable/payable.⁵⁴ Interest would accrue on the account receivable/payable at the rate of interest on the underlying security, reflecting the cost of provision of the capital advanced. For gold swaps, the entries would be comparable to those for a repo; four financial account transactions would be recorded by each party: a loan (payable/receivable) with a commensurate change in currency and deposits; and a transaction in gold, coupled with the recognition of the obligation (right) to return (receive) the gold at the termination of the swap's life as an entry in accounts receivable/payable. Gold would need to be demonetized in this transaction if the counterparty is not a monetary authority. For gold loans or deposits, the entries would be comparable to those for securities lending: a transaction in gold would be recorded, coupled with the recognition of the obligation (right) to return (receive) the gold at the termination of the borrowing's (lending's) life as an entry in accounts receivable/payable. Gold would need to be demonetized in this transaction as the counterparty is not another monetary authority.

Under this “augmented” collateralized loan approach, the security (or gold) would be recorded as being owned by the party that legally owns it, and the obligation to return (right to receive back) the security (or gold), and, in the cases of a repo and a gold swap, a cash loan, would also be recorded. As a result, inter-sector claims and income

⁵³ What this means is that, in a flow of funds framework (in the financial account of the national accounts) the residual sector (usually, but not always, the household sector) would record an overstatement of its holdings of foreign currency deposit assets.

⁵⁴ In recent correspondence with the IMF's Statistics Department, the Central Bank of Russia has suggested that this entry be recorded as an asset-backed loan.

attribution would be accurately recorded, including for external debt; the introduction of shorts positions into the national accounting framework is prevented⁵⁵; and short-term vulnerabilities are identified. This approach is in line with paragraphs 44 and 45 of *IAS 39* and paragraphs 164 and 172 of *FASB 125*.

However, difficulties arise. There are features that do not fit readily in the accounts payable/receivable category, in particular, the value of the claim will change along with market prices in the underlying asset. The possibility that the amount “owed” can have valuation changes for reasons other than exchange rate valuation changes is unusual for accounts receivable/payable. Other possible drawbacks of this approach are:

- if a repo is used to finance the acquisition of a security, the continued exposure of the original owner to the security would only be identified if there were supplementary information to indicate which repoing/security lending counterparties are exposed to which securities;
- it could be argued that this approach brings on-balance sheet an off-balance sheet entry (i.e., the commitment to return/right to receive back the underlying security);
- this treatment would result in the “grossing-up” of the balance sheets of the units involved;
- it would bring on to the reverse repoing party’s balance sheet an asset to which it had no right to earn income and would therefore disturb any income: asset calculations; and,
- it would create additional burden on countries’ reporting and compilation processes. However, as the recommendation is in line with the accounting standards, to the extent that these treatments are generally adopted, this should not impose a major additional reporting costs.

In view of the fact that most of these issues were considered by the accounting bodies and regarded as unimportant compared with the benefits, and that the accounting bodies have considerable authority, this option may provide the best avenue for overcoming some of the major concerns about how to treat reverse transactions.

A further possible modification on this option would be to create a separate instrument or sub-component of an instrument, instead of burying it in “other accounts receivable/payable”. Although repos, securities lending and gold swaps are not instruments as such, such a representation would have the benefit of permitting these transactions to be readily identifiable. This new item could be a subcomponent of “other

⁵⁵ At least as far as reverse transactions are concerned. There may be other transactions that prompt the recording of negative positions.

accounts payable/receivable” or a separate item in its own right and possibly be labeled *items under reverse transactions: receivable/payable: securities (gold)*.

6.8 *Investment income or Fee?*

A further consideration is the appropriate treatment of the fee associated with a securities lending or gold loan or deposit transaction. On the one hand, it could be argued that the fee represents a payment for a service, that is, providing access to securities for a specified period. On the other hand, it could be said that the payment represents investment income, albeit unrelated to the income on the securities, as the securities are a means by which the financial capital needs are satisfied.

The situation is further complicated by who is the recipient of the fee. For the most part, the fee is paid, in the first instance, to the custodian who may use it, in part, or in whole, to defray the charges of custody payable by the end-investor. To the extent that any of the fee payable to the custodian is not used to defray the cost of custody, that part of the fee cannot be said to represent the provision of capital as the payment is not to the owner of the securities, and hence cannot be considered to be income.

Moreover, the treatment may depend on the decision on how reverse transactions are to be treated. If no transaction is recognized where cash is not involved (6.4 above), no provision of finance capital would be recorded and hence no income could be earned. Moreover, in macroeconomic statistical systems, gold cannot be regraded as earning income under any circumstances. Accordingly, it might be argued that the fee should be regarded as a service (and would, accordingly, affect GDP). However, if, on the other hand, the approaches suggested by the accounting bodies to record an “extra” transaction (6.7 above) were to be adopted, it might be argued that there had been a provision of finance capital — via the additional entries (in accounts receivable/payable). In that case, it could be said that the fee should be regarded as an income payment. Even so, there remains the question of how to treat any payment to the custodian that is not used to defray the costs of custody. On balance, it may be that the arguments support the case for treatment as a service. As this issue is one that has not had much discussion, it is may be that the Committee prefers not to make a decision at this stage. Instead, further work could be undertaken, perhaps in conjunction with other development work related to the next edition of the *Balance of Payments Manual*, as well as undertaking discussions with national accounts, given its potential impact on GDP.

VI. RECOMMENDED TREATMENTS

As noted by *FASB 125*, these transactions are ambiguous, being, in effect, hybrid instruments. In light of continuing concerns about how these transactions should be treated statistically, the Fund prepared a paper⁵⁶ on the treatment of repurchase

⁵⁶ *The Macroeconomic Statistical Treatment of Security Repurchase Agreements and Securities Lending*
Prepared by the Statistics Department of the IMF, May 2000

agreements and securities lending. The paper was prepared partly in response to a proposal from the Russian Federation, but reflects other countries' concerns as well, about merely adopting the collateralized loan approach. The paper was sent to about 80 experts in balance of payments, external debt statistics, and monetary and financial statistics in a various central banks, national statistical agencies and international organizations. Fifteen responses were received from those contacted⁵⁷. However, as the ECB responded on behalf of its member countries, the total number of responses may be considered to have been from 23 countries. Of these, most favored the collateralized loan approach but there were a substantial minority (six countries)⁵⁸ which supported the adoption of the accounting bodies' approach, i.e., to record an extra transaction.

In weighing all the various arguments for and against the various treatments, it is recommended that:

I. For repos:

- (i) that they be regarded as collateralized loans, that they be identified as “of which repo (or reverse repo)” and that the counterparties, by sector or nonresident, be identified;
- (ii) that, in addition to recording the loan payable/receivable in (i) above, recognition be made of the reversible nature of the transaction by recording a transaction in the security and a right to receive back (obligation to return) the underlying security;
- (iii) that, in the event that (ii) above is not practical, both the loans (for both the cash provider and the cash taker) and the associated underlying instrument that is on repo be recorded as an “of which on repo” (or as a memorandum item) so that they are identifiable, preferably by counterparty;
- (iv) that, in the event that (ii) above is not practical, any on-selling by the reverse repoing party be recorded as a short position by the on-seller;
- (v) that, if the reverse repo party undertakes a repo with the security acquired under the reverse repo, the repo and the reverse repo loans receivable (as cash provider) and the repo loan payable (as cash taker) be recorded gross on the balance sheet as they are with different counterparties and that both the loan receivable and the loan payable should identify an “of which under repo”;

⁵⁷ As France and Italy also responded separately, there is an addition of only 9 to the count of countries, rather than the 11 countries in EMU.

⁵⁸ In addition, Australia, which was the only country to support the proposal that reverse transactions be recorded simply as transactions in the underlying asset, indicated that it regarded the “augmented” approach of Option V.6.7 as an acceptable compromise.

- (vi) that, for reserve assets, even while retaining the securities that are on repo on balance sheet, they should be removed from *reserve assets* and be reclassified to *portfolio investment*⁵⁹;
- (vii) that, if a transaction in the underlying instrument is recorded (for operational reasons or for reasons of convention in the economy) that they be identified as an “of which” item for those received on repo (by the cash provider) and as a memorandum item for those out on repo (for those provided by the cash taker)⁶⁰; and
- (viii) that, wherever possible, this treatment be applied to both transactions and positions.

It is recognized that obtaining much of this information may be difficult if the sources of the information are custodian records as the custodian may be unaware of which securities are on repo, and especially those that have been acquired on reverse repo. Wherever possible, compilers are encouraged to explore with their data sources means to acquire this information, given its importance.

2. *For securities lending without cash collateral*

- (i) that they be regarded as collateralized loans but as no cash exchanges hands, no loan be recorded;
- (ii) that the transaction in a security be recognized, together with the right to receive the security back/obligation to return the security as an “other account receivable/payable” and to identify the transaction as “of which for securities lending”;
- (iii) if, in the event that (ii) above is not practical, the securities “lender” record an “of which on securities lending” (or as a memorandum item) on balance sheets, preferably by counterparty, to indicate that the security is temporarily not available;
- (iv) that the securities “borrower” record an “of which acquired under securities lending” (or as a memorandum item), preferably by counterparty, if the securities acquired have not been on-sold;
- (v) that the securities “borrower” record a short position if the securities “borrowed” have been on-sold and identify the counterparty from which the securities were “borrowed”; and

⁵⁹ The *Operational Guidelines* recommend removing the repoed security from reserve assets and that they be recorded elsewhere on the monetary authority’s balance sheet.

⁶⁰ Bearing in mind that an “of which” cannot be recorded for the latter as it is not retained on balance sheet

- (vi) that, wherever possible, this treatment be applied to both transactions and positions.

It is recognized that obtaining much of this information may be difficult if the sources of the information are end-investors as they may be unaware of which securities are being lent at any given time. Wherever possible, compilers are encouraged to explore with their data sources means to acquire this information, given its importance

3. *For gold swaps*

- (i) that they be recorded as collateralized loans, and that the counterparties, by sector or nonresident, be identified. Accordingly, the gold continues to be held on the balance sheet of the original owner, the cash taker;
- (ii) that, if the cash provider is a monetary authority, it should record the loan asset receivable in reserve assets as part of *reserve assets: other claims*, if it meets the reserve assets criteria; otherwise, it should be recorded loans to nonresidents in *other investment: assets: loans: monetary authorities* (or in certain circumstances, as *other investment: assets: currency and deposits: monetary authorities*);
- (iii) that the cash provider record a memorandum item “gold held under gold swap”; and
- (iv) that, wherever possible, this treatment be applied to both transactions and positions.

N.B. The option to treat gold swaps as transactions in gold is not practical as monetary authorities are unprepared to adopt this approach.

4. *For gold loans or deposits*

- (i) that they be regarded as collateralized loans but as no cash exchanges hands, no loan is to be recorded by either party;
- (ii) that the gold “borrower” record no transaction in gold (i.e., it is held off-balance sheet)
- (iii) that the gold “borrower” record a short position in commodity gold if the gold “borrowed” is on-sold or on-lent; and
- (iv) that, wherever possible, this treatment be applied to both transactions and positions.

N.B. The option to treat gold loans or deposits as transactions in gold is not practical as monetary authorities are unprepared to adopt this approach.

5. *Treatment of the fee associated with securities lending and gold loans and deposits*

- (i) that more work be undertaken, in light of the Committee's decision on the treatment of these transactions.

Issues for discussion

1. Does the Committee agree with the recommendation treatments for repos, securities lending, gold swaps and gold loans or deposits?
2. Does the Committee agree that the treatment of the payment in a securities lending transaction and gold loans or deposits requires more consideration?
3. Does the Committee agree that further work on the practical dimensions on reverse transactions be undertaken (including the development of estimates of the size of the market and the degree of mismeasurement)?
4. Does the Committee agree that the issues raised in this paper should be taken to the InterSecretariat Working Group on National Accounts?

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