# Chapter 1

# INTRODUCTION TO REPO

The repo market is a vital element of the global capital and money markets. The first repo transactions were initiated by the US Federal Reserve in 1918, since which time repo has become the main instrument of open market operations for virtually all central banks around the world. It is also a major component of the global money markets. The market experienced substantial growth during the 1990s and is now estimated to account for up to 50% of daily settlement activity in non-US Government bonds world-wide; this is a phenomenal figure. Daily outstanding volume in international repo transactions has been estimated at between £440 billion to £450 billion; in the USD domestic market, daily deal volume is over $1,000 billion.

Repo, from 'sale and *repurchase* agreement', is closely linked to other segments of the debt and equity markets. From its use as a financing instrument for market makers to its use in the open market operations of central banks, and its place between the bond markets and the money markets, it integrates the various disparate elements of the marketplace and allows the raising of corporate finance across all sectors.

Repo is an interesting product because, although it is a money market product by dint of the term to maturity of repo trades, the nature of the underlying collateral means that repo dealers must be keenly aware of the assets that they 'trade' as well. The assets will be bonds, equity or other collateral of value. This multi-faceted nature of repo is apparent in the way that banks organise their repo trading. In some banks it is part of the money market or Treasury division, while in other banks it will be within the bond trading area. Equity repo is sometimes a back-office activity, as is the longer established stock borrowing desk. However, it is not only commercial and investment banks that engage in repo transactions. Across the world, repo is a well-established investment product, utilised by fund managers, hedge funds, corporate treasuries and local authorities. The practicality and simplicity of repo means that it can be taken up even in capital markets that are still at an 'emerging' stage, and by a wide range of participants. It is traded in virtually every country with a debt capital market.

The use of repo enhances the liquidity of bond and equity markets, which reduces costs for issuers of capital, and allows market makers to hedge positions with greater efficiency. Given its size and importance, it is surprising that repo has such a low profile – for example, there is little discussion of it in the financial press. This

reflects the simple and straightforward nature of the instrument. Indeed, the fundamental nature of repo is its simplicity: the sale of securities coupled with an agreement to repurchase them at a future date – in other words, a secured loan of cash. It is this simplicity and flexibility that has allowed repo to be used for a variety of purposes, or to meet a range of requirements.

## IMPORTANCE OF REPO

Previous literature highlights the importance of the repo market. In Professor Frank Fabozzi's book *Securities Lending and Repurchase Agreements* (FJF Associates 1997), Kenneth Miller of Goldman Sachs writes:

*The global fixed income markets could not be as large as they are today without the parallel existence of a highly liquid, low credit risk vehicle in which participants can borrow cash and securities. The repurchase agreement (repo) is the foundation for the fixed-income markets. Without repo, the development of a liquid derivatives market, notably swaps and financial futures, would not have been possible.* (p. 13)

Robert Sloan of Credit Suisse First Boston writing in the same book states:

*If one looks at many fixed income desks, it is easy to see that the repo desk is at the hub of the trading floor . . . the repo desk is the centre of activity . . . the repo desk functions as the spoke in the wheel for almost all fixed income activities: government [bond] auctions, option pricing, corporate bond financing and customer leverage . . .*

*The repo desk is also organized to fund the firm's inventory. This was the original intent of the repo desk.* (p. 248)

So we can see that repo is an important product and a vital part of the financial markets. Most market participants will need to be familiar with it, or at least the concept of it, in order to better understand the nature of their own roles.

There are a number of benefits in using repo, which concurrently have been behind its rapid growth. These include the following:

- bank dealers are able to finance their long bond and equity positions at a lower interest cost if they repo out the assets; equally, they are able to cover 'short' positions;

- there is greater liquidity in specific individual bond issues;
- greater market liquidity lowers the cost of raising funds for capital market borrowers;
- central banks use repo in their open market operations, which assist in the maintenance of overall money market liquidity;
- repo reduces *counterparty risk* in money market borrowing and lending, because of the security offered by the collateral given in the loan;
- investors have an added investment option when placing funds;
- institutional investors and other long-term holders of securities are able to enhance their returns by making their inventories available for repo trading.

There is a close relationship between repo and both the bond and money markets. The use of repo has contributed greatly to the liquidity of government, Eurobond and emerging market bond markets. Although it is a separate and individual market itself, operationally repo is straightforward to handle, in that it generally settles through clearing mechanisms used for bonds. As a money market product, repo reduces the stress placed on the unsecured interbank market, and empirical evidence indicates a reduction in overnight interest-rate volatility.

## MARKET PARTICIPANTS

The development and use of repo in each country to an extent dictates the nature and range of market participants. In a mature market, repo counterparties include investors and cash-rich institutions, those seeking to finance asset positions and their intermediaries. Some firms will cross over these broad boundaries and engage all aspects of repo trading. The main market parties are:

- *Financial institutions* – retail and commercial banks, building societies, securities houses and investment banks.
- *Investors* – fund managers, insurance companies and pension funds, investment funds, hedge funds, local authorities and corporate treasuries.
- *Intermediaries* – inter-dealer brokers and money brokers. The main brokers are Cantor Fitzgerald, Prebon Yamane, Garban ICAP, Tullett & Tokyo, and Tradition. Indiviual markets also have other brokers.

Repo is perhaps the most important financial instrument in the

world, after the basic cash equity and bond product. An understanding of it is vital for all participants in the financial markets, be they students or practitioners.

# THE REPO INSTRUMENT

A repo agreement is a transaction in which, legally, one party sells securities to another, and at the same time and as part of the same transaction commits to repurchase identical securities on a specified date in the future at a specified price. The seller delivers securities and receives cash from the buyer. The cash is supplied at a predetermined interest rate – the *repo rate* – that remains constant during the term of the trade. On maturity the original seller receives back collateral of equivalent type and quality, and returns the cash plus repo interest. One party to the repo requires either the cash or the securities and provides *collateral* to the other party, as well as some form of compensation for the temporary use of the desired asset. Although legal title to the securities is transferred, the seller/borrower retains both the economic benefits and the market risk of owning them.

## Characteristics of repo

There are a number of repo types in operation in different markets. They differ in detail only, and in the motivation behind their use: the economic impact of all of them is essentially identical. The different types are:

- *Classic repo* – the basic form of repo and what is generally understood to be in use when one refers to a 'repo trade'. This is a secured loan conducted under a standard legal agreement, defined as the sale of an asset at a specified price, with an undertaking to repurchase the asset or an equivalent asset at the repo maturity date. A repo is a sale and repurchase, while a buy and subsequent sale is a *reverse repo*.
- *Buy/Sell-back* – economically, identical to a classic repo, and until 1995 (when the transaction was included in the standard repo legal agreement) often not conducted under a legal agreement. A buy/sell was in theory two separate transactions, with the repo interest incorporated into the sell-back price of the asset on maturity, referred to as the *forward price*.

- *Stock loan* or *securities lending* – a transaction motivated by a requirement to borrow a bond or equity, often for the purpose of short-position covering. In a stock loan, a security is lent out for a fixed term or on overnight roll, with collateral, usually in the form of cash, given up in return. The lender of stock pays interest on the collateral during the term of the repo, this interest being known as the *rebate*. A fee is charged by the stock lender for this business.
- *Collateralised loan* – this is a straightforward bank loan, but with collateral given up by the cash borrower.
- *Total return swap* – these days this is classified as a credit derivative, although their use pre-dates that of credit default swaps. A total return swap (*TRS*) has the same economic effect as a repo, and is sometimes called a 'synthetic repo'. It is materially different in that it is carried out under a different legal agreement to that of classic repo, and it is treated differently for capital, tax, accounting and regulatory purposes. We discuss this in Chapter 4.

To begin with we shall consider the operation of *classic* repo, the type prevalent in most markets.

## Classic repo

There will be two parties to a repo trade, let us say Bank A (the seller of securities) and Bank B (the buyer of securities). On the trade date the two banks enter into an agreement whereby on a set date, the *value* or *settlement* date, Bank A will sell to Bank B a nominal amount of securities in exchange for cash. The price received for the securities will be linked to the settlement price of the stock on the trade date. The agreement also demands that on the termination date Bank B will sell identical stock back to Bank A at the previously agreed price, and consequently Bank B will have its cash returned with interest at the agreed repo rate.

In essence, a repo agreement is a secured loan (or *collateralised* loan) in which the repo rate reflects the interest charged. The mechanism is illustrated in Figure 1.1.

A *reverse repo* is the mirror image of a repo; that is, purchasing the bond and then selling it back on termination. Of course, every repo is a reverse repo, depending from which party's point of view one is looking at the transaction.

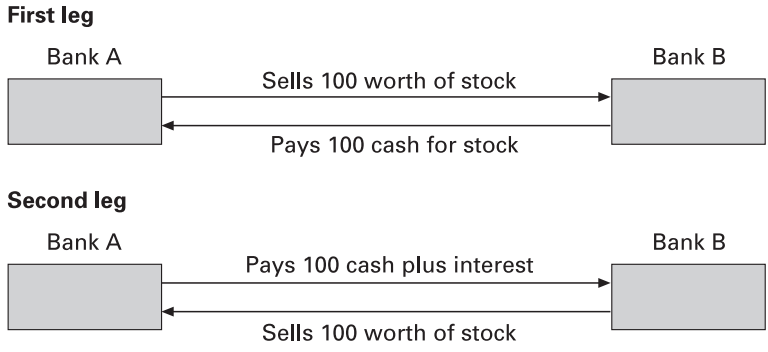


*Figure 1.1* Classic repo.

*Example 1.1* Classic repo transaction.

To illustrate the basic principle, consider the following. This illustrates a *specific* repo – that is, one in which the collateral supplied is specified as a particular stock as opposed to a *general collateral* (*GC*) trade in which a basket of collateral can be supplied, of any particular issue, as long as it is of the required type and credit quality.

In this example, on 22 December 2005 Bank B agrees to sell £10 million nominal of a United Kingdom gilt, the 5% Treasury 2012, which is trading at a *dirty* price of 104.7079. The agreement will begin on 23 December, the value date. The term of the trade is specified as 1 month or 30 days, but the termination date is 23 January 2006 and not 22 January because the latter is not a business day; hence, the actual term is 31 days. The agreed repo rate for the (effectively collateralised) loan is set at 4.50%, the 1-month repo rate for UK Government stock (see Figure 1.3). On 23 December Bank A receives £10m nominal 5% Treasury 2012 stock, which has a settlement value of £10,570,790 (clean price plus accrued interest).[1]

On 23 January 2006 Bank B receives back the gilt and returns the original cash amount of £10,570,790 along with a repo interest payment of £40,400.69. This is shown in Figure 1.4.

[1] The concept of clean and dirty prices, and accrued interest, is covered in Chapter 2 where we look at market background.

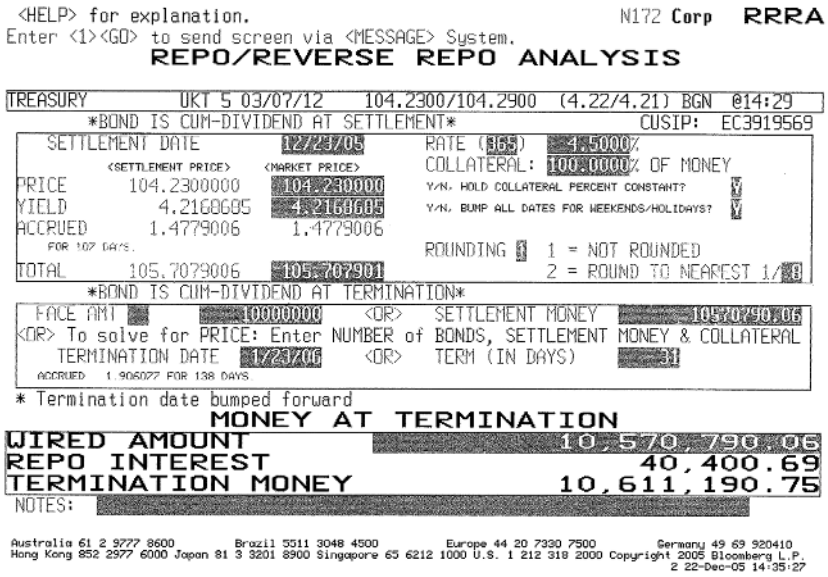


*Figure 1.2* RRRA screen as at 22 December 2005, 1-month repo of GBP 10 million nominal 5% Treasury 2012.



Figure 1.2 is the Bloomberg page RRRA for this trade, showing the cash flows we describe above. Figure 1.3 is the HBOS repo rates screen for 22 December 2005, showing the 1-month UK repo rate as 4.50%.

The repo interest is based on a 30-day repo rate of 4.50% and a 365-day-count basis. Repo rates are agreed at the time of the trade and are quoted, like all interest rates, on an annualised basis. The repo interest under the agreement equals the cash loaned multiplied by the repo rate, multiplied by the term of the loan as a proportion of the year:

$$10{,}570{,}790.06 \times \frac{4.50}{100} \times \frac{32}{365} = £40{,}400.69$$

The settlement price (dirty price) is used because it is the market value of the bonds on the particular trade date and, hence, indicates the cash value of the gilts. The object is to minimise credit exposure by equating the value of the cash and the collateral.

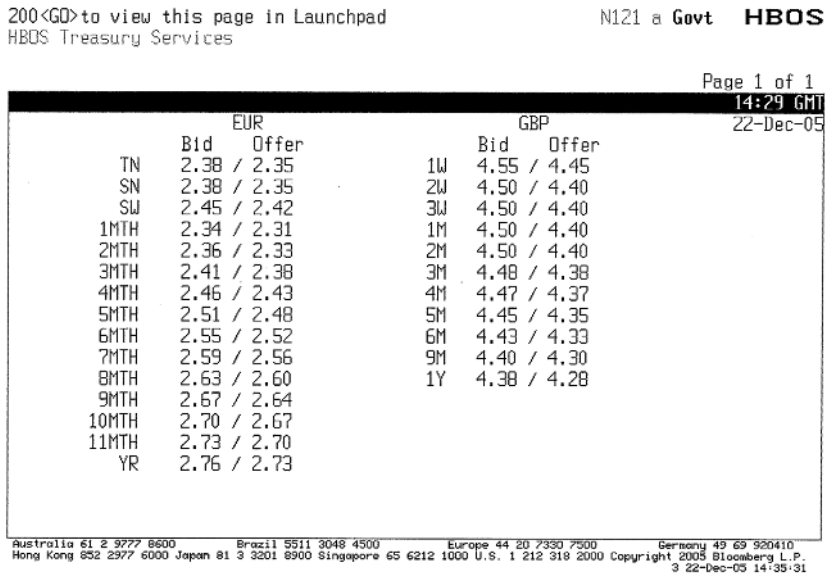


*Figure 1.3* HBOS screen for gilt repo rates as at 22 December 2005.
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Note how we have lent the market value of the stock against the collateral – that is, there is no *margin* or *haircut*. A margin is just like the deposit on a house purchase, it protects the cash lender against a fall in value of the collateral. In practice, margin is always taken and can range from 2% to 50% of the collateral value, depending on the perceived risk of the transaction from the cash lender's point of view.

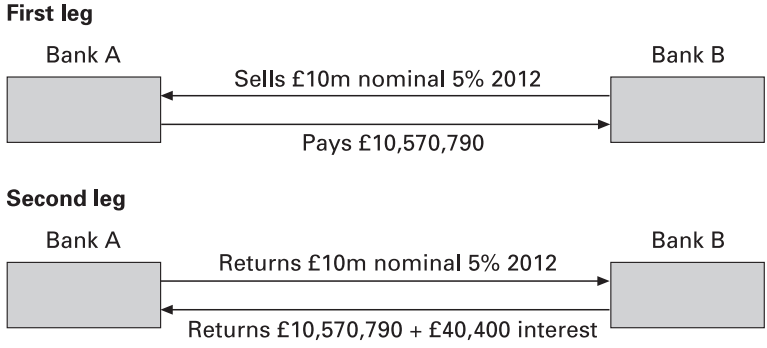


*Figure 1.4* Specific gilt repo.

What if the trade is initiated the other way? Imagine a bank has £10 million to invest, and wishes to receive UK gilt securities as collateral. This is the same trade, we just adjust the calculation to determine how much securities we need to pass over. Example 1.2 shows the calculation using the same security, the 5% 2012 gilt, that we looked at above.

*Example 1.2* Classic repo: investor's example.

On 22 December 2005, a corporate wishes to invest GBP 10 million against UK Government bonds for 1 month. The collateral is the 5% gilt due in March 2012. The repo rate is agreed at 4.61%. The gilt price is 104.22 clean, which together with 1.4779 accrued interest (107 days) gives a dirty price of 105.6979.

The borrower of cash will need to determine the face value of gilts required at current market price that will equate to GBP 10 million. This is shown below:

$$\frac{105.6979}{100.0000} \times \frac{10{,}000{,}000}{X}$$

The nominal value of bonds required $(X)$ is 9,460,925.90. This is rounded to the nearest GBP 1.00 in practice, although gilts can trade in amounts down to GBP 0.01.

The start proceeds are therefore $9{,}460{,}925 \times 105.6979\%$, which is in fact GBP 9,999,999.10, although in practice the whole amount will be exchanged. The trade details are summarised below:

| | |
|---|---|
| Nominal | GBP 9,460,925 of 5% 2012 |
| Clean start price | 104.22 |
| Accrued | 1.4779 |
| Dirty start price | 105.6979 |
| Settlement money | GBP 10,000,000.00 |
| Dirty end price | 105.6979 |
| Repo interest | GBP 39,153.42 |
| | $[10{,}000{,}123 \times 4.61\% \times 31/365]$ |
| Termination money | GBP 10,039,153.42 |

Note that the sale and repurchase prices are the same.

## Summary

In a classic repo then, as we have seen, one party sells assets such as bonds to another while simultaneously agreeing to repurchase them on a future date at a specified price. The sale and repurchase prices are the same, although settlement values will differ because on termination of the repo the interest is added on. If a coupon is paid it will be handed over to the seller on the coupon value date. This is known as a *manufactured dividend*. This reflects the fact that, although legal title to the collateral passes to the buyer in a repo, economic costs and benefits of the collateral remain with the seller.

A classic repo transaction is subject to a legal contract signed in advance by both parties. A standard document will suffice – it is not necessary to sign a legal agreement prior to each transaction. The standard legal contract is the Bond Market Association (*BMA*)/ International Capital Markets Association (*ICMA*) Global Master Repurchase Agreement (*GMRA*). This is discussed in Chapter 8.

## The sell/buy-back[2]

In addition to classic repo there also exists a *buy/sell* or a *sell/buy-back*. A sell/buy-back is defined as an outright sale of a bond on the value date, and an outright repurchase of that bond for value on a *forward* date. In Figure 1.1, the cash flows, therefore, become a sale of the bond at a *spot* price, followed by repurchase of the bond at the *forward* price. The forward price calculated includes the interest on the repo, and is therefore a different price to the spot price.

Hence, we have a spot sale and forward repurchase of bonds transacted simultaneously. The repo rate is not explicit, but is implied in the forward price. If initial margin is required it is given to the provider of cash (the buyer). Any coupon payments during the term are paid to the seller; however, this is done through incorporation into the forward price, so the seller will not receive it immediately.

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[2] This is also known as a 'buy/sell-back'. Not surprisingly, they mean the same thing!

Until an annex was incorporated into the standard GMRA, generally sell/buy-backs were not subject to a legal agreement; so, in effect the seller had no legal right to any coupon, and there was no provision for margin calls during the term of the trade (known as 'variation margining'). This made the sell/buy-back a higher risk transaction when compared with classic repo, if the counterparty represented relatively high risk.

Example 1.3 shows a sell/buy-back under the same terms as the classic repo in Example 1.1.

*Example 1.3* Sell/Buy-back.

Consider the same terms as those in Example 1.1, but in this case as a buy/sell or sell/buy-back transaction. We require the forward bond price, and this is calculated by converting the termination money. The termination money is simply start cash plus interest on the start cash, at the agreed repo rate:

$$\frac{\text{GBP } 10{,}617{,}213.68}{\text{GBP } 10{,}000{,}000.00} \times 100 = 106.17214$$

The accrued interest *at the time of termination* is subtracted from this price to obtain a forward clean price:

$$106.17214 - 1.9061[138 \text{ days}] = 104.266$$

The trade details are summarised below, and are also shown at Figure 1.5, which is Bloomberg screen BSR, the sell/buy-back calculation page:

| | |
|---|---|
| Nominal | GBP 10,000,000.00 of UKT 5% 2012 |
| Clean start price | 104.29 |
| Accrued | 1.4779 |
| Dirty start price | 105.7479 |
| Settlement money | GBP 10,580,790.06 |
| Clean end price | 104.26606 |
| Accrued | 1.906077 |
| Dirty end price | 106.17214 |
| Termination money | GBP 10,617,213.68 (includes repo interest of GBP 40,423.62) |

Note that the sale and repurchase prices are now different.

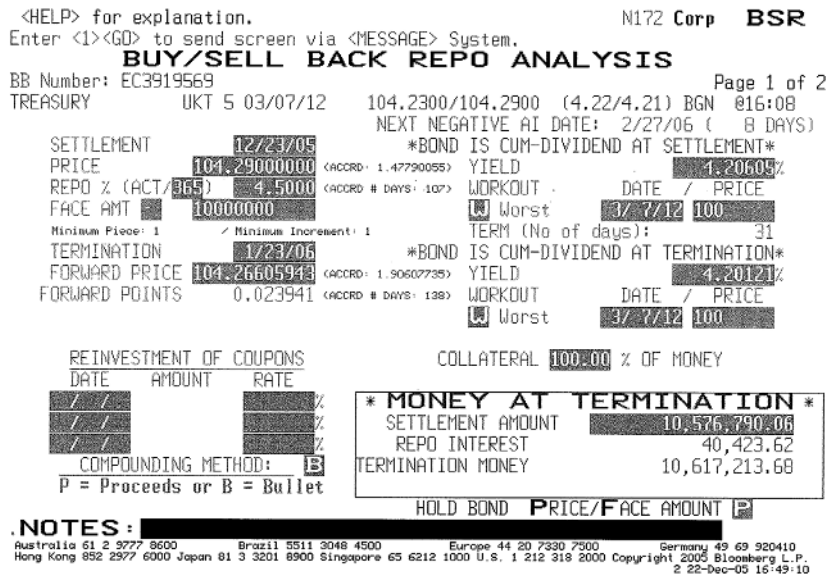


*Figure 1.5* BSR screen as at 22 December 2005, 1-month buy/sell-back of GBP 10 millon nominal 5% Treasury 2012.



## Stock lending

Institutional investors such as pension funds and insurance companies often prefer to enhance the income from their fixed interest portfolios by lending their bonds, for a fee, rather than get involved in repo. A stock loan is a contract committing one party to lend, and the other to borrow, agreed securities for an agreed period. The borrower of stock is required to provide collateral to the lender in the form of cash, other securities or a letter of credit. The origins and history of the stock lending market are different from that of the repo market. The range of counterparties is also different, although of course a large number of counterparties are involved in both markets. Most stock loans are on an 'open' basis, although term loans also occur. Initial margin is given to the lender of the securities.

*Example 1.4* Securities lending.

A dealer needs to borrow GBP 10 million nominal of a specific issue, the 5% gilt due March 2012, from 22 December 2005 to

23 January 2006. A pension fund has agreed to lend the stock against collateral, and requires a margin of 102%. The agreed rebate is 4.65%, which is Libor-flat, and the stock loan fee is 10 basis points.

The cash flows for this stock loan are shown below:

| | |
|---|---|
| Bonds borrowed | GBP 10,000,000.00 of UKT 5% 2012 |
| Clean price | 104.29 |
| Accrued | 1.4779 |
| Dirty price | 105.7679 |
| Market value | GBP 10,000,000.00 × 105.7679% = GBP 10,576,790.00 |
| Settlement money | GBP 10,788,325.86 [102% × 10,576,790.06][3] |
| Term | 31 days |
| Rebate rate | 4.65% |
| Rebate interest | GBP 42,606.50 [10,788,325.86 × 4.65% × 31/365] |
| Termination money | GBP 10,830,932.36 [GBP 10,788,325.86 + 42,606.50] |

The stock loan fee is 10 basis points of the market value of the loan, which for the term involved is GBP 898.30.

Note that initial margin is provided to the lender of the bonds, because the lender requires collateral. The rebate interest, paid to the borrower of the bonds, is at a higher rate than the GC repo rate used in Example 1.1, because it is the (1-month) London Interbank Offered Rate (*Libor*) rate. Libor is higher than the government bond repo rate.

## OTHER REPO PRODUCTS

The basic repo product can be dealt in a number of different structures, to suit specific bank customer requirements.

[3] Note that this method gives a slightly different answer compared with that of the Bloomberg method, which we discuss in Chapter 3.

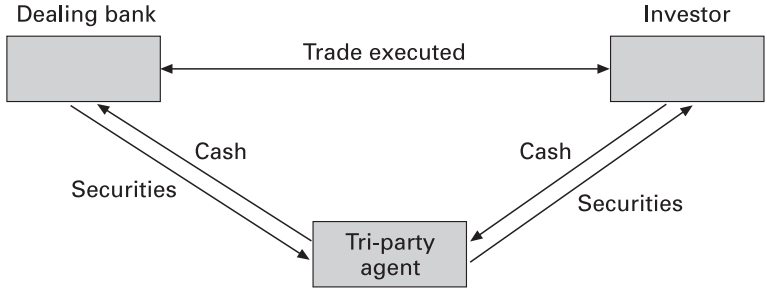


*Figure 1.6* Tri-party repo.

## Tri-party repo

This is a mechanism (Figure 1.6) that allows dealers maximum control over their inventory, incurs minimal settlement cost to the investor, but gives the investor independent confirmation that their cash is fully collateralised.

Under a tri-party agreement, the dealer delivers collateral to an independent third-party custodian, such as Euroclear or Clearstream, who will place it in a segregated tri-party account.[4] The dealer maintains control over which precise securities are in this account (multiple substitutions are permitted) but the custodian undertakes to confirm each day to the investor that their cash remains fully collateralised by securities of suitable quality. A tri-party agreement needs to be in place with all three parties before trading can commence.

This arrangement reduces the administrative burden for the end-investor, but is not in theory as secure as a conventional delivery-versus-payment structure. Consequently, the yield on the investor's cash (assuming collateral of identical credit quality) should be slightly higher. Tri-party repo is used more when the collateral is non-government bonds, such as Eurobonds, structured finance securities such as asset-backed securities (*ABS*), and more esoteric assets such as convertible bonds.

[4] These are the two international securities clearing systems. Banks such as JPMorgan Chase and Bank of New York also offer tri-party dealing.

## Hold in custody repo

This is a sector of the GC market, and exists in the United States only. Consider the case of a cash-rich institution investing in GC as an alternative to deposits or commercial paper. When it comes to the rate of return on their cash, the rules of risk and reward apply. The better the quality of collateral, the lower the yield the institution can expect.

Similarly, the mechanics of settlement may also affect the repo rate. The most secure procedure is to take physical possession of the collateral. However, if the dealer needs one or more substitutions during the term of the trade, the settlement costs involved may make the trade unworkable for one or both parties. Therefore, the dealer may offer to hold the securities in his own custody against the investor's cash. This is known as *hold in custody* (*HIC*) repo (Figure 1.7). The advantage of this trade is that, since securities do not physically move, no settlement charges are incurred. However, this is a risky trade for the investor because they only have the dealer's word that their cash is indeed fully collateralised in the event of default. Thus, this type of trade is sometimes referred to as a 'trust me' repo.

In the US market there have been cases where securities houses having defaulted were found to have pledged the same collateral for multiple HIC repo trades. Investors dealing in HIC repo must ensure:

- they only invest with dealers of good credit quality, since an HIC repo may be perceived as an unsecured transaction;
- the investor receives a higher yield on their cash in order to compensate them for the higher credit risk involved.

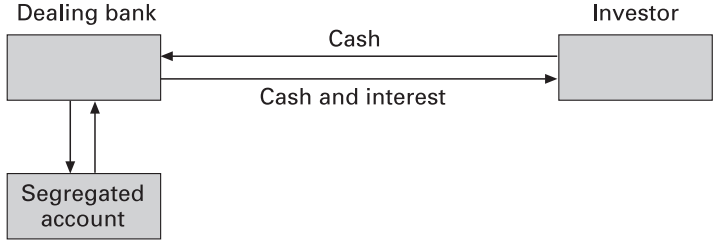


*Figure 1.7* HIC repo.

## Safe-keeping repo

This is a form of repo whereby the collateral from the repo seller is not delivered to the cash lender but held in 'safe keeping' by the seller. This has advantages in that there is no administration and cost associated with the movement of stock. The risk is that the cash lender must entrust the safe keeping of collateral to the counterparty, and has no means of confirming that the security is indeed segregated, and only being used for one transaction.

## Borrow/Loan versus cash

This is similar in almost all respects to a classic repo/reverse repo. A legal agreement between the two parties is necessary, and trades generally settle ''delivery versus payment'' (*DVP*). The key difference is that under a repo agreement legal title over the collateral changes hands. Under a securities lending agreement this is not necessarily the case. The UK standard securities lending agreement does involve transfer of title, but it is possible to construct a securities lending agreement where legal title does not move. This can be an advantage for customers who may have accounting or tax problems in doing a repo trade. Such institutions will opt to transact a *loan versus cash*. The UK standard lending agreement also covers items such as dividends and voting rights, and is therefore the preferred transaction structure in the equity repo market.

## Bonds borrowed/collateral pledged

In this instance the institution lending the bonds does not want or need to receive cash against them, as it is already cash-rich and would only have to re-invest any further cash generated. As such this transaction only occurs with *special collateral*. The dealer borrows the special bonds and pledges securities of similar quality and value (GC). The dealer builds in a fee payable to the lending institution as an incentive to do the trade.

*Example 1.5* Bonds borrowed/collateral pledged.

ABC Bank plc wishes to borrow DKK 300 million of the Danish Government bond 8% 2001. ABC owns the Danish Government

bond 7% 2007. ABC is prepared to pay a customer a 40-bps fee in order to borrow the 8% 2001 for 1 month.

The market price of the 8% 2001 (including accrued interest) is 112.70. The total value of DKK 300 million nominal is therefore DKK 338,100,000.

The market price of the 7% 2007 (including accrued interest) is 102.55.

In order to fully collateralise the customer, ABC needs to pledge 338,100,000/1.0255 which is 329,692,832.76, which rounded to the nearest DKK 1 million becomes DKK 330 million nominal of the 7% 2007.

In a bonds borrowed/collateral pledged trade, both securities are delivered free of payment and ABC Bank plc would pay the customer a 40-basis points borrowing fee upon termination. In our example the fee payable would be:

$$338,100,000 \times \frac{31}{360} \times \frac{0.4}{100} = \text{DKK } 112{,}700$$

## Cross-currency repo

All of the examples discussed so far have used cash and securities denominated in the same currency; for example, Bunds trading versus euros cash, and so on. However, there is no requirement to limit oneself to single-currency transactions.

It is possible to trade, say, UK gilts versus US dollar cash (or any other currency), or pledge Spanish Government bonds against borrowing Japanese Government bonds. Note that:

- there may be significant daylight credit exposure on the transaction if securities cannot settle versus payment;
- the transaction must be covered by the appropriate legal documentation;
- fluctuating foreign exchange rates mean that it is likely that the transaction will need to be marked-to-market frequently in order to ensure that cash or securities remain fully collateralised.

## Exotic repo structures

### *Four-party repo*

A four-party repo is similar to a tri-party repo except that there are two custodians or agents instead of one. A second sub-custodian is added to the trade, who is in practice holding and administering the cash and collateral. This arrangement is usually entered into for legal or operational restrictions that state that a certain custodian or legal jurisdiction is required; the second custodian is appointed due to restrictions that prevent the primary custodian from acting in the trade

### *Floating-rate repo*

As with an unsecured loan, repo can be transacted with a floating interest rate, reset at specified intervals and at a set spread over or under the reference index. Floating-rate repo is often entered into where the collateral asset also has a floating rate, with the reset date set to match the coupon frequency of the asset.

### *Flex repo*

A flexible or 'flex' repo is one in which the nominal amount can be adjusted during the term of the repo. For example, a corporate may place funds in repo for a 1-year term at a 3-month floating rate. If it requires part of its cash before maturity, it can draw down from the repo. The repo nominal is adjusted downwards to reflect this. Flex repo is common in the US market where the collateral is mortgage-backed securities (*MBS*), or other securities that have prepayment features. As the nominal amount of the collateral is paid down, the repo nominal is adjusted to match this. Flex repo using MBS or ABS securities is sometimes called 'structured repo'.

### *Collateral swap*

A collateral swap is in effect a repo, as it is a funding trade, and is common where equity collateral is used. A market maker will accept stock in the swap and exchange other securities as collateral. Depending on the credit quality of each type of collateral, the market maker can repo out higher quality collateral to pay a lower repo rate.

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